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**Abstract**

Retirement represents a significant life transition typically occurring in later adulthood, often accompanied by substantial lifestyle changes. Several theoretical frameworks suggest that these changes present both opportunities and challenges for well-being, and the extent to which individuals experience positive versus negative well-being outcomes may be influenced by various factors. To study such heterogeneity in retirement experiences, researchers have embraced person-centred methodologies. Yet, some previous studies have not robustly delineated retirement- from age-related changes in well-being, accounted for statistical uncertainties, or examined these diverse experiences outside of a Western context. These limitations preclude conclusions about the diverse experience of retirement. Using both person- and variable-centred approaches, this study examined life satisfaction trajectories before and after retirement among 532 retired middle-aged and older adults from the Singapore Life Panel. Controlling for age-related changes, latent growth mixture analysis was employed to identify retirement subgroups with varying life satisfaction trajectories. Three distinct trajectories were revealed— decreasingly satisfied, stable post-retirement, and increasingly satisfied. As compared to those increasingly satisfied, decreasingly satisfied individuals tended to have lower social support, were higher on neuroticism and had higher income. While expressed to a similar magnitude across profiles, education and religious activity also emerged as important predictors of well-being in retirement transition. Findings from the present study highlight the importance of recognizing heterogeneity in retirement experiences and opportunities for targeted interventions to support retirees' well-being.

*Keywords*: retirement, well-being, person-centred approach

**Public Significance Statement**

Findings from the present study suggest three distinct life satisfaction trajectories associated with retirement and accounting for age-related changes— decreasingly satisfied, stable post-retirement, and increasingly satisfied. As compared to those who are increasingly satisfied, decreasingly satisfied individuals tended to have lower social support, higher on neuroticism and had higher income. Further, while expressed to a similar magnitude across profiles, education and religious activity were also important predictors of well-being in retirement transition. These findings highlight the importance of recognizing heterogeneity in retirement experiences and the potential for targeted interventions to support retirees' well-being.

The transition into retirement is a significant life event that often signifies the conclusion of a lifelong career and the onset of a new life phase. It represents a considerable shift in an individual's everyday routine, social interactions, and financial circumstances (Kim & Moen, 2001a). Numerous theoretical frameworks have posited that retirement can influence well-being—positively and negatively (e.g., Atchley, 1989; Wang, Henkens, & van Solinge, 2011).

Perspectives conceptualising retirement as a *loss* experience tend to emphasise adverse psychological outcomes associated with this significant life transition. For instance, within Role Theory (Kim & Moen, 2001a; Wang et al., 2022), the transition to retirement involves the loss of a vital social role, which can lead to psychological stress and declines in retirees' well-being, particularly among those who strongly identify with their career (Ashforth, 2001). Further, the disruption of structure and social norms associated with retirement reduce perceptions of a meaning in life (Freund, Nikitin, & Ritter, 2009; Heintzelman & King, 2019). In contrast, theoretical perspectives that construe retirement as a *gain* experience emphasize opportunities to enhance well-being during post-retirement years. From the Continuity Theory perspective (e.g., Atchley, 1989), individuals have a tendency to preserve their earlier lifestyle patterns, self-esteem, and values, even as they transition out of their career (Kim & Moen, 2001a; Wang et al., 2022). Therefore, retirement may not necessarily result in maladjustment and distress. Indeed, literature on role-strain and work-family spill over suggests retirement may enhance well-being by eradicating the psychological discomfort imposed by career demands (Brotheridge & Lee, 2005; Kim & Moen, 2001a; Väänänen et al., 2005). Furthermore, according to Socioemotional Selectivity Theory (SST; Carstensen, 1992), individuals tend to perceive time as more limited in older age and become increasingly focused on relationships that are emotionally meaningful, rather than those solely based on instrumental benefits. As retirement occurs more commonly in

older age, this theory suggests that retirees may prioritize maintaining and deepening relationships with close family members and friends, seeking out social activities that provide emotional fulfilment and support rather than pursuing new, potentially more demanding social roles (Carstensen, 1992; Carstensen, Isaacowitz, & Charles, 1999; Charles & Carstensen, 2010). Hence, the extent to which retirement may be experienced positively or negative may be, in part, influenced by the ability to pursue these shifting priorities.

As evinced, retirement may be construed as a gain or loss experience, posing both opportunities and challenges for well-being. Literature has provided corroborating evidence for such heterogeneity, with three commonly observed well-being trajectories during retirement being increasing, decreasing, and no changes (Heybroek, Haynes, & Baxter, 2015; Pinquart & Schindler, 2007; Wang, 2007).

**Predictors of Well-being Changes in Retirement**

The observed heterogeneity in well-being trajectories over the course of retirement inevitably raises questions about factors associated with these differences. The life course perspective suggests that individual life trajectories are shaped by a combination of personal characteristics, individual actions, social and institutional conditions (e.g., Elder, Johnson, & Crosnoe, 2003; Mayer, 2009). Demographic factors such as gender, income, education, ethnicity, and marital status may shape the opportunities and constraints individuals face throughout their lives. Personality traits may affect how individuals navigate life transitions and respond to changing circumstances. Social variables, including activity engagement and social support, emphasize the interconnectedness of lives and the role of relationships in shaping life paths. Employment characteristics, such as job sector and occupation type, can influence the resources and roles individuals have access to before retirement. Altogether, these factors may contribute to the experience of retirement (e.g., Ashforth, 2001; DeNeve & Cooper, 1998; Francis & Weller, 2021; Ryan & Solky, 1996). Thus, by considering these

dimensions within the life course framework, and by drawing on insights from other extant theories (e.g., Self-Determination Theory, Role Theory, SST), we gain a comprehensive understanding of how these factors collectively shape retirement well-being trajectories.

### *Demographic Factors*

**Income, education, and ethnicity**. Self-Determination Theory (SDT; Ryan & Deci, 2000) emphasizes the importance of three fundamental psychological needs for well-being—autonomy, competence, and relatedness. Insofar as income and education may influence access to resources, they may also impact an individual's ability to fulfil these fundamental needs. Among retirees, those with sufficient financial means may experience greater flexibility in choosing their place of residence and lifestyle options (Heybroek et al., 2015). As such, they may possess a greater capacity to address their psychological needs and experience greater well-being in retirement (Howell et al., 2013; Mogilner, Whillans, Norton, 2018). This may include more autonomy in choosing how their time is spent. However, accrued financial resources vary considerably among retirees. For instance, ethnic minorities may experience greater income insecurity in retirement, potentially owing to fewer intergenerational transfers of wealth and less retirement savings (Francis & Weller, 2021). Similarly, individuals with lower (vs higher) education may be less likely to have a retirement savings program (Joo & Grable, 2005), and experience greater financial insecurity in retirement, undermining their fulfilment of psychological needs and ultimately negatively impacting their sense of well-being (Howell et al., 2013).

**Gender**. Gender variations in labour force expectations can shape the retirement experience and subsequent well-being. Across many cultures, traditional gender roles designate men as primary breadwinners and women as caregivers (e.g., Boehnke, 2011; Zhu & Chang, 2019), leading to women experiencing more frequent employment interruptions due to shifting family responsibilities (van Solinge, 2007). As such, women may be more

likely than men to experience employment discontinuity, moving in and out of the labour force as their family responsibilities shift (Kim & Moen, 2001a). Scholars disagree as to whether such experiences help female retirees to transition more easily to a more domestic lifestyle (e.g., less role loss; Kim & Moen, 2001a; Noh et al., 2019; Park & Kang, 2016), or whether such disruptions create difficulty for post-retirement planning and adjustment (e.g., Calasanti et al., 2021; Kim & Moen, 2001b; Mosconi et al., 2023). A recent meta-analysis did not find significant gender differences in the effects of retirement on subsequent well-being (Odone et al., 2021). The lack of consistent gender differences may suggest the absence of uniformed gendered experiences at mean-levels of well-being, but does not rule out the possibility of distinct well-being trajectories.

**Marital status**. In general, compared to unmarried individuals, those who are married tend to report higher levels of well-being (Peters & Liefbroer, 1997), including happiness (Glenn & Weaver, 1988), morale (Balkwell, 1985), mental health (Hughes & Gove, 1981), life satisfaction (Acock & Hurlbert, 1993), and lower feelings of loneliness (Page & Cole, 1991). An explanation for this pattern of finding has been attributed to be the fulfilment of psychological needs and access to essential resources when engaged in a married partnership (Chappel & Badger, 1989; Peters & Liefbroer, 1997; Ryan & Deci, 2001). Marital life may play a crucial role in the transition to and adaptation during retirement. While the absence of a work role often leads to diminished social interaction and a loss of social role (Kim & Moen, 2001a; Wang, 2007), married retirees may rely on their role as spouses and increase their interactions with each other (Atchley, 1989, 1999; Kim & Feldman, 2000), fulfilling their need for relatedness (Ryan & Deci, 2001). Thus, individuals who are married and transition into retirement may experience greater well-being as compared to those who are not.

### *Personality Differences*

Personality has frequently been associated with adjustments to life events (e.g., Wrosch & Scheier, 2003), including retirement. For instance, individuals with higher extraversion—characterised by talkativeness and high energy respectively—may more likely enjoy supportive relationships (e.g., DeNeve & Cooper, 1998). As such, despite a potential temporary loss of supportive networks associated with their workplace, their sociability may facilitate the development of new support networks post-retirement (e.g., Robinson et al., 2010; Hansson et al., 2020), fulfilling psychological needs for relatedness (Ryan & Deci, 2000, 2001). On the other hand, individuals who are higher (vs lower) on neuroticism (emotional instability) may be pre-disposed to negative life appraisals, and hence, perceive pre- and post-retirement life as unsatisfying and challenging (e.g., Reis & Gold, 1993; Hansson et al., 2020; Henning et al., 2017; Serrat et al., 2017). We examined possible effects of the Big Five personality traits (John, Donahue, & Kentle, 1991) on retirement transition.

### *Social Factors*

**Social support**. Social support is an important predictor of well-being (Adams et al., 2016; Bryson & Bogart, 2020), and may function as a buffer against negative experiences associated with retirement (e.g., Chen & Feeley, 2014; Ward & King, 2017). For instance, social support offered during these times of transition, such as providing a listening ear and expressing empathy, may elicit feelings of acceptance and being cared for (Semmer et al., 2008), which can help buffer the negative effects of stressors (Krause, 1997; Semmer et al., 2008). Beyond mitigating against negative affect, social support may also fulfil fundamental psychological needs, contributing to post-retirement well-being (e.g., Ryan & Solky, 1996; Shin & Park, 2022). Hence, although retirement may be associated with worse well-being for some (e.g., Heybroek et al, 2015; Pinquart & Schindler, 2007), those with adequate social

support may experience better well-being outcomes (Beehr & McGrath, 1992; Langford et al., 1997; Roohafza et al., 2014)**.**

**Social Activity**. Engaging in activities outside the work environment offers opportunities to cultivate new relationships and nurture existing ones. Hence, these activities may serve as channels to social support systems (Kim et al., 2021; Lin et al., 1999), which, in turn, may help mitigate the adverse effects of retirement stressors on well-being (Bowlby, 1977). Engaging in activities may also promote a sense of identity and meaning (Eakman, 2013; Winstead et al., 2014), feelings of competence (Coleman & Iso-Ahola, 1993; Iso-Ahola et al., 1989), physical health (Greaves & Farbus, 2006), and cognitive functioning (Choi et al., 2016; James et al., 2011), all positive correlates of well-being (Geerlings et al., 2000; Rodda et al., 2011; Rogers, 1987; Rogers & Holm, 2000; Ryan & Deci, 2000). As such, while retirement experiences may prove detrimental for well-being for some, those higher in activity engagement may experience greater well-being in retirement.

Moreover, SST suggests that as people age, they may prioritize socially rewarding experiences with close others over acquiring new knowledge and skills in the service of establishing a career (Carstensen, 1992; Carstensen, Isaacowitz, & Charles, 1999; Charles & Carstensen, 2010). As retirement may induce a similar shift in priorities, we anticipate that the availability of social support and engagement of social activity could have an amplified impact on retirement well-being.

### *Employment Characteristics*

While most studies have examined sector and occupation type on workforce exit (e.g., Feldman, 1994; McPhedran, 2012; Zhang et al., 2024), literature on the influence of these employment variables on subsequent retirement well-being have been pauce. In one of the few studies examining employment variables and retirement well-being (Clark & Fawaz, 2020), the sharpest fall in well-being following retirement were among those working in

sales, possibly due to drastic reductions in social contact (Clark & Fawaz, 2020) and corresponding reductions in the fulfilment of relatedness needs (Ryan & Deci, 2000). In contrast to former sales employees, managers and professionals reported significant increases in well-being post-retirement, although a potential mechanism for this observation was not explicated.

