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Perceived age discrimination and older workers in New Zealand

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Abstract

As the population ages, age discrimination against older people in the workplace has become an important issue in society. Age discrimination in the workplace has numerous negative impacts on individuals and organisations. This study aimed to investigate the prevalence of perceived age discrimination in the workplace in New Zealand and to examine its potential effects on older workers (aged 55 years to 70 years). Data were drawn from the 2018 data wave of the New Zealand Health, Work and Retirement (HWR) study with 1896 respondents meeting the inclusion criteria. Results showed that workers aged 65 years and older, and unskilled workers had significantly higher levels of perceived age discrimination compared to younger and skilled workers, while there were no significant differences on gender, ethnicity, and educational levels. As predicted, the study found that perceived age discrimination was negatively associated with mental and physical health, job satisfaction, and work engagement, and positively related to work-related stress and continuance commitment. However, perceived age discrimination was not found to be significantly related to life satisfaction and intended retirement age as predicted. In addition, we found that age discrimination had an indirect effect on life satisfaction, mental and physical health, and intended retirement age through work-related stress and job satisfaction. These results provide support for previous findings on the impact of age discrimination on well-being and job characteristics. These findings provide employers and managers with useful information to improve the work experiences of older workers. Future research should explore the relationship between perceived age discrimination and intended retirement age further to highlight the seriousness of age discrimination for workers and contribute to reducing the occurrence of age discrimination in the community.

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Chapter 1

Introduction

People are now living longer than before. The global average life expectancy has increased significantly from 2000 to 2016 (World Health Organisation, 2019). In the meantime, the global fertility rate has decreased over the years (OECD, 2019), and the combination of this demographic change results in an ageing population around the world (Lutz, Sanderson & Scherbov, 2008; World Health Organisation, 2017), including New Zealand.

According to Statistics New Zealand (2017a), the population aged 65 and over has doubled to 700,000 from 1988 to 2016. Along with the global ageing population, the old-age dependency ratio has also increased (United Nations, 2017), which in turn increases the financial burden on pension systems in many countries. Therefore, governments of different countries have increased the age of eligibility for pensions (retirement age; OECD, 2017), to keep older workers in the labour market and to lighten the pressure on pensions systems (Blake & Mayhew, 2006; Díaz-Giménez & Díaz-Saavedra, 2009; Knell, Köhler-Töglhofer & Prammer, 2006; Wang & Shan, 2016). This strategy increases the number of older people in the workforce. In New Zealand, the age of eligibility for New Zealand Superannuation (public pension) was increased from 60 years of age to 61 years of age in 1992. The age of eligibility was then increased by three months every six months from until 2001 when it reached 65 years where it remains to this day (Ministry of Social Development, 2003). People aged 65 and over make up an increasing proportion of the labour force; only 1% of the labour force was aged 65 and over in 1991, and this increased to 6% in 2017 (Statistics New Zealand, 2017b). An ageing workforce raises concerns about age discrimination against older workers as this is a barrier for older workers wishing to stay longer or re-enter the workforce (Lahey, 2005; Neumark, Burn & Button, 2017; Noone, Knox, O'Loughlin, McNamara, Bohle & Mackey, 2018).

Age discrimination is the unconscious prejudice based on people's actual or perceived chronological age (Glover & Branine, 2001). According to Butler (1989), the term *ageism* is defined as "a systematic stereotyping of and discrimination against people because they are old, just as racism and sexism accomplish this with skin colour and gender" (p. 139). Based on

this definition, younger people are represented as the discriminator, and older people are the disadvantaged ones (Oswick & Rosenthal, 2001). However, age discrimination can affect people of any age and not merely older adults. There is evidence that shows younger people also experience age discrimination (Bratt, Abrams, Swift, Vauclair & Marques, 2018; Gee, Pavalko & Long, 2007; Garstka, Schmitt, Branscombe & Hummert, 2004); hence, everyone can be the target for being discriminated against based on age. Despite this, ageism still tends to relate to ageing as older people are the main targets of age discrimination (e.g. Bendick Jr Jackson & Romero, 1997; Neumark, Burn & Button, 2017; Lahey, 2005).

As the population is ageing globally, it is beneficial to retain older workers in the labour force. Extending working lives is beneficial on a number of different levels, including for individuals, business and society (Calvo, 2006; Davey, 2015). For individuals, participation in desirable work has positive effects on people's physical and psychological health, and it improves financial and material well-being. For business, keeping older people in the workforce can address the problems of skills and labour shortages. At the societal level, extending working lives allows older adults to contribute their skills and experience and therefore continue to contribute to society. Contributions to the tax system also helps ensure the financial sustainability of pension and health systems. Older people may also act as role models in the workplace which can help to reduce age discrimination and the negative stereotypes about older adults (Davey, 2015).

However, age discrimination is a barrier to achieve these positive benefits; it can lead to the loss of older workers in the workforce due to decisions by employers or workers (Griffin, Bayl-Smith & Hesketh, 2016; Roscigno, Mong, Byron & Tester, 2007). Perceived age discrimination has significant negative impacts on individuals' health and well-being and produces outcomes which affect the workplace such as decreased job satisfaction and early retirement (Bayl-Smith & Griffin, 2014; Snape & Redman, 2003; Redman & Snape, 2006; Vogt Yuan, 2007). Detrimental consequences can be mitigated by certain factors. For instance, sense of control can buffer the relationship between perceived discrimination and psychological distress (Garstka, Schmitt, Branscombe & Hummert, 2004; Taylor, McLoughlin, Meyer & Brooke, 2013; Triana, Trzebiatowski & Byun, 2017). However, due to the negative impacts of age discrimination for individuals, business and society, it is important that we understand the

nature and causes of it in order to reduce its occurrence. Age stereotyping is a common reason for age discrimination against older adults (Shore & Goldberg, 2005). Studies that have examined demographic factors related to age discrimination (e.g. Australian Human Rights Commission, 2015; Roscigno, Mong, Byron & Tester, 2007; Rippon, Kneale, de Oliveira, Demakakos & Steptoe, 2013) show that perceived age discrimination can be more relevant for particular groups. For instance, younger workers, females, non-Europeans, lower income and single parent households have been found to report higher levels of perceived age discrimination than other groups.

The current study will describe levels of age discrimination reported by older workers in New Zealand with a focus on age, gender, ethnicity, education and occupation. In addition, the study examines the potential consequences of perceived age discrimination on health, well-being and job-related outcomes.

What is workplace age discrimination?

Employers play an important role in workplace age discrimination as discriminatory behaviours often come from employers, though sometimes also from colleagues. This can present as harassment, bullying or taking actions, such as unfair or limited employment training or promotion opportunities, jokes from people in the workplace, lack of recognition of skills, being excluded from staff programs (e.g. insurance or healthcare), demotion and dismissal (Australian Human Rights Commission, 2015; Griffin, Bayl-Smith & Hesketh, 2016; New Zealand Government, 2018; Roscigno, Mong, Byron & Tester, 2007). Age discrimination in the workplace can occur and affect all stages of employment where older workers are the main affected targets. Researchers have found age discrimination in hiring practices, in which older applicants received a poorer response than younger ones even if they have an equal qualification; also, the probability of an interview opportunity for older people is lower than younger people (Bendick Jr, Jackson & Romero, 1997; Lahey, 2005; Neumark, Burn & Button, 2017). Age discrimination also discourages older people from applying for jobs and the willingness to enter the workforce. A study revealed that 13% of Australians aged 50 years and over are discouraged from entering the workforce as they anticipate the occurrence of discrimination; also, 33% of people who faced discrimination gave up looking for work

(Australian Human Rights Commission, 2015). There is also evidence showing that compared with younger workers, older workers are less likely to receive training, and they are more likely to receive recommendations to demote, transfer or resign, due to their age (Rupp, Vodanovich & Crede, 2006; Rosen & Jerdee, 1976; Statistics New Zealand, 2013a).

Prevalence

Age discrimination against older people in the workplace is a concerning problem and its prevalence varies across and within countries. For instance, one study reported the prevalence of perceived age discrimination in the workplace among workers aged 50 and over in the United States of America as ranging from 7.5% to 84.5% depending on the types of perceived workplace discrimination and age group (Chou & Choi, 2011). The Australian Human Rights Commission (2015) found that 27% of Australians aged 50 years and over had experienced at least one incident of age discrimination in the workplace in the previous two years and 58% experienced age discrimination when seeking paid work. Age-discriminatory incidents most often experienced included limited employment, training or promotion opportunities (52%), 44% of people were perceived as having outdated skills, 42% of workers were the targets of jokes or derogatory comments from colleagues, 16% were perceived as a poor fit with the culture of the workplace and 12% were threatened with redundancy or dismissal or were asked to retire.

According to Statistics New Zealand (2013a), nearly 10% of workers aged 55 years and over had experienced harassment, discrimination or bullying in the workplace in the past 12 months. Older workers experienced these incidents less than workers aged 35 to 54 years, but more than the workers aged 15 to 34 years. Moreover, nearly 30% of workers aged 55 years and over received training in the past 12 months, which was 8% less than workers aged 35 to 54 years who received the highest amount of training. Findings from the New Zealand Work Research Institute (2015) show a relatively lower prevalence of age discrimination against older workers in New Zealand; only 2% of New Zealanders aged 55 and over reported experiencing age discrimination in the workplace occasionally in the past 12 months, and 17% reported experiencing workplace age discrimination in their lifetime. The age-discriminatory behaviours reported by older workers included reported biases held by managers which

affected employment decisions (23%); 13% reported age-discriminatory behaviours relating to performance evaluation and 21% relating to promotion opportunities.

Clearly, there is evidence of age discrimination against older workers in New Zealand and other countries and this highlights the need to understand how it occurs. The following section will discuss how age discrimination occurs, how the nature of ageism is different from other forms of discrimination (e.g. sexism and racism) and thus, how some perspectives or theories of discrimination do not fit with ageism (Oswick & Rosenthal, 2001). One common explanation of age discrimination against older workers is the negative stereotypes held about them which influence employment decisions (Avolio & Barrett, 1987; CK Chiu, Chan, Snape & Redman, 2001; Posthuma, Wagstaff & Campion, 2012; Roscigno, Mong, Byron & Tester, 2007). The following section will discuss the causes of age discrimination based on the Stereotype Content Model, congruity theories and prototype matching, and will review evidence from relevant empirical studies. Finally, the hypotheses for the current study derived from a review of the literature will be presented.

Chapter 2

Theoretical review – understanding the causes of age discrimination against older people

Age discrimination is unlike other kinds of discrimination, as there is no absolute discriminator and disadvantaged one (Oswick & Rosenthal, 2001). In most forms of discrimination, there is the schism between the privileged group and disadvantaged group. For instance, women and non-whites are the disadvantaged ones in sexism and racism, whereas men and whites are the privileged groups which discriminate against others. In terms of ageism, this schism between privileged and disadvantaged groups does not exist. Older people are not the only victim and younger people are not the absolute discriminator. Particularly in the work context, both younger and older workers can be discriminated against by younger and older employers (Oswick & Rosenthal, 2001). The older adult is not the only disadvantaged one; researchers have found that younger people also perceive age discrimination, especially in their 20s, even more than older people (Bratt, Abrams, Swift, Vauclair & Marques, 2018; Gee, Pavalko & Long, 2007). Similarly, both younger and older people can be the discriminator; researchers found older workers also held negative beliefs toward older workers and in some conditions, they held more negative views of older people than the younger workers (Hassell & Perrewe, 1995).

Thus, age discrimination is different from other forms of discrimination, as there are no absolute discriminators and disadvantaged ones, and the one being discriminated against can be a member of the discriminator's group. Therefore, certain perspectives from theories of discrimination, such as 'own group/different group' and 'intergroup theory' do not apply to ageism comprehensively; one perspective of discrimination that fits ageism is the psychological perspective, which suggests that prejudices are the result of the stereotyping of groups (Oswick & Rosenthal, 2001).

The Stereotype Content Model (SCM)

The Stereotype Content Model (SCM; Fiske, Cuddy & Glick, 2007; Fiske, Cuddy, Glick & Xu, 2002) can be used to understand the occurrence of age discrimination against older people

in the workplace as a result of stereotypes. According to the SCM, individuals make judgements on others based on two universal dimensions of social cognition: warmth and competence. The characteristics related to warmth include kind, helpful, sincere and trustworthy, whereas the characteristics related to competence include skills, intelligence, creativity, independence, and efficacy (Fiske, Cuddy & Glick, 2007). The two dimensions are negatively correlated when people make judgments about social groups; this implies groups are judged as high on one dimension and low on the other. According to Fiske, Cuddy and Glick (2007), people's judgments on warmth and competence about individuals and groups lead to stereotypes about them; these predict our feelings and behaviours toward them and the tendencies of discrimination. Figure 1 shows the degree of warmth and competence for 20 groups including older adults. Each combination of warmth-competence results in different types of discrimination. The dimension of warmth predicts active behaviours, which include helping and attacking; the competence dimension predicts passive behaviours, which can be association or neglect. On a two-dimensional model, older people are perceived as high on warmth but low on competence, in which they are considered as a pitied group; the stereotypes of warmth and incompetence elicit the feelings to neglect and trigger the behaviour to help (Fiske, Cuddy & Glick, 2007; Fiske, Cuddy, Glick & Xu, 2002). The stereotypes of low competence about older people can lead to discrimination against them in employment selection decisions. The perceptions of competence are important in employment, and the incompetent stereotype leads to limited employment opportunities for older people (Shore & Goldberg, 2005).

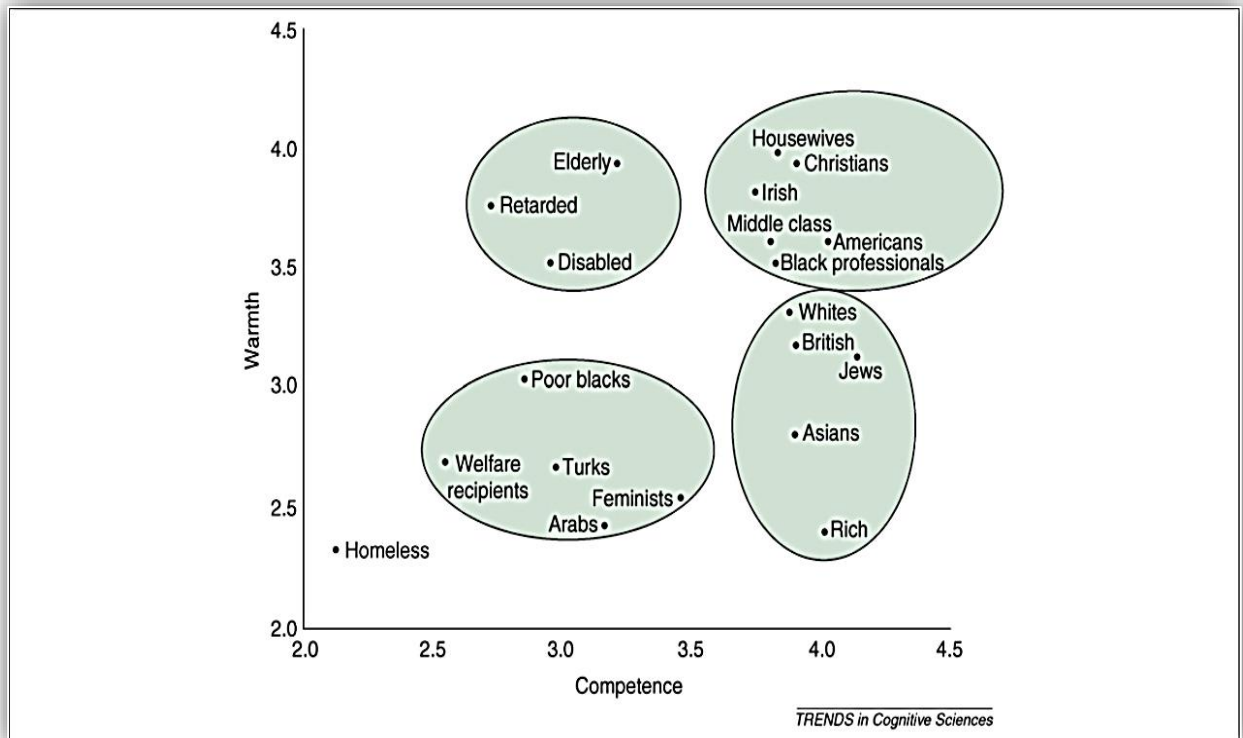


Figure 1. The scatterplot of competence and warmth for 20 groups from Fiske, Cuddy and Glick (2007).

The stereotypes of high warmth and low competence about older people also apply to older workers. Stereotypes about older workers often tend to be negative, though there are positive ones as well. Posthuma and Campion (2009) reviewed previous research on age stereotypes and listed some common stereotypes about older workers which include: low ability to perform and learn, less motivated and productive, more stable, dependable, honest and trustworthy, unlikely to handle stress, harder to train, less adaptable and flexible, more resistance to change, more costly and shorter job tenure. There are other stereotypes such as less competent, decreased performance capacity, but also reliable, committed and loyal (Harris, Krygsman, Waschenko & Laliberte Rudman, 2017; McGregor & Gray, 2002). These findings show that older workers are seen as less competent and with lower ability, but are more trustworthy, dependent, and loyal. It implies that the high warmth and low competence stereotypes of the older person apply to older workers. The research of Krings, Sczesny and Kluge (2011) also confirmed that the stereotypes of warmth and incompetence about older adults proposed in the SCM also apply to older workers.

They found that older workers were perceived as less competent but warmer than younger workers; the assessment on warmth and competence also influenced employment decisions. The research revealed that older candidates are less likely to be selected for an interview than younger ones, based on low competence stereotypes. However, some of the common stereotypes about older workers are inconsistent with previous research suggesting that some stereotypes about older workers may be inaccurate. For instance, there is little evidence to show that older workers have poor performance and shorter job tenure (Posthuma & Campion, 2009). Moreover, Ng and Feldman (2012) examined the six common age stereotypes including less motivated, less trusting, less healthy, unwilling to engage in training and career development, more resistant to change, and more vulnerable to work-family imbalance. They found that the only stereotype consistent with empirical studies is that older workers are unwilling to engage in training and career development. Therefore, they are less likely to be offered job training.

