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A meta-analysis of retirement adjustment predictors☆

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ABSTRACT

While most people experience a positive transition to retirement, as many as one third of the population find the transition challenging. Previous research has identified a number of factors that predict adjustment outcomes – with finances, physical health, marital relationship, wider social participation, and exit conditions identified as being particularly key. This study aimed to examine their relative contribution to retirement adjustment by assessing the magnitude of the associations between each key predictor category and retirement adjustment outcomes, as well as to examine potential important moderating factors. A three-level meta-analysis (based on 915 effect sizes, $k = 139$, $N = 78{,}632$) revealed that social participation had the strongest positive association with adjustment ($r = .23$), followed by physical health ($r = .22$), marital relationship ($r = .18$), finances ($r = .17$) and exit conditions ($r = .15$), respectively. Additional analyses revealed substantial variation within each category (with effect sizes ranging from $r = -.03$ to $r = .43$), suggesting that there is value in future research and theory to recognise substantive theoretical and empirical differences in defining retirement predictors. Less physical health symptoms and ease of maintaining social relationships were identified as the most important subfactors for successful adjustment. We discuss theoretical and practical implications of these findings in facilitating retirement adjustment.

1. Introduction

Retirement is a relatively modern concept in the history of humankind that has been widely studied over the past 50 years. Although there are various conceptualisations that emphasise different aspects of retirement (for a review see Alpass, 2013), it is generally defined as the psychological and behavioural exit from full-time work (Shultz & Wang, 2011; Wang & Shi, 2014). Most people look forward to retirement to escape from job-related stress, to explore other facets of life and spend more time with family and friends (Latif, 2011). However, US data show that about one in four retirees report the transition as highly stressful (Bossé et al., 1996), and where this is the case, it is marked by a significant reduction in well-being and mental health (Haring et al., 1984; Holcomb, 2010; Wang, 2007). Consistent with this, Holmes and Rahe (1967) ranked retirement as the tenth most stressful event in life. Increasingly though, retirement is no longer considered a transition that takes place on a particular date, but a process in which its effects may manifest in the lead up, during, and even some years post-retirement (Gall et al., 1997; Heller-Sahlgren, 2017; Pinquart & Schindler,

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2007; Wang, 2007).

Given aging populations and the subsequent increase of years spent in retirement around the globe (United Nations, 2019), it is becoming increasingly important to understand the factors that promote successful adjustment. In this research, we investigate the role of five established predictors of adjustment — physical health, finances, exit conditions, social participation and marital relationships. We do this by means of a three-level meta-analysis that draws on 915 effect sizes identified systematically from decades of research on retirement adjustment. This method allows us to estimate the strength of association between each of these predictors and adjustment to retirement. In addition to providing insight into the comparative importance of these predictors, we also examine *subfactors* within each predictor category to establish their relative importance.

This study provides the first meta-analytic review of retirement adjustment predictors. It is also the first study to systematically categorise and meta-analyse predictor subfactors in order to gain a deeper understanding of the nuances associated with each predictor. This study extends past qualitative reviews and makes an important contribution to the retirement literature by identifying the extent to which various predictors underpin successful retirement adjustment. There are several benefits in understanding the relative importance of predictors in a meta-analysis. Most notably, we have little theoretical understanding of the relative importance of predictors. This study sheds light on the predictors that are key to successful adjustment and shows that certain factors play a larger role in shaping adjustment than others. This, in turn, provides a basis for making specific recommendations for future research and intervention.

1.1. Predictors of retirement adjustment

Specifying the predictors of retirement adjustment has been the subject of numerous examinations and qualitative reviews in the last few decades (e.g., Asebedo & Seay, 2014; Bender, 2012; Bonsang & Klein, 2012; Calvo et al., 2009; Reitzes et al., 1996; Reitzes & Mutran, 2004; Yeung & Zhou, 2017). The first qualitative review was provided by Beehr (1986), and it took 25 years for an updated review to appear (Wang & Shultz, 2010). In this, 22 predictors of retirement adjustment were identified, classified into four categories: individual attributes (e.g., personality), workplace factors (e.g., employment history), family factors (e.g., family support), and socioeconomic factors (e.g., economic conditions). In subsequent reviews, researchers have identified similar factors (e.g., Wang & Shi, 2014), with slight variations in classification (Van Solinge, 2012; Wang et al., 2011; Wang & Hesketh, 2012). The advance here was to highlight the importance of the variety of predictors in particular phases of retirement. Other reviews categorise predictors as a function of outcomes. In their approach, Wang et al. (2011) organised predictors according to whether they had positive or negative effects on retirement adjustment quality. They found that physical health decline, maintaining a work role identity, becoming a widow, retiring earlier than expected, and anxiety associated with participating in social activities were among the factors associated with poorer adjustment. Similar factors relating to good physical and mental health, financial resources and social relationships and participation were found to mostly predict better adjustment. This general pattern of findings was replicated by Leandro-França and Murta (2017). Taken together, what these reviews show is that a range of factors contribute to positive or negative adjustment and there is some variation in how these are categorised (e.g., as personal, organisational or psychosocial in nature).

This evidence has been used to inform models of retirement adjustment. For instance, role theory (Linton, 1936) emphasises the importance of work roles, and the impact that change or loss in these roles have on retirement motivations, values and intentions (Ashforth et al., 2008; Wheaton, 1990). Continuity theory (Atchley, 1999) points to the impact of life disruption and argues that it is the nature and extent of this disruption that is a critical determinant of adjustment. Similarly, the life course perspective (Elder, 1995) recognises that experience with, and management of, previous life change influences how well people adjust to retirement. On the other hand, the resource-based dynamic model highlights the availability of various resources (e.g., social, financial, emotional) as key to a person's adjustment and suggests that, as their accessibility fluctuates, so do people's experiences of adjustment (Kim & Feldman, 2000; Leung & Earl, 2012; Wang et al., 2011; Wang & Shi, 2014). Other theories such as the retirement transition adjustment framework highlight the importance of cognitive, physical and social abilities, and recognise that the social identifications that underpin social group memberships (for example, identifying as a “retiree”) influence self-efficacy and consequently shapes adjustment behaviour (Dawes, 1994; Dawes & Lofquist, 1984; Hesketh et al., 2011; Hesketh et al., 2015).

Nevertheless, as Barbosa et al. (2016) stress in their review of the retirement adjustment literature, the evidence informing these models has some important limitations. First, the reliability of predictors and how they have been categorised is unclear because these have not been clearly defined. Notable here, is the fact that many reviews identify social factors as important to adjustment but do not clearly specify what social engagement, activity or participation involves (e.g., in which form, with whom). As a predictor, marital status offers perhaps the most conceptual clarity, but it clearly is only one aspect of socialisation. Second, past reviews provide limited information on the search strategies and inclusion criteria used to identify studies on retirement adjustment predictors. In addition to limiting reproducibility, non-systematic search processes may introduce bias or result in an incomplete evidence base (McGowan & Sampson, 2005). Finally, because of the diversity of variables identified (and the lack of clarity in definition), past reviews are limited in the extent to which they can advance on the above theory and inform intervention.