**Methodological Approaches and Gaps in the Current Literature**

In exploring the diverse experiences within retirement, researchers have embraced both variable-centred (e.g., Beehr & McGrath, 1992; Robinson et al., 2010) and person-centred methodologies (e.g., Heybroek et al, 2015; Pinquart & Schindler, 2007; Wang, 2007; for discussions on variable- vs person-centred methodology, see Muthén & Muthén, 2000). Variable-centred methods examine associations between potential predictors and well-being growth factors (e.g., baseline levels of well-being or change in well-being over time). In contrast, person-centred approaches operate on the premise that unobserved or latent subgroups exist—some that exhibit increasing satisfaction after retirement and others that exhibit decreasing or stable levels of satisfaction. These subgroups may be identified based on response patterns on several indicators (latent class/profile analysis; e.g., Chia, Hartanto, & Tov, 2023) or through clusters of trajectories (latent growth mixture model; e.g., Pinquart & Schindler, 2007). An advantage of variable-centred methods is the ability to link specific predictors (e.g., income) to specific growth parameters (e.g., the linear slope of well-being over time). However, an advantage of person-centred methods is the ability to more fully characterize distinct trajectories of well-being over time—including those involving nonlinear change—and associate these with a configuration of factors that may *jointly* explain change (interactionist principle; Bauer & Shanahan, 2007; Chia et al., 2023). Although various predictors (e.g., social activity) may be positively associated with well-being in retirement (variable-centred approach), it is not clear whether retirees who

experience greater satisfaction over time necessarily expresses these variables more than those who do not (e.g., Do retirement subgroups reporting greater well-being engage in greater activity in actuality?; Chia et al., 2023; Muthén & Muthén, 2000). These person-oriented questions can have profound practical implications for policy and intervention. For instance, by identifying subgroups associated with poorer well-being outcomes in retirement, more population-specific interventions may be introduced (e.g., Korhonen, Linnanmäki, & Aunio, 2014). In our view, variable-centred and person-centered approaches are complementary, and we use both to analyze well-being trajectories pre- and post-retirement. Nevertheless, although several studies have examined well-being in retirement from person-centred approaches, methodological issues and gaps in the literature persist.

### *Age- vs Retirement-Related Changes in Retirement Well-being*

Prior investigations utilizing person-centred methodologies have revealed at least three retirement subgroups— those experiencing positive changes, no change, and negative changes in well-being following retirement (Heybroek et al, 2015; Pinquart & Schindler, 2007; Wang, 2007). Despite these findings, the extent to which observed trajectory patterns truly represent the influence of retirement versus age-related changes remains unclear. Indeed, age and age-related factors (e.g., health) appear to differentially predict membership into the various retirement subgroups, with older age and poorer health predicting membership into subgroups associated with worse well-being outcomes post-retirement (e.g., Pinquart & Schindler, 2007; Wang, 2007). This raises the question of whether the subgroup differences in trajectories reflect differences in retirement transitions or developmental factors associated with age. While not directly accounting for age-related changes in these studies yields certain advantages— such as understanding well-being trajectories associated with retirement at older vs younger age— it constrains our theoretical understanding of how retirement itself, independent of age-related changes, may associate with well-being.

### *Classification Uncertainty and Subgroup Characteristics*

Person-centred approaches aim to elucidate subgroup characteristics or factors associated with subgroup-membership. To this end, previous studies have frequently adopted the classify-analyse method (e.g., Gruszczyńska et al., 2020; Heybroek et al, 2015; Wang, 2007) which treats modal profile assignment as an *observed* grouping variable, and estimates associations between variables of interest and profile-membership based on the assumption of zero classification error. Yet, neglecting the presence of non-zero classification error—inherent in the estimation of latent subgroups— presents itself as a significant limitation of this approach (Nylund-Gibson, Grimm, & Masyn, 2019). That is, failing to account for classification error can result in biased estimates of subgroup differences (Bakk, Tekle, & Vermunt, 2013; Elliot et al., 2020). We attempt to mitigate such biases by accounting for classification uncertainty.

### *Predominant Focus on Western Samples*

Previous studies examining retirement experiences from person-centred approaches have predominantly featured Western samples (e.g., Heybroek et al., 2015; Pinquart & Schindler, 2007; Wang, 2007). A summary of these studies may be found in the Supplementary Material (Table S1). It is uncertain how patterns of well-being observed in these studies may translate to non-Western samples.

Literature suggests that cultural values, norms, and expectations surrounding work, retirement, and aging may all influence retirement experiences (e.g., Luborsky & LeBlanc, 2003; McNamara & Williamson, 2013; Oishi et al., 2009). For example, in collectivist societies in Asia, including Singapore, there is a pronounced emphasis on family support networks and intergenerational solidarity (e.g., Sreeja & Dommaraju, 2023). Concepts like filial piety, which underscore the importance of respect and care for elderly parents, are deeply ingrained in cultural norms (e.g., Ng et al., 2016). This cultural orientation may lead

to distinctive patterns of retirement, where continued familial responsibilities and active participation in family and community life may be expected and valued (e.g., Chen & Silverstein, 2000; Croll, 2006; Mehta, 1999; Sreeja & Dommaraju, 2023). Retirement in some Asian societies may, thus, be characterized by maintaining close familial relationships, contributing to household responsibilities (e.g., Sreeja & Dommaraju, 2023). Comparatively, in Western contexts, retirement may proceed the dispersal of one's family (e.g., children moving out), and may signal the arrival of a new life stage where there may be reduced emphasis of individuation within social groups (e.g., on the role of "father" in a family, or "employee" in a company) and an increased focus on the concept of a distinct, self-sufficient, and individualized identity (e.g., Luborsky, 1994; Luborsky & LeBlanc, 2003). This new phase of life may, thus, present itself as an opportunity to pursue prized Western values of personal autonomy, freedom and independence (e.g., Atchley, 1976; Luborsky & LeBlanc, 2003). Given these cultural distinctions, it is crucial to explore retirement experiences beyond Western contexts to gain a more comprehensive understanding of how retirement is experienced globally.

In addition to broad differences between Asian and Western societies, there are also unique features of the Singapore context that may or may not influence trajectories of well-being post-retirement. For example, Singapore is a geographically small nation (50 km from east to west) with high population density (8058 people / km2 in 2023; Department of Statistics Singapore, 2024). On the one hand, this may imply closer proximity to family members. At the same time, Singapore society is changing. The total fertility rate has been declining and reached a historic low in 2022 at 1.04; and the proportion of the population age 65 and older is projected to reach 24% by 2030 (Department of Statistics Singapore, 2023). Along with these changes, the number of multigenerational households has decreased, further reducing intergenerational contact (Yeh et al., 2022). It is important to ask how the trajectory

of retirement well-being fares within this dynamic context—and whether the patterns observed in previous studies also apply to retirees in Singapore.

## The Present Study

The experience of retirement represents both opportunities and challenges for well-being, and the extent to which individuals experience this life event positively or negatively depends on a range of factors. While previous person-centred studies have examined such heterogeneity in retirement, several methodological issues and gaps in the literature have limited conclusions about the diverse experience of retirement. To wit, previous studies may not have accounted for age-related changes in estimating well-being trajectories across retirement, controlled for classification uncertainty when examining factors associated with different retirement well-being subgroups, and have predominantly featured Western samples. To this end, the main purpose of this study was twofold: (1) to examine life satisfaction trajectories pre- and post-retirement among middle-aged and older adults living in Singapore, from a person-centred approach accounting for age-related changes, and (2) to identify factors associated with retirement well-being subgroup-memberships, accounting for classification uncertainty. While previous research has explored the impact of various factors on retirement well-being (e.g., demographic and social variables; Heybroek et al., 2015; Pinquart & Schindler, 2007; Wang, 2007), the life course perspective suggest that personality differences and employment characteristics may, too, play an important role in shaping retirement well-being. As such, in addition to demographic and social variables, the current study examines the impact of personality differences and employment characteristics on retirement well-being.

Accounting for age-related changes, we expected to identify latent subgroups posited by various theoretical models regarding retirement effects. We also expected subgroups to

differ along some of the aforementioned correlates of well-being, particularly among social variables.

## Method

### Transparency and Openness

The analysis code can be accessed at https://osf.io/fr48c/. The data supporting the findings of this study can be obtained from the Centre for Research on Successful Ageing (ROSA) at Singapore Management University, but certain restrictions apply to the availability of this data; due to the data being used under license for the specific purposes of this study, it is not publicly accessible. ROSA will provide access to data for the purposes of verifying the results of this study upon written request (rosa@smu.edu.sg). The study design, hypotheses, and analytical plan in our study were not preregistered. As the current research (*Retirement and Life Satisfaction Among Middle-Aged and Older Adults: A Piecewise Growth Mixture Analysis*) involved the analysis of pre-existing de-identified data, it was deemed exempt from requiring formal ethics approval (*Singapore Management University*).

### Participants and Procedures

The current study sample was drawn from the Singapore Life Panel (SLP), a population-representative monthly survey of adults in Singapore, aged 50 years and above. Commencing in 2015, the SLP recruited respondents through a random selection process involving 25,000 households in Singapore, obtained from the Singapore Department of Statistics (for details, refer to Vaithianathan et al., 2018).

In this study, we selected active respondents who had been employed (i.e., self-employed, working for pay, on sick or other leave) for a minimum of one year before retirement, and had participated in the SLP for a minimum of one year after retirement; to be considered active participants, respondents had to submit their responses to at least one of the waves. Given that different respondents may have retired at different timepoints, constraining

the study to a 2-year period (one year pre- and one year post-retirement) allows for a larger study sample as compared to a study design featuring a longer observation period. While a shorter observation period (e.g., one year) may allow for an even larger sample, it may limit conclusions about longer-term well-being changes following retirement. As such, we focused on 2-year period in the current study. Individuals who had returned to work or undergone multiple retirement transitions were also excluded from the study. This was to enhance the precision of our investigation and concentrate specifically on respondents who had encountered a singular life course transition, retiring once during the specified time frame. These sample selection procedures were consistent with previous studies examining the effects of retirement and unemployment on well-being (e.g., Galatzer-Levy, Bonanno, & Mancini, 2010; Heybroek et al., 2015). The resultant sample consisted of 532 individuals (see Table 1). A previous simulation study involving piecewise growth mixture modelling suggested a minimum sample size of around 200 participants to be acceptable when between-profiles separation is high (Kim, 2012).

**Measures**

***Well-being.*** To assess well-being, a single item measuring life satisfaction was used ("Taking all things together, how satisfied are you with your life as a whole?"). Respondents rated this question on a scale of 1 (*very satisfied*) to 5 (*very dissatisfied*). Responses were reverse-coded such that higher scores reflected greater life satisfaction. Single-item measures of life satisfaction have been frequently used in research (e.g., Galatzer-Levy et al., 2010; Heybroek et al., 2015) and have been shown to provide valid estimates and correlations that are comparable with multi-item measures (Cheung & Lucas, 2014). Although the life satisfaction item was administered more frequently (monthly) as part of the SLP, only waves spanning the target event were utilized. That is, participants were structured using a "floating baseline" approach (e.g., Galatzer-Levy et al., 2010) wherein their data was centred on the

wave of retirement. To wit, 24 timepoints of life satisfaction were assessed for each individual— every month prior to retirement for 12 months (i.e., Timepoints 1, 2, 3… 12), and every month following retirement for 12 months (i.e., Timepoints 13, 14, 15…24).

***Covariates.*** To isolate the effects of retirement on life satisfaction from age-related changes, covariates used in this study included age at retirement, health, and activities of daily living (ADL). While controlling for age alone may account for some age-related changes, the manner in which people age biologically can be fairly heterogeneous (Ferrucci & Kuchel, 2021; Lowsky et al., 2014). As such, by accounting for chronic conditions, as captured by our health condition and ADL variables, we aimed to further isolate the effects of retirement on well-being trajectories by reducing the confounding influence of health-related changes associated with aging. Health was measured as number of chronic illnesses (i.e. hypertension, diabetes, cancer, heart problems, stroke, arthritis, psychiatric problems), assessed at baseline (May to July 2015; Wave 0 of the SLP). ADL assessed difficulty conducting daily activities (i.e., dressing, walking, bathing, eating, getting in and out of bed, using the toilet) across six items (Mlinac & Feng, 2016; $\alpha$ = .90), administered in November 2020 (wave 64). Responses were recorded on a scale from 1 (*Not difficult at all*) to 4 (*Unable to perform*) and summed to derive a total ADL score, with higher scores indicating greater difficulty in daily activities. To account for potential confounds involving retirement during the recent COVID-19 pandemic (i.e., January 2020 – December 2022), retirement during COVID-19 was added as a dichotomous covariate (0 = non-COVID-19 period, 1 = during COVID-19 pandemic).

***Correlates of retirement well-being.*** To examine factors associated with different retirement experiences, demographic factors (e.g., gender, income, education, ethnicity, marital status), personality differences, social variables (e.g., activity engagement, social

support), and employment characteristics (e.g., job sector, occupation type) were included in this study.

Education was assessed on a scale ranging from 1 (*no formal schooling*) to 4 (*post-secondary or tertiary education*). Income was measured as monthly income from work, spouse, monetary allowance from family and friends, private retirement fund, pension plan, and other sources, recoded into deciles ($1^{st}$ decile = lowest income, $10^{th}$ decile = most income). Personality was measured using the 44-item Big Five Inventory (BFI: John et al., 1991). Respondents rated their agreement to several trait descriptors (1 = *Disagree Strongly*, 5 = *Agree Strongly*), where higher scores signified greater levels of a trait. The BFI assess personality across five dimensions— extraversion ($\alpha$ = .68; e.g., “Is talkative”), agreeableness ($\alpha$ = .82 ; e.g., “Likes to cooperate with others”), conscientiousness ($\alpha$ = .81 ; e.g., “Does a thorough job”), neuroticism ($\alpha$ = .78 ; e.g., “Worries a lot”), and openness ($\alpha$ = .71 ; e.g., “Is curious about many different things”). To assess participation in various social activities, participants reported their frequency of engagement across five domains of activities during the past month, over five items. These domains encompassed activities related to friends and family ("Visiting friends or family"), religious practices ("Religious activities such as attending church, mosque, temple or other places of worship"), group activities ("Group activities such as going to clubs, Community Centres, playing cards/mahjong), physical endeavours ("Physical activities such as doing exercises, swimming, or going for a walk") and hobbies ("Hobbies such as shopping, gardening, attending courses, arts and crafts"). Responses were collected using a 5-point scale (1 = *Daily* to 5 = *Never*) and reverse-coded such that higher scores indicating greater activity engagement. These different activity domains were analysed as separate variables. Social support was measured using four items (e.g., “someone you can count on to listen to you when you need to talk”; $\alpha$ = .96). Respondents rated how often each kind of support was

available to them (1 = *None of the time*, 5 = *All of the time*), with higher scores indicating greater social support. An overall social support score was derived by averaging responses across the four items, and then across waves.