Stereotypes can cause discrimination against older workers as stereotypes are often translated into actual workplace behaviours and employment decisions and result in discrimination (Truxillo, Fraccaroli, Yaldiz & Zaniboni, 2017). Age stereotypes are common in the workplace where employers and managers often hold negative stereotypes, such as older workers are likely to resist to change, have problems with new technology, are less flexible and less willing to work long hours (McGregor & Gray, 2002). The effects of age stereotypes on employment decisions are similar to the effect of gender stereotypes (Powell, 2011); instead of making decisions based on workers' actual performance or qualification, employers judge them and make decisions based on stereotypes. These stereotypical beliefs influence employers' employment decision making about older workers, including selection, training, promotion and retention (CK Chiu, Chan, Snape & Redman, 2001; Taylor, 2001). Researchers found that as the result of age stereotypes, older workers tend to receive lower ratings in job interviews and job evaluations even when they have the same qualifications as younger people (Avolio & Barrett, 1987; Finkelstein, Burke & Raju, 1995). Moreover, individuals with strongly negative attitudes toward older workers are likely to make poor recommendations regarding older workers, such as termination of employment, or requiring older individuals to resign (Rupp, Vodanovich & Crede, 2006). One study reported that as the result of the

stereotypes of 'lower energy level' and 'inferior to younger people' held by employers, older workers received unfair treatments such as having their hours cut and being discharged from the job position (Roscigno, Mong, Byron & Tester, 2007).

Age stereotypes can lead to discriminatory employment decisions. However, there are certain actions that can diminish the effects of age stereotypes. These effects can be reduced when job-related information about the worker is provided and considered. Managers with more work experience are less likely to make decisions based on age stereotypes (Finkelstein, Burke & Raju, 1995; Posthuma & Campion, 2009). Moreover, older people are less likely to rely on age stereotypes for job appraisals than younger ones since they have more knowledge about experiences at all age stages; however, older workers also hold negative beliefs, yet tend to hold more positive beliefs about older workers than held by younger ones (Finkelstein, Burke & Raju, 1995; Hassell & Perrewe, 1995). Hassell and Perrewe (1995) found that older supervisors reported more negative beliefs about older workers than younger supervisors. The effect of age stereotypes on employment decisions can also be diminished when the worker's age matches the perceived appropriate age for a particular job (Posthuma & Campion, 2009; Shore & Goldberg, 2005). This effect can be explained by the congruity theory of discrimination.

The congruity theory of discrimination

The congruity theory of discrimination focuses on the idea of role incongruity (Eagly & Diekmann, 2005). According to this perspective, prejudices are the result of the mismatch between the stereotypes held about a social group and the beliefs about the characteristics that are required for success in social roles. At the beginning of the section, it was noted that men and Whites are the discriminators in most cases of sexism and racism respectively. However, based on the theory of role incongruity, everyone can be the target of discrimination, including privileged groups, once their stereotypes are mismatched to role requirements (Eagly & Diekmann, 2005; Powell, 2011). The degree of the match between the stereotypes of a social group and role requirement is produced through the process of prototype matching.

Prototype matching

Prototype matching is the process of comparing an individual's age to the age of the prototypical incumbent for a particular job (Shore & Goldberg, 2005). In the work context, employers hold beliefs about the characteristics and behaviours that are required for success in a given job, which are mental prototypes, and employment decisions are based on the prototype matching to determine whether there is a match between the worker's characteristics and job requirements (Powell, 2011; Perry & Finkelstein, 1999). The degree of the match between them affects employment decisions; the greater the fit, the greater the expected success in the job, and employers tend to select the ones who match the prototypes, whereas the 'lack of fit' between the two aspects probably leads to discrimination (Powell, 2011; Oswick & Rosenthal, 2001; Perry & Finkelstein, 1999). This idea was used to explain the occurrence of sexism in the work context, in which men are likely to be selected for the jobs that require masculine characteristics, and women are likely to be hired for the jobs that require feminine traits; when their gender is mismatched with the sex-type of the job, it leads to discrimination (Powell, 2011).

Age discrimination can also occur as the result of prototype matching. When there is a mismatch between the age of the individual and the age of the prototypical incumbent for a particular job, it leads to discrimination (Perry & Finkelstein, 1999; Shore & Goldberg, 2005; Kunze, Boehm & Bruch, 2011). Similar to the sex-type jobs, there are age-type jobs where some jobs are perceived as held by younger workers, and some are perceived suitable for older people. Younger people are likely to be selected in young-typed jobs where older people are favoured for old-type jobs (Cleveland & Hollmann, 1990; Perry, 1994; Perry & Bourhis, 1998; Perry & Finkelstein, 1999). Researchers found that the perception of the age-type of a job can be influenced by the age composition of incumbents. As the number of older people in a particular job increases, the job would be perceived as an old-typed job; older people would have lower ratings in a job that is constituted by a low proportion of older people (Cleveland & Hollmann, 1990; Cleveland, Festa & Montgomery, 1988). There is evidence supporting the prototype matching. Perry (1994) and Perry and Bourhis (1998) found that the greater the match between the applicant and the central features of the job, the more positive the evaluation. Moreover, Cleveland and Landy (1983) found that when either

younger or older people work in a job that does not match their age group, they would perceive age discrimination. As their characteristics do not match the requirements of the job, they would be perceived as not suitable for the job and result in receiving less favourable decisions and recommendations.

The current study will discuss the levels of age discrimination reported by older workers in New Zealand with a focus on age, gender, ethnicity, education, and occupation. Furthermore, the study will examine the potential impacts of perceived age discrimination on different aspects, including health and work-related consequences. The following section will review the relevant literature and present the hypotheses of this study.

Chapter 3

Literature review and hypotheses development

Factors associated with perceived age discrimination in older workers

Age and gender

The concept of ageism suggests that individuals of any age can experience age discrimination (Glover & Branine, 2001). Researchers indeed have found that younger people also experience age discrimination, and some have found that younger ones reported experiencing the highest levels of age discrimination (Bratt, Abrams, Swift, Vauclair & Marques, 2018; Gee, Pavalko & Long, 2007). Despite this, age discrimination still tends to relate to older people, as they are very likely to perceive age discrimination, and its prevalence is high among them (Palmore, 2001; Van den Heuvel, 2012). The study by Palmore (2004) examined the prevalence of age discrimination in Canada and the United States and found that among respondents, 91% of Canadians aged 50 years or over and 84% of Americans aged over 60 years reported one or more incidents of ageism. While in terms of the workforce, older people are the main target of age discrimination in employment, in which they receive a lower probability of an interview and a lower call back rate than younger people when job seeking, even when they have equal qualifications (Bendick Jr, Jackson & Romero, 1997; Lahey, 2005; Neumark, Burn & Button, 2017). Older adults appear to be the main victims of age discrimination when job seeking. However, some groups of older people may be more vulnerable than others. A study in Australia among older adults showed that people aged 65 years and over had higher levels of incidence of perceived age discrimination than those aged 55 to 64 years in job seeking (McGann, Ong, Bowman, Duncan, Kimberley & Biggs, 2016). This finding was consistent with the study by Neumark, Burn and Button (2017) where job applicants aged 64 to 66 years received fewer call-backs than those aged 49 to 51 years. The situation of age discrimination against older workers in the workplace is different from job seeking. In the workplace, younger aged “older workers” are more vulnerable to perceived discrimination. Chou and Choi (2011) found workers in the United States of America who were aged 50 to 64 years had a higher prevalence of each listed type of workplace discrimination compared to those aged 65 years and over. This finding was consistent with the report by the Australian Human Rights Commission (2015), which revealed that Australian

workers aged 55 to 59 years had the highest prevalence of age discrimination (32%), following by workers aged 60 to 64 years (31%), 50 to 64 years (25%), whereas those aged 65 years and over reported the lowest (20%). Similarly, another study showed that although all workers experienced age discrimination, those aged 50 and 60 years respectively are the most likely to experience workplace age discrimination (Roscigno, Mong, Byron & Tester, 2007). In New Zealand, Yeung and Crothers (2016) focused on demographic factors associated with discrimination and they showed the percentage of experienced discrimination decreases by age, where those 45 to 59 years were more likely to experience discrimination than ones aged 60 years and over.

Apart from age, age discrimination may also be relevant for particular demographic groups, where socio-economic factors such as occupation, gender, and marital status, and social factors such as living conditions may be risk factors for discrimination against older people (Van den Heuvel, 2012). Health conditions can be a risk factor as well as those in poor health are vulnerable to perceived age discrimination. For instance, older people with higher levels of depressive symptoms are more likely to perceive age discrimination (Ayalon, 2018; Pascoe & Smart Richman, 2009). Other demographic groups are also vulnerable to potential age discrimination among older adults. A study focused on perceived age discrimination in older people in England found that men, people who are older, less wealthy, more educated, retired or unemployed are more likely to perceive age discrimination (Rippon, Kneale, de Oliveira, Demakakos & Steptoe, 2013). This finding was partially consistent with other studies of age discrimination in the workplace (e.g. Australian Human Rights Commission, 2015; Duncan & Loretto, 2004; Roscigno, Mong, Byron & Tester, 2007) in which people from lower-income levels and higher education levels had a higher prevalence of age discrimination in the workplace (as well as one-parent families). However, in terms of the workplace, the findings regarding gender and perceived age discrimination are mixed. Some studies have found that men and women experience similar levels of age-related discrimination in employment (Duncan & Loretto, 2004; Roscigno, Mong, Byron & Tester, 2007; Australian Human Rights Commission, 2015). While other researchers suggest there are gender differences in perceived age discrimination in employment (Chou & Choi, 2011; McGann, Ong, Bowman, Duncan, Kimberley & Biggs, 2016). The prevalence of experienced age discrimination in the workplace among men and women may differ by age category. Duncan and Loretto (2004)

report that females in the age group of 45 years and over experience more age-related discrimination than males, whereas males aged 35 to 44 years are more likely to experience age discrimination than females in the same age group.

However, Chou and Choi (2011) found that the prevalence of workplace discrimination was higher for older men than older women across all listed types of perceived workplace discrimination, such as unfair job assignment and being ignored by the boss. This finding suggests that older male workers were more likely to report perceived workplace discrimination in contrast to the findings of Duncan and Loretto (2004). It is possible that older men and women are subject to different kinds of age discrimination. The Australian Human Rights Commission (2015) found female workers had higher levels of age discrimination than males among certain kinds of age discrimination. The report showed that the prevalence of various types of age discrimination varied among older men and women, such that men were more likely than women to receive jokes from people in the workplace, while women were more likely than men to be perceived as having outdated skills. These inconsistent findings are similar to those around job seeking where both older men and women can perceive discrimination during the job seeking process. Studies have shown that older women are more likely to be discriminated against in hiring than men (Gringart & Helmes, 2001; Neumark, Burn & Button, 2017), while McGann, Ong, Bowman, Duncan, Kimberley and Biggs (2016) revealed that older males in Australia had higher rates of discrimination than older females during job seeking.

Research shows that that both male and female workers perceive age discrimination in the workplace, and its prevalence is different across types of discrimination. It is difficult to conclude whether male or female workers are more likely to perceive workplace age discrimination as they both can be more vulnerable to perceive certain kinds of age discrimination. However, women appear to be more vulnerable as they are also disadvantaged by sexism, and they may experience double discrimination as a result. Several studies showed that women are very likely to be mistreated and discriminated against in everyday life, for both young and older women (Biggs, Manthorpe, Tinker, Doyle & Erens, 2009; Leaper & Brown, 2008). They are also disadvantaged in the workforce. The study of Walker, Grant, Meadows and Cook (2007) examined the experience of age discrimination in

employment among women aged 50 and over, and they found among respondents, all women had experience of gender or age discrimination. This is the situation in New Zealand as well. Daldy, Poot and Roskrug (2013) reported females are more likely to report discrimination than males for those who are foreign and New Zealand born. Another New Zealand study revealed that women are more likely to experience (19.7%) discrimination based on age than men (15.6%; Yeung & Crothers, 2016). Women are disadvantaged by sexism, and women in disadvantaged groups are more likely to perceive discrimination, such as women who are black and in older ages (Abrams, Swift, Lamont & Drury, 2015; Yeung & Crothers, 2016), which may increase their risk to perceive age discrimination. A study found that women who perceived racial or gender discrimination in the workplace are more likely to report age discrimination (Gee, Pavalko & Long, 2007).

Ethnicity

Non-Europeans may also experience double discrimination as they are disadvantaged by racism. Findings from the US-based Health and Retirement study found that compared to White people, Black people had higher levels of perceived everyday discrimination (Luo, Xu, Granberg & Wentworth, 2012). This supports the findings from other studies that people in ethnic minorities are more likely to perceive discrimination (Barnes, De Leon, Wilson, Bienias, Bennett & Evans, 2004; Guyll, Matthews & Bromberger, 2001) in which African Americans reported more frequent experience of mistreatment than European Americans and older Blacks perceive more discrimination than older Whites. Moreover, Taylor and Turner (2002) also found African Americans are more likely to experience discrimination in their lifetime than White Americans.

The mistreatment and discrimination against women and non-Europeans extends to the workplace, where they may also be vulnerable to perceive age discrimination in the workplace. Studies have found that female workers were more likely to perceive sex-based discrimination than male workers, whereas black and Hispanic workers were more likely to perceive race-based discrimination than Whites (Avery, McKay & Wilson, 2008; Deitch, Barsky, Butz, Chan, Brief & Bradley, 2003). Chou and Choi (2011) also found that minority ethnic groups were more likely to perceive workplace discrimination.

New Zealand is a multicultural country. According to the 2013 Census (Statistics New Zealand, 2013b), 74% of people in New Zealand are Europeans, 14.9% Māori, 11.8% Asian, and 7.4% Pacific peoples. As Māori being the largest minority ethnic group, they are very likely to perceive discrimination. Evidence shows in New Zealand that Māori are more likely to report experiencing racial discrimination in the workplace than Europeans (Statistics New Zealand, 2012). Furthermore, the study from Harris, Tobias, Jeffreys, Waldegrave, Karlsen and Nazroo (2006) showed Māori reported the highest prevalence of ever experiencing racial discrimination (34%), and they were nearly 10 times more likely to experience different types of discrimination (4.5%) compared to Europeans (0.5%). Immigrants in New Zealand are also very likely to perceive discrimination in the workplace, in which people from Asian and Middle Eastern/Latin American/African (MELAA) countries and New Zealand born Māori have a higher incidence of discrimination than NZ Europeans (Daldy, Poot & Roskrug, 2013).

Education

Level of education can be a risk factor for discrimination against older people. However, the association between perceived age discrimination and education levels is not clear yet as there are inconsistent findings across studies. Some research has found that discrimination is associated with higher education levels (Pérez, Fortuna & Alegria, 2008). For instance, Rippon, Kneale, de Oliveira Demakakos and Steptoe (2013) focused on perceived age discrimination in older people in England and found that older people with higher education reported more age discrimination than those with a lower level of education. Similarly, The Australian Human Rights Commission (2015) found the same association, in which those with a university degree (28%) had a higher prevalence of workplace age discrimination than those with school education (25%). A New Zealand study also found this association, those with higher education are more likely to report discrimination in the workplace than those with less education (Daldy, Poot & Roskrug, 2013). However, these findings are not consistent with the research from Finch, Kolody and Vega (2000), which found that individuals with less than a high school education were more likely to perceive discrimination. The study from Chou and Choi (2011) also found this relationship – those with lower education had a higher prevalence of workplace discrimination.

Occupation

Perceived age discrimination in the workplace is strongly related to occupation. Occupation is one of the socio-economic factors which may be a risk factor of age discrimination (Van den Heuvel, 2012). However, there are few studies focused on this. Chou and Choi (2011) focused on the prevalence of workplace discrimination among older workers in the United States of America. They categorized nine occupations into three groups: (1) executive, managerial, and professional, (2) technical, clerical, service, and sales, and (3) crafts, labour, and military. They found the group of executive, managerial and professional had the lowest prevalence of each listed type of workplace discrimination – ranging from 12.4% to 59.9%, while the group of crafts, labour and military had the highest prevalence across most of the listed types of workplace discrimination, which range from 23.2% to 63.1%. The study of Roscigno, Mong, Byron and Tester (2007) focused on workplace age discrimination among occupations as well and found that professional and managerial workers are the least likely to face age discrimination in the workplace (21.2%), whereas skilled and semi-skilled workers are the most likely to experience workplace age discrimination (55.1%).

Socio-economic status is an important determinant of health conditions. It includes income, wealth, educational level, and social influences, in which income and wealth are strongly related to health – those who are in poverty are more likely to have poor health than wealthier people (Reidpath, 2004). According to World Health Organisation (WHO; 2003), there are occupational class differences in life expectancy, in which lower-class workers experience more disease and earlier death than higher-class workers. The WHO work shows that the occupational groups of professional and managerial/technical have the highest life expectancy, while the occupational group of unskilled have the lowest. Education level is also related to health. Cutler and Lleras-Muney (2006) suggest that there is a positive relationship between education and life expectancy, and those who are better educated have better physical and mental functioning. They explained that education is related to income and occupation to engage; moreover, the increase in educational levels results in different decision-making patterns, including engagement in healthy behaviours. In New Zealand, several studies have examined the effects of living standard on individuals' well-being. Foulds,

Wells and Mulder (2014) examined the association between material living standard and psychological distress among New Zealanders using the Economic Living Standard Index (ELSI). They found that the prevalence of high distress increased along with a decrease in living standards. Nearly a quarter (4.3%) of those in the most deprived decile had high distress, while only 0.8% of those in the least deprived decile had high distress. Another New Zealand study revealed that economic living standard is significantly associated with mental health, with those with lower living standards more likely to have poor mental health (Stephens, Alpass & Towers, 2010). Apart from health conditions, socio-economic status is related to other aspects of well-being. For instance, it has been found to be negatively related to self-esteem (Von Soest, Wagner, Hansen & Gerstorf, 2018), and life satisfaction (Chen, Niu, Zhang, Fan, Tian & Zhou, 2016).