Addressing these limitations, Barbosa et al. (2016) conducted the first *systematic* review of factors predicting retirement adjustment and found that physical health had the highest proportion of positive effects on retirement adjustment, followed by finances, psychological attributes, leisure, voluntary retirement, social integration, retirement preparation and marital factors. Moreover, a subsequent systematic review by Amorim and França (2019) found that health, finances, marital status, interpersonal relationships, and exit conditions to be not only important for successful adjustment, but also key for retirement well-being. These reviews provide an important advance on previous work because they provide a systematic account of empirical evidence pertaining to particular predictors in retirement adjustment, though the objective magnitude of these effects was not investigated.

In their study, Topa et al. (2009) applied meta-analytical structural equation models to examine quantitative associations between retirement antecedents (e.g., health, exit conditions), retirement planning, retirement decisions, and subsequent consequences including adjustment indexed by retirement and life satisfaction. While this study offers some indication of the quantitative association between certain predictors and adjustment, it has two important limitations. First, its focus was on retirement planning and decisions; it does not examine the contribution of other important predictors (e.g., social and financial factors). Second, while this study showed some evidence of variation in effect size strength between antecedents (e.g., exit conditions) and adjustment consequences, it did not statistically examine the relative contribution these make to adjustment.

The above gaps are filled in the present meta-analysis which focuses on a comprehensive examination of the relevance of predictors by establishing the magnitude with which they are associated with retirement adjustment. In this research, we narrow our focus to five established predictors of retirement adjustment — physical health, finances, exit conditions, social participation, and marital relationships, based on findings from previous reviews (i.e., Amorim & França, 2019; Barbosa et al., 2016; Wang et al., 2011).

1.2. Moderators of adjustment

What is clear from the retirement and wider literatures is that the above predictors of adjustment may themselves be moderated by other factors in affecting outcomes. Of particular relevance to the retirement context, and as we discuss in more detail below, are the quality of relationships for social predictors of adjustment, but also gender, age, year, and retirement-specific (vs. general) adjustment that may differentially affect how all key predictors (i.e., health, social, financial, retirement exit conditions) affect adjustment outcomes.

In the case of social relationships, previous research shows that it is not only their quantity but also their quality that is associated with better mental health and well-being (Sun et al., 2019; Umberson et al., 1996). However, the findings are mixed. A number of studies, including a meta-analysis of older adults, show that in some contexts the *quality* of social relationships is the stronger predictor (de Bruin et al., 2020; Pinquart & Sörensen, 2000). Similarly, in retirement adjustment, where the focus is largely on relationships with individuals, evidence suggests that having a marital partner promotes adjustment, but primarily when the quality of this relationship is high (Cohen, 2004; Cohen et al., 2001; de Bruin et al., 2020; Kim & Moen, 2002). As these studies suggest, relationship quality, rather than frequency of social interaction, may be more important for adjustment.

Research interrogating gender differences in retirement adjustment has been an ongoing endeavour that has also produced mixed results (e.g., Barbosa et al., 2016; Byles et al., 2016; Kim & Moen, 2002; Kubicek et al., 2011; Quick & Moen, 1998; Seccombe & Lee, 1986). What is clear, however, is that women tend to have a financial disadvantage in retirement compared to men due to gender pay inequality and experiencing more career breaks. Moreover, there is some evidence that this is what may contribute to women experiencing lower levels of satisfaction in retirement (Seccombe & Lee, 1986). Added to this disadvantage, evidence suggests that women tend to be less financially knowledgeable and engage in less planning to support their financial status in retirement (Lusardi & Mitchell, 2008; Noone et al., 2010). There are also factors that impair men's adjustment to retirement. Research shows that men generally have worse health than women throughout the lifespan (Baker et al., 2014), and so health may become a more important and challenging issues for men as they retire. Indeed, Byles et al. (2016) found that psychological distress in association with retirement is greater in men with poor physical health; an association not found for women. Finally, there is limited research into the social resources that men and women draw upon and benefit from in retirement. Some evidence suggests that being married is more important for men's life satisfaction in retirement (e.g., Antonucci & Akiyama, 1987). All this raises questions about the role of gender in moderating the importance of traditional retirement predictors for adjustment.

Age is an obvious additional important potential moderator given people are retiring younger and living longer. For example, in Australia, the average age people retire precedes life expectancy by nearly 30 years (Australian Bureau of Statistics, 2019), meaning many will have another third of their lives ahead of them when they retire. Furthermore, older age has been linked to a number of key factors, including greater goal clarity and financial planning (Stawski et al., 2007), reduced participation in bridge work (Moen & Flood, 2013), a change in the configuration of social networks (Luong et al., 2011), and a general decline in health (Himes, 2015).

In addition to age, generational differences may also influence the extent to which people can draw on different factors in their adjustment to retirement. Given aging populations, the nature of retirement has changed in response to shifting economic circumstances and social policies across the globe. ‘Baby boomers’ (i.e., those born between 1946 and 1964) are the longest living, and wealthiest, generation in history. This raises questions about whether financial status is more or less important for this generation. Furthermore, baby boomers are often thought to be relatively healthier in retirement. Though, contrary to this, Rice and colleagues (2010) found that baby boomers have a greater prevalence of chronic disease, more doctor visits and increased mental illness compared to previous generations. In addition to this, there are clear generational differences in retirement expectations, attitudes and decisions. Baby boomers are more reluctant to retire compared to earlier generations. They report dreading retirement because they are not ready to give up the meaning and mental stimulation they get from working and they fear becoming disengaged from friends and society in retirement (Gibaldi, 2013). To capture these potential generational influences, we use year of publication as a moderator in our analysis to examine their role in adjustment.

Finally, given the broad conceptualisation of adjustment in the context of retirement adopted in past reviews (e.g., Barbosa et al., 2016), in this meta-analysis we will explore potential sources of diversity in such adjustment by examining, independently, the effects of predictors on retirement-specific versus general measures (e.g., retirement and life satisfaction, respectively) of adjustment.

The present meta-analysis considers the effects of each of these potential moderating factors. However, past theorising does not suggest a clear prioritisation of these moderators and empirical examination of these moderators has revealed inconsistent results. As such, in this meta-analysis, we take an exploratory approach in examining these relationships as we do not have a clear indication of

the expected direction of any potential differences.

1.3. Present study

While previous reviews show that certain factors appear more important than others for retirement adjustment, what we lack is a comprehensive understanding of the extent to which these key predictors of retirement adjustment contribute to outcomes. Addressing this gap, the present study provides the first quantitative synthesis in a meta-analysis to determine the relative contribution of five established and consistent predictors of retirement adjustment — physical health, finances, social participation, marital relationships, and exit conditions. Specifically, this study aims to (a) estimate the magnitude of the effects of these predictor categories, (b) compare their relative contribution to retirement adjustment, (c) assess potential important moderating factors (quality of relationships, gender, age, year, and conceptualisation of retirement adjustment), and (d) examine variation in the effect size within each predictor by exploring qualitatively different indices of each predictor.