With regards to job sector prior to retirement, participants were asked to select one of seven options provided— *private firm/company*, *public sector*, *not-for-profit* (NP), *private household* (e.g., domestic helper), *self-employed*, *others*, and *not sure*. Responses were recoded into three dichotomous variables: private firm (0 = non-private firm, 1 = private firm), public (0 = non-public, 1 = public), and self-employed (0 = not self-employed, 1 = self-employed); as only 11 and three individuals reported being from NP and private household sectors respectively, dichotomous variables for these two sectors were not created. For occupation type prior to retirement, participants were asked to select occupation codes that best represented their occupation (for detailed list of all occupation codes and occupation categories, see Singapore Department of Statistics, 2020). Responses were recoded according to ten occupation categories/groups (1 = *Legislators, senior officials, managers*; 2 = *Professionals* [e.g., science and engineering professionals]; 3 = *Associate professionals and technicians*; 4 = *Clerical support workers*; 5 = *Service and sales workers*; 6 = *Agricultural and fishery workers*; 7 = *Craftsmen and related trades workers*; 8 = *Plant and machine operators and assemblers*; 9 = *Cleaners, labourers, and related workers*; 10 = *Workers not elsewhere classified*). Seven dummy variables were subsequently created, with a value of *1* indicating participants having last belonged to that occupation type (e.g., for *professionals*: 0 = Non-professional, 1 = Professional); as only one, nine, and nine individuals belonged to groups 6, 7 and 10 respectively, dichotomous variables for these three occupation groups were not created.

Gender, education, ethnicity, income, and marital status were assessed at baseline (May to July 2015; Wave 0 of the SLP). Because income and marital status were also

assessed every month, we examined profile differences in these variables at additional time points (see *Sensitivity Analysis*). Personality was assessed in August 2019 (wave 49). Activity engagement was assessed quarterly from January 2018 to April 2020 (waves 30 to 57), and monthly from May 2020 to May 2022 (waves 58 to 82). Social support was assessed quarterly from January 2018 to April 2020 (waves 30 to 57), and monthly from August 2020 to May 2022 (waves 61 to 82). Information on occupation type used in the current study was assessed in September 2017 (wave 26), while job sector was measured at two timepoints: waves 48 and 68 (July 2019, March 2021 respectively)[1].

To facilitate the interpretation of results, age, education, health, income, ADL, and personality were mean-centred. In addition to job sector and occupation variables, gender, ethnicity, marital status, and retirement context were dichotomized (gender: 0 = Male, 1 = Female; ethnicity: 0 = Chinese, 1 = Non-Chinese; marital status: 0 = Married, 1 = Non-married; 0 = non-COVID-19 period, 1 = during COVID-19 pandemic).

**Data Analyses**

***Latent Growth Curve Modelling (LGCM).*** Prior to assessing subgroup differences in response to retirement, LGCM was used to ascertain the optimal functional form of life satisfaction over time for the entire sample (Heybroek et al., 2015; Ram & Grimm, 2009). Several baseline models involving both continuous (e.g., no change, linear, quadratic, cubic) and piecewise trajectories (e.g., linear-linear, linear-quadratic, linear-cubic) were tested, with random intercepts and slopes and loadings of life satisfaction measures fixed according to the

[1] The phrasing of the job sector question differed slightly based on respondents' employment status. For those currently employed, the question asked was, "Which of the following best describes your most *current* employer?" For respondents not currently working, they were asked about their most *recent* job sector. For those who retired before wave 48, the *recent* job sector information from wave 48 was used, and if that was missing, *recent* information from wave 68 was used. For individuals who retired after wave 48 but before wave 68, *current* information from wave 48 was prioritised, and if missing, *recent* information from wave 68 was used. For those who retired after wave 68, *current* job sector information from wave 68 was prioritized, and if missing, *current* information from wave 48 was used. This approach ensures the use of the most relevant and timely occupation data available for each retirement period, while providing fallback options to address missing data.

time intervals between timepoints (e.g., for linear-linear piecewise: Slope 1: 0, 1, 2, …11, 12, 12… 12; Slope 2: 0, 0, 0…0, 1, 2, 3…12; e.g., Felt, Depaoli, & Tiemensma, 2017). Next, to account for age-related changes as well as the influence of the COVID-19 pandemic, covariates of age, health conditions, ADL, and retirement context were added to the model. Latent growth factor scores (i.e., intercept, Slope 1, Slope 2) for each individual according to the latter adjusted model were then saved, to be used in subsequent growth mixture analyses (GMA). In addition to growth mixture analysis, we also examined associations between the growth factors and several variables of interest (i.e., demographic factors, personality differences, social variables, employment characteristics); these variables of interest were subsequently added to the model. This variable-centred analysis compliments the person-centred approach of GMA, providing information on how each variable may uniquely contribute to retirement well-being over time (e.g., Chia et al., 2024).

***Latent Growth Mixture Analyses***. GMA was used to estimate latent profiles based on covariates-adjusted latent scores. In doing so, we accounted for any effects driven by age-related changes in the extraction of the different clusters of life satisfaction trajectories. GMA was conducted by initially estimating a one-profile model, then a two-profiles model, and so on, with an increasing number of profiles being specified. Each model, denoted by K profiles, was compared to the model with one more profile (K+1 profiles). This comparison continued until the larger model (K+1 profiles) did not demonstrate superior performance over the model with fewer profiles. At this point, the previous model (K profiles) was considered as the optimal model and retained for subsequent analyses. To determine the superior GMA model, several criteria were simultaneously taken into account. These criteria included the results from Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC) and entropy index, as well as minimum profile size. Lower values of AIC and BIC were indicative of better model fit. Entropy index serves as a measure of profiling

accuracy; higher values, ideally around .80 or above, are desirable to minimize biases in estimates, while a minimum value of .60 has been suggested (Bauer, 2022). Additionally, it is important to ensure that individual profiles within each model comprise no less than 5% of the sample to avoid spurious profiles (e.g., Ferguson, Moore, & Hull, 2020). In line with GMA approaches, intercept and slope variance parameters were allowed to vary within profiles (Jung & Wickrama, 2008; Smith & Ehlers, 2020; van de Schoot et al., 2016)

***Bolck-Croon-Hagenaars Method***. The Bolck-Croon-Hagenaars method (BCH; Bolck, Croon, & Hagenaars, 2004) was employed to compare differences in characteristics across profiles. Variables examined were demographic factors (i.e., marital status, ethnicity, gender, education, income), personality, social variables (i.e., visiting family and friends, religious activities, group activities, physical activities, hobbies, social support) and employment characteristics (e.g., job sector, occupation type). The BCH method preserved the posterior probabilities and modal class assignments obtained from the optimal classification model (as determined by GMA analysis). Subsequently, the inverse logits of individual-level classification error rates were computed. These individual-level error rates were then utilized as weights in estimating distal variables, in the case of this study, profile characteristics. Pairwise comparisons of profile characteristics between profiles were also conducted simultaneously using Wald's test. Compared to the two-stage classify-analyse method, the BCH approach accounts for classification uncertainty and integrates it into the model for distal variables, as opposed to forcing the no-error assumption. For a more comprehensive understanding of the BCH method and other analytical approaches incorporating distal variables in mixture modelling, detailed discussions can be found in previously published works (e.g., Nylund-Gibson et al., 2019).

Latent growth curve modelling was conducted using the *lavaan* package (Rosseel, 2012). Latent growth mixture analysis and the BCH method were performed using the

*MPlusAutomation* package (Hallquist & Wiley, 2018). Robust maximum likelihood (MLR) estimator and full information maximum likelihood (FIML) were used to address non-normality and missing data respectively.

## Results

### Latent Growth Curve Modelling

To determine the optimal functional form of life satisfaction over time, various unadjusted continuous and discontinuous latent growth models were specified. Results suggested the bi-linear piecewise growth model to be the best fitting model ($\chi^2$ (291) = 925.48, CFI = .958, RMSEA = .064). As such, this model was retained for subsequent analyses. Details regarding comparisons of all baseline models may be found in the Supplementary Material (Table S2). Next, covariates were added to the model ($\chi^2$ (375) = 1061.29, CFI = .955, RMSEA = .059). According to the covariates-adjusted model, parameter estimates indicated significant decreases in life satisfaction prior to retirement, but non-significant changes after retirement ($b_{\text{slope 1}}$ = -.005, $p$ =.020; $b_{\text{slope 2}}$ = -.004, $p$ =.056). Of note, as with the pre-retirement slope, significant variance for the post-retirement slope was observed ($p$ <.001), indicating substantial variance around a near-zero mean slope as opposed to no changes over time (Duncan & Duncan, 2009; Muthen, 2008). Latent growth factor scores for each individual, according to this covariates-adjusted model, were saved to be used in the ensuing GMA. Zero-order correlations between adjusted latent scores and variables of interests may be found in the Supplementary Material (Table S3).

Next, variable-centred analyses were conducted to explore the correlates of the life satisfaction growth factors. Variables of interest were added in stepwise fashion. First, demographic and individual difference variables (i.e., marital status, gender, education, race, income, personality) were added to the covariates-adjusted model (Model 1; M1). Second, employment variables (i.e., three job sector variables, seven occupation type variables) were

added (Model 2; M2). Due to their small cell sizes, individuals formerly associated with not-for-profit or private household sectors, as well as those engaged in agricultural and fishery work (group 6), craftsmen and related trades (group 7), or classified elsewhere (group 10) were amalgamated into a unified reference category ("*Other employment*" group) for the purpose of analysing employment variables. Lastly, social variables (i.e., activity engagement, social support) were added (Model 3; M3). While income was initially observed to be a positive predictor of baseline life satisfaction in Models 1, and 2 ($p$ <.05), this effect become non-significant after accounting for social factors (Model 3). Similarly, although education and being in a professional occupation type (vs reference group) were initially observed to be positive and negative predictors of the post-retirement satisfaction slope in Model 2 respectively ($p$ <.05), this effect become non-significant when accounting for social factors (Model 3). In the final model (Model 3), engagement in activities involving friends and family positively predicted baseline satisfaction ($p$ <.05), engagement in religious activities positively predicted the pre-retirement satisfaction slope ($p$ <.01), social support positively predicted both baseline ($p$ <.001) and the pre-retirement satisfaction slope ($p$ <.05), education positively predicted the post-retirement satisfaction slope ($p$ <.05), and neuroticism negatively predicted both baseline ($p$ <.01) and the post-retirement satisfaction slope ($p$ <.05). Significant regression parameters for all three models may be found in Table 2.

**Piecewise Latent Growth Mixture Analyses**

Accounting for differences in age, health, ADL and retirement context, model comparisons following GMA analyses indicated the three-profiles model to be the optimal model (Table 3). Growth factor estimates for each profile may be found in Table 4. Profile 1 may be characterised by declines in life satisfaction before and after retirement, but a more rapid decline after retirement (P1; "Decreasingly satisfied"). Profile 2 may be characterised by a slight decline in life satisfaction before retirement, and non-significant changes after

retirement (P2; “Stable post-retirement”). Profile 3 may be characterised by increase in life satisfaction before retirement and further increases after retirement (P3; “Increasingly satisfied”). Of note, the aforementioned life satisfaction trajectories that characterise each profile represented expected changes in life satisfaction controlling for age, health, ADL, and retirement context.

**Bolck-Croon-Hagenaars Method**

BCH was used to compare between-profile differences in characteristics. All three profiles were non-significantly different in terms of gender, ethnicity, education, job sector, occupation type, baseline marital status and income. Profile differences were observed with respect to the other variables analysed — that is, personality, specifically neuroticism, and overall social support. Members belonging to the *Increasingly satisfied* profile reported lower neuroticism and greater overall social support than the *Decreasingly satisfied* profile, but not the *Stable post-retirement* profile. Comparisons of profile characteristics may be found in Table 5.

**Sensitivity Analysis**

To investigate how variables may differ across profiles pre- and post- retirement, marital status, income, social support, and activity engagement at 12 months prior to retirement (Timepoint 1) and one month post-retirement (Timepoint 14) were examined. Results indicated profile differences in post-retirement income (Table 5). As compared to the other profiles, members belonging to the *Increasingly satisfied* typically reported less post-retirement income. To ascertain if changes in income differed across profile, an income change variable was derived by subtracting income at Timepoint 1 from Timepoint 14. Profiles did not significantly differ in income changes. To examine if the additional income variables uniquely predicted growth factors of life satisfaction, two separate models were specified (due to the income change variable being a derivative of pre- and post-retirement

income variables): one with the pre- and post-retirement income variables added to Model 3, and another with the income changes variable added to Model 3. Only post-retirement income significantly predicted the post-retirement satisfaction slope; greater post-retirement income was associated with lower well-being ($\beta$ = -.198, $p$ <.05). Additionally, to determine if effects of education on the post-retirement satisfaction slope were beyond the effects of changes in income, pre-retirement income, and post-retirement income, these variables were added to Model 3. Education remained a significant positive predictor of post-retirement satisfaction slope ($\beta$ = .143, $p$ <.05).