Socio-economic status is also related to perceived discrimination. The study of Rippon, Kneale, de Oliveira, Demakakos and Steptoe (2013) found that older adults who are less wealthy are more likely to perceive age discrimination. This finding was also consistent with other studies, such as Chou and Choi (2011) who found that older workers with lower educational levels were more likely to perceive workplace discrimination (though they found those with middle level wages more likely to perceive discrimination in the workplace). In addition, the Australian Human Rights Commission (2015) revealed that groups with the lowest income levels had the highest prevalence of age discrimination.

In sum, people aged 65 years and over are more likely to perceive discrimination during job seeking, while workers aged under 65 years are more vulnerable to perceive workplace discrimination. There is evidence showing both older men and women are likely to perceive discrimination in the workforce. However, as females are disadvantaged by sexism as well, they may be more likely to perceive age discrimination than male workers. For instance, one study suggested perceived gender discrimination is a risk for perceiving age discrimination in the workforce (Gee, Pavalko & Long, 2007). In terms of ethnicity, Māori are the largest minority ethnic group in New Zealand. Hence, they are more likely to perceive discrimination than the majority ethnic group – NZ Europeans. For occupation, previous researchers (e.g. Chou & Choi, 2011; Roscigno, Mong, Byron & Tester, 2007) have consistently found that professionals and managerial workers are the least likely to perceive age discrimination.

However, there are some inconsistencies with one study showing unskilled workers are more likely to perceive age discrimination, while another study found skilled/semi-skilled workers were more vulnerable to perceive age discrimination. Considering these results, together with previous studies showing perceived age discrimination may be more likely to occur for people in less wealthy groups (Australian Human Rights Commission, 2015; Rippon, Kneale, de Oliveira, Demakakos & Steptoe, 2013), it is suggested that unskilled workers may be more likely to perceive age discrimination than skilled workers. Unlike the factors of age, gender, and ethnicity, there is an unclear association between perceived age discrimination and education level. However, given the results of a New Zealand study of workplace discrimination, the similar social and cultural environment of Australia to New Zealand and the findings from the Australian Human Rights Commission (2015), it is likely that education will be positively related to perceived age discrimination in New Zealand. This discussion leads to the first hypothesis:

H₁: (a) people aged 55 to 64 years, (b) females, (c) Māori, (d) the higher educated, and (e) unskilled workers, will be more likely to perceive age discrimination in the workplace.

The consequences of perceived age discrimination

Health consequences

Perceived age discrimination has negative influences on individuals, including physical, emotional and psychological well-being (Australian Human Rights Commission, 2015; Vogt Yuan, 2007). Pascoe and Smart Richman (2009) examined the influences of perceived discrimination on health and revealed that it has a significant negative impact on mental health including depressive, anxiety, and posttraumatic stress symptoms, and physical health such as cardiovascular disease, diabetes, and illness of nausea, pain, and headaches. Other studies of perceived discrimination have also found that perceived discrimination is related to higher levels of depression, lower physical functioning, poorer general health and sleep, causes more health symptoms, and increased smoking behaviour (Harris, Tobias, Jeffreys, Waldegrave, Karlsen & Nazroo, 2006; Flores, Tschann, Dimas, Bachen, Pasch & de Groat, 2008; Tummala-Narra, Alegria & Chen, 2012; Slopen, Lewis & Williams, 2016). The impacts of different forms of discrimination can be varied. For instance, Sutin, Stephan, Carretta and

Terracciano (2015) investigated the impacts of different forms of discrimination for individuals, and found the consequences of discrimination based on age, weight, physical disability, and appearance on individuals were similar with impacts on self-reported health, disease burden, loneliness, and life satisfaction, whereas discrimination based on race, ancestry, sex, and sexual orientation impacted only on loneliness. A New Zealand study of perceived discrimination examined its effect on well-being and health using the data from the General Social Survey (GSS), and found that respondents were very likely to report that they experienced discrimination in the workforce; it was also found that experiences of discrimination undermined feelings of trust, and had a negative effect on life satisfaction, and self-reported health (Yeung & Crothers, 2016).

In sum, there is growing evidence showing the impacts of age discrimination on older people's well-being; the experience of age discrimination can be a significant factor in the health of older people (Lyons et al., 2018). Jackson, Hackett and Steptoe (2019) examined the association between age discrimination and health among older adults in England, and found apart from poor self-reported health, perceived age discrimination also increased the risk of coronary heart disease, chronic lung disease, arthritis and depressive symptoms. Studies of age discrimination also show that negative impacts include reduced self-esteem, increased levels of psychological distress, and can cause stress and problems with family, career or finances (Australian Human Rights Commission, 2015; Garstka, Schmitt, Branscombe & Hummert, 2004; Redman & Snape, 2006; Vogt Yuan, 2007).

Based on the findings from previous research, the second hypothesis is:

H₂: Perceived age discrimination will be negatively associated with (a) life satisfaction, (b) mental health, and (c) physical health.

Perceived age discrimination as a stressor

Perceived discrimination can lead to stress. A study focused on the relationship between perceived discrimination and stress among African American college students found that there is a linear relationship between perceived discrimination and perceived stress (Barnes

& Lightsey Jr, 2005). Another study of racial discrimination also found that higher levels of racial discrimination are associated with higher levels of perceived stress (Sellers, Caldwell, Schmeelk-Cone & Zimmerman, 2003). These findings are consistent with the study by Araújo Dawson (2009) which showed a positive relationship between job-related and everyday discrimination and stress levels. Similarly, a study by Gershon, Barocas, Canton, Li and Vlahov (2009) focused on the effects of perceived work stress in police officers and revealed that exposure to workplace discrimination is correlated to perceived work stress. Workplace age discrimination can also cause stress in older workers, as discrimination in the workplace can be a job stressor (de Castro, Gee & Takeuchi, 2008); The Australian Human Rights Commission (2015) revealed that 60% of Australian workers aged 50 years and over reported that discrimination has an effect on their self-esteem, mental health, or causes them stress. Taking these findings together, the third hypothesis is:

H₃: Perceived age discrimination will be associated with higher work-related stress.

Indirect effect on health consequences

As mentioned previously, research shows that perceived discrimination can lower life satisfaction (Sutin, Stephan, Carretta & Terracciano, 2015; Redman & Snape, 2006). However, one study found that they were not directly related, but that perceived discrimination can lead to lower life satisfaction levels by increasing perceived stress (Barnes & Lightsey Jr, 2005). This finding suggests that some consequences of perceived discrimination may be mediated by stress. Various studies of discrimination (e.g. racial, age, and weight discrimination) also suggest discrimination is a social stressor, which causes different kinds of stress responses, subsequently resulting in negative health outcomes (Clark, Anderson, Clark & Williams, 1999; Finch, Kolody & Vega, 2000; Jackson, Kirschbaum & Steptoe, 2016; Redman & Snape, 2006; Pascoe & Smart Richman, 2009; Vogt Yuan, 2007). Moreover, Pascoe and Smart Richman (2009) proposed a model which illustrated that the association between perceived discrimination and health can be mediated by stress responses, including psychological (e.g. increase of negative emotions or decrease of positive ones) and physiological stress responses, and these result in health problems through the development of allostatic load by strengthened stress responses and negative emotional states. The finding from the study of

Sellers, Caldwell, Schmeelk-Cone and Zimmerman (2003) found stress is a mediator of the indirect relationship between discrimination and distress, in which higher levels of racial discrimination are associated with higher levels of perceived stress, which in turn increase the levels of psychological distress.

The consequences of perceived stress are not limited to lower life satisfaction. Researchers found that higher perceived stress can increase depression and worsen general health (Flores, Tschann, Dimas, Bachen, Pasch & de Groat, 2008). Perceived work stress has similar effects on individuals. Oginska-Bulik (2005) examined the relationship between perceived job stress and health outcomes and found a significant relationship between perceived job stress and general health status, somatic complaints, anxiety or insomnia and depression symptoms. This finding is consistent with the research of Gershon, Barocas, Canton, Li and Vlahov (2009) which focused on the effects of perceived work stress among police officers. They found that perceived work stress is associated with psychological symptoms such as depression, anxiety, posttraumatic stress symptoms, burnout and somatization, physiological outcome including chronic back pain, migraine, foot problems and heart disease, and behavioural outcomes including alcoholism, aggression, intimate partner violence and interpersonal conflict. Taking these findings, perceived stress at work is a stressor which has negative impacts on individuals' well-being. Thus, the fourth hypothesis:

H₄: The relationship between perceived age discrimination and life satisfaction, mental and physical health will be mediated by work-related stress

Work-related consequences

There is a large amount of evidence showing that perceived age discrimination can lead to negative work-related consequences (e.g. Australian Human Rights Commission, 2015; Redman & Snape, 2006; Macdonald & Levy, 2016). Perceived age discrimination has been found to be negatively associated with job satisfaction, engagement and commitment, affective and normative commitment to the organisation, and perceived power and prestige of the job (Redman & Snape, 2006; Macdonald & Levy, 2016; Snape & Redman, 2003; Griffin, Bayl-Smith & Hesketh, 2016; Bayl-Smith & Griffin, 2014; Taylor, Mcloughlin, Meyer & Brooke,

2013), and positively associated with withdrawal cognitions and cognition identification as an older workers (Bayl-Smith & Griffin, 2014; Redman & Snape, 2006). The effect of perceived age discrimination also includes continuance commitment, which reflects the “commitment based on the perceived costs, both economic and social, of leaving the organisation (p. 7, Jaros, 2007)”. There is evidence that perceived age discrimination has a positive effect on continuance commitment among older workers, which suggested that as workers perceived higher levels of age discrimination in the workplace, the higher levels of continuance commitment they reported (Redman & Snape, 2006; Snape & Redman, 2003). Researchers have also found that workers who perceive workplace discrimination report less organisational commitment and job satisfaction (Ensher, Grant-Vallone & Donaldson, 2001).

Perceived discrimination also affects older workers’ intention to stay in the workplace. The Australian Human Rights Commission (2015) revealed that 49% of Australians aged 50 years and over reported that a recent episode of discrimination made them consider changing occupation or retraining, while 46% reported that it made them think about retirement. This report is consistent with other studies of age discrimination (e.g. Snape & Redman, 2003; Schermuly, Deller & Büsch, 2014; Volpone & Avery, 2013) in which older workers who perceive age discrimination have stronger intentions to retire early, and reductions in the desired retirement age. Another study has also found that perceived age discrimination has a small and negative relationship with desired retirement age (Zaniboni, 2015). However, other researchers (e.g. Bayl-Smith & Griffin, 2014; Griffin, Bayl-Smith & Hesketh, 2016) have found no relationship between perceived age discrimination and intended retirement age and behaviour.

This discussion leads to the fifth hypothesis:

H₅: Perceived age discrimination will decrease (a) job satisfaction, (b) work engagement; increase (c) continuance commitment, and (d) lead to an earlier intended retirement age.

Indirect relationship for work-related consequences

The association between perceived age discrimination and its work-related consequences can be moderated or mediated by several factors; some work-related outcomes may not be directly caused by discrimination. For instance, Velez, Moradi and Brewster (2013) reviewed other studies and pointed out that internalised heterosexism and sexual identity management strategies are the moderators of the relationships between perceived heterosexist discrimination and job satisfaction and the link between perceived workplace heterosexist discrimination and job satisfaction can be mediated by expectations of stigma, internalised heterosexism, and sexual identity management strategies. In terms of age discrimination, it has been found that the influences of perceived age discrimination on job satisfaction and engagement can be moderated by cognitive and affective identification (Bayl-Smith & Griffin, 2014), psychological factors including respect, the meaningfulness of work and support, and psychological well-being (Taylor, Mcloughlin, Meyer & Brooke, 2013). Social support can also buffer the relationship between perceived discrimination and its consequences. Redman and Snape (2006) investigated the buffering effect of social support on the consequences of perceived age discrimination; they found no moderating effect for work-related social support. However non-work-related social support had a buffering effect on life satisfaction, and reverse buffering on job satisfaction and normative commitment. This finding suggests that support from family and friends outside work increases the negative response to perceived discrimination. The authors suggest this may be through “legitimising feelings of having been offended against”. Social support has also been found to have a strong positive and direct relationship to job satisfaction, commitment, and engagement (Macdonald & Levy, 2016).

Several studies have revealed that perceived discrimination is associated with retirement intentions. This negative association between perceived age discrimination and intended retirement age can be buffered by other factors. Schermuly, Deller and Büsch (2014) examined the direct and indirect relationship between perceived age discrimination and the desire to retire and found that age discrimination was *negatively* associated with the desired retirement age, while psychological empowerment mediated the relationship. In their findings, perceived age discrimination was negatively related to psychological empowerment,

while psychological empowerment was positively related to the desired retirement age. Although the study did not find full mediation, psychological empowerment suppressed the direct association between age discrimination and the desired retirement age. Bayl-Smith and Griffin (2014) also examined the mediating effect of the relationship between perceived age discrimination and the intended retirement age. Although the study found no association between the two variables, they suggested that work engagement may mediate the relationship. They showed that age discrimination was negatively associated with work engagement, whereas work engagement was positively associated with intended retirement age, and the model suggested work engagement had a mediating effect. Another study showed that perceptions of being overqualified can moderate the relationship between perceived age discrimination and withdrawal behaviours (Triana, Trzebiatowski & Byun, 2017) in which age discrimination had a strong positive effect on withdrawal behaviour for workers who felt overqualified.

There are few studies examining the moderating effect of the relationship between perceived age discrimination and retirement intentions among older workers; previous studies have focused on the effect of psychological empowerment and work engagement. In the present research, we examine the mediating effect of job satisfaction on the relationship between perceived age discrimination and intended retirement age. There is evidence showing that job satisfaction is a predictor of early retirement, and it is a significant factor underlying intention to quit (Mein, Martikainen, Stansfeld, Brunner, Fuhrer & Marmot, 2000; Kautonen, Hytti, Bögenhold & Heinonen, 2012; Scott, Gravelle, Simoens, Bojke & Sibbald, 2006). Taking these findings together, the final hypothesis is:

H₆: Job satisfaction will mediate the relationship between perceived age discrimination and intended retirement age.

Chapter 4

Method

Participants

We used data from the Health, Work and Retirement (HWR) study conducted by the Health and Ageing Research Team (HART) at Massey University. The HWR study is a population-based longitudinal study of a representative sample of New Zealand citizens and/or permanent residents aged 55 years and older, which is designed to describe and identify major determinants of health and well-being of older adults in New Zealand (Allen, Alpass & Stephens, 2019). The HWR study was first started in 2006, with participants recruited from the New Zealand national electoral roll and surveyed biennially. For our study, we used the data from the 2018 HWR postal survey; longitudinal participants remain in the study and are resurveyed if they: (1) have a postal address in New Zealand; (2) are not deceased; (3) are not otherwise known to be lost to contact, and (4) have not informed the study they wish to withdraw their participation. New participants aged 55 – 57 years were also recruited in 2018 to refresh the study cohort. These participants were randomly selected from adults on the electoral roll and met the inclusion criteria: (1) have a New Zealand postal address; and (2) live in general community. The primary form of data collection for 2018 HWR study was postal survey sent to participants' postal address from the information on the electoral roll. Ethical approval was granted for the HWR study by the Massey University Human Ethics Committee (Southern B, Application 13/30; Southern A Application 15/72). The general instruction for 2018 HWR survey is attached in Appendix A. A copy of the full survey can be found at <https://www.massey.ac.nz/?h4d295120s>.

In our study, we focused on perceived age discrimination against older workers; the majority of older workers in New Zealand are aged under 70 years. Thus, we only included participants aged under 70 years who were in paid employment. Participants' work status was determined by their response to the following question in the survey: Which of the following best describes your current work status? Participants were categorized as: full-time paid work; part-time paid work; fully retired; or not in paid employment (unemployed or seeking work). For the purposes of the current study, participants who were in either part-time or full-time

employment were included. As a result, the sample consisted of a total of N = 1896 participants.

Measures

Perceived age discrimination

Perceived age discrimination was measured with the Nordic Age Discrimination Scale (NADS; Furunes & Mykletun, 2010). This is a 6-item scale. Example items include: “older workers are passed over or left out in case of promotion of internal recruitment” and “older workers have less wage increases than younger workers”. Participants are asked to respond to the extent to which they disagree or agree with each item; responses range from totally disagree (1) to totally agree (5). The minimum score for the scale is 6. The Cronbach’s alpha (α) for the 6 items of NADS was 0.89 indicating good internal consistency. For the prevalence of hypothesis (Hypothesis 1), scores were divided into two levels, (a) low level of perceived age discrimination (scores 6 to 16), and (b) high level of perceived age discrimination (scores greater than 16). The levels of perceived age discrimination were split using the median.

Life satisfaction

Life satisfaction was measured with 1-item developed by The WHOQoL Group (1998). Participants are asked to respond to the item “All things considered, how satisfied are you with your life as a whole these days” Responses range from very dissatisfied (1) to very satisfied (5).

Mental and Physical Health

Mental and physical health was measured with the Optum™ SF-12v2® Health Survey. This scale contains 12 items and measures eight scales of health and well-being, including physical functioning, role-physical, bodily pain, general health, vitality, social functioning, role-emotional and mental health. These 12 items are used to form composite scores for mental and physical health. Mental health was measured with four scales containing six items: one item on vitality; one item on social functioning; two items on role-emotional and two items on mental health. Physical health was measured using four scales containing six items as well, including two items on physical functioning; two items on role-physical; one item on bodily

pain and one item on general health (Ware, Kosinski & Keller, 1996). These physical and mental health component scores were calculated utilizing normative subscale scores for the New Zealand population derived from the 2008 New Zealand General Survey, and factor score coefficients derived from the 2006-2007 New Zealand Health Survey (Frieling, Davis & Chiang, 2013).