2. Method

2.1. Preregistration and Supplementary material

Following recommendations by Quintana (2015), the protocol for this meta-analysis was developed and pre-registered with PROSPERO prior to full-text screening, data extraction and data analysis. The aim of pre-registering this study was to contribute to open, reproducible science and reduce the risk of bias by providing evidence of a priori specifications of the study rationale, inclusion criteria, data extraction and analysis plan.[1] As the protocol submitted to PROSPERO is not blinded, we provide a deidentified copy that can be accessed via the open science framework. Here, we also provide a table outlining key study characteristics, the full dataset, analysis code and a master file recording the methods used to conduct the study: [https://osf.io/6k7s4/?view_only=5bdbcd2c884c44768fbb646ede14c097].

2.2. Defining predictors

Physical health. Physical health factors were defined as items measuring physical health in terms of self-report (e.g., self-rated health) or objective ratings (e.g., number of illnesses), which included items relevant to neurological status such as cognitive health (e.g., memory impairment). We excluded factors related to psychological well-being (e.g., quality of life) and mental health (e.g., depression) given these were outcome variables in this study.

Finances. Financial factors were defined as objective indicators of financial status (e.g., income, assets, savings), and engagement in financial-specific planning for retirement (e.g., the extent of pension or superannuation planning). Subjective ratings (e.g., income satisfaction) were excluded as these did not capture objective financial status.

Exit conditions. Exit conditions were defined as factors specific to occupational circumstances and personal resources around exiting work in the lead up to retirement. This category included work-exit factors such as retirement control (e.g., voluntariness of decision), retirement timing (e.g., early, on-time or late), participation in bridge work, or the type of transition (e.g., phased or abrupt). Personal resources included retirement self-efficacy, retirement expectations, aspirations, hopes or fears Finally, exit conditions also included general retirement planning indexing psychological preparation (e.g., thought about retirement, preretirement counselling).

Social participation. Social participation was defined as factors related to social involvement with other people besides a spousal partner, and measures of the quantity or quality of these relationships. This included frequency of social interaction (e.g., contact with friends), number of social resources (e.g., number of social groups people are a member of), as well as quality indicators such as social support, satisfaction with contact, positivity of interaction, and sense of connection to others. We also included factors capturing the extent to which retirees enjoyed engaging with others (e.g., social enjoyment), and the extent to which they made specific social plans for their life in retirement (e.g., social preparation). Finally, we included factors related to anxiety about losing social connections in retirement.

Marital relationship. Marital relationship was defined as factors related only to the one-on-one relationship with a marital or spousal partner. This category included marital status (e.g., married, single, separated), frequency of interaction (e.g., time with spouse) and the quality of interaction (e.g., closeness, support). A summary of these definitions is provided in Table 1.

2.3. Defining adjustment

In line with Barbosa's systematic review (Barbosa et al., 2016), we focus on psychological adjustment to retirement in the present meta-analysis. With this focus in mind, adjustment to retirement which could be indexed by life or retirement satisfaction, psychological well-being (including mental health), affect, quality of life, control, and feeling of contentment or stress in retirement.

[1] In the present paper, we report exploratory moderation analyses which were not preregistered. These included age, year of publication and subfactor analysis.

Table 1
Conceptualisation of predictor categories included in this study.

Predictor category	Conceptualisation
Physical health	Physical health (self-rated functionality) or cognitive health (e.g., memory impairment) *Exclusions*: Psychological well-being (e.g., perceived quality of life) and mental health (e.g., depression).
Finances	Factors related to objective financial status (e.g., income) or financial planning (e.g., superannuation planning). *Exclusions:* Subjective financial status (e.g., income satisfaction)
Exit conditions	Factors specific to occupational circumstances and personal resources around exiting work in the lead up to retirement, including retirement control, retirement timing, participation in bridge work, transition type (i.e., phased or abrupt), retirement self-efficacy, retirement expectations, aspirations, hopes, fears, or general retirement planning indexing psychological preparation (e.g., thought about retirement) *Exclusions*: Participation in paid or volunteer (i.e., unpaid) work in retirement
Social participation	Factors related to social involvement (besides a spousal partner) and the quality/quantity of these relationships including frequency of interaction, number of social resources, quality indicators (e.g., support) or social planning.
Marital relationship	Factors related only to one-on-one relationships with a marital or spousal partner, including marital status, living arrangements, frequency of interaction or quality indicators (e.g., partner support)

2.4. Eligibility criteria

Inclusion criteria. To be included in the meta-analysis, studies needed to meet the following pre-determined inclusion criteria: (a) examine individuals in retirement, (b) include at least one explicit measure of physical health, financial status, exit conditions, social participation, or marital relationship (i.e., predictor categories, as defined above), (c) include at least one measure of retirement adjustment, (d) use a cross-sectional, quasi/experimental, or longitudinal design, (e) report statistical information about the quantitative assessment of the relationship between a relevant predictor and retirement adjustment outcome (DV), and (f) be published in English.

Exclusion criteria. Studies were excluded if participants were recruited only on the basis of national retirement age, in the absence of evidence that they had formally retired from their career work. Similarly, studies were excluded if participants were defined as being at, near, or past retirement age, or 'elderly' — in the absence of measures that target retirement-specific adjustment outcomes (e.g., retirement satisfaction, retirement adaptation). Studies based on samples composed of groups that typically retire early and re-enter the traditional workforce (e.g., professional athletes) or groups that retire early due to significant life circumstances (e.g., on disability grounds) were also excluded. Studies that recruited participants on the basis of having a specific medical condition (e.g., Alzheimer's disease) or having received a particular treatment (e.g., radiotherapy) were also excluded. Finally, studies were excluded if they measured *anticipated* retirement adjustment in absence of measures that indexed actual adjustment.

2.5. Search strategy

We conducted a systematic search of key electronic databases: *Web of Science*, *MEDLINE*, and *PsycINFO*. We also included a search of *ProQuest Dissertations and Theses Global* to capture relevant studies from the grey literature. The review team identified potential keywords which were piloted to maximise sensitivity and minimise the number of false positive hits. Default search parameters were set so that studies could be identified from the oldest record available to the date of the search.[2] In addition, the lead author manually searched the papers included in Barbosa's systematic review to identify any additional relevant studies not identified through the database search (Barbosa et al., 2016).

Once the records were identified, the first two authors independently reviewed these in two stages. First, the reviewers used *Covidence* (Veritas Health Innovation, www.covidence.org), an online systematic review software to judge the relevance of each paper based only on its title and abstract. Papers that were considered relevant were then subjected to full-text screening, where the entire text was read to determine whether it met eligibility criteria. During the full-text screening phase, both reviewers made independent notes about the reasons of a paper's fulfilment of (or failure thereof) eligibility criteria which were used to facilitate discussion and resolve any disagreement.