While age, health conditions, ADL and retirement context were treated as covariates in our analyses above, additional analyses were also conducted to examine their impact on retirement well-being over time. Controlling for other covariates, these variables were associated with baseline life satisfaction but not with life satisfaction slopes. Results from these analyses may be found in the supplementary material.

## Discussion

In this study, we examined life satisfaction trajectories pre- and post- retirement using a person-centred approach and controlling for age-related changes. This approach allowed us to identify three distinct well-being trajectories experienced by older adults during the transition to retirement, accounting for important covariates such as age, ADL, health and retirement context. Further, we examined characteristics associated with membership into these subgroups whilst accounting for classification uncertainty, addressing the criticisms therein. In contrast to previous person-centred studies (e.g., Heybroek et al., 2015; Pinquart & Schindler), variable-centred analyses were also employed in this study. In doing so, added information of the unique contributions of individual variables on retirement well-being were revealed.

Results from our variable-centred analyses revealed neuroticism, social support, education, religious activity, and visiting friends and family to be important for well-being in retirement. To wit, neuroticism was associated with lower baseline levels of satisfaction, while social support and visiting friends and family were associated with greater baseline levels. Social support and religious activity were also associated with more positive satisfaction slopes pre-retirement, and education and neuroticism were associated with more positive and negative satisfaction slopes post-retirement respectively. From person-centred analyses, our findings suggested three predominant life satisfaction trajectories: *Decreasingly satisfied*, *Stable*, and *Increasingly satisfied*. *Decreasingly satisfied* retirees (7% of the study sample) experienced a decline in life satisfaction leading up to retirement, and additional declines in life satisfaction post-retirement. *Stable* retirees comprised the majority of our sample, at 86%. These retirees experienced slight decreases in life satisfaction prior to retirement, and no change in life satisfaction post-retirement. Finally, *Increasingly satisfied* retirees (7% of the study sample) experienced increasing life satisfaction pre-retirement with additional increases post-retirement. The trajectories characterizing *Decreasingly satisfied* and *Increasingly satisfied* retirees were similar to those previously reported (Heybroek et al., 2015). Despite being of a different sample and controlling for age-related changes (e.g., age, ADL, health), all three profiles observed in this study were consistent with the general literature suggesting at least three subgroups of individuals experiencing positive, negative, and no changes in life satisfaction in relation to retirement (e.g., Heybroek et al., 2015; Pinquart & Schindler, 2007; Wang, 2007). It is worth noting that while the current study's extracted subgroups are in line with past literature, they also differ in several regards. For instance, prior studies did not determine if observed well-being patterns stemmed from retirement or were a result of aging processes (e.g., Heybroek et al., 2015; Wang, 2007). Additionally, while earlier interpretations may have attributed some of these trajectories to

age-related changes (e.g., Pinquart & Schindler, 2007), explicitly controlling for age-related changes in our present study suggests that these trajectories were more likely influenced by the retirement process itself. Therefore, while the findings aligned with previous research, they also rule out important confounds.

Although neuroticism, social support, education, visiting friends and family, and religious activities were observed to uniquely predicted retirement well-being (i.e., variable-centred results), they did not fully discriminate profile-membership. Education, visiting family and friends, and religious activities—together with marital status, ethnicity, gender, openness to experience, conscientiousness, extraversion, agreeableness, hobbies, physical and group activities, job sector and occupation type— were similar across profiles. With that said, some important differences were observed. Compared with *Increasingly satisfied* retirees, *Decreasingly satisfied* retirees tended to receive lower social support on average and reported greater neuroticism, but did not significantly defer from *Stable* retirees. In addition, *Increasingly satisfied* retirees were more likely to be of lower income than both *Stable* and *Decreasingly satisfied* retirees, specifically in post-retirement. Below, we discuss our key findings.

**Neuroticism**

Extant literature suggests that individuals with elevated levels of neuroticism may be inclined towards negative evaluations of life, leading them to perceive both pre- and post-retirement life as unsatisfactory and demanding (e.g., Reis & Gold, 1993; Henning et al., 2017). Results from the current study appear to corroborate with these findings. Neuroticism was observed to correlate significantly and negatively with baseline life satisfaction, as well with pre- and post-retirement satisfaction changes ($p$ <.05; Table S3). Individuals who belonged to the *Increasingly satisfied* profile also tended to be lower on neuroticism, as compared to *Decreasingly satisfied* retirees. However, the relationship between neuroticism

and retirement well-being appears to be more nuanced. Controlling for age-related covariates, demographic factors and other personality traits, neuroticism was no longer significantly associated with the *pre*-retirement satisfaction slope. This may suggest neuroticism to have a more pronounced influence on changes in well-being during the early stages of retirement compared to the pre-retirement phase. Retirement represents a significant life transition characterized by changes in roles, routines, and social networks. These changes may exacerbate the effects of neuroticism on post-retirement well-being. Indeed, neuroticism has been associated with more negative reactivity to changes in life circumstances (Soto & Luhmann, 2013). In contrast, pre-retirement well-being may be influenced by a broader array of factors, including work-related stressors and family responsibilities (e.g., Brotheridge & Lee, 2005; Kim & Moen, 2001a; Väänänen et al., 2005), which may attenuate the direct impact of neuroticism. As a result, neuroticism may emerge as a more robust predictor of well-being in post-retirement phase, reflecting the longer-term impact of personality traits an ongoing adaptation processes.

Openness, conscientiousness, extraversion, and agreeableness did not emerge as significant predictors in our study, despite their theoretical relevance to well-being. This could be due to the robust set of controls in our analysis, including social activity engagement, social support, and key demographic factors such as age, education, health, marital status, and income. These controls may account for much of the variance in well-being that these personality traits might otherwise explain. For example, individuals who are highly extraverted and agreeable may experience greater retirement well-being through increased social engagement and access to supportive relationships (e.g., Barańczuk, 2019; Robinson et al., 2010). Similarly, conscientiousness and openness may influence retirement well-being through their effects on engaging in stimulating and fulfilling activities (Gartland

et al., 2020; Hogan et al., 2012). Our control for activity engagement and social support may, thus, have mitigated the direct impact of these personality traits on well-being.

The comprehensive set of controls in our study provides a nuanced understanding of how personality traits interact with other factors to influence well-being. While neuroticism emerged as a significant predictor, other traits may exert their influence in more subtle or context-dependent ways, suggesting the need for further research to explore these dynamics.

**Social Support**

Controlling for demographic, personality, and job variables, social support significantly predicted baseline life satisfaction and pre-retirement changes in life satisfaction, but not post-retirement changes. This may suggest that as compared to post-retirement, social support plays a more crucial role pre-retirement. For instance, in pre-retirement, individuals may rely heavily on social support networks for emotional reassurance, practical advice, and financial planning as they anticipate and prepare for the transition (e.g., Roohafza et al., 2014). Past studies suggest that acts of support, such as attentive listening and empathy, may serve to prompt more positive anticipations about retirement (Roohafza et al., 2014) and result in greater well-being following retirement (Beehr & McGrath, 1992; Langford et al., 1997). As such, the extent social support is available during this preparation period may strongly influence pre-retirement well-being. However, in retirement, adaptation processes may depend more on personality differences, such as neuroticism (e.g., Soto & Luhmann, 2013), as compared to support networks.

Of note, the finding of *Decreasingly* (vs *Increasingly*) *satisfied* retirees reporting lower levels of social support contrasts with findings from a study by Heybroek and colleagues (2015). In their study involving an Australian sample, social support was higher for the subgroup of decreasingly satisfied retirees, as compared increasingly satisfied retirees. While this contrast may suggest that as compared to Western cultures, social support may be

more beneficial among Asians, we are hesitant to make this inference as Heybroek and colleagues also reported that increasingly satisfied retirees tended to be younger overall—thus lower support levels may be confounded with age differences. Nonetheless, the current finding highlights the importance of social support in retirement transition within the context of Singapore.

**Income**

Among the three retirement well-being groups, individuals belonging to the *increasingly satisfied* group reported *lowest* income post-retirement. This finding corroborated with our variable-centred analysis indicating post-retirement income to be negatively associated with well-being in retirement. Although inconsistent with our earlier theorising—that individuals with more income would experience greater retirement well-being (e.g., Heybroek et al., 2015)— this finding corroborated with a previous person-centred study. In the study by Pinquart & Schindler (2007) involving a German sample, the authors similarly reported that the subgroup of individuals who experienced increases in well-being immediately after retirement tended to be of lower socioeconomic status (SES); SES was an index of income, education, and social class. In that study, however, these group of individuals also tended to be unemployed prior to retirement. Hence, the authors speculated that these increases were potentially due to being liberated from the stressful task of searching for a new job and the stigma associated with unemployment, and did not link observed well-being increases to SES in their postulations. This notion of unemployment giving rise to increases in well-being following retirement appears to be supported by the study by Heybroek and colleagues (2015); authors similarly observed retirees who increased in satisfaction following retirement were previously unemployed. Yet, findings from the current study—which exclusively featured *employed* individuals prior to retirement—suggest that income, too, may be an important characteristic of increasingly satisfied retirees

(for at least a year post-retirement). We speculate that retirement from high-income jobs may lead to a loss of social prestige and the status that accompany such positions. Indeed, income and job prestige have been shown to be highly correlated (e.g., r = .73; Hughes et al., 2024). In contrast, retirement from lower income jobs may relieve some individuals from job-associated stigmas, a notion similar to increases in well-being among unemployed individuals following retirement (e.g., Pinquart & Schindler, 2007). Moreover, lower income jobs may be associated with undesirable work conditions. A study by Wang (2007) observed that a subgroup of retirees with lower baseline but increasing well-being tended to retire from jobs that were stressful and physically demanding.

The specific economic landscape in Singapore may also be a factor. For example, in the context of Singapore's high cost of living and the competitive nature of its workforce (e.g., World Economic Forum, 2023), individuals in high-income positions may have had to adopt a heavier prioritisation towards financial success and career advancement, as compared to a less competitive society (e.g., Lim, 2010). Consequently, upon retirement, these individuals may experience a more profound sense of loss as work-related goals that once structured their daily lives and provided a sense of identity are no longer present (Ashforth, 2001). In addition, Singapore's Central Provident Fund (for details see Central Provident Fund Board, 2024), a government-mandated savings program, helps individuals— including those with lower incomes— to accumulate adequate savings to support their retirement. This system may have enabled a more positive pattern of retirement well-being particularly among individuals who relinquished unpleasant work conditions, by helping them to maintain sufficient financial means for daily living post-retirement

**Education**

Earlier, we hypothesised that individuals with higher (vs lower) education may experience better well-being in retirement, potentially due to having better retirement savings

and experiencing greater financial security in retirement (Joo & Grable, 2005). However, current findings suggest the effects of education on post-retirement well-being to be beyond financial factors; controlling for age-related covariates, personality, job characteristics, and demographic factors—including baseline income and income changes—education positively predicted the post-retirement satisfaction slope suggesting that those with more education experienced more positive changes in well-being after retirement. Indeed, several non-financial mechanisms may account for the association between education and post-retirement well-being. For instance, education has been suggested to provide individuals with varied ways of evaluating their worlds, allowing them to appreciate aspects of their life despite changes and challenges associated with retirement, translating to greater satisfaction (e.g., Cheung & Chan, 2009; Jones et al., 2003). Education may also facilitate other positive behaviours, such as greater technology use in older age, which may allow these individuals to remain socially connected and mitigate the development of depressive symptoms in retirement (e.g., Cotten et al., 2012; Elliot et al., 2014). As such, while education did not discriminate profile-memberships, which contrasts results from Heybroek and colleagues (2015), it still presents itself as an important factor for retirement well-being, beyond the benefits of financial correlates.

**Religious Activities**

Among the various forms of activity engagement religious activities appear to be particularly important for well-being in retirement transition. While this finding generally aligns with literature on the benefits of activity engagement for well-being (e.g., Kim et al., 2021; Lin et al., 1999), results also suggest that not all activities may be equal. For instance, although engaging in activities may enhance well-being through meaning derived (Eakman, 2013; Winstead et al., 2014), some activities may be more meaningful than others. Religious activities tend to be perceived as more meaningful (e.g., King & Hicks, 2021; Reker & Woo,

2011; Park, 2005), which may lead to enhanced well-being. Indeed, prioritizing these more "self-transcendent" activities have been shown to be associated with greater levels of well-being, compared to engagement in other non-self-transcendent pursuits (e.g., Bar-Tur et al., 2001; Krause, 2003).