Work-related stress

We measured work-related stress with the Effort-Rewards Imbalance Scale (Siegrist, Starke, Chandola, Godin, Marmot & Niedhammer & Peter, 2004). The scale contains 16 items and measures three subscales: effort, reward and over-commitment. Three items were used to measure effort, for example, "I have constant time pressure due to a heavy workload". Reward was measured with seven items, for example, "I receive the respect I deserve from my superior or a respective relevant person". Over-commitment was measured with six items e.g. "people close to me say I sacrifice too much for my job". Participants are asked to respond to the extent to which they disagreed or agreed with each item, and responses ranged from strongly disagree (1) to strongly agree (5). The Cronbach's alpha (α) for the effort subscale was 0.836; the Cronbach's alpha (α) for the reward subscale was 0.768, and for the over-commitment subscale it was 0.823. These indicate the internal consistency for the effort and over-commitment subscales was good, and acceptable for the reward subscale. To measure work-related stress, the effort-reward ratio was computed. For an effort-reward ratio equal to 1, there is a balance between effort and reward. For the ratio lower than 1, the participant reported less efforts for each reward; for the effort-reward ratio greater than 1, the participant reported more efforts for each reward (Siegrist, Li & Montano, 2014). The score that is lower than 1 means less work-related stress, and the score that is greater than 1 indicates higher stress.

Job satisfaction

Job satisfaction was measured with 1 item developed by Brayfield and Rothe (1951). Participants are asked to respond to the extent to which they disagreed (1) or agreed (5) with the item "I feel fairly well satisfied with my present job".

Work engagement

We measured work engagement with the Utrecht Work Engagement Scale (UWES-9, Seppälä, Mauno, Feldt, Hakonen, Kinnunen, Tolvanen & Schaufeli, 2009). This scale measures work engagement with 9 items. Example items include “I feel enthusiastic about my job” and “my job inspires me”. Participants are asked to respond how frequently they felt that way; responses ranged from never (0) to everyday (6). The Cronbach’s alpha (α) across the nine items in the scale was 0.914, indicating excellent internal consistency for the scale.

Continuance commitment

We measured continuance commitment with 6 items developed by Jaros (2007). Participants were asked to respond how much they agreed or disagreed with items such as “I worry about the loss of investment I have made in this organisation/business” and “if I wasn’t a member of this organisation/business, I would be sad because my life would be disrupted”; responses ranged from strongly disagree (1) to strongly agree (7). The Cronbach’s alpha (α) across the 6-item scale was 0.77 indicating acceptable internal consistency.

Intended retirement age

Intended retirement age was measured with the following question: At what age do you intend to permanently retire from paid work? Participants could enter the desired age or tick a box for “I never intend to retire from paid work”. There is no mandatory retirement age in New Zealand.

Demographic variables

Age

It was measured in years. For the prevalence hypothesis (Hypothesis 1), it was divided into two groups: (1) 55 to 64 years, and (2) 65 years and over.

Gender

Gender was recorded as (1) male, (2) female, and (3) gender diverse.

Ethnicity

Ethnicity was recorded as (1) NZ European, (2) Māori, (3) Pacific peoples, (4) Asian, (5) Middle Eastern/Latin American/African (MELAA), and (6) other.

Educational level

Educational level was recorded as four levels: (1) no qualification, (2) secondary school, (3) post-secondary/trade, and (4) tertiary.

Occupational group

The HWR survey contains eight occupational categories: (1) labour, (2) machinery operator/driver, (3) sales worker, (4) clerical/administrative worker, (5) community or personal service worker, (6) technician/trade worker, (7) professional, and (8) manager. Based on the types of job, the eight jobs were categorized into three groups: (1) unskilled workers (group 1), (2) skilled/semi-skilled workers (group 2 to 6), and (3) professionals and managerial workers (group 7 to 8).

Control variables

Control variables used for this study include *age*, *gender* (0 = male, 1 = female), *ethnicity* (0 = Māori, 1 = non-Māori, including NZ European, Asian, Pacific people, and others), *educational levels*, *work status* (0 = full-time, 1 = part-time), *marital status* (0 = married/partnered, 1 = not married/partnered), *occupation*, and *economic living standard*. Economic living standard was measured with the Economic Living Standard Index Short Form (ELSI-SF; Jensen, Spittal & Krishnan, 2005). The ELSI used in this study is a continuous variable scored from 0 to 31, with higher scores indicating higher economic living standards. For the occupation variable, two dummy variables were created; Occupation 1 (0 = skilled/semi-skilled or professionals and managerial worker, 1 = unskilled workers), and Occupation 2 (0 = professional and managerial workers, 1 = unskilled or skilled/semi-skilled workers). Demographic characteristics were likely to be associated with the outcome variables; thus, correlation analysis was conducted, and work status and the economic living standard were found to have a significant relationship with outcome variables. Therefore, they were also included as control variables in the study.

Procedure

The 2018 HWR study included those who had participated in the survey between 2006 and 2016 and new participants who were recruited to participate in the study for 2018. There are differences in the approach to existing and new recruits. Data collection for the 2018 HWR study included Ministry of Health record data linkage and this requires written consent from participants. New recruits received an information sheet which included information related to the health data linkage component, and a consent form. Existing participants had been approached previously. Thus, they were not approached again for consent for data linkage.

Existing participants received an initial approach through the post which included an introductory letter, information sheet, survey booklet and a reply-paid envelope on 1st August 2018. After 3 weeks, a first reminder was sent which was comprised of a postcard thanking those who had returned the survey and asking those who had not to do so. After 12 weeks from the initial approach, a second reminder was sent to those who had not returned the survey which included a final reminder letter, information sheet, survey booklet and a reply-paid return envelope. New recruits received an initial approach which included an introductory letter containing an invitation to complete the survey online, information sheet, consent form and a reply-paid envelope on 1st August 2018. After 12 weeks, a first reminder was sent to those who had not returned the survey which included a survey booklet, reminder letter, consent form and a reply-paid return envelope. A second reminder was sent to all participants after 15 weeks of initial contact which contained a postcard thanking those who had returned the survey and asking those who had not to do so (Phillips, 2019).

Of the 4369 existing participants surveyed in 2018, 3366 returned a completed survey; the response rate was 77%. Of 3596 new recruits surveyed, 598 returned the completed survey; the response rate was 16.6%.

Chapter 5

Results

Missing data analysis

Missing value analysis was conducted before testing hypotheses. The intended retirement age variable was not included in the analysis as coding was different from other variables (discussed in the later section). Only three variables, which were age, gender, and work status, contained no missing values. Missing data ranged from a low of 0.9% for Mental Health and Physical Health to a high of 17% for Work Engagement. Variables with a high proportion (greater than 5%; Tabachnick & Fidell, 2013) of missing data were perceived age discrimination (7.7%), occupation (7.8%), work-related stress (13.4%), continuance commitment (13.9%), and work engagement. The analysis showed Asian participants were less likely to respond to the work engagement variable; the response rate was 68% for Asians, while the response rate for other ethnicities was all above 80%. Asian participants were also less likely to respond to the occupation variable. The response rate was 80% for Asians, whereas the response rates for other ethnicities were all above 90%. The missing pattern showed that occupation and work engagement were missing together more often than other pairs. Together with the descriptive statistics, and separate variance t-tests which showed there was a mean difference in the score on different scales of participants with missing data and those without missing values, suggesting the data might not be missing completely at random (MCAR). Further analysis focused on the four variables – perceived age discrimination, work-related stress, continuance commitment, and work engagement as they contained a large amount of missing data. Although the occupation variable contained a large amount of missing data as well, it was not included in further analysis, and listwise deletion method was used to deal with missing data on this variable. The method is appropriate as the current sample size was relatively large and as occupation is a 1-item variable. Other methods such as mean imputation were not suitable.

Although Little's MCAR was significant ($X^2 = 68.839$, $df = 28$, $sig < .001$), suggesting the data were not MCAR and further tests were conducted to confirm the pattern and the significance of the missingness. Dummy variables for the four variables were created (0 = missing, 1 = not

missing), and sets of t-tests and chi-square tests were conducted. On average, participants with missing data on the perceived age discrimination variable were older ($M = 63.19$) than those with non-missing data ($M = 61.75$). This difference was significant ($t = 4.023$, $df = 1894$, $p < .001$) but with a small effect size ($d = 0.34$). There was a significant mean difference for perceived age discrimination level between participants with missing data on the continuance commitment variable and those with non-missing data ($t = 2.6$, $df = 1748$, $p = .009$), as well as the job satisfaction level ($t = 2.192$, $df = 1847$, $p = .029$) and work-related stress level ($t = 3.005$, $df = 1640$, $p = .002$). However, these all had a small effect size respectively ($d < 0.3$). For those with missing data on the work engagement variable and those with non-missing data, there was mean difference in their perceived age discrimination level ($t = -2.212$, $df = 1748$, $p = .027$), continuance commitment level ($t = -3.341$, $df = 247.619$, $p = .001$), and age ($t = -8.532$, $df = 425.632$, $p < .001$). They had a small to medium effect size ($d = 0.15 - 0.55$). Participants with missing data on the work-related stress variable were older ($M = 63.05$) than those with non-missing data ($M = 61.68$). This difference was significant ($t = 4.645$, $df = 323.505$, $p < .001$), but the effect size was small ($d = 0.32$). Participants with missing data on the work-related stress variable also had higher levels of continuance commitment ($M = 21.13$) than those with non-missing data ($M = 19.40$). This difference was significant ($t = 2.551$, $df = 1631$, $p = .001$) but with a small effect size ($d = 0.32$). Mean differences on other continuance variables were not significant.

Chi-square tests of independence were conducted to examine the relationships between missingness on the four variables and categorical variables. The only significant relationship was between the missingness of continuance commitment variable and education level ($X^2(3, N = 1870) = 8.379$, $p = .039$, $\phi = .067$). Those with no qualifications were more likely to be missing data on the continuance commitment variable than those with secondary school qualification or above.

Following the missing data analysis, a decision was made to apply two methods to deal with missing data. For those variables with a small amount (less than 5%) of missing data, listwise deletion was applied. Listwise deletion can bias the result and cause the loss of power; however, when there is a small amount of missingness and a large sample size, these can be insignificant (Graham, 2009). For those variables with a large amount (greater than 5%) of

missing data (except for the occupation variable), the Little's MCAR test was significant, and significance tests showed the missingness was correlated with other variables. Thus, suggesting the missingness was not MCAR. To consider the large amount of missing data, and they were not MCAR, listwise deletion was not applied to these variables and mean imputation was applied. Not all missing values in the four variables were substituted; we inputted the mean for participants who responded at least half plus 1 of the items on the scale. That is, we substituted the mean item value for the missing values for participants who missed 1 to 2 items in the 6-item perceived age discrimination and continuance commitment scales; 1 – 4 items in the 9-item work engagement scale; and for the work-related stress scales, we inputted the mean for participants who missed 1 item on the 3-item effort subscale and for those participants who missed 1 to 3 items on the 7-item reward subscale.

Sample characteristics

Table 1 presents the characteristics of all participants, including age, gender, work status, occupation, marital status, educational level, ethnicity and economic living standard. As shown in the table, participants' age ranged from 55 to 69.98 years, with a mean age of 61.86 (SD = 4.16). More than half of the participants were female (55.5%) and full-time workers (64.2%). Of the nine occupational groups, professionals comprised the largest proportion (25.4%) with sales workers (5.3%) and other (2.3%) the lowest. The majority of participants were married or partnered (69.6%). There were four classifications for participants' highest educational level; 14.6% of participants had no qualifications, 23.2% had secondary school qualifications, 34.1% had post-secondary or trade qualifications and 26.8% had tertiary qualifications. The majority of participants were NZ European (61.0%), followed by Māori (30.4%), others (5.0%), Asian (1.3%) and Pacific peoples (1.1%). In term of participants' economic living standard, the majority had a good economic living standard (62.0%), while 11.5% reported being in some level of hardship.

Table 1

Demographic description of the participants

Characteristics	N	%	Characteristics	N	%
Age in years (N = 1896)	Mean = 61.86, SD = 4.16		Marital status (N = 1864)		
Gender (N = 1896)			Married/partnered	1319	70.8
Male	841	44.4	Not married/single	545	29.2
Female	1052	55.5	Highest educational level (N = 1870)		
Gender diverse	3	.2	No qualifications	276	14.8
Work status (N = 1896)			Secondary school	439	23.5
Full-time	1218	64.2	Post-secondary/ trade	646	34.5
Part-time	678	35.8	Tertiary	509	27.2
Occupation (N = 1748)			Ethnicity (N = 1873)		
Labourer	138	7.9	NZ European	1156	61.7
Machinery operator or driver	117	6.7	Māori	577	30.8
Sales worker	100	5.7	Pacific Peoples	20	1.1
Clerical or administrative worker	257	14.7	Asian	25	1.3
Community or personal service worker	184	10.5	Other	95	5.1
Technician or trades worker	213	12.2	Economic Living Standard (N = 1832)		
Professional	481	27.5	Hardship	241	13.2
Manager	215	12.3	Comfortable	377	20.6
Other	43	2.5	Good	1214	66.3

The levels of perceived age discrimination among older workers

Hypothesis 1 anticipated workers aged 55 to 64 years of age, female, Māori, those in high education levels and unskilled workers were more likely to perceive age discrimination. The findings presented in table 2 show that people aged 65 years and over, Māori, those who had no educational qualification and unskilled workers were more likely to report higher levels of perceived age discrimination. However, some of these differences were not significant. The chi-square tests show that perceived age discrimination level was significantly higher in workers aged 65 years and over than those aged 55 to 64 years yet the effect was very small, $\chi^2(1, N = 1782) = 15.028, p < .001, \phi = .092$; also, the level of perceived age discrimination was significantly higher in unskilled workers than other workers yet the effect size was very weak, $\chi^2(2, N = 1608) = 7.276, p = .026, \phi = .067$. Other differences were not significant.

The findings presented in table 3 show although people in different demographic groups reported different levels of perceived age discrimination, the mean levels appear to be quite similar. Overall, the mean perceived age discrimination level was higher for those aged 65 years and over, males, Māori, those who had no educational qualifications, and unskilled workers. The analyses indicated that perceived age discrimination level is higher with age; on average, people aged 65 and older reported a slightly higher perceived age discrimination level ($M = 16.42, 95\% \text{ CI } [15.88, 16.97], SD = 5.98$) than those aged between 55 and 64 years ($M = 15.38, 95\% \text{ CI } [15.06, 15.70], SD = 5.85$). A one-way ANOVA found the difference in perceived age discrimination level between the two age groups to be statistically different yet small, $F(1, 1780) = 10.774, p = .001, \eta^2 = .006$.

Male workers had a slightly higher perceived age discrimination level ($M = 15.74, 95\% \text{ CI } [15.34, 16.14], SD = 5.73$) than female workers ($M = 15.58, 95\% \text{ CI } [15.21, 15.96], SD = 6.04$). However, the difference between the means was not statistically significant, $F(1, 1777) = .295, p > .05, \eta^2 = .00002$. Those who had no educational qualification and tertiary qualification reported a higher level of perceived age discrimination than those in secondary school and post-secondary qualification (see Table 3). Again, the difference between the means was not statistically significant, $F(3, 1755) = 1.846, p > .05, \eta^2 = .003$. In terms of ethnicity, Māori reported a slightly higher ($M = 15.84, 95\% \text{ CI } [15.36, 16.33], SD = 5.78$) level of perceived age discrimination than NZ Europeans ($M = 15.57, 95\% \text{ CI } [15.21, 15.92], SD =$

5.93). Similar to gender and educational level, the mean difference between ethnicity was not statistically significant, $F(3, 1669) = .361, p > .05, \eta^2 = .00006$. For occupational status, unskilled workers had a higher perceived age discrimination level ($M = 17.73, 95\% \text{ CI } [16.67, 18.78], SD = 6.03$) than professional and managerial workers ($M = 15.28, 95\% \text{ CI } [14.84, 15.71], SD = 5.69$). The difference between the means was statistically significant, $F(2, 1605) = 9.342, p < .001, \eta^2 = .012$.

Table 2

Percentage of perceived age discrimination among older workers

	Levels of perceived age discrimination (%)	
	Low	High
Age		
55 to 64 years	54.7	45.3
65 and over	44.3	55.7
Gender		
Males	52	48
Females	52	48
Ethnicity		
NZ European	54	46
Māori	48.2	51.8
Pacific peoples	61.1	38.9
Asian	52.2	47.8
Educational level		
No qualification	48.4	51.6
Secondary school	52.5	47.5
Post-secondary/trade	54.9	45.1
Tertiary	49.2	50.8
Occupational status		
Unskilled workers	41.4	58.9
Skilled/semi-skilled workers	51	49
Professional and managerial workers	54	46

Note. The low level of perceived age discrimination included the scores ranged from 6 to 16; a high level of perceived age discrimination was the scores greater than 16.

Table 3

Levels of perceived age discrimination among workers

	Mean perceived age discrimination level	P value
Age in years		
55 to 64	15.38	.001
65 and older	16.42	
Gender		
Male	15.74	.587
Female	15.58	
Ethnicity		
NZ European	15.57	
Māori	15.84	
Pacific peoples	15.17	.781
Asian	15.17	
Educational level		
No qualification	16.18	
Secondary school	15.63	.137
Post-secondary/trade	15.27	
Tertiary	15.91	
Occupational status		
Unskilled workers	17.73	
Skilled/semi-skilled workers	15.75	.000
Professional and managerial workers	15.28	

According to the results, Hypothesis 1 was partially supported; workers aged 65 years and over were more likely to perceive age discrimination, whereas the sex, race, and educational level differences were not significant; these findings were contrary to the hypothesis. As predicted, it was found that unskilled workers were more likely to perceive age discrimination and the difference was significant.