An outline of the search process for this study (from database searching to data extraction) is presented in Fig. 1. The systematic search of the databases identified 11,319 records. Once duplicates were removed, the titles and abstracts of 7998 records were screened. Of these, 617 full-text papers were forwarded to full-text screening. Full-text screening resulted in 124 articles that met criteria to be included in the meta-analysis. One additional paper was included after manually screening all papers included in Barbosa and colleague's systematic review. The total number of papers included in the meta-analysis was 125.

2.6. Data extraction and coding procedure

Once relevant studies were identified, the lead author extracted all key variables necessary for the meta-analysis, including name of

[2] The first search was conducted on May 15th, 2018 and was updated on March 23rd, 2021.

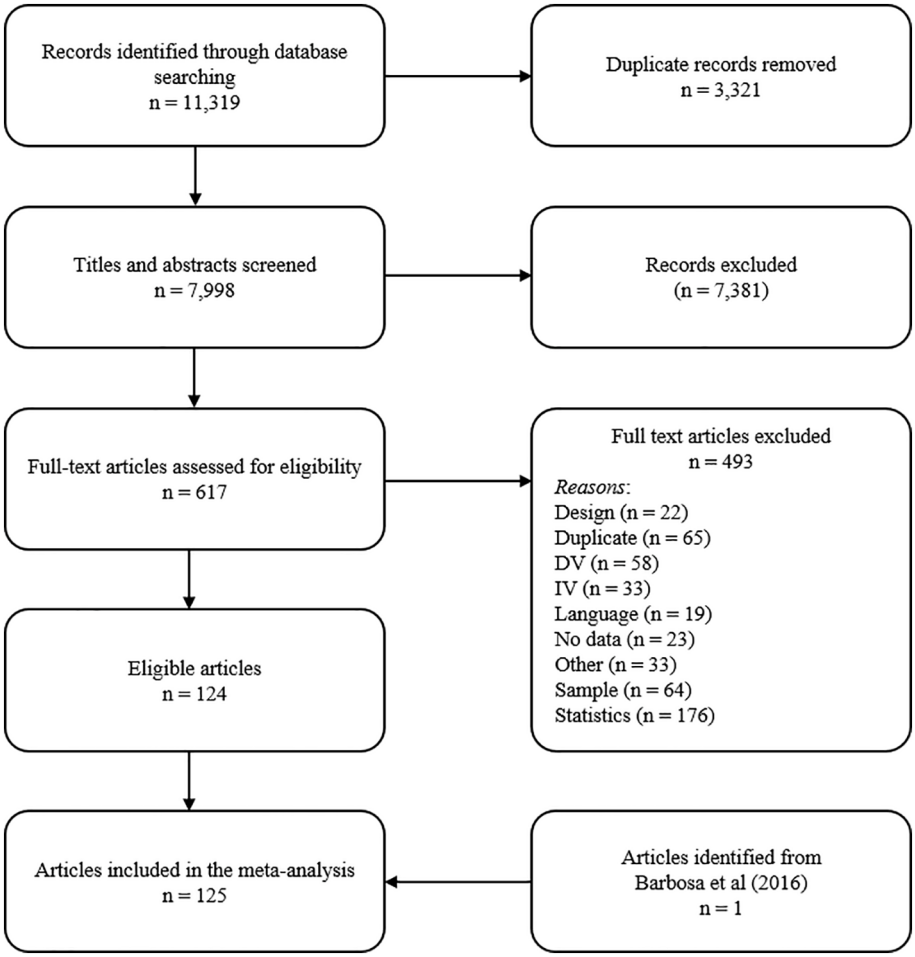

Fig. 1. Flow diagram outlining the procedural process and screening stages of the meta-analysis (based on PRISMA guidelines; Moher et al., 2009).

author(s), year of publication, publication status, study design, sample size, effect size (in the form of Pearson's *r* correlation), participant demographics as well as information related to how and when relevant independent and dependent variables were measured. All non-correlational effect sizes (i.e., Odds Ratios, Cohen's *d*, χ^2) extracted from studies were converted to correlation using relevant formulas provided by Borenstein et al. (2009). If necessary, any questions about whether a particular variable fulfilled the inclusion criteria were discussed with the authorship team, and more general questions about whether a study fulfilled the inclusion criteria with a team of four individuals with university-level psychology degrees. In line with the protocol, we coded additional variables for moderation analysis. The coding procedure is described below.

Gender and age. We coded participants' age (mean, standard deviation and range) and gender (as a proportion of females in the sample). The mean age of participants in the sample was 66.50 years (SD = 5.21, mean range = 54 to 80). The average proportion of females across samples was 43.15%.

Publication status. To examine publication bias, we coded effect sizes as a function of their publication status. Seventy percent of the data (reporting 645 relevant effect sizes) were from published papers; and 30% (reporting 270 relevant effect sizes) were unpublished doctoral and master's theses.

Predictors of retirement adjustment. To address the key aim of this study, effect sizes were coded into one of the five categories of predictor. Additionally, effect sizes in each category were sorted further into *subfactors* to examine the potential differences in effect size strength as a function of index, and to allow examination of additional sources of heterogeneity. Sorting of subfactors was conducted prior to running final analyses. These categories and subfactors are described below alongside the number of samples in each.

Physical health. Physical health effect sizes were categorised into 7 subfactors: *cognitive health*, indexed by measures of cognitive integrity, impairment or resources; *health illnesses*, indexed by the presence of one or more disease or illness (e.g., heart disease); *health problem duration*, indexed by the amount of time health issues persisted; *health symptoms*, indexed by the presence of one or more symptom (e.g., trouble breathing); *health influence*, indexed by the interference of health on physical functioning and daily life; *physical disability*, indexed by the presence of impairment or disability; and, *subjective health*, indexed by self-reported measures of general health status. To ensure comparability of effect sizes, all effect sizes were coded so that positive effect sizes correspond to *better* health

(e.g., *greater* cognitive health, *fewer* health problems).

Finances. Finance effect sizes were categorised into 3 subfactors: *income,* indexed by the amount of income from various sources (e.g., pension income); *financial preparedness,* indexed by the extent of financial planning (e.g., experimenting with living on a retirement budget); and *net worth* (e.g., net assets or savings).

Exit conditions. Exit condition effect sizes were sorted into 5 subfactors: *retirement preparation* (e.g., thought about retirement, attended preretirement counselling); *retirement control*, indexed by the voluntariness and timing of retirement; *evaluations of retirement*, indexed by attitudes towards retirement and retirees' evaluation of their own retirement conditions; *bridge work,* indexed by participation in paid work to bridge the transition to retirement; and *type of transition,* indexed according to whether retirement was gradual or abrupt.