Of note, however, the positive effects of these activities were confined to well-being changes prior to the retirement event. One plausible explanation may be that the post-retirement period of the current study (i.e., 1-year) was insufficient in capturing the longer effects of these activities (and potentially, other activities as well). Post-retirement adjustments often unfold over an extended period (e.g., Heybroek et al., 2015; Wang, 2007), and while the effects of certain factors may be observed more proximally (e.g., neuroticism, education), the effects of others could be more distal, and a longer follow-up period may be needed to identify these longer-term associations. Another potential explanation may be the different mechanisms underpinning well-being pre- versus post-retirement. For example, religious activities may be effective in facilitating more positive anticipations of retirement (e.g., Carlson et al., 2022; Heo et al., 2017; Mattis et al., 2017), giving rise to a more positive satisfaction slope in pre-retirement. However, in retirement, well-being may no longer be underpinned by anticipatory mechanisms. As such, the positive effects of religious activities on well-being post-retirement may be limited. That being said, despite these activities not showing a direct association with post-retirement well-being, they could still serve as indirect protective factors. From the current study, engaging in these activities before retirement appeared contribute to higher levels of well-being as individuals approached retirement. This initial enhancement in well-being might act as a temporary buffer, even if there are subsequent declines over time.

**Implications**

Results from this study have several important implications. First, the current study provided further evidence of heterogeneity in retirement experiences. Although on average, well-being declined significantly after retirement (Table 3), the use of mixture modelling allowed us to identify smaller subgroups of older adults for whom well-being increased or declined. Second, these trajectories are likely due to differences in retirement experiences and not simply due to the age at retirement. Third, the current study observed similar trajectories as those reported in previous studies, providing evidence of their generalizability to a Southeast Asian sample. Moreover, although many Asian cultures, including Singapore, may place a stronger emphasis on familial responsibilities and intergenerational solidarity (e.g. Sreeja & Dommaraju, 2023) in contrast to values associated with individualised identity in Western societies (e.g., Luborsky, 1994), these differences did not appear to result in different well-being trajectories being observed. Potentially, this could indicate that processes of adjusting to retirement may share commonalities across cultures. With that said, similar trajectories need not imply that the causes of those trajectories were similar. For instance, increasingly satisfied retirees tended to report higher levels of social support in our Singaporean sample, but lower levels of support in an Australian sample (Heybroek et al., 2015). Importantly, Australians who were increasingly satisfied post-retirement were younger than those who were decreasingly satisfied. In contrast, our results statistically control for age-related change. Other factors may also be at play, however. For instance, Singapore is geographically smaller than many Western nations with family members more likely to live within an hour away. This juxtaposes findings from a past survey reporting that over 40% of Australians and Americans lived over an hour away from their mother (Jowell, Witherspoon, & Brook, 1989). These differences could potentially affect the quality if not the frequency of support in different nations. More research would be needed to ascertain this. Fourth,

important differences from past research were also evident. For instance, *increasingly satisfied* retirees in the current study tended to have received greater social support, as opposed to lower social support in a study involving an Australian sample (Heybroek et al., 2015). While this contrast may indicate social support to be more beneficial among Asian compared to Western samples (e.g., Chen & Silverstein, 2000; Mehta, 1999), we are hesitant to make this inference definitively. As results from previous studies did not account for age-related changes or classification uncertainty, these factors could have confounded prior observations. This study also revealed several important variables for retirement well-being which had not been examined in previous person-centred studies (i.e., neuroticism, religious activities). Fifth, this study accounted for classification uncertainty when examining between-profile differences in variables of interest (i.e., demographic variables, personality, social factors, employment characteristics), thereby providing more accurate estimates of factors associated with membership into the different subgroups. Accounting for classification uncertainty, results indicated lower social support, greater neuroticism and higher post-retirement income to be associated with poorer well-being post-retirement. Future interventions aimed at enhancing the well-being and adjustment of retired individuals may wish to prioritize this group of older individuals. For instance, community-based support group programs specific for retirees could be introduced. In addition to offering emotional support (e.g., a listening ear, expressing empathy), these programs could leverage on retirees who are better adapted to retirement (e.g., *Increasingly satisfied* retirees) to offer practical guidance on navigating this transitional period. Additionally, while education and religious activity did not differ across subgroups, variable-centred analysis suggest that they may also be important for well-being in retirement transition. That is, these variables present themselves as modifiable targets and opportunities for enhanced well-being. For example, although the three subgroups in the current study were largely similar when it came to

education, all three subgroups should benefit from educational initiatives, particularly in the period following the retirement event (e.g., Cheung & Chan, 2009; Cotten et al., 2012).

**Limitations and Future Research**

This study has several limitations. First, the current study examined individuals who had retired once, and were working prior to retirement. Thus, how these findings may translate to other employment patterns remain a question for future research. For instance, do individuals who retire once and those who retire multiple times exhibit different well-being trajectories? Would individuals who were previously unemployed and job-seeking (as opposed to working) have different experiences post-retirement? Second, the follow-up period for the current study was one year. Although some associations between variables of interest and post-retirement well-being were observed (e.g., neuroticism, education), it is plausible that the longer-term effects of other variables might have emerged with an extended follow-up period. Additionally, while the current study suggested linear changes within the first year following retirement, these changes may exhibit non-linear qualities beyond the first year (e.g., Heybroek et al., 2015; Wang, 2007). As such, future research with a longer follow-up period may be needed to explicate these nuances. Third, the current study was unable to examine more specific processes leading to retirement, such as gradual retirement and retirement planning, a similar limitation to previous studies (e.g., Heybroek et al., 2015). Examining these factors may reveal more nuances about the subjective experience of retirement. Fourth, as our study relied on employment data (i.e., job sector, occupation type) reported across two waves, it is plausible that an individual's occupation/job sector type at the material time of retirement differed from those reported, particularly in cases involving frequent changes in these employment types prior to retirement. While we attempted to improve the accuracy of the employment data by using of the most relevant and timely information available, and providing fallback options to address missing data, we were

unable to entirely rule out potential misalignments between the available employment data and actual employment characteristics. Fifth, the specific job variables used in this study may not sufficiently capture important factors in the employment setting that critically relate to retirement well-being. For example, group dynamics, leadership style, and company culture may play a role in shaping well-being in retirement transition (e.g., De Vries, 2003; Kuoppala et al., 2008; Nahum-Shani & Bamberger, 2019). Sixth and finally, while the current study utilised a sample of more than 200 participants (Kim, 2012), and profiles contained no less than 5% of the overall sample (Ferguson et al., 2020), a larger sample size would have provided greater power to detect more subtle between-profiles differences. Although the current study identified between-profiles differences in social support and neuroticism, other differences may be identified with a larger sample.

## Conclusion

This study explored heterogeneity in life satisfaction trajectories before and after retirement. Accounting for potential age-related changes, three distinct profiles were revealed: *Decreasingly satisfied*, *Stable post-retirement*, and *Increasingly satisfied*. These trajectories generally aligned with existing literature, demonstrating varying levels of well-being in response to retirement. Notably, after accounting for classification uncertainties, social support, neuroticism and income emerged as important factors influencing well-being in retirement. Specifically, retirees who had lower social support, higher neuroticism and higher post-retirement income had poorer well-being outcomes. Additionally, while expressed at similar levels across profiles, results also suggest education and religious activities as potential modifiable targets for well-being in retirement transition; increases in these factors were associated with more positive well-being trajectories. Overall, this research contributes to the literature on retirement and provides a foundation for future interventions and inquiries. Findings underscore the need for personalized approaches to support

individuals in the transition to retirement and ensure their well-being during this pivotal phase of life.

## References

Acock, A. C., & Hurlbert, J. S. (1993). Social networks, marital status, and well-being. *Social Networks, 15*(3), 309–334. https://doi.org/10.1016/0378-8733(93)90010-I

Adams, T. R., Rabin, L. A., Da Silva, V. G., Katz, M. J., Fogel, J., & Lipton, R. B. (2016). Social support buffers the impact of depressive symptoms on life satisfaction in old age. *Clinical Gerontologist*, *39*(2), 139-157. doi: 10.1080/07317115.2015.1073823

Ashforth, B. (2001). *Role transitions in organizational life: An identity-based perspective*. Mahwah, NJ: Erlbaum. https://doi.org/10.4324/9781410600035

Atchley, R. C. (1976). *The Sociology of Retirement.* Schenkman; Cambridge, MA.

Atchley, R. C. (1989). A continuity theory of normal aging. *The Gerontologist*, *29*(2), 183–190. https://doi.org/10.1093/geront/29.2.183

Atchley, R. C. (1999). Continuity theory, self, and social structure. In C. D. Ryff & V. W. Marshall (Eds.), *Families and retirement* (pp. 145–158). Newbury Park, CA: Sage.

Bakk, Z., Tekle, F. B., & Vermunt, J. K. (2013). Estimating the association between latent class membership and external variables using bias-adjusted three-step approaches. *Sociological Methodology*, *43*(1), 272-311. https://doi.org/10.1177/008117501247064

Balkwell, C. (1985). An attitudinal correlate of the timing of a major life event: The case of morale in widowhood. *Family Relations*, 577-581. https://doi.org/10.2307/584022

Bar-Tur, L., Savaya, R., & Prager, E. (2001). Sources of meaning in life for young and old Israeli Jews and Arabs. *Journal of Aging Studies*, *15*(3), 253-269. https://doi.org/10.1016/S0890-4065(01)00022-6

Barańczuk, U. (2019). The Five Factor Model of personality and social support: A meta-analysis. *Journal of Research in Personality*, *81*, 38-46. https://doi.org/10.1016/j.jrp.2019.05.002

Bateman, H., Dobrescu, L. I., Liu, J., Newell, B. R., & Thorp, S. (2023). Determinants of early-access to retirement savings: Lessons from the COVID-19 pandemic. *Journal of the Economics of Ageing*, *24*, 100441. https://doi.org/10.1016/j.jeoa.2023.100441

Bauer, J. (2022). A primer to latent profile and latent class analysis. In *Methods for Researching Professional Learning and Development* (pp. 243-268). Springer, Cham. https://doi.org/10.1007/978-3-031-08518-5_11

Bauer, D. J., & Shanahan, M. J. (2007). Modeling complex interactions: Person-centered and variable-centered approaches. In T. D. Little, J. A. Bovaird, & N. A. Card (Eds.), *Modeling contextual effects in longitudinal studies* (pp. 255–283). Lawrence Erlbaum Associates Publishers.

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, *117*(3), 497–529. https://doi.org/10.1037/0033-2909.117.3.497

Beehr, T. A., & McGrath, J. E. (1992). Social support, occupational stress and anxiety. *Anxiety, Stress, and Coping*, *5*(1), 7-19. https://doi.org/10.1080/10615809208250484

Boehnke, M. (2011). Gender role attitudes around the globe: Egalitarian vs. traditional views. *Asian Journal of Social Science*, *39*(1), 57-74. doi: 10.1163/156853111X554438

Bolck, A., Croon, M., & Hagenaars, J. (2004). Estimating latent structure models with categorical variables: One-step versus three-step estimators. *Political Analysis, 12,* 3–27. Doi:10.1093/pan/mph001

Bollen, K. A., & Curran, P. J. (2006). *Latent curve models: A structural equation perspective* (1st ed.). Wiley. https://doi.org/10.1002/0471746096

Bonanno G. A. (2004). Loss, trauma, and human resilience: have we underestimated the human capacity to thrive after extremely aversive events?. *The American Psychologist*, *59*(1), 20–28. https://doi.org/10.1037/0003-066X.59.1.20

Bowlby, J. (1977). The making and breaking of affectional bonds. Aetiology and psychopathology in the light of attachment theory. An expanded version of the Fiftieth Maudsley Lecture, delivered before the Royal College of Psychiatrists, 19 November 1976. *The British Journal of Psychiatry*, *130*(3), 201–210. https://doi.org/10.1192/bjp.130.3.201

Brotheridge, C. M., & Lee, R. T. (2005). Impact of Work-Family Interference on General Well-Being: A Replication and Extension. *International Journal of Stress Management*, *12*(3), 203–221. https://doi.org/10.1037/1072-5245.12.3.203

Bryson, B. A., & Bogart, K. R. (2020). Social support, stress, and life satisfaction among adults with rare diseases. *Health Psychology*, *39*(10), 912. http://dx.doi.org/10.1037/hea0000905

Calasanti, T., Carr, D., Homan, P., & Coan, V. (2021). Gender disparities in life satisfaction after retirement: the roles of leisure, family, and finances. *The Gerontologist*, *61*(8), 1277-1286. https://doi.org/10.1093/geront/gnab015

Carlson, S. J., Levine, L. J., Lench, H. C., Flynn, E., Carpenter, Z. K., Perez, K. A., & Bench, S. W. (2022). You shall go forth with joy: Religion and aspirational judgments about emotion. *Psychology of Religion and Spirituality*, *14*(4), 548–557. https://doi.org/10.1037/rel0000327

Carstensen, L. L. (1992). Social and emotional patterns in adulthood: Support for socioemotional selectivity theory. *Psychology and Aging*, *7*(3), 331–338. https://doi.org/10.1037/0882-7974.7.3.331

Carstensen, L. L., Isaacowitz, D. M., & Charles, S. T. (1999). Taking time seriously: A theory of socioemotional selectivity. *American Psychologist, 54*(3), 165–181. https://doi.org/10.1037/0003-066X.54.3.165

Central Provident Fund Board. (2024). *Retirement Income*. Retrieved July 24, 2024, from: https://www.cpf.gov.sg/member/retirement-income

Chappell, N. L., & Badger, M. (1989). Social isolation and well-being. *Journal of gerontology*, *44*(5), S169–S176. https://doi.org/10.1093/geronj/44.5.s169

Charles, S. T., & Carstensen, L. L. (2010). Social and emotional aging. *Annual review of psychology*, *61*, 383–409. https://doi.org/10.1146/annurev.psych.093008.100448