Perceived age discrimination and Health

Hypothesis 2 predicted there would be a negative effect of perceived age discrimination on life satisfaction, mental health, and physical health. To test Hypothesis 2, multiple linear regression analyses were undertaken to assess the contribution of perceived age discrimination to the dependent variables (life satisfaction, mental, and physical health) when controlling for demographic variables (age, gender, ethnicity, education level, occupation, work status, marital status, and economic living standard).

For life satisfaction, the model explained 17.7% of variance in the level of life satisfaction. As presented in Table 4, the relationship between perceived age discrimination and life satisfaction was not significant when holding control variables constant, $b = -.006$, $t(1506) = -1.799$, $p > .05$.

Table 4

Summary of Multiple Linear Regression Analysis for Perceived age discrimination, Age, Gender, Ethnicity, Educational level, Occupation, Work status, Marital status and Economic living standard Predicting Life Satisfaction

Predictor	Dependent variable: life satisfaction (N = 1517)				
	b	Standard error	Standardised coefficient beta	t	p
Constant	1.983	.331		5.992	.000
Age	.011	.005	.052	2.112	.035
Gender	.050	.041	.029	1.195	.232
Ethnicity	-.095	.044	-.052	-2.157	.031
Education level	.048	.023	.058	2.132	.033
Work status	.118	.043	.068	2.719	.007
Marital status	-.070	.044	-.039	-1.604	.109
Occupation 1	.086	.076	.028	1.129	.259
Occupation 2	.048	.046	.028	1.052	.293
Economic living standard	.056	.004	.387	15.094	.000
Perceived age discrimination	-.006	.003	-.044	-1.799	.072

Note: $R = .421$, $R^2 = .177$, adjusted $R^2 = .172$ for the model of life satisfaction.

Table 5

Summary of Multiple Linear Regression Analysis for Perceived age discrimination, Age, Gender, Ethnicity, Educational level, Occupation, Work status, Marital status and Economic living standard Predicting Health Consequences

Predictor	Dependent variable: mental health ^a				
	(N = 1519)				
	b	Standard error	Standardised coefficient beta	t	p
Constant	29.124	3.681		7.911	.000
Age	.170	.057	.074	2.997	.003
Gender	-.723	.460	-.039	-1.572	.116
Ethnicity	-.637	.490	-.032	-1.299	.194
Education level	-.152	.251	-.017	-.605	.545
Work status	.973	.481	.050	2.022	.043
Marital status	-.174	.485	-.009	-.359	.719
Occupation 1	-.002	.843	.000	-.002	.998
Occupation 2	.430	.509	.023	.844	.399
Economic living standard	.573	.041	.359	13.946	.000
Perceived age discrimination	-.180	.038	-.114	-4.686	.000

Table 5

Summary of Multiple Linear Regression Analysis for Perceived age discrimination, Age, Gender, Ethnicity, Educational level, Occupation, Work status, Marital status and Economic living standard Predicting Health Consequences (continued).

Predictor	Dependent variable: physical health ^b				
	(N = 1519)				
	b	Standard error	Standardised coefficient beta	t	p
Constant	51.589	3.517		14.669	.000
Age	-.219	.054	-.103	-4.052	.000
Gender	1.044	.439	.061	2.375	.018
Ethnicity	1.420	.468	.076	3.032	.002
Education level	.553	.240	.065	2.302	.021
Work status	-.448	.460	-.025	-.973	.330
Marital status	-.850	.463	-.046	-1.837	.066
Occupation 1	-.480	.806	-.015	-.596	.551
Occupation 2	.141	.487	.008	.290	.772
Economic living standard	.390	.039	.264	9.933	.000
Perceived age discrimination	-.074	.037	-.051	-2.031	.042

Note: ^a R = .411, R² = .169, adjusted R² = .163 for the model of mental health, ^b R = .338, R² = .114, adjusted R² = .108 for the model of physical health.

In terms of mental health, the model explained 16.9% of variance in mental health. The analysis showed that perceived age discrimination was negatively related to mental health when holding control variables constant, $b = -.180$, $t(1508) = -4.686$, $p < .001$. The model explained 11.4% of variance in physical health. Perceived age discrimination was negatively associated with physical health while holding control variables constant, $b = -.074$, $t(1508) = -2.031$, $p < .05$. Table 5 presents the associations between perceived age discrimination and health consequences.

Based on the results, Hypothesis 2 was partially supported; perceived age discrimination was found to be not significantly related to life satisfaction when holding control variables constant. However, as predicted, perceived age discrimination was significantly associated with poorer mental and physical health when holding control variables constant.

Perceived age discrimination and Work-related stress

Hypothesis 3 anticipated there would be a positive effect of perceived age discrimination on work-related stress. To test this hypothesis, multiple regression was undertaken to examine the effect of perceived age discrimination on work-related stress when controlling for demographic variables (age, gender, ethnicity, education level, occupation, work status, marital status, and economic living standard).

The model explained 20.7% of variance in work-related stress. The analysis revealed that perceived age discrimination was positively associated with work-related stress when holding control variables constant, $b = .020$, $t(1475) = 9.037$, $p < .001$. Results showed that perceived age discrimination was significantly related to higher work-related stress; therefore, Hypothesis 3 was supported.

Mediation effect of work-related stress

Hypothesis 4 predicted work-related stress would mediate the relationship between perceived age discrimination and life satisfaction, mental health, and physical health. In this analysis, perceived age discrimination was the predictor, work-related stress acted as the

mediator, life satisfaction, mental and physical health were outcomes, while age, gender, ethnicity, educational level, occupation, work status, marital status, and economic living standard were covariates. The total effect of perceived age discrimination on the three outcomes (while work-related stress was not in the model) and the effect of perceived age discrimination on work-related stress have been examined in the previous hypotheses, and it was found that while holding control variables constant, perceived age discrimination was negatively related to mental and physical health, but the relationship between perceived age discrimination and life satisfaction was not significant (see Table 4); also, perceived age discrimination was positively related to work-related stress. To test the mediation effect of work-related stress, a mediation analysis was conducted with Hayes's PROCESS tool, which examined the indirect effect through 95% bootstrap confidence interval, with 5000 bootstrap samples. The analysis would show the three-path mediation effect as shown in figure 2.

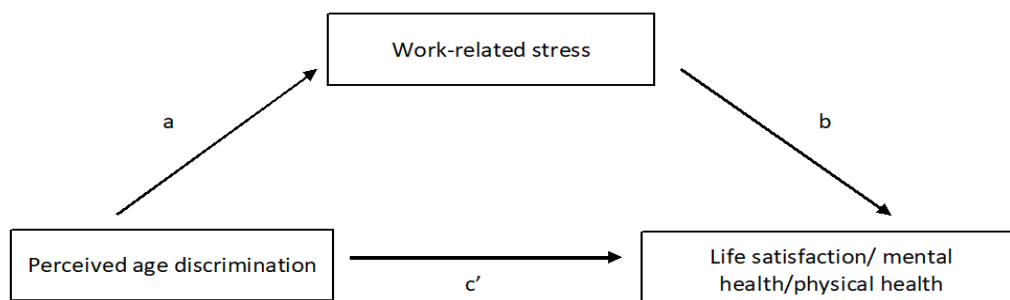


Figure 2. Three-path mediation effect model.

Table 6 presents a summary of the mediation analysis results on life satisfaction, mental and physical health, which included the total effect, the direct effect (path c'), the effect of perceived age discrimination on work-related stress (path a), and the effect of work-related stress on the outcomes (path b), and the indirect effect of perceived age discrimination on the outcomes through work-related stress.

Table 6

Simple Mediation Analyses Results

<i>Dependent variable: life satisfaction</i> (N = 1475)	b	t	P value
Total effect of perceived age discrimination on life satisfaction (absence of work-related stress)	-.0056	-1.5775	.1149
Direct effect of perceived age discrimination on life satisfaction (path c' in figure 2)	-.0023	-.6492	.5163
Effect of perceived age discrimination on work-related stress (path a in figure 2)	.0201	9.0190	.000
Effect of work-related stress on life satisfaction while holding perceived age discrimination constant (path b in figure 2)	-.1608	-3.8948	.0001
Indirect effect of perceived age discrimination on life satisfaction	-.0032	95% LLCI -.0052	95% ULCI -.0015
<i>Dependent variable: mental health</i> (N = 1477)	b	t	P value
Total effect of perceived age discrimination on mental health (absence of work-related stress)	-.1753	-4.4968	.000
Direct effect of perceived age discrimination on mental health (path c' in figure 2)	-.1219	-3.0773	.0021
Effect of perceived age discrimination on work-related stress (path a in figure 2)	.0200	9.0540	.000
Effect of work-related stress on mental health while holding perceived age discrimination constant (path b in figure 2)	-2.6696	-5.8588	.000
Indirect effect of perceived age discrimination on mental health	-.0534	95% LLCI -.0800	95% ULCI -.0302
<i>Dependent variable: physical health</i> (N = 1477)	b	t	P value
Total effect of perceived age discrimination on physical health (absence of work-related stress)	-.0793	-2.1156	.0345
Direct effect of perceived age discrimination on physical health (path c' in figure 2)	-.0485	-1.2658	.2058
Effect of perceived age discrimination on work-related stress (path a in figure 2)	.0200	9.0540	.000
Effect of work-related stress on physical health while holding perceived age discrimination constant (path b in figure 2)	-1.5354	-3.4801	.0005
Indirect effect of perceived age discrimination on physical health	-.0307	95% LLCI -.0522	95% ULCI -.0108

Regarding life satisfaction, the analysis showed that when work-related stress was not in the model but control variables were taken into account, perceived age discrimination was not significantly related to life satisfaction, $b = -.0056$, $t(1464) = -1.5775$, $p > .05$. Although the relationship between perceived age discrimination and life satisfaction was not significant, the results showed work-related stress was negatively related to life satisfaction when holding perceived age discrimination constant, $b = -.1608$, $t(1463) = -3.8948$, $p < .001$, suggesting work-related stress might mediate the relationship between perceived age discrimination and life satisfaction. The model explained 18.2% of the variance in life satisfaction. The analysis revealed that perceived age discrimination was still not significantly related to life satisfaction when holding work-related stress constant, though the effect became smaller, $b = -.0023$, $t(1463) = -.6492$, $p > .05$. However, a significant negative indirect effect of perceived age discrimination on life satisfaction through work-related stress was observed, $b = -.0032$, BCa CI $[-.0052, -.0015]$. The bootstrap confidence interval did not include zero; thus, the mediation hypothesis was accepted, though the mediation effect was very small. Figure 3 presents the mediation analysis result of life satisfaction.

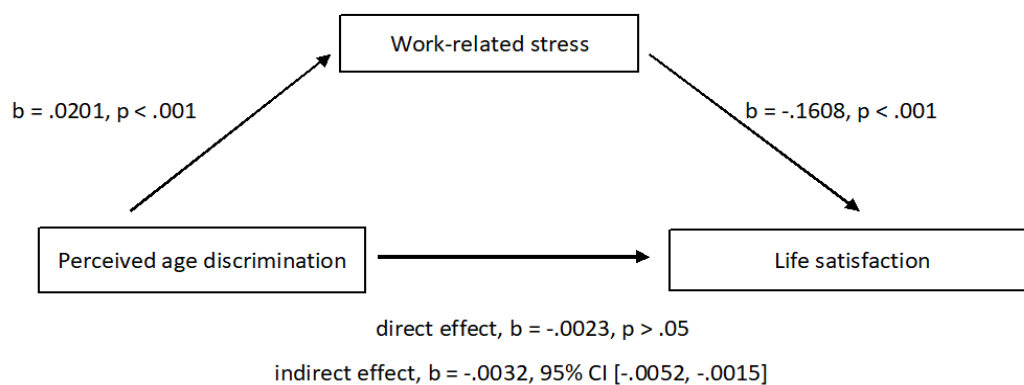


Figure 3. Mediation model of life satisfaction.

In terms of mental health, the analysis showed that perceived age discrimination was negatively related to mental health when work-related stress was not considered, $b = -.1753$,

$t(1466) = -4.4968, p < .001$. As predicted, work-related stress could mediate the relationship between perceived age discrimination and mental health. There was a significant negative indirect effect of perceived age discrimination on mental health through work-related stress, $b = -.0534$, BCa CI $[-.0800, -.0302]$. The bootstrap confidence interval did not contain zero; thus, the mediation effect was accepted, and work-related stress was a mediator of this relationship though its effect was small. The results showed that perceived age discrimination was significantly related to higher work-related stress, $b = .0200, t(1466) = 9.0540, p < .001$ and work-related stress was significantly related to poorer mental health when controlling perceived age discrimination, $b = -2.6696, t(1465) = -5.8588, p < .001$. The model explained 18.35% of the variance in mental health. Although work-related stress mediated the association between perceived age discrimination and mental health, there was no full mediation; perceived age discrimination was still significantly related to poorer mental health when holding work-related stress constant, $b = -.1219, t(1465) = -3.0773, p < .01$. Figure 4 presents the mediation model of mental health.

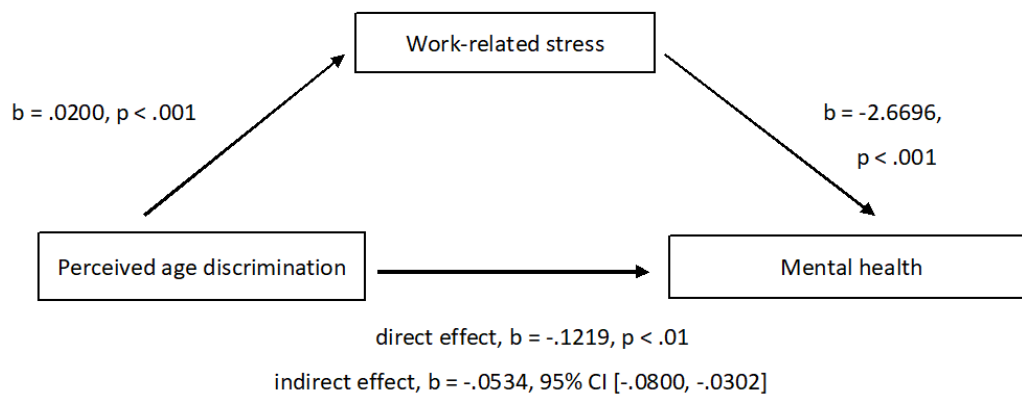


Figure 4. Mediation model of mental health.

In terms of physical health, the results showed when work-related stress was not considered and holding the control variables constant, perceived age discrimination significantly predicted physical health, $b = -.0793, t(1466) = -2.1156, p < .05$. As anticipated, the

relationship between perceived age discrimination and physical health was mediated by work-related stress. There was a significant negative indirect effect of perceived age discrimination on physical health through work-related stress, $b = -.0307$, BCa CI $[-.0522, -.0108]$. The bootstrap confidence interval did not include zero; thus, the mediation effect was accepted and there was a small mediation effect. Work-related stress was a mediator of the association between perceived age discrimination and physical health, and importantly the results showed there was full mediation. Perceived age discrimination was not significantly related to physical health when holding work-related stress constant, $b = -.0485$, $t(1465) = -1.2658$, $p > .05$. The analysis also revealed that perceived age discrimination was significantly related to higher work-related stress, $b = .0200$, $t(1466) = 9.0540$, $p < .001$ and work-related stress was significantly related to poorer physical health when holding perceived age discrimination constant, $b = -1.5354$, $t(1465) = -3.4801$, $p < .001$. The model explained 12% of the variance in physical health. Figure 5 presents the mediation model of physical health.

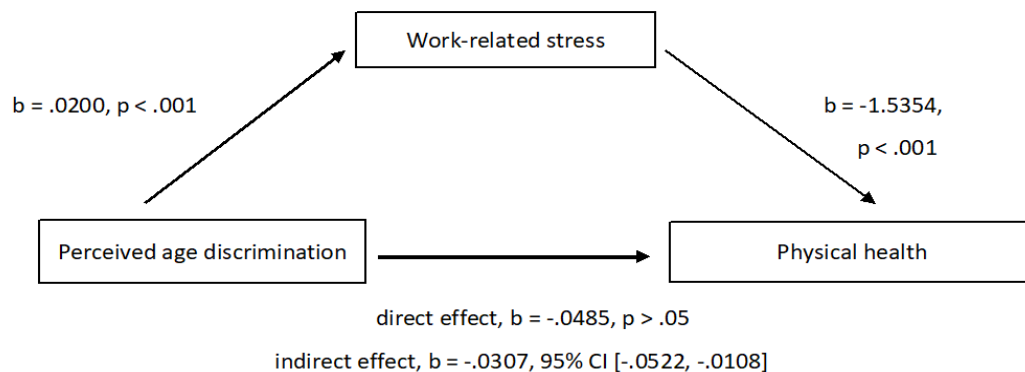


Figure 5. Mediation model of physical health.

According to the results, work-related had a mediation effect on the relationship between perceived age discrimination and mental health, and physical health. Work-related stress had full mediation effect on the relationship between perceived age discrimination and physical health as perceived age discrimination was not significantly related to physical health while

controlling work-related stress; work-related stress had partial mediation effect on the association between perceived age discrimination and mental health as perceived age discrimination was still significantly related to mental health after holding work-related stress constant. Although the direct effect of perceived age discrimination on life satisfaction was not significant, it was found that work-related stress had a very small mediation effect on this relationship. Therefore, Hypothesis 4 was supported.