Social participation. Nine subfactors of social participation were coded: *ease of maintaining social ties in retirement*; *satisfaction with social life* (e.g., satisfaction with family relationships); *social enjoyment*, indexed by retirees' sense of enjoyment being around other people; *social identification*, indexed by measures that captured identification with social groups (e.g., retiree identification, identification with multiple groups); *social interaction*, indexed by the extent and frequency of social interaction (e.g., contact with offspring, frequency of social contact); *social interaction quality* (e.g., positive/negative ratings of social interaction); *social preparedness* (e.g., planning social activities in retirement); *social support* (e.g., family support); and *total groups*, indexed by the total number of groups and also the total number of high-quality groups (e.g., total positive groups). In addition, to be able to examine the contribution of relationship quantity vs. quality, effect sizes were also coded according to whether they examined the quality or quantity of social participation.

Marital factors. Marital factors comprised 4 subfactors: *marital status*; *marital quality*, indexed by self-reported ratings of the quality of the marital relationship (e.g., satisfaction with marriage; *time spent with partner*), indexed by the frequency of interaction with a marital partner (e.g., time spent with spouse); and *relationship duration*, indexed by years of partnership. As with social participation, effect sizes were also coded as a function of their quality or quantity of interaction with a marital partner.

Conceptualisation of adjustment. We coded whether adjustment referred to general adjustment (e.g., psychological well-being, happiness, life satisfaction) or adjustment specific to retirement (e.g., retirement adjustment, retirement satisfaction) to examine potential differences in effect size as a function of the focus of retirement outcomes.

2.7. Analytical procedure

All analyses were conducted using R software (version 3.6.2) and the *metafor* package (Viechtbauer, 2010). Following recommendations by Borenstein et al. (2009), Fisher's z-transformation was used to convert correlations. The transformed values were used for all analyses. The estimates were converted back to correlations for ease of interpretation and presentation. We conducted a three-level meta-analysis that can account for dependency in the data as multiple predictors and multiple outcomes were often assessed in the same sample to generate summary effect sizes for each predictor category (Assink & Wibbelink, 2016; Cheung, 2019; Van den Noortgate et al., 2013).[3] Consistent with a three-level meta-analytic approach that addresses dependency between different effect sizes within a study (see Assink & Wibbelink, 2016), variance was distributed over three levels of: (i) sampling variance of extracted effect sizes (level 1); (ii) variance between effect sizes extracted from the same sample (level 2), and (iii) variance between independent samples (level 3). To address our key research question, we conducted moderation analysis at each level of the predictor category (i.e., physical health, finances, exit conditions, social participation, and marital relationships) to examine potential differences in effect size strength.

In line with the protocol, we estimated the heterogeneity of effect sizes by calculating the total variance present in the model (sigma) as well as the proportion of variance between outcomes in the same study (i.e., within-study variance) and between-study variance using the I^2 statistic (Higgins & Thompson, 2002). In line with recommendations by Raudenbush (2009) and IntHout and colleagues (2016), we also estimated the 80% prediction interval (which indicates the range within which a new effect size is likely to fall with 80% probability; abbreviated as "80% PI") and interpreted these according to recommendations made by Wiernik and colleagues (2017). Additionally, we estimated R^2 as an indicator of the strength of any moderation effect by calculating the proportional reduction in variance when a moderator is added to a model.

We also used a number of techniques to estimate publication bias. These included examining publication status as a moderator, risk of publication bias using the funnel plot asymmetry test (Sterne & Egger, 2001), Egger's regression test (Egger et al., 1997), and meta-regression of the effect size as a function of sample size (as there is evidence that studies with smaller samples tend to report larger effects; Kühberger et al., 2014).

Exploratory analyses. Given the large number of effect sizes, we also explored additional sources of heterogeneity within each predictor category by examining subfactors within these. To do this, within each predictor category we compared the associations between subfactors and adjustment outcomes.

[3] When dealing with panel data, we initially took a conservative approach by treating studies drawing on the same survey (e.g., Health and Retirement Study) as belonging to the same sample. However, this method raised concerns about accuracy, given the degree of overlap between effect sizes was unclear in cases because of large variation between the studies because they (a) used different sample inclusion criteria, (b) included data from different Waves/time-points (e.g., Selkirk, 2017; Wang, 2007), and in cases where (c) data from multiple panel studies were combined (e.g., Noone & Alpass, 2009). For these reasons, we treated effect sizes from the same panel data as independent of one another in the manuscript and sensitivity analyses showed that this method produced the same results as the more conservative approach.

3. Results

3.1. Descriptive characteristics

A total of 125 reports (915 effect sizes, $k = 139$, $N = 78{,}632$) were included in the meta-analysis. Those included spanned nearly 50 years of research, falling between 1972 and 2021. Independent samples were recruited from more than 22 countries. Fifty-six percent of samples were from the United States, 9% from Australia, 6% from China, 6% from Canada and the remaining 23% from all other (mostly European) countries combined. Eighty-eight were cross-sectional, 34 were longitudinal and 3 had either a quasi-experimental or true experimental design.

3.2. Analyses of key predictors

Meta-analytic results showed that the summary effect sizes for each predictor were positive and statistically different from zero (see Table 2 for key statistics). Of the five predictor categories, social participation had the highest correlation with retirement adjustment ($r = .23$, 80% PI [0.00, 0.43]). This was followed by physical health ($r = .22$, 80% PI [−.01, 0.42]), marital factors ($r = .18$, 80% PI [−0.05, 0.39]), financial factors ($r = .17$, 80% PI [−.07, 0.38]), and exit conditions ($r = .15$, 80% PI [−0.07, 0.37]).

In addition, the omnibus test for the planned moderation analysis, comparing effect sizes at the level of the predictor category was significant, $F(4, 914) = 5.85$, $p < .001$, $R^2_{\text{Level-3}} = 0.07$. Follow-up comparisons revealed that the effect size for social participation was significantly stronger than that with exit conditions ($t = 3.93$, $p < .001$), finances ($t = 3.27$, $p = .001$) and marital relationships ($t = 2.37$, $p = .018$), but not for physical health ($t = 0.76$, $p = .449$). Furthermore, the association between physical health and adjustment was significantly stronger than the effect size for exit conditions ($t = 3.73$, $p < .001$) and finances ($t = 2.80$, $p < .001$), but not marital factors ($t = 0.76$, $p = .449$). No other comparisons differed statistically from each other.