Chen, Y., & Feeley, T. H. (2014). Social support, social strain, loneliness, and well-being among older adults: An analysis of the Health and Retirement Study. *Journal of Social and Personal Relationships*, *31*(2), 141-161. https://doi.org/10.1177/026540751348872

Chen, X., & Silverstein, M. (2000). Intergenerational social support and the psychological well-being of older parents in China. *Research on Aging*, *22*(1), 43-65. https://doi.org/10.1177/0164027500221003

Cheung, H. Y., & Chan, A. W. (2009). The effect of education on life satisfaction across countries. *Alberta Journal of Educational Research*, *55*(1). https://doi.org/10.11575/ajer.v55i1.55278

Cheung, F., & Lucas, R. E. (2014). Assessing the validity of single-item life satisfaction measures: results from three large samples. *Quality of Life Research*, *23*(10), 2809–2818. https://doi.org/10.1007/s11136-014-0726-4

Chia, J. L., Hartanto, A., & Tov, W. (2023). Profiles of activity engagement and depression trajectories as COVID-19 restrictions were relaxed. *Psychology and Aging.* Advance online publication. https://doi.org/10.1037/pag0000785

Chia, J. L., Hartanto, A., & Tov, W. (2024, June 18). Retirement and life satisfaction among middle-aged and older adults: A piecewise growth mixture analysis. https://osf.io/fr48c/

Choi, Y., Park, S., Cho, K. H., Chun, S. Y., & Park, E. C. (2016). A change in social activity affect cognitive function in middle-aged and older Koreans: Analysis of a Korean longitudinal study on aging (2006–2012). *International Journal of Geriatric Psychiatry*, *31*(8), 912–919. https:// doi.org/10.1002/gps.4408

Coile, C., & Zhang, H. (2022). Recessions and retirement: New evidence from the COVID-19 pandemic. *Wharton Pension Research Council Working Paper*, (2022-20). http://dx.doi.org/10.2139/ssrn.4199666

Coleman, D., & Iso-Ahola, S. E. (1993). Leisure and health: The role of social support and self-determination. *Journal of Leisure Research, 25*(2), 111–128. https://doi.org/10.1080/00222216.1993.11969913

Cotten, S. R., Ford, G., Ford, S., & Hale, T. M. (2012). Internet use and depression among older adults. *Computers in Human Behavior, 28*(2), 496–499. https://doi.org/10.1016/j.chb.2011.10.021

Croll, E. J. (2006). The intergenerational contract in the changing Asian family. *Oxford Development Studies*, *34*(4), 473-491. doi:10.1080/13600810601045833

De Vries, M. K. (2003). The retirement syndrome: The psychology of letting go. *European Management Journal*, *21*(6), 707-716. https://doi.org/10.1016/j.emj.2003.09.009

Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, *11*(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01

DeNeve, K. M., & Cooper, H. (1998). The happy personality: A meta-analysis of 137 personality traits and subjective well-being. *Psychological Bulletin, 124*(2), 197–229. https://doi.org/10.1037/0033-2909.124.2.197

Department of Statistics Singapore [DOSS]. (2024). *Population and Population Structure.* Retrieved August 8, 2024, from: https://www.singstat.gov.sg/find-data/search-by-theme/population/population-and-population-structure/latest-data

Department of Statistics Singapore [DOSS]. (2023). *Population in Brief 2023.* Retrieved August 8, 2024, from: https://www.population.gov.sg/files/media-centre/publications/population-in-brief-2023.pdf

Duncan, T. E., & Duncan, S. C. (2009). The ABC's of LGM: An Introductory Guide to Latent Variable Growth Curve Modeling. *Social and personality psychology compass*, *3*(6), 979–991. https://doi.org/10.1111/j.1751-9004.2009.00224.x

Eakman, A. M. (2013). Relationships between meaningful activity, basic psychological needs, and meaning in life: Test of the meaningful activity and life meaning model. *OTJR: Occupation, Participation and Health*, *33*(2), 100–109. https://doi.org/10.3928/15394492-20130222-02

Elder, G.H., Johnson, M.K., & Crosnoe, R. (2003). The Emergence and Development of Life Course Theory. In: Mortimer, J.T., Shanahan, M.J. (eds) *Handbook of the Life Course* (pp. 3–19).. Springer, Boston, MA. https://doi.org/10.1007/978-0-306-48247-2_1

Elliot, A. J., Mooney, C. J., Douthit, K. Z., & Lynch, M. F. (2014). Predictors of older adults' technology use and its relationship to depressive symptoms and well-being. *Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, *69*(5), 667-677. https://doi.org/10.1093/geronb/gbt109

Elliott, M. R., Zhao, Z., Mukherjee, B., Kanaya, A., & Needham, B. L. (2020). Methods to account for uncertainty in latent class assignments when using latent classes as

predictors in regression models, with application to acculturation strategy measures. *Epidemiology (Cambridge, Mass.)*, *31*(2), 194. doi: 10.1097/EDE.0000000000001139

Feldman, D. C. (1994). The decision to retire early: A review and conceptualization. *Academy of Management Review*, *19*(2), 285-311. https://doi.org/10.5465/amr.1994.9410210751

Felt, J. M., Depaoli, S., & Tiemensma, J. (2017). Latent growth curve models for biomarkers of the stress response. *Frontiers in Neuroscience*, *11*, 315. doi: 10.3389/fnins.2017.00315

Ferguson, S. L., G. Moore, E. W., & Hull, D. M. (2020). Finding latent groups in observed data: A primer on latent profile analysis in Mplus for applied researchers. *International Journal of Behavioral Development*, *44*(5), 458-468. https://doi.org/10.1177/0165025419881721

Ferrucci, L., & Kuchel, G. A. (2021). Heterogeneity of aging: individual risk factors, mechanisms, patient priorities, and outcomes. *Journal of the American Geriatrics Society*, *69*(3), 610. https://doi.org/10.1111/jgs.17011

Flora, D. B. (2008). Specifying Piecewise Latent Trajectory Models for Longitudinal Data. *Structural Equation Modeling: A Multidisciplinary Journal*, *15*(3), 513–533. https://doi.org/10.1080/10705510802154349

Francis, D. V., & Weller, C. E. (2021). Retirement inequality by race and ethnicity. *Public Policy & Aging Report*, *31*(3), 83-88. https://doi.org/10.1093/ppar/prab009

Freund, A. M., Nikitin, J., & Ritter, J. O. (2009). Psychological consequences of longevity: The increasing importance of self-regulation in old age. *Human Development, 52*(1), 1–37. https://doi.org/10.1159/000189213

Galatzer-Levy, I. R., Bonanno, G. A., & Mancini, A. D. (2010). From marianthal to latent growth mixture modeling: A return to the exploration of individual differences in response to unemployment. *Journal of Neuroscience, Psychology, and Economics, 3*(2), 116–125. https://doi.org/10.1037/a0020077

Gartland, N., Wilson, A., Lawton, R., & O'Connor, D. B. (2020). Conscientiousness and engagement with national health behaviour guidelines. *Psychology, Health & Medicine*, *26*(4), 421–432. https://doi.org/10.1080/13548506.2020.1814961

Geerlings, S. W., Beekman, A. T., Deeg, D. J., & Van Tilburg, W. (2000). Physical health and the onset and persistence of depression in older adults: An eight-wave prospective community-based study. *Psychological Medicine, 30*(2), 369–380. https://doi.org/10.1017/S0033291799001890

Glenn, N. D., & Weaver, C. N. (1988). The changing relationship of marital status to reported happiness. *Journal of Marriage and the Family, 50*(2), 317–324. https://doi.org/10.2307/351999

Greaves, C. J., & Farbus, L. (2006). Effects of creative and social activity on the health and well-being of socially isolated older people: Outcomes from a multi-method observational study. *The Journal of the Royal Society for the Promotion of Health, 126*(3), 134–142. https://doi.org/10.1177/146 6424006064303

Gruszczyńska, E., Kroemeke, A., Knoll, N., Schwarzer, R., & Warner, L. M. (2020). Well-being trajectories following retirement: A compensatory role of self-enhancement values in disadvantaged women. *Journal of Happiness Studies*, *21*, 2309-2325. https://doi.org/10.1007/s10902-019-00102-0

Hallquist, M. N., & Wiley, J. F. (2018). MplusAutomation: An R package for facilitating large-scale latent variable analyses in Mplus. *Structural Equation Modeling*, *25*(4), 621-638. https://doi.org/10.1080/10705511.2017.1402334

Hansson, I., Henning, G., Buratti, S., Lindwall, M., Kivi, M., Johansson, B., & Berg, A. I. (2020). The role of personality in retirement adjustment: Longitudinal evidence for the effects on life satisfaction. *Journal of Personality*, *88*(4), 642–658. https://doi.org/10.1111/jopy.12516

Heintzelman, S. J., & King, L. A. (2019). Routines and meaning in life. *Personality and Social Psychology Bulletin, 45*(5), 688–699. https://doi.org/10.1177/0146167218795133

Henning, G., Hansson, I., Berg, A. I., Lindwall, M., & Johansson, B. (2017). The role of personality for subjective well-being in the retirement transition–Comparing variable- and person-oriented models. *Personality and Individual Differences*, *116,* 385-392. https://doi.org/10.1016/j.paid.2017.05.017

Heo, J., Chun, S., Kim, B., Ryu, J., & Lee, Y. (2017). Leisure activities, optimism, and personal growth among the young-old, old-old, and oldest-old. *Educational Gerontology*, *43*(6), 289–299. https://doi-org.libproxy.smu.edu.sg/10.1080/03601277.2017.1289457

Heybroek, L., Haynes, M., & Baxter, J. (2015). Life satisfaction and retirement in Australia: A longitudinal approach. *Work, Aging and Retirement, 1*(2), 166-180.

Hill, P. L., & Weston, S. J. (2017). Evaluating eight-year trajectories for sense of purpose in the health and retirement study. *Aging & Mental Health*, 1–5. https://doi.org/10.1080/13607863.2017.1399344

Hogan, M. J., Staff, R. T., Bunting, B. P., Deary, I. J., & Whalley, L. J. (2012). Openness to experience and activity engagement facilitate the maintenance of verbal ability in older adults. *Psychology and Aging, 27*(4), 849–854. https://doi.org/10.1037/a0029066

Howell, R. T., Kurai, M., & Tam, L. (2013). Money buys financial security and psychological need satisfaction: Testing need theory in affluence. *Social Indicators Research, 110*, 17-29. https://doi.org/10.1007/s11205-010-9774-5

Hughes, M., & Gove, W. R. (1981). Living alone, social integration, and mental health. *AJS; American Journal of Sociology*, *87*(1), 48–74. https://doi.org/10.1086/227419

Hughes, B. T., Srivastava, S., Leszko, M., & Condon, D. M. (2024). Occupational prestige: The status component of socioeconomic status. *Collabra: Psychology*, *10*(1). https://doi.org/10.1525/collabra.92882

Iso-Ahola, S. E., La Verde, D., & Graefe, A. R. (1989). Perceived competence as a mediator of the relationship between high risk sports participation and self-esteem. *Journal of Leisure Research*, *21*(1), 32–39. https://doi.org/10.1080/00222216.1989.11969788

James, B. D., Wilson, R. S., Barnes, L. L., & Bennett, D. A. (2011). Late-life social activity and cognitive decline in old age. *Journal of the International Neuropsychological Society*, *17*(6), 998–1005. https://doi.org/10.1017/S13 55617711000531

John, O. P., Donahue, E. M., & Kentle, R. L. (1991). Big five inventory. *Journal of Personality and Social Psychology*. https://doi.org/10.1037/t07550-000

Jones, T. G., Rapport, L. J., Hanks, R. A., Lichtenberg, P. A., & Telmet, K. (2003). Cognitive and psychosocial predictors of subjective well-being in urban older adults. *The Clinical Neuropsychologist*, *17*(1), 3-18. https://doi.org/10.1076/clin.17.1.3.15626

Joo, S. H., & Grable, J. E. (2005). Employee education and the likelihood of having a retirement savings program. *Journal of Financial Counseling and Planning*, *16*(1).

Jowell, R., Witherspoon, S. and Brook, L. (1989) British Social Attitudes, London, UK.

Jung, T., & Wickrama, K. (2008). An introduction to latent class growth analysis and growth mixture modeling. *Social and Personality Psychology Compass*, *2*, 302–317. http://dx.doi.org/10.1111/j.1751-9004.2007.00054.x

Khoo, S. S., & Yang, H. (2021). Mental disengagement mediates the effect of rumination on smartphone use: A latent growth curve analysis. *Computers in Human Behavior*, *120*, 106757.

Kim, S. Y. (2012). Sample size requirements in single-and multiphase growth mixture models: A Monte Carlo simulation study. *Structural Equation Modeling*, *19*(3), 457-476. https://doi.org/10.1080/10705511.2012.687672

Kim, S., & Feldman, D. C. (2000). Working in retirement: The antecedents of bridge employment and its consequences for quality of life in retirement. *Academy of Management Journal, 43*(6), 1195–1210. https://doi.org/10.2307/1556345

Kim, J., Kim, J., Kim, Y., Han, A., & Nguyen, M. C. (2021). The contribution of physical and social activity participation to social support and happiness among people with physical disabilities. *Disability and Health Journal*, *14*(1), Article 100974. https://doi.org/10.1016/j.dhjo.20 20.100974

Kim, J. E., & Moen, P. (2001a). Is retirement good or bad for subjective well-being?. *Current Directions in Psychological Science*, *10*(3), 83-86. https://doi.org/10.1111/1467-8721.00121

Kim, J. E., & Moen, P. (2001b). Moving into retirement: Preparation and transitions in late midlife. In M. E. Lachman (Ed.), *Handbook of midlife development* (pp. 487–527). John Wiley & Sons, Inc..