Perceived age discrimination and work-related consequences

Hypothesis 5 predicted perceived age discrimination would have a negative impact on job satisfaction and work engagement, a positive effect on continuance commitment, and result in younger intended retirement age. To test the hypothesis, multiple linear regression analyses were undertaken to assess the impact of perceived age discrimination on dependent variables when holding control variables (age, gender, ethnicity, education level, occupation, work status, marital status, and economic living standard) constant. For the examination of the relationship between perceived age discrimination and the intended retirement age, we only included participants aged under 65 years. There is no official retirement age in New Zealand. However, many people aim to retire at the age of 65 years as this is the age of eligibility for New Zealand Superannuation and most other superannuation plans (New Zealand Immigration, 2018). Among this age group, there was 5.2% of missing data in the intended retirement age. As this amount was relatively small, and as it was a 1-item scale, listwise deletion was applied. Participants who answered “never intend to retire” from paid work were excluded in the analysis. The intended retirement age ranged from 55 to 100 years. As a result, the sample consisted of a total of $N = 1074$ participants for testing the relationship between perceived age discrimination and intended retirement age.

Table 7 presented the regression results for the effect of perceived age discrimination on job satisfaction, work engagement, continuance commitment, and intended retirement age. For job satisfaction, the model explained 15% of the variance in job satisfaction. While holding control variables constant, perceived age discrimination was negatively related to job satisfaction, $b = -.037$, $t(1496) = -8.622$, $p < .001$. For work engagement, the model explained 6.8% of the variance in work engagement. Perceived age discrimination was negatively

related to work engagement when holding control variables constant, $b = -.238$, $t(1436) = -4.674$, $p < .001$. For continuance commitment, the model explained 11.2% of the variance in continuance commitment. Perceived age discrimination was positively related to continuance commitment while holding control variables constant, $b = .257$, $t(1474) = 7.890$, $p < .001$. In terms of intended retirement age, the model explained 7.1% of the variance in intended retirement age. The analysis showed that perceived age discrimination was not significantly related to the intended retirement age, $b = -.015$, $t(869) = -.696$, $p > .05$.

Hypothesis 5 was partially supported. As predicted, it was found that perceived age discrimination was significantly related to lower job satisfaction and work engagement, and significantly related to higher continuance commitment. However, the association between perceived age discrimination and the intended retirement age was found not significant.

Table 7

Summary of Multiple Linear Regression Analysis for Age, Gender, Ethnicity, Education level, Occupation, Work status, Marital status, Economic living standard, and Perceived age discrimination Predicting Work-related outcomes

Predictor	Dependent variable: job satisfaction ^a (N = 1507)				
	b	Standard error	Standardised coefficient beta	t	p
Constant	2.325	.413		5.626	.000
Age	.028	.006	.110	4.395	.000
Gender	.050	.052	.024	.964	.335
Ethnicity	-.200	.055	-.090	-3.637	.000
Education level	-.060	.028	-.059	-2.111	.035
Work status	.121	.054	.056	2.227	.026
Marital status	-.090	.055	-.040	-1.651	.099
Occupation 1	-.126	.095	-.033	-1.319	.187
Occupation 2	-.008	.057	-.004	-.138	.891
Economic living standard	.043	.005	.241	9.245	.000
Perceived age discrimination	-.037	.004	-.214	-8.622	.000

Table 7

Summary of Multiple Linear Regression Analysis for Age, Gender, Ethnicity, Education level, Occupation, Work status, Marital status, Economic living standard, and Perceived age discrimination Predicting Work-related outcomes (continued).

Predictor	Dependent variable: work engagement ^b				
	(N = 1447)				
	b	Standard error	Standardised coefficient beta	t	p
Constant	43.898	4.968		8.836	.000
Age	.000	.077	.000	-.006	.995
Gender	1.906	.615	.083	3.100	.002
Ethnicity	-1.976	.658	-.080	-3.004	.003
Education level	-.323	.338	-.028	-.955	.340
Work status	1.133	.645	.048	1.756	.079
Marital status	-1.009	.644	-.041	-1.567	.117
Occupation 1	-2.855	1.129	-.068	-2.529	.012
Occupation 2	-2.092	.682	-.091	-3.069	.002
Economic living standard	.214	.055	.109	3.899	.000
Perceived age discrimination	-.238	.051	-.124	-4.674	.000

Table 7

Summary of Multiple Linear Regression Analysis for Age, Gender, Ethnicity, Education level, Occupation, Work status, Marital status, Economic living standard, and Perceived age discrimination Predicting Work-related outcomes (continued).

Predictor	Dependent variable: continuance commitment ^c				
	(N = 1485)				
	b	Standard error	Standardised coefficient beta	t	p
Constant	23.337	3.127		7.462	.000
Age	.032	.048	.017	.672	.502
Gender	-1.864	.389	-.124	-4.793	.000
Ethnicity	.231	.414	.014	.559	.577
Education level	-.614	.213	-.082	-2.883	.004
Work status	-1.172	.410	-.075	-2.859	.004
Marital status	-.574	.409	-.035	-1.402	.161
Occupation 1	-1.037	.723	-.037	-1.434	.152
Occupation 2	-1.403	.430	-.092	-3.258	.001
Economic living standard	-.238	.035	-.183	-6.767	.000
Perceived age discrimination	.257	.033	.201	7.890	.000

Table 7

Summary of Multiple Linear Regression Analysis for Age, Gender, Ethnicity, Education level, Occupation, Work status, Marital status, Economic living standard, and Perceived age discrimination Predicting Work-related outcomes (continued).

Predictor	Dependent variable: intended retirement age ^d				
	(N = 880)				
	b	Standard error	Standardised coefficient beta	t	p
Constant	48.901	2.667		18.334	.000
Age	.309	.043	.242	7.146	.000
Gender	-.335	.251	-.047	-1.332	.183
Ethnicity	-.515	.271	-.066	-1.900	.058
Education level	.047	.140	.013	.335	.738
Work status	-.462	.270	-.060	-1.715	.087
Marital status	.622	.263	.079	2.362	.018
Occupation 1	.589	.475	.043	1.240	.215
Occupation 2	.143	.273	.020	.524	.600
Economic living standard	-.019	.022	-.031	-.866	.387
Perceived age discrimination	-.015	.021	-.024	-.696	.487

Note. ^a R = .388, R² = .150, adjusted R² = .145 for the model of job satisfaction

^b R = .261, R² = .068, adjusted R² = .062 for the model of work engagement.

^c R = .334, R² = .112, adjusted R² = .106 for the model of continuance commitment.

^d R = .266, R² = .071, adjusted R² = .060 for the model of intended retirement age.

Mediation effect of job satisfaction

Hypothesis 6 predicted job satisfaction would mediate the relationship between perceived age discrimination and intended retirement age. In this analysis, perceived age discrimination was the predictor, job satisfaction acted as a mediator, intended retirement age was the outcome, while age, gender, ethnicity, educational level, occupation, work status, marital status, and economic living standard were covariates. The total effect of perceived age discrimination on the intended retirement age has been examined in the previous hypothesis, and it was found that the effect of perceived age discrimination on intended retirement age was not significant (see Table 7). To test the mediation effect of job satisfaction on the association between perceived age discrimination and the intended retirement age, a mediation analysis was conducted with Hayes's PROCESS tool, which examined the indirect effect through 95% bootstrap confidence interval, with 5000 bootstrap samples.

A summary of the mediation analysis examining the indirect effect of perceived age discrimination on the intended retirement age through job satisfaction was presented in Table 8. As shown in the table, when job satisfaction was not considered, perceived age discrimination was not significantly related to intended retirement age, $b = -.0119$, $t(857) = -.5486$, $p > .05$. Although the association between perceived age discrimination and intended retirement age was not significant, the results revealed job satisfaction mediated this association. A significant negative indirect effect of perceived age discrimination on the intended retirement age through job satisfaction was observed, $b = -.0195$, BCa CI $[-.0312, -.0092]$. The bootstrap confidence interval did not contain zero; thus, the mediation effect was accepted, job satisfaction was a mediator of this relationship though the effect was small. Perceived age discrimination was negatively related to job satisfaction, $b = -.0425$, $t(857) = -6.7668$, $p < .001$ and job satisfaction was positively related to the intended retirement age, $b = .4594$, $t(856) = 3.9225$, $p < .001$. The model explained 8.9% of the variance in the intended retirement age. When controlling job satisfaction, perceived age discrimination was still not significantly related to the intended retirement age, $b = .0076$, $t(856) = .3451$, $p > .05$. However, the positive direct effect was opposite to the sign to the

indirect effect, indicating an inconsistent mediation. The mediation model of intended retirement age is presented in figure 6.

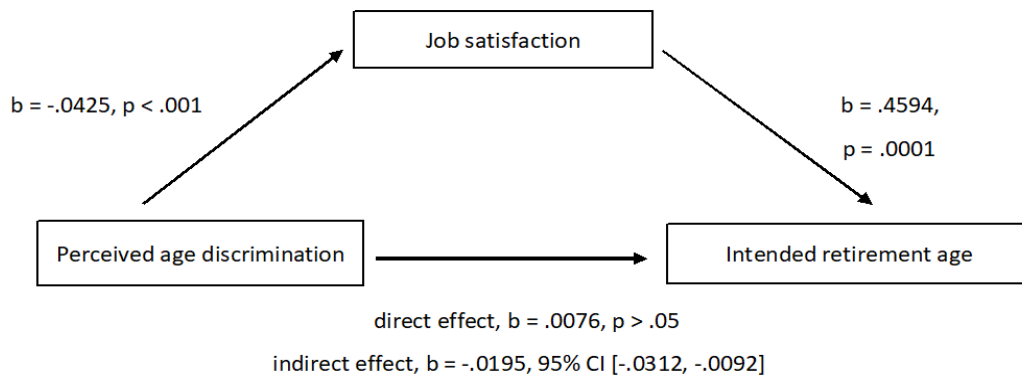


Figure 6. Mediation model of intended retirement age.

Table 8

Simple Mediation Analyses Results

<i>Dependent variable: intended retirement age</i> (N = 868)	b	t	P value
Total effect of perceived age discrimination on the intended retirement age (absence of job satisfaction)	-.0119	-.5486	.5834
Direct effect of perceived age discrimination on intended retirement age	.0076	.3451	.7301
Effect of perceived age discrimination on job satisfaction	-.0425	-6.7668	.000
Effect of job satisfaction on intended retirement age while holding perceived age discrimination constant	.4594	3.9255	.0001
		95% LLCI	95% ULCI
Indirect effect of perceived age discrimination on intended retirement age	-.0195	-.0312	-.0092

Based on the results, Hypothesis 6 was supported. Although the association between perceived age discrimination and intended retirement age did not achieve significance, the results showed the indirect effect of perceived age discrimination on intended retirement age through job satisfaction was significant. This supported the hypothesis that job satisfaction acted as a mediator of this relationship.

Chapter 6

Discussion

This study has described the levels of perceived age discrimination reported by older workers in New Zealand with a focus on age, gender, ethnicity, education, and occupation. Furthermore, it has examined the consequences of perceived age discrimination on health, well-being, and work-related outcomes. We also examined the mediation effect on the relationship between perceived age discrimination and health, well-being, and work-related consequences through work-related stress and job satisfaction. From the results, we found that workers in different age and occupation groups had statistically significant differences in perceived age discrimination levels, but there were no significant differences across gender, ethnicity, and education level. Furthermore, we found a statistically significant effect of perceived age discrimination on health and work-related outcomes. We also found some support for the mediation effect on the relationship between perceived age discrimination and the outcomes through work-related stress and job satisfaction.

Based on previous literature and the theoretical models outlined in the literature review, it was hypothesized that workers aged 55 to 64 years, females, Māori, the higher educated, and unskilled workers would be more likely to perceive age discrimination. As anticipated, unskilled workers were more likely to perceive age discrimination than other workers. Unskilled workers had the highest perceived age discrimination level, followed by skilled/semi-skilled workers. The group of professionals and managerial workers had the lowest levels of perceived discrimination; these differences were significant. This suggests that unskilled workers were more vulnerable to perceive age discrimination, while professionals and managers were the least likely to perceive age discrimination. Our findings are consistent with the results of previous studies (e.g. Australian Human Rights Commission, 2015; Rippon, Kneale, de Oliveira, Demakakos & Steptoe, 2013) that perceived age discrimination is more common in those who are less wealthy (a proxy for occupational status). They also support the findings of Chou & Choi (2011) who found that older people who engaged in lower-skilled work had a higher prevalence of perceived workplace discrimination.

Our findings regarding occupation can be explained within the framework of the prototype matching process – that is, age discrimination results when there is the mismatch between the age of the worker and the age of the prototypical incumbent of a job (Shore & Goldberg, 2005). The perception of the appropriate-age for a particular job can be affected by the number of younger or older workers in that job; the greater the number of older workers engaged in a particular job, the more the job would be considered as an old-typed job (Cleveland & Hollmann, 1990; Cleveland, Festa & Montgomery, 1988). In New Zealand, the number of older people engaged as labourers is low. In the current study, we categorised labourers as unskilled workers. According to Statistics New Zealand (2013a), 10% of workers aged 55 years and over engage in labourer’s work, which is much lower than those engaged in the work of managers (20%). This low percentage of older workers as labourers tends to lead the job to be less likely to be considered as an old-typed job. As a result, older workers who engage in labouring jobs, according to the prototype matching process, are likely to perceive age discrimination as they are perceived as inappropriate (due to their age) in that job. The mismatch between the age stereotypes of older workers and the requirements of the job can also lead to age discrimination (Powell, 2011). There are negative stereotypes toward older workers, including low ability to perform and learn, less competent, and less motivated and productive (Posthuma & Campion, 2009; Harris, Krygsman, Waschenko & Laliberte Rudman, 2017; McGregor & Gray, 2002), which appear to be inconsistent with the requirement of labourer, and may partially explain the findings on occupation. Future research could examine what kinds of jobs are old-typed and young-typed.

Although hypothesis 1 was supported with regard to unskilled workers, in contrast we found workers aged 65 years and over had a statistically significant higher level of perceived age discrimination than those aged 55 to 64 years. This suggests workers in older ages were more likely to perceive age discrimination. This finding supports the result of Rippon, Kneale, de Oliveira, Demakakos and Steptoe (2013), which focused on perceived age discrimination among older adults in England and showed perceived age discrimination was more common with increased age. However, our findings are inconsistent with other studies that focus on perceived age discrimination in the workplace (Australian Human Rights Commission, 2015; Chou & Choi, 2011; Roscigno, Mong, Byron & Tester, 2007; Gee, Pavalko & Long, 2007), as they showed that perceived age discrimination in the workplace tends to be related to

younger ages. Those studies focused on the prevalence of age discrimination among older workers in Australia and the United States of America, and they showed workers aged 50 to 64 years had a higher percentage of experience of workplace age discrimination, with a peak in ages of 50 and 60 years.

The inconsistent findings on age between this study and previous studies of workplace discrimination may be due to the measurement of age discrimination. Previous studies focus on workers' experience of age discrimination (Australian Human Rights Commission, 2015), and measures discrimination by asking the frequency with which participants had experienced discrimination (Chou & Choi, 2011). Whereas in the current study, the focus was on the perception of age discrimination among older workers, by asking them the extent to which they agreed on statements that referred to discrimination against older workers. As Bratt, Abrams, Swift, Vauclair and Marques (2018) suggested, perceived age discrimination is a subjective experience and there can be differences in the subjective experience of age discrimination and the actual experience of it. They described the perception of age discrimination as a psychological aspect, which may rely on others' behaviour, as well as one own's interpretation of interactions with others. Therefore, the experience of age discrimination may not accurately reflect the perception of age discrimination, and this may partially explain why our results are inconsistent with previous studies. A study by Giasson, Queen, Larkina and Smith (2017) may also help to explain the age differences in perceived age discrimination. They showed that the self-perception of ageing affects the likelihood of reporting the experience of age discrimination; those with a more positive self-perception of ageing are less likely to report discrimination. In addition, the effect of self-perception of ageing on the report of discrimination is greater in the early midlife age group (50 to 59 years). This suggests the self-perception of ageing may mediate the relationship between age and the report of discrimination, and this may in turn explain the lower perceived age discrimination level among workers in younger ages in the current study.

As our findings with regard to age are inconsistent with some previous studies, to further examine the age difference in perceived age discrimination, we undertook post-hoc analyses of the sample characteristics in each age group. Bivariate analyses showed that perceived age discrimination differed by economic living standard and work status – those in greater

economic hardship and those in part-time work had significantly higher perceived age discrimination levels than those with better economic living standards and those in full-time employment. When we examined these characteristics across age groups, we found that workers aged 55 to 64 years were more likely to be unskilled workers and were more likely to have lower economic living standards. However, workers aged 65 years and over were more likely to be part-time workers, suggesting that economic living standards and work status were not key factors in the age differences on perceived age discrimination found in the current study.

There is an alternative explanation for the high perceived age discrimination levels for workers aged 65 years and over. New Zealand does not have a mandatory retirement age (New Zealand Immigration, 2018); thus, there is a large number of older workers in the labour force. According to Statistics New Zealand (2009), 33.9% of people aged 65 to 69 years were in the labour force; 16.5% of 70 to 74 years, and 6% of those aged 80 years and over participated in the workforce in 2006 respectively. The ageing workforce phenomenon in New Zealand contradicts employers' reported preferences. Researchers have found that employers prefer younger workers to older workers (Bendick Jr, Jackson & Romero, 1997; Lahey, 2005; Neumark, Burn & Button, 2017), and the reasons given for this preference include the beliefs that older workers are less flexible, lack energy, and lack computer skills compared to younger workers (Lahey, 2005). Due to employers' preference of younger workers, they may put subtle pressure on older workers to retire (as they cannot ask them to leave the workforce due to age discrimination laws). Cheung, Kam and Man-Hung Ngan (2011) found that age discrimination behaviours reported by employers included decreasing the chance of promotion for older workers, putting heavier workloads on them, laying off older workers first, and reducing the employment benefits of older workers only. These discriminatory behaviours can put pressure on older workers, and workers aged 65 years and over may feel these discriminatory behaviors stronger than "younger older workers", as workers in this age group are "supposed to retire" from employers' perspectives. This may explain our finding that older workers in the older age group are more likely to perceive age discrimination. Further research could focus on the discriminatory behaviors against older workers in different age groups based on employers' perspectives.