3.3. Examination of subfactors within predictor categories

We then examined the associations between subfactors within each predictor and retirement adjustment outcomes. Analysis revealed substantial heterogeneity within all predictor categories —social participation ($Q(274) = 2446.49$, $p < .001$, 80% PI [0.00, 0.43]), physical health ($Q(197) = 5349.29$, $p < .001$, 80% PI [−0.01, 0.42]), marital factors ($Q(105) = 632.70$, $p < .001$, 80% PI [−0.05, 0.39]), finances ($Q(127) = 850.37$, $p < .001$, 80% PI [−0.07, 0.38]), and exit conditions ($Q(211) = 3182.30$, $p < .001$, 80% PI [−0.07, 0.37]). The large variability in effect sizes across all categories, as indicated by the prediction intervals (between 0.43 and 0.45 units wide), does not allow determining precisely how important these global predictors are for adjustment in a given context (Wiernik et al., 2017). Moreover, the substantial variability in prediction intervals supports the possibility to further explore effect size strength as a function of subfactors. Meta-analytic results for predictor *subfactors*, including relevant comparisons between these, are presented in Table 3. It is important to note that cases where effect sizes do not statistically differ from zero do not provide evidence of absence of an effect. Indeed, statistical non-significance could be due to various factors including limited number of, and high heterogeneity in, effect sizes.

Social participation. Results showed that of the 9 subfactors, 7 were significantly and positively correlated with retirement adjustment. Ease of maintaining social life in retirement had the strongest correlation with adjustment ($r = .40$, 80% PI [0.15, 0.60]) followed by social identification ($r = .31$, 80% PI [0.08, 0.50]), social interaction quality ($r = .28$, 80% PI [0.06, 0.47]), satisfaction with social life ($r = .27$, 80% PI [0.05, 0.47]), social support ($r = .25$, 80% PI [−0.03, 0.41]), social interaction ($r = .24$, 80% PI [0.02, 0.44]), and total groups ($r = .20$, 80% PI [−0.03, 0.41]), respectively. The effect sizes for social enjoyment ($r = .07$, 80% PI [−0.19, 0.31]) and social preparedness ($r = .02$, 80% PI [−0.26, 0.30]) did not differ statistically from zero ($ps > .516$). The omnibus moderation analysis revealed that the strength of the associations between the subfactors of social participation and retirement outcomes differed statistically from each other, $F(8, 266) = 2.71$, $p = .007$, $R^2_{\text{Level-3}} = 0.00$. The follow-up comparisons (including the effect sizes that differed statistically from each other) are reported in Table 3.

Physical health. Physical health symptoms ($r = .43$, 80% PI [0.17, 0.63]), subjective health ($r = .24$, 80% PI [−0.03, 0.47]), health influence ($r = .23$, 80% PI [−0.05, 0.47]) and health illnesses ($r = .13$, 80% PI [−0.29, 0.50]) were significantly correlated with adjustment. The effect sizes for health problem duration ($r = .20$, 80% PI [−0.16, 0.51]), cognitive health ($r = .14$, 80% PI [−0.16, 0.41]), and physical disability ($r = .08$, 80% PI [−0.21, 0.36]) were not significantly different from zero ($ps > .206$). The moderation analysis examining effect size strength as a function of the subfactors of physical health was significant, $F(6, 191) = 3.36$, $p = .004$, $R^2_{\text{Level-3}} = 0.07$. Follow-up comparisons are shown in Table 3.

Marital. Of the 4 subfactors, marital quality had the strongest significant correlation with retirement adjustment ($r = .17$, 80% PI [−0.00, 0.33]) followed by marital status ($r = .12$, 80% PI [−0.05, 0.29]) and time spent with partner ($r = .11$, 80% PI [−0.08, 0.29]), respectively. Relationship duration not significantly correlated with adjustment, though there was only one effect size in this subfactor ($r = .04$, 80% PI [−0.17, 0.25], $p < .619$). There was no evidence that the strength of the associations for subfactors of marital status differed statistically from each other ($F = 2.05$, $p = .111$).

Finances. Of the 3 subfactors, income had the strongest significant correlation with retirement adjustment ($r = .17$, 80% PI [0.02, 0.31]), followed by net worth ($r = .13$, 80% PI [−0.02, 0.28]). There was no evidence that financial preparedness ($r = .07$, 80% PI [−0.09, 0.23]) was associated with retirement adjustment ($p = .060$). The moderation analysis comparing the associations at the level of subfactors of finances was statistically significant $F(2,121) = 3.32$, $p = .039$, $R^2_{\text{Level-3}} = 0.08$.

Exit conditions. Of the 5 subfactors, 4 were significantly positively correlated with retirement adjustment. Feelings about

Table 2
Meta-analytic results for predictors of retirement adjustment.

Predictor	*k*	*ES*	*N*	*r*	CIs 95%	PIs 80%	*t*	Sig. dif.
Overall model	139 (131)	915	78,632	.20	[0.17, 0.22]	[−0.04, 0.41]	14.90***	NA
Social (S)	36 (36)	275	48,201	.23	[0.20, 0.26]	[0.00, 0.43]	13.82***	M, F, E
Health (H)	36 (35)	198	66,037	.22	[0.19, 0.24]	[−0.12, 0.42]	13.73***	F, E
Marital (M)	20 (19)	106	29,142	.18	[0.14, 0.22]	[−0.17, 0.49]	9.55***	S
Finances (F)	20 (19)	124	40,289	.16	[0.13, 0.20]	[−0.07, 0.38]	8.87***	S, H
Exit conds (E)	27 (22)	212	17,435	.15	[0.21, 0.19]	[−0.08, 0.37]	9.00***	S, H

Note. *k* = number of independent samples, in parenthesis, the number of dependent samples, accounting for studies reporting data from the same participants (e.g., panel data); *ES* = number of effect sizes; *N* = number of participants; *r* = correlation effect size; CIs 95% = confidence intervals for correlations at the 95% level; PIs 80% = the predicted range within which a new effect size is likely to fall with 80% probability; *t* = corresponding *t*-value for correlations; Sig. dif. = predictor categories which are significantly different to predictor indicated in respective row.
*** $p < .001$.

Table 3
Meta-analytic results for the subfactors within social participation, physical health, marital, finances, and exit conditions and their summary correlations with retirement adjustment.