King, L. A., & Hicks, J. A. (2021). The science of meaning in life. *Annual Review of Psychology, 72,* 561-584. https://doi.org/10.1146/annurev-psych-072420-122921

Korhonen, J., Linnanmäki, K., & Aunio, P. (2014). Learning difficulties, academic well-being and educational dropout: A person-centred approach. *Learning and individual differences*, *31*, 1-10. https://doi.org/10.1016/j.lindif.2013.12.011

Krause, N. (1997). Social support and feelings of personal control in later life. In *Sourcebook of social support and personality* (pp. 335-355). Boston, MA: Springer US.

Krause, N. (2003). Religious meaning and subjective well-being in late life. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences, 58*(3), S160-S170. https://doi.org/10.1093/geronb/58.3.S160

Kuoppala, J., Lamminpää, A., Liira, J., & Vainio, H. (2008). Leadership, job well-being, and health effects—a systematic review and a meta-analysis. *Journal of occupational and environmental medicine, 50*(8), 904-915. doi: 10.1097/JOM.0b013e31817e918d

Langford, C. P. H., Bowsher, J., Maloney, J. P., & Lillis, P. P. (1997). Social support: a conceptual analysis. *Journal of Advanced Nursing, 25*(1), 95-100.

Lim, W. (2010). A culture of work-life 'imbalance' in Singapore. *New Zealand Journal of Asian Studies*, *12*(2), 22-37.

Lin, N., Ye, X., & Ensel, W. M. (1999). Social support and depressed mood: A structural analysis. *Journal of Health and Social Behavior*, *40*(4), 344– 359. https://doi.org/10.2307/2676330

Lowsky, D. J., Olshansky, S. J., Bhattacharya, J., & Goldman, D. P. (2014). Heterogeneity in healthy aging. *Journals of Gerontology Series A: Biomedical Sciences and Medical Sciences*, *69*(6), 640-649. https://doi.org/10.1093/gerona/glt162

Luborsky M. R. (1994). The Retirement process: Making the Person and Cultural Meanings malleable. *Medical anthropology quarterly*, *8*(4), 411–429. https://doi.org/10.1525/maq.1994.8.4.02a00050

Luborsky, M. R., & LeBlanc, I. M. (2003). Cross-cultural perspectives on the concept of retirement: an analytic redefinition. *Journal of Cross-cultural Gerontology*, *18*(4), 251–271. https://doi.org/10.1023/B:JCCG.0000004898.24738.7b

Mattis, J. S., Powell, W., Grayman, N. A., Murray, Y., Cole-Lewis, Y. C., & Goodwill, J. R. (2017). What would I know about mercy? Faith and optimistic expectancies among African Americans. *Race and social problems*, *9*, 42-52. doi: 10.1007/s12552-016-9190-9

Mayer, K. U. (2009). New directions in life course research. *Annual Review of Sociology*, *35*(1), 413-433. doi: 10.1146/annurev.soc.34.040507.134619

Mehta, K. (1999). Intergenerational exchanges: Qualitative evidence from Singapore. *Asian Journal of Social Science*, *27*(2), 111-122. https://doi.org/10.1163/030382499X00075

McNamara, T. K., & Williamson, J. B. (2013). What Can Other Countries Teach Us About Retirement? *Generations: Journal of the American Society on Aging*, *37*(1), 33–38. https://www.jstor.org/stable/26555972

McPhedran, S. (2012). The labor of a lifetime? Health and occupation type as predictors of workforce exit among older Australians. *Journal of Aging and Health*, *24*(2), 345-360. doi: 10.1177/0898264311423704

Mlinac, M. E., & Feng, M. C. (2016). Assessment of activities of daily living, self-care, and independence. *Archives of Clinical Neuropsychology*, *31*(6), 506-516. https://doi.org/10.1093/arclin/acw049

Mogilner, C., Whillans, A., & Norton, M. I. (2018). Time, money, and subjective well-being. In E. Diener, S. Oishi, & L. Tay (Eds.), *Handbook of well-being*. Salt Lake City, UT: DEF Publishers. doi: nobascholar.com

Mosconi, G., Vigezzi, G. P., Bertuccio, P., Amerio, A., & Odone, A. (2023). Transition to retirement impact on risk of depression and suicidality: results from a longitudinal analysis of the Survey of Health, Ageing and Retirement in Europe (SHARE). *Epidemiology and Psychiatric Sciences*, *32*, e34. https://doi.org/10.1017/S2045796023000239

Muthen, B. O. (2008). *Re: In addition my linear factor of the quadratic model has a sig. variance but no significant mean. What does that mean for predicting that growth factor? Am I predicting nothing (no increase of that factor)?*. Retrieved December 8, 2023, from: https://www.statmodel.com/discussion/messages/14/112.html

Muthén, B., & Muthén, L. K. (2000). Integrating person-centered and variable-centered analyses: Growth mixture modeling with latent trajectory classes. *Alcoholism: Clinical and Experimental Research*, *24*(6), 882–891. https://doi.org/10.1111/j.1530-0277.2000.tb02070.x

Nahum-Shani, I., & Bamberger, P. (2019). The lingering effects of work context: Ambient work-unit characteristics and the impact of retirement on alcohol consumption. *Human relations; studies towards the integration of the social sciences*, *72*(4), 675–705. https://doi.org/10.1177/0018726718772883

Ng, H. Y., Griva, K., Lim, H. A., Tan, J. Y. S., & Mahendran, R. (2016). The burden of filial piety: A qualitative study on caregiving motivations amongst family caregivers of patients with cancer in Singapore. *Psychology & Health*, *31*(11), 1293–1310. https://doi.org/10.1080/08870446.2016.1204450

Noh, J. W., Kwon, Y. D., Lee, L. J., Oh, I. H., & Kim, J. (2019). Gender differences in the impact of retirement on depressive symptoms among middle-aged and older adults: A propensity score matching approach. *PloS One*, *14*(3), e0212607. https://doi.org/10.1371/journal.pone.0212607

Nylund-Gibson, K., Grimm, R. P., & Masyn, K. E. (2019). Prediction from latent classes: A demonstration of different approaches to include distal outcomes in mixture models. *Structural Equation Modeling*, *26*(6), 967–985. https://doi.org/10.1080/10705511.2019.1590146

Odone, A., Gianfredi, V., Vigezzi, G. P., Amerio, A., Ardito, C., d'Errico, A., … Costa, G. (2021). Does retirement trigger depressive symptoms? A systematic review and meta-analysis. *Epidemiology and Psychiatric Sciences*, *30*, e77. doi:10.1017/S2045796021000627

Oishi, S., Whitchurch, E., Miao, F. F., Kurtz, J., & Park, J. (2009). 'Would I be happier if I moved?' Retirement status and cultural variations in the anticipated and actual levels of happiness. *The Journal of Positive Psychology*, *4*(6), 437–446. https://doi.org/10.1080/17439760903271033

Palmore, E., & Luikart, C. (1972). Health and Social Factors Related to Life Satisfaction. *Journal of Health and Social Behavior*, *13*(1), 68–80. https://doi.org/10.2307/2136974

Park, H., & Kang, M. Y. (2016). Effects of voluntary/involuntary retirement on their own and spouses' depressive symptoms. *Comprehensive Psychiatry*, *66*, 1-8. https://doi.org/10.1016/j.comppsych.2015.11.009

Peters, A., & Liefbroer, A. C. (1997). Beyond marital status: Partner history and well-being in old age. *Journal of Marriage and the Family*, 687-699. https://doi.org/10.2307/353954

Pinquart, M. (2002). Creating and Maintaining Purpose in Life in Old Age: A Meta-Analysis. *Ageing International*, *27*(2), 90–114. https://doi-org.ezpprod1.hul.harvard.edu/10.1007/s12126-002-1004-2

Pinquart, M., & Schindler, I. (2007). Changes of life satisfaction in the transition to retirement: a latent-class approach. *Psychology and Aging*, *22*(3), 442–455. https://doi.org/10.1037/0882-7974.22.3.442

Ram, N., & Grimm, K. J. (2009). Growth mixture modeling: A method for identifying differences in longitudinal change among unobserved groups. *International Journal*

*of Behavioral Development*, *33*(6), 565–576. https://doi.org/10.1177/0165025409343765

Reis, M., & Gold, D. P. (1993). Retirement, personality, and life satisfaction: A review and two models. *Journal of Applied Gerontology*, *12*(2), 261-282. https://doi.org/10.1177/073346489301200209

Reker, G. T., & Woo, L. C. (2011). Personal meaning orientations and psychosocial adaptation in older adults. *Sage Open*, *1*(1), 2158244011405217. doi: 10.1177/2158244011405217

Robinson, O. C., Demetre, J. D., & Corney, R. (2010). Personality and retirement: Exploring the links between the big five personality traits, reasons for retirement and the experience of being retired. *Personality and Individual Differences*, *48*(7), 792–797. https://doi.org/10.1016/j.paid.2010.01.014

Rodda, J., Walker, Z., & Carter, J. (2011). Depression in older adults. *The BMJ*, *343*, Article d5219. https://doi.org/10.1136/bmj.d5219

Rogers, J. C. (1987). Occupational therapy assessment for older adults with depression: Asking the right questions. *Occupational Therapy Journal of Research*, *5*(1), 13–34. https://doi.org/10.1080/J148V05N01_03

Rogers, J. C., & Holm, M. B. (2000). Daily-living skills and habits of older women with depression. *The Occupational Therapy Journal of Research*, *20*(Suppl. 1), 68S–85S. https://doi.org/10.1177/15394492000200S106

Roohafza, H. R., Afshar, H., Keshteli, A. H., Mohammadi, N., Feizi, A., Taslimi, M., & Adibi, P. (2014). What's the role of perceived social support and coping styles in depression and anxiety?. *Journal of Research in Medical Sciences*, *19*(10), 944.

Rosseel, Y. (2012). "lavaan: An R Package for Structural Equation Modeling." *Journal of Statistical Software*, *48*(2), 1–36. doi:10.18637/jss.v048.i02.

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*(1), 68–78. https://doi.org/10.1037/0003-066X.55.1.68

Ryan, R. M., & Deci, E. L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology, 52*, 141–166. https://doi.org/10.1146/annurev.psych.52.1.141

Ryan, R. M., & Solky, J. A. (1996). What is supportive about social support? On the psychological needs for autonomy and relatedness. In G. R. Pierce, B. R. Sarason, & I. G. Sarason (Eds.), *Handbook of Social Support and the Family* (pp. 249–267). Plenum Press. https://doi.org/10.1007/978-1-4899-1388-3_11

Semmer, N. K., Elfering, A., Jacobshagen, N., Perrot, T., Beehr, T. A., & Boos, N. (2008). The emotional meaning of instrumental social support. *International Journal of Stress Management, 15*(3), 235–251. https://doi.org/10.1037/1072-5245.15.3.235

Serrat, R., Villar, F., Pratt, M. W., & Stukas, A. A. (2018). On the quality of adjustment to retirement: The longitudinal role of personality traits and generativity. *Journal of Personality*, *86*(3), 435–449. https://doi.org/10.1111/jopy.12326

Shin, H., & Park, C. (2022). Social support and psychological well-being in younger and older adults: The mediating effects of basic psychological need satisfaction. *Frontiers in Psychology*, *13*, 1051968. https://doi.org/10.3389/fpsyg.2022.1051968

Singapore Department of Statistics. (2020). *Singapore standard occupational classification 2020*. Retrieved May 9, 2024, from: https://www.singstat.gov.sg/-/media/files/standards_and_classifications/occupational_classification/ssoc2020report.ashx

Smith, K. V., & Ehlers, A. (2020). Cognitive predictors of grief trajectories in the first months of loss: A latent growth mixture model. *Journal of consulting and clinical psychology*, *88*(2), 93–105. https://doi.org/10.1037/ccp0000438

Soto, C. J., & Luhmann, M. (2013). Who Can Buy Happiness?: Personality Traits Moderate the Effects of Stable Income Differences and Income Fluctuations on Life Satisfaction. *Social Psychological and Personality Science*, *4*(1), 46-53. https://doi.org/10.1177/1948550612444139

Sreeja, N., & Dommaraju, P. (2023). Grandparenting and intergenerational solidarity in Singapore. *Journal of Population and Social Studies*, *31*, 271-285. http://doi.org/10.25133/JPSSv312023.016

Väänänen, A., Kevin, M. V., Ala-Mursula, L., Pentti, J., Kivimäki, M., & Vahtera, J. (2005). The double burden of and negative spillover between paid and domestic work: associations with health among men and women. *Women & health*, *40*(3), 1-18. https://doi.org/10.1300/J013v40n03_01

Vaithianathan, R., Hool, B., Hurd, M. D., & Rohwedder, S. (2021). High-frequency internet survey of a probability sample of older Singaporeans: the Singapore life panel®. *The Singapore Economic Review*, *66*(06), 1759-1778. https://doi.org/10.1142/S0217590818420043.