This study found no significant difference in perceived age discrimination levels between male and female workers contrary to Hypothesis 1. We hypothesized females would have a higher level of perceived age discrimination, as women are also disadvantaged by sexism (Biggs, Manthorpe, Tinker, Doyle & Erens, 2009; Leaper & Brown, 2008; Walker, Grant, Meadows & Cook, 2007) and women in disadvantaged groups are more likely to perceive discrimination (Abrams, Swift, Lamont & Drury, 2015; Yeung & Crothers, 2016). It has been found that gender discrimination is a risk factor for the perception of age discrimination. Gee, Pavalko and Long (2007) pointed out that women who perceived gender discrimination in the workplace are more likely to perceive age discrimination. As a result of sexism, women are more likely to perceive age discrimination (Sargeant, 2006). However, we found male and female workers had similar perceived age discrimination levels. This may be a function of the relatively low rate of gender discrimination against women in New Zealand. According to Statistics New Zealand (2019), 14% of women reported experiencing discrimination, harassment, or bullying in the workplace. This compares to higher rates in international research. For instance, a Japanese study showed that 21% of female physicians reported they had received unfair treatment based on their gender (Yasukawa & Nomura, 2014). A U.S study also shows a high percentage of discrimination in employment against women, in which 41% of women reported gender-based discrimination in considering promotion, and 31% reported discrimination in job-seeking (SteelFisher et al., 2019). Considering the prevalence of gender discrimination in different countries, New Zealand appears to have a relatively low percentage of discrimination against women in the workplace, which may reduce women's perception of age discrimination. Further research could focus on the correlation between the two aspects of gender discrimination among New Zealand workers.

Contrary to Hypothesis 1, our analysis indicated that there was no significant difference in the perceived age discrimination levels between different ethnicities (NZ European, Māori, Pacific peoples, and Asian). This contradicts findings from some previous studies (e.g. Chou & Choi, 2011; Avery, McKay & Wilson, 2008; Deitch, Barsky, Butz, Chan, Brief & Bradley, 2003; Daldy, Poot & Roskrige, 2013) that have found that ethnic minority groups are more likely to perceive discrimination in the workplace. These studies focus on race-based discrimination against people of different ethnicities and show ethnic minority groups are being disadvantaged. The disadvantages against minor ethnic groups are aggravated by increases

in age; one US-based study shows the unemployment rate increases with age for blacks (Sargeant, 2006). However, our finding appears to be supported by the results of Statistics New Zealand (2019) where the percentage of discrimination, harassment, or bullying in the workplace among ethnic groups (European, Māori, Pacific peoples, and Asian) is similar; they showed 13% of Asians and Māori reported having experience of discrimination, harassment, or bullying in the workplace compared to 11% of Pacific and European peoples. These similar percentages of discrimination across ethnicities may result in some minorities being less likely to perceive double discrimination and thus reduce their risk of perceiving age discrimination.

Another explanation why Māori (ethnic minority) may not perceive more age discrimination is that they may consider age discrimination as common. Abrams, Eilola and Swift (2009) show that whites are more likely to perceive that age discrimination is a serious problem than non-whites in Britain. Schmitt and Branscombe (2002) also suggest that the attribution of negative treatment is different among people in disadvantaged and privileged groups, as “the differential severity of event potentially labelled as ‘discrimination’ is also likely to moderate the subjective experience of interpreting those events as due to prejudice (p. 169)”. That is, members of ethnic majority groups are likely to report minor events as their experience of race-based discrimination; people of ethnic minority groups, report more severe events as their racial discrimination experience. When members of ethnic minority groups perceived age discrimination as a common phenomenon to them, they may not, in particular, attribute the discrimination to their age, and thus, they may less likely to report perceived age discrimination. Our finding would also suggest that workers’ age and occupation may be more related to the perception of age discrimination than ethnicity among workers in New Zealand.

Our finding also indicates that there was no significant difference in perceived age discrimination level between workers with various education levels, contrary to Hypothesis 1. This finding is inconsistent with previous studies (e.g. Australian Human Rights Commission, 2015; Chou & Choi, 2011; Rippon, Kneale, de Oliveira, Demakakos & Steptoe, 2013) where education level was found to be significantly related to the perception of age discrimination. Several studies show that workers with a higher education have a higher prevalence of discrimination than those with school-level education (Australian Human Rights Commission, 2015; Daldy, Poot & Roskrug, 2013; Rippon, Kneale, de Oliveira, Demakakos & Steptoe,

2013). Other studies have found a reverse relationship – lower education levels are associated with higher perceived discrimination levels (Finch, Kolody & Vega, 2000; Chou & Choi, 2011). Our finding is inconsistent with those studies; however, it is consistent with the study of Luo, Xu, Granberg and Wentworth (2012) who found that education was not significantly related to everyday discrimination in general. Our sample is a community-based longitudinal sample and as such experience attrition of lower SES participants over time. As such, our sample may not represent the full range of educational levels in New Zealand in this age group. The role of education in the experience of age discrimination at work should be the focus of future research.

It was hypothesized that perceived age discrimination would be negatively related to life satisfaction, mental health, and physical health. As predicted, our findings show a negative effect of perceived age discrimination on mental health and physical health. However, there was no significant effect on life satisfaction. Overall, these findings provide partial support for Hypothesis 2. It is also noticeable that the effect of perceived age discrimination on physical health is stronger than the effect on mental health while controlling for demographic variables. Our findings regarding mental and physical health are consistent with previous studies that have found perceived age discrimination is negatively related to physical and psychological well-being (Jackson, Hackett & Steptoe, 2019; Garstka, Schmitt, Branscombe & Hummert, 2004; Vogt Yuan, 2007). These findings are also supported by the results of Lyons et al. (2018) that age discrimination has a significant effect on poorer mental health among Australians aged 60 years after socio-demographic variables were taken into account. It is also consistent with the findings of de Castro, Gee and Takeuchi (2008) where workplace discrimination was related to increased poor health conditions for Filipino Americans after controlling for socio-demographic factors. Our findings provide new evidence for older New Zealand workers, that perceived age discrimination in the workplace has an independent effect on mental and physical health above and beyond the socio-demographic factors among this population.

We found no significant effect of perceived age discrimination on life satisfaction, which contradicts previous studies (Sutin, Stephan, Carretta & Terracciano, 2015; Redman & Snape, 2006). The present study considered economic living standard as a control variable which

previous studies did not take it into account (Sutin, Stephan, Carretta & Terracciano, 2015; Redman & Snape, 2006). Inconsistent findings between our study and previous findings may be due to the different control variables used in the studies. Previous studies have shown that socio-economic status is one of the key factors that affect life satisfaction. Rohe and Stegman (1994) found that homeowners have significantly higher life satisfaction levels than renters. Also, unemployment is negatively related to life satisfaction (Pittau, Zelli & Gelman, 2010). To further examine the effect of perceived age discrimination on life satisfaction, we re-ran the regression shown in Table 4 without the ELSI variable and found age discrimination was significantly related to life satisfaction. The result of linear regression revealed that economic living standard was positively related to life satisfaction which supported the previous studies. Results of multiple linear regression shows that perceived age discrimination was significantly related to lower life satisfaction after controlling for age, gender, ethnicity, education, occupation, work status, and marital status, $b = -.018$, $t(1540) = -5.149$, $p < .001$. This analysis suggests that the non-significant effect of perceived age discrimination on life satisfaction found in Hypothesis 2 was strongly related to the inclusion of the economic living standard variable, where the relationship becomes significant when the economic living standard was not controlled for.

Our results of post-hoc analysis suggest that the economic living standard largely contributed to the effect of perceived age discrimination on life satisfaction among New Zealand older workers, where perceived age discrimination had no independent effect on life satisfaction among this sample. Previous studies have examined the effect of age discrimination on life satisfaction without considering economic living conditions. Our findings suggest that the reported relationship between perceived age discrimination and lower life satisfaction may be due to socio-economic status. It would be important to include socio-economic status in future research in order to measure the effect of perceived age discrimination on well-being accurately.

As predicted, perceived age discrimination was positively related to work-related stress and this finding supports Hypothesis 3, though the relationship was relatively weak. This finding suggests that as workers perceived higher levels of age discrimination in the workplace, they reported higher the levels of work stress. Our finding indicates that perceived age

discrimination in the workplace acts as a job stressor among New Zealand older workers. This result is consistent with Barnes and Lightsey Jr (2005) who found that perceived discrimination is correlated with perceived stress. Our finding is also consistent with studies of discrimination based on age and in the context of the workplace: The Australian Human Rights Commission (2015) reported that the experience of workplace age discrimination can cause stress among Australian older workers. Whilst Gershon, Barocas, Canton, Li and Vlahov (2009) found exposure to workplace discrimination correlated significantly with perceived work stress among police officers in Maryland. In addition, another study revealed a positive relationship between racist job-related discrimination and stress levels among women in New York City (Araújo Dawson, 2009). While these findings focus on different populations, our finding provides evidence that the perception of workplace age discrimination is also a stressor for older workers in New Zealand.

The positive relationship between perceived age discrimination and work-related stress found in the current study is important for individuals and for organisations, as it has been found that the negative impacts of job stress which can cause harm to both. Previous studies have found that perceived work stress is positively associated with a number of health-related issues and behaviours e.g., physical problems such as chronic back pain, high blood pressure, and heart disease; and psychological symptoms including depression, anxiety, posttraumatic stress symptoms, and insomnia; and increased and continued smoking (Ayyagari & Sindelar, 2010; Oginska-Bulik, 2005; Gershon, Barocas, Canton, Li & Vlahov, 2009). Regarding the impacts on the organisation, Khan, Aqeel and Riaz (2014) examined the relationship between job stress and job attitudes among college lecturers, and they found job stress was negatively related to job performance, job satisfaction, and life satisfaction, and positively related to turnover intentions. In the present study, we also found work stress was related to lower life satisfaction, and worse mental and physical health. This is consistent with the finding of Flores, Tschann, Dimas, Bachen, Pasch and de Groat (2008) that perceived stress is positively related to depression and negatively related to general health. Perceived age discrimination may lead to these consequences when job stress acts as a mediator on the effect of discrimination on outcomes. Sellers, Caldwell, Schmeelk-Cone and Zimmerman (2003) found stress was a mediator of the indirect effect of discrimination on distress, while racial discrimination was associated with higher levels of perceived stress, and it resulted in

increasing levels of psychological distress. In the current study, we found a mediation effect of work stress on the relationship between perceived age discrimination and life satisfaction, mental and physical health.

According to our results, work-related stress mediates the relationship between perceived age discrimination and life satisfaction, mental health, and physical health. In addition, a significant direct negative effect of perceived age discrimination on mental and physical health was observed when work-related stress was taken into account. However, there was no significant direct effect on life satisfaction. Overall, these findings provide support for Hypothesis 4. Our findings are consistent with Barnes and Lightsey Jr (2005) and with the findings that perceived discrimination is related to physiological outcomes and psychological well-being (Flores, Tschann, Dimas, Bachen, Pasch & de Groat, 2008; Pascoe & Smart Richman, 2009; Harris, Tobias, Jeffreys, Waldegrave, Karlsen & Nazroo, 2006; Tummala-Narra, Alegria & Chen, 2012; Slopen, Lewis & Williams, 2016).

The pathways through which perceived age discrimination leads to negative health outcomes have been studied for decades. Discrimination can have a direct effect on well-being or an indirect effect mediated by certain factors (Pascoe & Smart Richman, 2009). Our results support this model, as we found perceived age discrimination was not directly correlated with life satisfaction but mediated by work stress, while perceived age discrimination was directly related to mental and physical health. Perceived age discrimination can lead to negative health outcomes through stress responses to a discriminatory event. A discriminatory event is likely to be followed by stress responses; they can be psychological responses such as decreases of positive emotions or increases of negative emotions (e.g. anger, hopelessness, helplessness), and physiological stress responses such as cardiovascular reactivity and cortisol responses (Clark, Anderson, Clark & Williams, 1999; Pascoe & Smart Richman, 2009). Chronic exposure to these stress responses can lead to psychological distress and prolong negative emotions, and in turn, influence the life patterns and behaviours that affect health conditions. They may also influence the immune system and cause more vulnerability to disease (Clark, Anderson, Clark & Williams, 1999). To be more specific, stress responses caused by the experience of discrimination can lead to chronic dysregulation of allostasis resulting in

maladaptive wear-and-tear on the body and brain under allostatic load, consequently, impairing stress resiliency and health (McEwen & Gianaros, 2010).

Another pathway by which perceived age discrimination influences health outcomes is through health behaviours; people may engage in unhealthy behaviours or avoid participating in healthy behaviours as a coping strategy in response to discriminatory or stressful events (Pascoe & Smart Richman, 2009; Jackson, Hackett & Steptoe, 2019). According to the contextual model of perceived racial discrimination proposed by Clark, Anderson, Clark and Williams (1999), perceived discrimination does not necessarily lead to psychological and physiological stress responses but depends on coping responses. Discrimination is a social stressor, and stressful events are likely to result in the increase of unhealthy behaviours including alcohol consumption, smoking, substance use, and excessive food intake, and decreases in healthy activities such as exercise and sleep (Pascoe & Smart Richman, 2009). Research on stress and discrimination finds a positive relationship between stress and appetite, and a positive relationship between discrimination and binge eating; when stressed, people experienced an increased appetite and were less likely to have a healthy diet, and subsequently increased the risk of health problems (Kandiah, Yake, Jones & Meyer, 2006; Durso, Latner & Hayashi, 2012; Sutin, Robinson, Daly & Terracciano, 2016). These studies suggest overeating may be a general coping strategy for discrimination. The current study and previous research (e.g. Gershon, Barocas, Canton, Li & Vlahov, 2009) suggest that perceived discrimination in the workplace is a job stressor. Previous research has shown that perceived work stress is associated with certain “bad” behaviours, including alcoholism, aggression, intimate partner violence, and interpersonal conflict, and is related to continued and increased smoking (Ayyagari & Sindelar, 2010; Gershon, Barocas, Canton, Li & Vlahov, 2009). Stressful experiences can also decrease the engagement in healthy activities. For instance, research has found that discrimination can result in worse sleep outcomes (Slopen, Lewis & Williams, 2016). These behaviours can affect individuals’ life patterns and eventually cause health problems.

According to the model proposed by Clark, Anderson, Clark and Williams (1999), several factors affect the perception of discrimination. These include environmental stimulus, constitutional factors, socio-demographic factors, and psychological and behavioral factors.

Perceived discrimination can influence health outcomes through coping responses and psychological and physiological stress responses. In this study, we examined the effect of perceived age discrimination on well-being and found it had an adverse effect on mental and physical health, and affected life satisfaction through work stress. However, our study did not focus on the specific pathways by which perceived age discrimination influences health outcomes and well-being among older workers in New Zealand. In order to understand the attribution of perceived age discrimination on well-being, future research could focus on the pathways that perceived age discrimination affects well-being, including the coping strategies used in response to discrimination, and psychological and physiological stress responses associated with the experience of discrimination among this population. Furthermore, the model suggests several other factors that may contribute to the perception of discrimination (e.g. social support and environmental stimulus), and further research could focus on these as well.

Apart from well-being, perceived age discrimination affects workers' attitudes toward the organisation. As predicted, we found an adverse effect of perceived age discrimination on job satisfaction, and work engagement, and a positive relationship with continuance commitment. However, there was no significant effect on intended retirement age. Overall, the results provide partial support for Hypothesis 5. Our findings regarding job satisfaction, work engagement, and continuance commitment are consistent with previous studies (Redman & Snape, 2006; Macdonald & Levy, 2016; Snape & Redman, 2003; Griffin, Bayl-Smith & Hesketh, 2016; Bayl-Smith & Griffin, 2014). Our findings suggest that perceived age discrimination in the workplace may have negative effects on organisations in New Zealand. As older workers perceived higher levels of age discrimination in the workplace, they had lower levels of job satisfaction and work engagement but had higher levels of continuance commitment. A positive relationship between perceived age discrimination and continuance commitment suggests that as workers perceived age discrimination, they are more likely to feel being tied to the organisation with a lack of job opportunities (Snape & Redman, 2003). The results suggest for older workers in New Zealand, perceived age discrimination is a factor that affects their attitudes and feelings toward the organisation. Workers' job satisfaction and work engagement are important to the organisation. A study of Ng, Sambasivan and Zubaidah (2011) found a positive relationship between job satisfaction and job performance among

flight attendants. Another study also revealed that job satisfaction is significantly related to productivity (Hoboubi, Choobineh, Ghanavati, Keshavarzi & Hosseini, 2017). Future research could focus on the consequences of low levels of job satisfaction and work engagement on New Zealand organisations.

Contrary to expectations, we found no significant effect of perceived age discrimination on intended retirement age, which suggests older workers who perceived age discrimination would not choose to retire early as predicted. Our result contradicts findings from previous studies (Snape & Redman, 2003; Schermuly, Deller & Büsch, 2014; Volpone & Avery, 2013; Zaniboni, 2015) that there is an association between perceived age discrimination and retirement intention among older workers. However, our findings are similar to those of Bayl-Smith and Griffin (2014) who found no association between perceived age discrimination and intended retirement age. Several factors can contribute to retirement decisions, including poor health conditions, responsibilities of family caring, the retirement of a partner, redundancy, a wish to have more leisure time as well as the stress of age discrimination (Hurnard, 2005). Van Solinge and Henkens (2014) focused on retirement intentions among older workers in the Netherlands, and found that job pressure and job challenge were significantly associated with retirement intention; older employees who experienced higher levels of job pressure were more likely to retire early, whereas those with more job challenges were less likely to retire early. Moreover, they also found that support for working longer from the supervisor, age, wealth, and health were related to the intention to retire. Another study, Sibbald, Bojke and Gravelle (2003) revealed that higher overall job satisfaction and having children under 18 years of age were associated with a decrease in the likelihood to quit the workforce.