	k	ES	*N*	*r*	CIs 95%	PI 80%	*t*	Sig. dif.
Subfactors within social								
a. Ease of maintaining social life	2	5	548	.40	[0.19, 0.65]	[0.15, 0.60]	3.56***	h; i
b. Social identification with groups	5	31	11,180	.31	[0.19, 0.42]	[0.08, 0.50]	4.96***	h, i
c. Social interaction quality	8	15	12,552	.28	[0.20, 0.35]	[0.06, 0.47]	6.81***	h
d. Satisfaction with social life	4	17	795	.27	[0.17, 0.37]	[0.05, 0.47]	4.94***	h
e. Social support	26	123	24,448	.25	[0.09, 0.31]	[−0.03, 0.41]	8.97***	
f. Total/freq of social interaction	27	55	22,909	.24	[0.18, 0.30]	[0.02, 0.44]	7.95***	
g. Total groups (number/quality)	3	23	10,877	.20	[0.09, 0.31]	[−0.03, 0.41]	3.37***	
h. Social enjoyment	2	3	261	.07	[−0.13, 0.26]	[−0.19, 0.31]	0.52	a; b; c; d
i. Social preparedness	1	3	90	.02	[−0.25, 0.29]	[−0.26, 0.30]	0.12	a; b
Subfactors within health[a]								
a. Health symptoms	7	11	3055	.43	[0.31, 0.54]	[0.17, 0.63]	6.30***	b; c; e; f; g
b. Subjective health	62	125	55,352	.24	[0.19, 0.28]	[−0.03, 0.47]	9.61***	a; f
c. Health influence	8	22	4955	.23	[0.11, 0.34]	[−0.05, 0.47]	3.79***	a
d. Health problem duration	1	2	284	.20	[−0.18, 0.53]	[−0.16, 0.51]	1.05	
e. Cognitive health	3	7	1832	.14	[−0.08, 0.34]	[−0.16, 0.41]	1.27	a
f. Health illnesses	9	25	3456	.13	[0.03, 0.22]	[−0.29, 0.50]	2.48*	a; b
g. Physical disability	4	6	579	.08	[−0.11, 0.27]	[−0.21, 0.36]	0.87	a
Subfactors within marital								
a. Marital quality	19	42	7072	.17	[0.12, 0.22]	[−0.00, 0.33]	6.61***	
b. Marital status	35	57	23,528	.12	[0.08, 0.16]	[−0.05, 0.29]	5.58***	
c. Time with partner	4	6	1327	.11	[0.00, 0.21]	[−0.08, 0.29]	2.05*	
d. Relationship duration	1	1	458	.04	[−0.15, 0.23]	[−0.17, 0.25]	0.43	
Subfactors within finances								
a. Income	48	87	17,189	.17	[0.13, 0.20]	[0.02, 0.31]	9.71***	c
b. Net worth	5	6	20,588	.13	[0.05, 0.21]	[−0.02, 0.28]	3.23**	
c. Financial preparedness	8	27	2750	.07	[−0.00, 0.14]	[−0.09, 0.23]	1.88	a
Subfactors within exit conditions								
a. Feelings about retirement	14	41	4644	.22	[0.15, 0.28]	[−0.02, 0.42]	6.39***	c; d; e
b. Bridge work	6	14	3348	.13	[0.04, 0.22]	[−0.11, 0.35]	2.78**	
c. Retirement preparation	24	72	8375	.11	[0.05, 0.17]	[−0.12, 0.33]	3.84***	a
d. Retirement control	20	75	77,07	.10	[0.06, 0.15]	[−0.13, 0.32]	3.31**	a
e. Type of transition	4	10	3040	−.03	[−0.18, 0.12]	[−0.27, 0.21]	−0.41	a

Note. *k* = number of samples; *ES* = number of effect sizes; *N* = number of participants; *r* = correlation effect size; CIs 95% = confidence intervals for correlations at the 95% level; PIs 80% = the predicted range within which a new effect size is likely to fall with 80% probability; *t* = *t*-value for correlations; Sig. dif. = subfactor letters which are significantly different to the subfactor indicated in respective row, from the same category.
[a] All subfactors are indicative of better health (e.g., *less* health symptoms, *greater* subjective health).
* $p < .05$.
** $p < .1$.
*** $p < .001$.

retirement had the strongest correlation with adjustment ($r = .22$, 80% PI [−0.02, 0.42]), followed by bridge work ($r = .13$, 80% PI [−0.11, 0.35]), retirement preparation ($r = .11$, 80% PI [−0.12, 0.33]) and retirement control ($r = .09$, 80% PI [−0.13, 0.32]). The association between transition type (i.e., gradual or abrupt) and retirement outcomes was not significantly different from zero ($r =$

−.03, 80% PI [−0.27, 0.21], $p = .685$). The analysis of the effect size strength as a function of the subfactors of exit conditions was significant $F(4, 207) = 4.72$, $p = .001$, $R^2_{\text{Level-3}} = 0.15$.

3.4. Additional moderating factors

To address the third aim of this paper, we assessed the moderating roles of gender, age, quality of social relationships, and the conceptualisation of adjustment (i.e., specific to retirement vs. general) in explaining the relationship between each predictor category and adjustment.[4] None of these moderators influenced the relationship between predictor categories and adjustment except for conceptualisation of retirement adjustment and publication year (see Table 4 for key statistics). Conceptualisation of retirement adjustment significantly moderated the relationship between physical health and retirement adjustment outcomes $F(1, 196) = 4.76$, $p = .030$, $R^2_{\text{Level-3}} = 0.02$, and exit conditions $F(1,210) = 4.15$, $p = .043$, $R^2_{\text{Level-3}} = 0.02$. Follow-up comparisons showed that, for physical health, the summary effect size was significantly larger when the outcome assessed adjustment in general ($r = .25$), rather than adjustment specific to retirement ($r = .17$). The reverse was true for exit conditions. The summary effect size was significantly larger for retirement-specific ($r = .15$), rather than general ($r = .10$) adjustment. Year of publication significantly moderated the effect size of social participation $F(1, 273) = 5.48$, $p = .020$, $R^2_{\text{Level-3}} = 0.07$, exit conditions, $F(1, 210) = 4.35$, $p = .038$, $R^2_{\text{Level-3}} = 0.06$, and finances, $F(1,122) = 5.03$, $p = .027$, $R^2_{\text{Level-3}} = 0.08$, in different ways, though it did not moderate the effect size for physical health or marital relationship ($ps > .298$). For social participation and exit conditions, effect sizes were significantly smaller in more recent articles, whereas for finances, effect sizes were significantly larger in more recent articles.

3.5. Publication bias analyses

A moderation analysis revealed no significant difference between published and unpublished studies included in the meta-analysis across all categories ($F = 2.24$, $p = .135$). Additional tests showed no further evidence of publication bias in the overall model. Visual inspection of the funnel plot for the overall model revealed no clear indication of asymmetry. The Egger test was not significant ($t = 1.76$, $p = .081$), suggesting that the standard error was not a significant predictor of the effect size. Similarly, meta-regression was conducted to predict the effect size by a study's sample size (which is inversely related to standard error) and this was not significant, ($F = 1.38$, $p = .241$), providing no evidence that sample size was related to the magnitude of the effect in the overall model.

We then conducted publication bias tests at the level of each predictor, where there was mixed evidence for the presence of publication bias. We first examined publication status as a moderator and found that the association between exit conditions and adjustment was significantly greater in published data ($r = .15$), compared to unpublished data ($r = .05$, $t = 4.23$, $p < .041$). Publication status did not significantly moderate the associations between any of the other predictors and adjustment ($ps < .139$). Visual inspection of the funnel plots for social, physical health, finances, marital and exit conditions revealed no clear indication of asymmetry. The Egger test indicated no presence of publication bias for social ($t = 0.59$, $p = .555$), physical health ($t = 1.24$, $p = .217$), marital factors ($t = 0.43$, $p = .670$) and exit conditions ($t = 1.23$, $p = .226$). However, the Egger test was significant for finances, $t(55) = 3.11$, $p = .003$. Meta-regression by sample size was not significant for social ($F = 2.07$, $p = .151$), physical health ($F < 0.01$, $p = .959$), finances ($F = 1.55$, $p = .216$), marital factors ($F = 0.56$, $p = .457$), and exit conditions ($F < 0.01$, $p = .927$), providing no evidence of publication bias due to small-study effects.