van de Schoot, R., Sijbrandij, M., Winter, S. D., Depaoli, S., & Vermunt, J. K. (2016). The GRoLTS-checklist: guidelines for reporting on latent trajectory studies. *Structural Equation Modeling: A Multidisciplinary Journal*, *24*(3), 451-467. doi: 10.1080/10705511.2016.1247646

van Solinge, H. (2007). Health change in retirement: a longitudinal study among older workers in the Netherlands. *Research on Aging*, *29*(3), 225-256. https://doi.org/10.1177/0164027506298223

Wang, M. (2007). Profiling retirees in the retirement transition and adjustment process: examining the longitudinal change patterns of retirees' psychological well-being. *Journal of Applied Psychology*, *92*(2), 455. doi: 10.1037/0021-9010.92.2.455

Wang, M., Henkens, K., & van Solinge, H. (2011). Retirement adjustment: A review of theoretical and empirical advancements. *American Psychologist, 66*(3), 204–213. https://doi.org/10.1037/a0022414

Ward, S. J., & King, L. A. (2017). Work and the good life: How work contributes to meaning in life. *Research in Organizational Behavior, 37*, 59–82. https://doi.org/10.1016/j.riob.2017.10.001

Winstead, V., Yost, E. A., Cotten, S. R., Berkowsky, R. W., & Anderson, W. A. (2014). The impact of activity interventions on the well-being of older adults in continuing care communities. *Journal of Applied Gerontology*, *33*(7), 888–911. https://doi.org/10.1177/0733464814537701

World Economic Forum. (2023). *These countries are the best at attracting, developing and retaining talent*. Retrieved July 25, 2024, from: https://www.weforum.org/agenda/2023/11/most-talent-competitive-countries-2023/

Wrosch, C., & Scheier, M. F. (2003). Personality and quality of life: The importance of optimism and goal adjustment. *Quality of life Research, 12*, 59-72. https://doi.org/10.1023/A:1023529606137

Yeh, I. L., Wong, S. Y. X., Safaruan, L. S. B., Kang, Y. Q., Wong, M. S., & Wilson, I. M. (2022). Development and Implementation of an Intergenerational Bonding Program in a Co-Located Model: A Case Study in Singapore. *Social Sciences*, *11*(12), 557. https://doi.org/10.3390/socsci11120557

Zhan, Y., Froidevaux, A., Li, Y., Wang, M., & Shi, J. (2023). Preretirement resources and postretirement life satisfaction change trajectory: Examining the mediating role of

retiree experience during retirement transition phase. *Journal of Applied Psychology*, *108*(5), 871–888. https://doi.org/10.1037/apl0001043

Zhang, Y., Yang, W., Xu, W., & Pan, K. Y. (2024). Association between psychosocial working conditions and well-being before retirement: a community-based study. *Psychology, Health & Medicine*, *29*(3), 574-588. https://doi.org/10.1080/13548506.2023.2274316

Zhu, N., & Chang, L. (2019). Evolved but Not Fixed: A Life History Account of Gender Roles and Gender Inequality. *Frontiers in Psychology*, *10*, 1709. https://doi.org/10.3389/fpsyg.2019.01709

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Table 1. *Descriptive Statistics of Overall Sample*

| | *M (SD) or %* |
|---|---|
| Age at retirement | 64.48 (5.02) |
| Marital Status (% Married) | 83% |
| Ethnicity (% Chinese) | 88% |
| Gender (% Female) | 59% |
| Health | 1.49 (1.34) |
| Activities of Daily Living (ADL) | 6.23 (1.06) |
| Education | 3.27 (.78) |
| Income | 5.50 (2.88) |
| Pre-retirement Job Sector | |
| Private | 66% |
| Public | 22% |
| Self-Employed | 10% |
| Others | 2% |
| Pre-retirement Occupation Type | |
| Legislators/Senior Officials/Managers | 21% |
| Professionals | 21% |
| Associate Professionals/Technicians | 17% |
| Clerical Support | 16% |
| Service and Sales | 8% |
| Plant and Machine Operators | 8% |
| Cleaners, labourers, related workers | 7% |
| Others | 2% |

*Note.* $n$ = 532. Education attainment was measured on a scale of 1 (No formal schooling) to 4 (post-secondary or tertiary education). Health conditions was measured as number of chronic conditions. ADL assessed difficulties across six daily activities (i.e., dressing, walking, bathing, eating, getting in and out of bed, using the toilet),

measured on a scale of 1 (Not difficult at all) to 4 (Unable to perform), for a total theoretical range of 6-24. Income was measured as monthly income from work, spouse, monetary allowance from family and friends, private retirement fund, pension plan, and other sources, recoded into deciles; 1st decile = lowest income, 10th decile = most income. *Others* under Job Sector include, not for profit, private household (e.g., domestic helper) and unsure. *Others* under Occupation Type include agricultural and fishery workers, craftsmen and related trades workers, and workers elsewhere classified; taxonomy of occupation type was previously published by Singapore Department of Statistics (2020).

Table 2. *Regression of Life Satisfaction Growth Factors on Variables of Interest Controlling for Covariates*

| Model | Variables of Interest | Predicted Outcome | Significant Predictor | $\beta$ |
|---|---|---|---|---|
| 1 | Demographic and Personality Factors | Baseline LS | Income | .158** |
| | | | Neuroticism | -.217*** |
| | | | Agreeableness | .119* |
| | | Post-retirement Slope | Neuroticism | -.174* |
| 2 | Demographic, Personality, and Employment Factors | Baseline LS | Income | .141* |
| | | | Neuroticism | -.216*** |
| | | Post-retirement Slope | Education | .151* |
| | | | Neuroticism | -.145* |
| | | | Being Professionals (Group 2) [+] | -.304* |
| 3 | Demographic, Personality, Employment and Social Factors | Baseline LS | Neuroticism | -.175** |
| | | | Social Support | .221*** |
| | | | Visiting Friends and Family | .118* |
| | | Pre-retirement Slope | Social Support | .193* |
| | | | Religious Activity | .175** |
| | | Post-retirement Slope | Education | .155* |
| | | | Neuroticism | -.146* |

*Note*. ***$p$ < .001; **$p$ < .01; *$p$ < .05. LS = Life Satisfaction. All models included covariates—age at retirement, activities of daily living, and retirement during COVID-19. $\beta$ = Standardized Beta. $^{+}$As compared to individuals from the *Other employment* reference group.

Table 3. *Selection indices of the latent mixture models*.

| Profiles | AIC | BIC | Entropy | % Minimum |
|---|---|---|---|---|
| 1 | -4146.246 | -4171.906 | - | 100% |
| 2 | -4304.706 | -4261.939 | .92 | 8% |
| 3 | -4440.494 | -4380.621 | .94 | 7% |
| 4 | -4432.494 | -4429.162 | .53 | 7% |

*Note*. AIC = Akaike Information Criterion; BIC = Bayesian information criterion; % Minimum = Proportion of the sample assigned to the smallest profile.

Table 4. *Adjusted Piecewise Mixture Model Intercepts and Slopes Estimates Life Satisfaction*

| | Intercept | $SE_{Intercept}$ | Linear Slope 1 | $SE_{Linear\ slope\ 1}$ | Linear Slope 2 | $SE_{Linear\ slope\ 2}$ |
|---|---|---|---|---|---|---|
| Decreasingly satisfied | 3.897*** | .095 | -.032*** | .004 | -.051*** | .006 |
| Stable post-retirement | 3.641*** | .028 | -.004*** | .001 | -.001 | .001 |
| Increasingly satisfied | 3.172*** | .111 | .013 | .010 | 0.043*** | .003 |
| Overall model | 3.699*** | .037 | -.005* | .002 | -.004 | .002 |

*Note.* ***$p$ < .001. **$p$ < .01. *$p$ < .05. Linear Slope 1 and 2 represent changes in pre- and post- retirement life satisfaction respectively.

Table 5. *BCH Analysis Comparing Variables of Interest Across Life Satisfaction Profiles*

| | P1 "Decreasingly satisfied" | P2 "Stable post-retirement" | P3 "Increasingly satisfied" |
|---|---|---|---|
| | *M (SE) or %* | *M (SE) or %* | *M (SE) or %* |
| n; % of sample | 39; 7.3% | 457; 85.9% | 36; 6.9% |
| Demographics | | | |
| Marital Status at Baseline (% Married) | 85% [a] | 83% [a] | 80% [a] |
| Marital Status at T1 (% Married) | 81% | 81% | 80% |
| Marital Status at T13 (% Married) | 78% | 81% | 71% |
| Ethnicity (% Chinese) | 76% | 89% | 77% [a] |
| Gender (% Female) | 41% | 41% | 42% [a] |
| Education | 3.32 (.14) | 3.27 (.04) | 3.34 (.15) [a] |
| Income at Baseline | 5.40 (.49) [a] | 5.54 (.14) [a] | 5.08 (.51) [a] |
| Income at T1 | 5.55 (.55) [a] | 5.56 (.14) [a] | 4.56 (.60) [a] |
| Income at T13 | 6.04 (.58) [a] | 5.52 (.16) [a] | 4.17 (.65) [b] |
| Income Change | .24 (.48)[a] | -.34 (.15) [a] | -.39 (.48)[a] |
| Personality | | | |
| Openness | 3.28 (.09) [a] | 3.16 (.03) [a] | 3.24 (.07) [a] |
| Neuroticism | 2.90 (.09) [a] | 2.72 (.03) [ab] | 2.58 (.11) [b] |
| Extraversion | 3.05 (.09) [a] | 3.09 (.03) [a] | 3.11 (.09) [a] |
| Conscientiousness | 3.69 (.10) [a] | 3.67 (.03) [a] | 3.65 (.10) [a] |
| Agreeableness | 3.70 (.11) [a] | 3.80 (.03) [a] | 3.70 (.11) [a] |
| Job Sector | | | |
| Private | 66% [a] | 66% [a] | 69% [a] |
| Public | 24% [a] | 22% [a] | 17% [a] |

| | | | |
|---|---|---|---|
| Self-employed | 7% [a] | 9% [a] | 7% [a] |
| Occupation Type | | | |
| Legislator, Senior Officials, Managers | 17% [a] | 20% [a] | 29% [a] |
| Professionals | 24% [a] | 20% [a] | 16% [a] |
| Associate Professionals and Technicians | 14% [a] | 18% [a] | 7% [a] |
| Clerical Support Workers | 14% [a] | 16% [a] | 7% [a] |
| Service and Sales Workers | 11% [a] | 7% [a] | 8% [a] |
| Plant and Machine Operators and Assemblers | 11% [a] | 8% [a] | 4% [a] |
| Cleaners, Labourers and Related Workers | 7% [a] | 6% [a] | 13% [a] |
| Social Support (Overall) | 3.47 (.12) [a] | 3.70 (.04) [ab] | 3.84 (.14) [b] |
| Timepoint 1 | 3.30 (.34) [a] | 3.51 (.08) [a] | 3.89 (.24) [a] |
| Timepoint 13 | 3.63 (.27) [a] | 3.61 (.07) [a] | 4.00 (.19) [a] |
| Visiting Family and friends (Overall) | 2.27 (.17) [a] | 2.47 (.04) [a] | 2.48 (.13) [a] |
| Timepoint 1 | 2.48 (.26) [a] | 2.29 (.08) [a] | 2.23 (.25) [a] |
| Timepoint 13 | 2.05 (.24) [a] | 2.46 (.07) [a] | 2.34 (.28) [a] |
| Religious Activity (Overall) | 1.97 (.13) [a] | 1.79 (.04) [a] | 1.80 (.12) [a] |
| Timepoint 1 | 2.53 (.43) [a] | 1.75 (.08) [a] | 1.80 (.33) [a] |
| Timepoint 13 | 1.74 (.35) [a] | 1.79 (.06) [a] | 1.51 (.16) [a] |
| Group Activity (Overall) | 1.60 (.13) [a] | 1.60 (.03) [a] | 1.81 (.12) [a] |
| Timepoint 1 | 1.85 (.44) [a] | 1.54 (.07) [a] | 1.59 (.28) [a] |
| Timepoint 13 | 1.40 (.23) [a] | 1.59 (.07) [a] | 1.37 (.19) [a] |
| Physical Activity (Overall) | 2.99 (.18) [a] | 3.30 (.05) [a] | 3.45 (.18) [a] |
| Timepoint 1 | 3.03 (.46) [a] | 3.04 (.11) [a] | 3.34 (.43) [a] |

| | | | |
|---|---|---|---|
| Timepoint 13 | 3.07 (.40) [a] | 3.39 (.10) [a] | 2.92 (.29) [a] |
| Hobbies (Overall) | 2.56 (.14) [a] | 2.54 (.05) [a] | 2.76 (.17) [a] |
| Timepoint 1 | 3.17 (.43) [a] | 2.34 (.10) [a] | 2.23 (.33) [a] |
| Timepoint 13 | 3.00 (.40) [a] | 2.44 (.09) [a] | 2.38 (.22) [a] |

*Note.* Across rows, values sharing the same superscript indicate non-significant differences among profiles. Education attainment was measured on a scale of 1 (No formal schooling) to 4 (post-secondary or tertiary education). Health conditions was measured as number of chronic conditions. Income was measured as monthly income from work, spouse, monetary allowance from family and friends, and private retirement fund, pension plan, and other sources, recoded into deciles; 1st decile = lowest income, 10th decile = most income. Timepoint 1 (T1) refers to 12 months prior to retirement. Timepoint 13 (T13) refers to 1 months post-retirement. Overall engagement for each activity was derived by averaging scores across all waves of available data.