Taking into consideration the effects of these variables on retirement intentions found in previous studies, we conducted post-hoc analyses of the relationship between perceived age discrimination and intended retirement age when additional job characteristics were considered. When factors such as job satisfaction, work engagement, continuance commitment, work-related stress, and mental and physical health were included as covariates, we found that only age, job satisfaction, work engagement, and continuance commitment were significantly related to intended retirement age among this sample. When

we considered these variables as additional control variables, the effect of perceived age discrimination on intended retirement age remained non-significant. It is noticeable that work stress was not significantly related to intended retirement age, which is inconsistent with the finding that perceived stress is positively related to turnover intentions (Applebaum, Fowler, Fiedler, Osinubi & Robson, 2010).

Individuals' retirement intentions are also related to financial factors including accumulated assets, current income and expected retirement income, and the value of pension entitlement (Hurnard, 2005; Van Solinge & Henkens, 2014). In New Zealand, 65 years is the age at which individuals become eligible to receive New Zealand Superannuation (NZ Super; New Zealand Immigration, 2018). The NZ Super is different from those in many other countries: its emphasis is on social protection; there is no mandatory retirement age; pension is not dependent on retirement, and there are limited early retirement options (Hurnard, 2005). Thus, in New Zealand the pension is not provided to those who retire before 65 years unless under certain limited conditions. Also, individuals who are age-qualified, whether or not they are in the workforce, receive the same amount. As a result, these policies do not encourage people to retire early, and older workers in New Zealand may choose not to retire early and stay in the workforce beyond the age of 65 years. Moreover, based on the replacement rate effect, those with a high pre-retirement income would receive a low replacement rate potentially resulting in low retirement intentions, whereas low pre-retirement income may produce a high replacement rate which may contribute to stronger retirement intentions (Hurnard, 2005). In the current study, we found perceived age discrimination was not significantly related to the intended retirement age of older workers in New Zealand. They may choose to stay in the workforce to retain their financial stability. In particular those with higher income levels may be less likely to retire as their retired earnings would be less than their work-related income. Income levels and financial burden are also related to retirement intentions, and future research could focus on these variables when examining this relationship.

Based on the literature review, it was hypothesized that job satisfaction would mediate the relationship between perceived age discrimination and intended retirement age. We found that job satisfaction did mediate this relationship. However, there was no significant direct

effect of perceived age discrimination on intended retirement age. Overall, our results supported Hypothesis 6. We also found increased job satisfaction level was related to higher intended retirement age and this suggests that older workers who have greater job satisfaction, intend to retire later. This finding is consistent with previous studies that low job satisfaction is a significant predictor of early retirement (Mein, Martikainen, Stansfeld, Brunner, Fuhrer & Marmot, 2000; Kautonen, Hytti, Bögenhold & Heinonen, 2012). We found no significant direct effect of perceived age discrimination on intended retirement age, this is inconsistent with previous studies (e.g. Snape & Redman, 2003; Australian Human Rights Commission, 2015) where perceived age discrimination could lead to a consideration to retire. Our study provides evidence that among New Zealand older workers, perceived age discrimination was not directly related to retirement intention, but it had an indirect effect through job satisfaction. That is, older workers who perceived higher levels of age discrimination had lower job satisfaction, and in turn, reported early intended retirement age.

Our finding regarding intended retirement age is important to society, including New Zealand, because the population worldwide is now ageing (Wiener & Tilly, 2002; Rutherford & Socio, 2012). Based on data from Statistics New Zealand (2017a), the population aged 65 years and over had doubled to 700,000 from 1988 to 2016 in New Zealand. Internationally, as the population ages, the old-age dependency ratio increases (United Nations, 2017), and this results in an increase in the financial burden on pension systems in many countries, such as the UK, Spain and Australia. Thus, the governments of those countries have delayed retirement age in order to maintain the sustainability of their pension systems (Blake & Mayhew, 2006; Díaz-Giménez & Díaz-Saavedra, 2009; Knell, Köhler-Töglhofer & Prammer, 2006). In New Zealand, the eligible age for New Zealand Superannuation began at 60 years when it was introduced in 1977 and has more recently increased to 65 years, where it remains today (Ministry of Social Development, 2003). Increasing the retirement age is a strategy to lighten the pressure on pension systems, and also to keep older people in the labour market. Apart from the benefits for pension systems, there are other benefits to retaining older workers in the workforce, including improving physical, psychological, financial and material well-being of individuals, addressing the problems of skills and labour shortages, and extending the contribution of older people to society (Davey, 2015). However, increasing the retirement/pension age is not a comprehensive strategy for keeping older workers in the

labour market, since age discrimination still remains a barrier. In the current study, we found perceived age discrimination had an effect on intended retirement age through job satisfaction among older workers in New Zealand. Our results also indicate that work engagement and continuance commitment are positively related to intended retirement age, although surprisingly mental and physical health were not significantly related to retirement intentions. According to our results, it can be hypothesized that reducing age discrimination at work may improve life satisfaction, mental health, physical health, job satisfaction, work engagement, and decrease the continuance commitment for older New Zealanders.

Although it is illegal for employers to discriminate against older workers simply because of their age, older workers in New Zealand, especially those in the older age group, still perceived age discrimination in the workplace. This study demonstrates that there are consequences of perceived age discrimination for both individuals and the organisations. Understanding the reasons for being discriminated against is important; age stereotypes towards older people is one reason, and employers and managers often hold negative stereotypes and make employment decisions based on them (Truxillo, Fraccaroli, Yaldiz & Zaniboni, 2017; Posthuma & Campion, 2009; Roscigno, Mong, Byron & Tester, 2007). McGregor and Gray (2002) examined the nature of stereotypes held by older workers and employers in New Zealand and they revealed that both groups held the negative stereotypes of *resistance to change* and *problems with computer technology*. These attitudes held by employers and colleagues may lead them to discriminate against older workers, and consequently, may enhance older workers' perception of age discrimination.

Our study also provides new evidence that job satisfaction mediates the relationship between perceived age discrimination and the intended retirement age among this sample. Future research could focus on the mediation effect of this relationship, to reduce the effect of age discrimination on the retirement intention among older workers.

Limitations and further research

Directions for further research have been discussed in previous paragraphs. This section will discuss limitations and other directions for future research. First, in the HWR survey, there were three options for gender: (1) male, (2) female, and (3) gender diverse; also, there was

an option of “other” in the ethnicity and occupation questions. For the analysis of the reported levels of perceived age discrimination, the minority options – “gender diverse” and the “other” ethnicity and occupation options were not included due to the low number of respondents in these categories. Future research should investigate the perception of age discrimination in a more diverse group of older people across different gender identification, ethnicities and occupations. Furthermore, regarding the analysis of the association between perceived age discrimination and intended retirement age, the option of “I never intend to retire from paid work” was excluded. This may be problematic if those who never intended to retire perceived different levels of age discrimination as we may have underestimated levels of perceived age discrimination in our older workers.

Another limitation is related to the measure of perceived age discrimination. We measured this construct with the Nordic Age Discrimination Scale (NADS). This measure assesses the extents to which participants (older workers) agree with statements about the treatment of older workers. However, this may not reflect the actual phenomena of age discrimination in the New Zealand workplace. Perception is a subjective experience and it can differ across individuals. We found that a high percentage of workers aged 65+ perceived a high level of age discrimination; however, the perception may not accurately reflect the actual occurrence of age discrimination. There are few studies focus on the perception of age discrimination in the workplace among older workers in New Zealand. However, according to the previous research of workplace age discrimination among older workers in Australia (Australian Human Rights Commission, 2015) and the United States of America (Chou & Choi, 2011), and a study of discrimination in New Zealand (Yeung & Crothers, 2016), “younger” older people had a higher percentage of experienced discrimination than people in older ages. These studies measure discrimination by asking participants the frequency they had experienced discrimination, which is different than the measure of age discrimination in the current study. The measure used in previous research may reflect the actual occurrence of discrimination, as they asked participants how often they actually experienced the discriminatory events. Our study measured older workers’ perception of age discrimination which is their subjective experience of age discrimination and may not reflect their actual experience of discrimination or their treatment in the workplace.

We found perceived age discrimination was negatively related to mental and physical health. In the current study, mental and physical health were measured using the SF-12 component scores. We did not however, look at specific health conditions, for instance depression and anxiety that have previously been found to be related to discrimination (Flores, Tschann, Dimas, Bachen, Pasch & de Groat, 2008; Pascoe & Smart Richman, 2009; Tummala-Narra, Alegria & Chen, 2012). Further research could focus on the specific psychological conditions such as depression, anxiety, and physical symptoms such as sleep disorders. It would be useful in the future to undertake longitudinal research into this area and control for existing health conditions to better understand the impact of age discrimination on the health of older workers.

The possibility of the impact of unmeasured variables on the findings must also be taken into account. For instance, there may other variables that should be controlled for when examining intended retirement age, such as income level. In addition, the HWR survey was not specifically designed for the research questions addressed in the present study and thus the measures used for these analyses may not be the most suitable and appropriate for the study.

The data in the HWR survey is collected through postal survey and in the 2018 survey this consisted of 120 items. This large number of items may result in participant burden, particularly in older participants, leading to unreliable responses. In addition, the HWR survey is self-report which may result in common method variance which can inflate the results of the research; self-report can lead to an inaccurate result in different ways such as self-deception and memory (Paulhus & Vazire, 2007). Future studies on age discrimination could contain fewer items in the survey, especially for older people, and could include a face-to-face interview in order to reduce common method variance.

Finally, the age of the participants in the current study ranged from 55 years to 70 years, and those participants aged above 70 years were not included. Also, for the analysis on intended retirement age, only participants aged under 65 years were included. These data analytic decisions were made for clarity in undertaking analyses; however, it is acknowledged that

there will be workers in New Zealand aged 70 years and above and those over the age of 65 years who will be preparing for future retirement.

For future research, understanding the reasons for the occurrence of discrimination are also important in order to reduce it. Previous studies have shown that negative stereotypes towards older workers can cause discrimination towards them (Avolio & Barrett, 1987; Finkelstein, Burke & Raju, 1995; Rupp, Vodanovich & Crede, 2006; Roscigno, Mong, Byron & Tester, 2007). Future research could focus on the reasons for the discriminatory behaviours towards older workers from the employers' and managers' perspectives, and the association between perceived stereotype threat and perceived age discrimination among older workers. The overall aim of future work should be to reduce negative age stereotypes towards older workers and encourage employers and managers to assess their workers based on their ability and performance, rather than based on age stereotypes.

The results of hypothesis 1 were partially inconsistent with previous studies, and two explanations may be applied. First, the perception of age discrimination was measured in the current study, and many previous studies have measured the actual experience of age discrimination (e.g. Australian Human Rights Commission, 2015). As mentioned previously, perception of age discrimination is a subjective experience, and there can be differences between the subjective experience and the actual experience of age discrimination (Bratt, Abrams, Swift, Vauclair & Marques, 2018). Future research could examine the actual objective experience of age discrimination in the New Zealand workforce. Second, the low percentage of gender discrimination and similar percentages of discrimination perceived across ethnicities in New Zealand may account for the difference in our findings to other studies. Perceived gender or racial discrimination can be risk factors for perceived age discrimination (Gee, Pavalko & Long, 2007), thus, it is hypothesized that the low percentage of gender and racial discrimination for women and minority ethnic groups in New Zealand reduces their perceived age discrimination. Future research in New Zealand could examine the associations between perceived gender/racial discrimination and perceived age discrimination, in order to identify the risk factors of perceived age discrimination for older workers.

Future research could explore further mediators and moderators for the relationships between perceived age discrimination and well-being, and job characteristics and retirement intentions. For instance, for the effects on well-being, possible mediators/moderators could be health behaviours, and psychological and physiological stress responses (Clark, Anderson, Clark & Williams, 1999; Pascoe & Smart Richman, 2009). In the context of job characteristics, reward, recognition, the environment of the workplace, perceived stress and social support are factors that influence job satisfaction and work engagement (Applebaum, Fowler, Fiedler, Osinubi & Robson, 2010; Li & Mao, 2014; Waqas et al., 2014), whereas normative commitment, continuance commitment, job satisfaction, and perceived stress are strongly related to the intention to quit (Chen, 2006; Applebaum, Fowler, Fiedler, Osinubi & Robson, 2010). Furthermore, it would be helpful to investigate the reasons that older workers choose to retire early in New Zealand. As discussed, there are a number of factors that affect the intention to retire early such as family burden and health conditions (Hurnard, 2005). Further research on the effect of perceived age discrimination on retirement intentions would benefit from controlling those factors. Understanding the reasons that older workers retire early or continue in the workforce would be helpful for government and organisations in designing policies and practices to retain older workers in the workforce.

Research implications

The current study and previous studies of age discrimination have found that perceived age discrimination is related to health issues among older workers, and has negative impacts on the organisation. These consequences can act as barriers for older workers to remain in the workforce and highlights the importance and seriousness of age discrimination among older workers. Although under the New Zealand Bill of Rights Act 1990 and the Human Rights Act 1993 all workers are protected from discrimination (it is illegal for employers to discriminate against workers due to their age), perceived age discrimination is still prevalent in the workplace, especially for the oldest of workers. Our results show that among some groups, for instance, workers aged 65 years and over, male, Māori, those had no educational qualification and unskilled workers, perceived age discrimination levels were higher than the mean. This suggests that legislation may not be the only effective way to prevent people from being discriminated against because of their age. As discussed previously, the perception of age discrimination is a subjective experience, where individuals may have different definitions

of the experience of discrimination. It suggests that employers and employees may also have different perceptions of what age discrimination entails. According to the Australian Human Rights Commission (AHRC; 2015), those who experienced workplace age discrimination in the past two years were very likely to be aware of other people who had experienced age discrimination; meanwhile, those who had not experienced age discrimination were more likely to be unaware of others who had been being discriminated against. The findings of AHRC report suggest that when people are “inside” of the group, they are more likely to be aware of the occurrence of the event, and the opposite occurs when they are an “outsider”. In the context of the workplace, employers are always “outside” of the group being discriminated against, thus, they may not be aware of their discriminatory behaviours towards workers. A promotion targeted at employers from the perspective of the older worker may reduce employers’ discriminatory behaviours toward them.

The results revealed that perceived age discrimination was not a direct factor in the decision to retire early for older workers in New Zealand; however, it had an indirect effect on retirement intentions through job satisfaction. This illustrates that for New Zealand older workers, job satisfaction is an important predictor of early retirement. This causal effect is supported by previous studies (e.g. Mein, Martikainen, Stansfeld, Brunner, Fuhrer & Marmot, 2000; Kautonen, Hytti, Bögenhold & Heinonen, 2012; Scott, Gravelle, Simoens, Bojke & Sibbald, 2006), and this study has confirmed that it applies to New Zealand workers as well.

Conclusion

This research focused on two aspects of age discrimination in the workplace: (1) the prevalence of perceived age discrimination, and (2) the impacts of perceived age discrimination among New Zealand workers aged 55 years to under 70 years.

The current research contributed new and updated findings on the experiences of New Zealand’s older workers. We found that people aged 65 years and over and unskilled workers were more likely to report perceived age discrimination in the workplace. Surprisingly, we found no significant difference in perceived age discrimination among ethnicity, education, and gender. One possible explanation may be due to the low reported levels of gender

discrimination in New Zealand, which may reduce the risk of perceived age discrimination (double discrimination).

Results also showed that perceived age discrimination had a negative impact on mental and physical health and a positive relationship with work-related stress. Although no significant direct effect on life satisfaction was found, perceived age discrimination had a negative effect on life satisfaction, as well as mental and physical health, through work-related stress. We also found that perceived age discrimination may have implications for organisational effectiveness; there was a negative effect on job satisfaction, work engagement and a positive effect on continuance commitment. Similar to life satisfaction, perceived age discrimination had no significant effect on intended retirement age, however, perceived age discrimination had an indirect effect on intended retirement age through job satisfaction.

Our results support a number of previous studies on the negative impacts of perceived age discrimination on well-being and the job experiences, and the current study has confirmed these impacts on a New Zealand sample of older workers. The study also identified work-related stress and job satisfaction as important mediators for the relationship between perceived age discrimination and outcomes. These findings are important and beneficial as they provide employers, managers, and the government with information to better support older workers to remain in the workforce.

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Appendix A

General instruction for 2018 Health, Work and Retirement Survey

General instructions for completing the survey

Please read the following carefully

- You can decline to answer any particular question.
- There are no right or wrong answers; we want the response that is best for you.
- It is important that you give your own answers to the questions.
- Do not linger too long over each question; usually your first response is best.
- Completion and return of this survey implies consent to take part in this component of the study.

For each question in the survey you will be asked to provide either:

- **a single answer that is most appropriate.** These are the most common question types - for these items, please mark (e.g. ✓ or ✗) one box on each line in pen or pencil. If you make a mistake, simply scribble it out and mark the correct answer.
- **one or more responses, as appropriate.** For these items you will be instructed to 'Please tick all that apply'.
- **a free text response.** To provide free text, please print your response as clearly as possible on the line provided.

Example question and response: Please tick 'Yes' to indicate if a health professional has told you that you have any of the following conditions:

(Please tick <u>one</u> box on each line)	No	Yes, in the last 12 months	Yes, prior to the last 12 months
Sleep disorder	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stroke	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cancer	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Please specify cancer type:	melanoma		

- **a number:** where a number or date is required, print the figure in the box provided.

Example question and response: How many of the following people are you in regular contact with? Please place a zero or a number in the squares as appropriate:

Adult child(ren) and/or grandchild(ren)/mokopuna	<input type="text"/>	<input type="text"/>	5
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Thank you for taking the time to complete this questionnaire
If you need help to answer any questions please contact us either on the HART
free-phone line [0800 100 134](tel:0800100134) or via email: hart@massey.ac.nz