4. Discussion

This meta-analysis aimed to clarify the contribution that various established predictors make to retirement adjustment by means of a meta-analytic synthesis of the literature on retirement adjustment. Consistent with previous reviews (e.g., Amorim & França, 2019; Barbosa et al., 2016; Leandro-França and Murta, 2017; Wang et al., 2011), physical health, finances, exit conditions, social participation, and marital factors were each found to be significantly and positively associated with adjustment. Social participation and physical health had the strongest associations with adjustment outcomes, and their contribution did not differ statistically. Moreover, the contributions of social participation and physical health were significantly stronger than those of finances, exit conditions, and marital relationship factors. These findings suggest that social participation is more important for retirement adjustment than finances, retirement planning and circumstances surrounding work exit, and similar in contribution to adjustment as physical health. These data support a well-established body of research showing that social connectedness is beneficial for psychological health in older adults (e.g., Cruwys et al., 2013; Fiori et al., 2006; Haslam et al., 2015; Wenger, 1997), can buffer against the negative effects of stress (e.g., Cohen & Wills, 1985; Haslam et al., 2005) and promote adjustment during periods of life change (Wilcox, 1981), including retirement (e.g., Froidevaux et al., 2016; Michinov et al., 2008; Steffens et al., 2016).

Going one step further, this study also examined *subfactors* to gain a deeper understanding of the nuances associated with each predictor and showed that these differed markedly in their contribution to adjustment outcomes. Although most social subfactors were significantly associated with adjustment, ease of maintaining social connections in retirement made the most important contribution to

[4] We also examined study design (i.e., cross-sectional, longitudinal or quasi/experimental), predictor timing (i.e., before or after retirement), retirement stage (i.e., whether participants were followed from pre-post retirement or whether they were already retired), and conceptualisation of health (i.e., whether the indicator of health measured *physical*-specific or general health). We provide the analysis for these additional moderators in the R code in Supplementary material.

Table 4
Moderation results assessing the role of quality versus quantity of social and marital relationships, gender, age, and conceptualisation of adjustment (i.e., retirement-specific vs. general) and year of publication in explaining the relationship between each relevant predictor category and adjustment.

	F	*df*	*p*
Quality vs quantity			
Social participation	0.85	243	.359
Marital factors	2.65	47	.110
Gender			
Social participation	3.29	208	.071
Physical health	0.33	168	.568
Marital factors	0.01	96	.921
Finances	0.07	107	.799
Exit conditions	0.68	178	.412
Age			
Social participation	0.49	203	.485
Physical health	0.07	162	.791
Marital factors	2.06	90	.155
Finances	0.00	103	.983
Exit conditions	0.07	172	.792
Conceptualisation of adjustment			
Social participation	0.20	273	.654
Physical health	4.76	196	.030
Marital factors	0.19	104	.664
Year of publication			
Social participation	5.48	273	.020
Physical health	1.09	196	.298
Marital factors	0.15	104	.695
Finances	5.03	122	.027
Exit conditions	4.35	210	.038

better adjustment. This finding suggests that it is the variation in people's ability to overcome their concerns about being socially excluded or losing existing social ties that is particularly important. This is consistent with theorising in the social identity approach to health, that argues maintenance and continuity of social relationships are key in adjusting to life change in general, but also with evidence of their relevance to successful adjustment in retirement (Haslam et al., 2019; Steffens et al., 2016). The relative association of other important subfactors — including satisfaction with social life, social interaction quality, social interaction, and social support — provides some evidence that the quality of social participation might be more important than the quantity. However, there was no evidence that adjustment differed as a function of quality and quantity of social participation. In contrast to findings from de Bruin and Pinquart (de Bruin et al., 2020; Pinquart & Sörensen, 2000), this suggests that among retirees, the frequency of interaction with others may be as important as the quality of social interactions for their adjustment (Litwin, 2001).

Of the five factors, physical health made the second most important contribution to retirement adjustment. This may not be surprising given that poor physical health can restrict retirees' daily activities and limit access to different forms of support and resources which, in turn, can negatively affect psychological well-being (Wang & Shi, 2014). Of the subfactors within physical health, only physical health symptoms and subjective health ratings were significantly associated with adjustment, with the former making a significantly greater contribution to adjustment than the latter. Results also suggest that the presence of physical disability or illness may be less important for adjustment than physical health symptoms and retirees' own perceptions of their physical health. Moreover, there was evidence that physical health was more important to general (e.g., well-being), as opposed to specific (e.g., retirement adaptation), adjustment outcomes. This finding is consistent with research showing that physical health and psychological health are closely linked (e.g., Ohrnberger et al., 2017). This, along with the finding that exit conditions are more strongly associated to adjustment when the outcome was specific to retirement, suggests there might be subtle differences between psychological well-being more generally and experiences of adjustment to retirement specifically.

4.1. Theoretical and practical implications

Results from this study are consistent with the resource-based dynamic perspective (Koopmann & Wang, 2015; Wang et al., 2011) in showing that greater access to social, physical health and financial resources are associated with better retirement adjustment. Yet, extending this model, these findings suggest that social and physical health resources are key for successful adjustment. These findings also provide general support for the retirement transition adjustment framework (Hesketh et al., 2015) which recognises the importance of physical and social abilities, as well as the role that social identity plays in shaping adjustment behaviour. However, given evidence showing that not all subfactors are equally important for adjustment, existing models lack the level of specificity necessary to explain this variation. Given the diversity in subfactors within social participation in particular, existing theories have three key limitations (see Haslam et al., 2019). First, they lack the specificity needed to explain the nature, breadth and impact of social relationships on adjustment outcomes. Second, they offer limited insight into which social factors provide better support for adjustment than others. Finally, existing models are not well placed to explain precisely *how* social factors contribute to successful

adjustment in the transition to retirement. These limitations highlight the need for greater theoretical specificity in models of retirement adjustment. While the present study takes the first step in identifying differences in the contribution of factors and subfactors, this first requires experimental work to be more precise about causality and process in these relationships.

In addition to extending theory, the findings of this meta-analysis have implications for practice and intervention. Given the importance of social participation and, in particular, the importance of maintaining social connections in retirement, one such program — Groups 4 Health: Retirement (G4H:R, based on the social identity approach to health; Haslam et al., 2016) — stands out as a particularly promising and unique intervention. Given that the third module is specifically designed to train people to maintain existing social group ties, G4H:R may be particularly useful for mitigating anxiety about losing social connections in retirement.

4.2. Role of moderators

In this meta-analysis, we considered the effects of multiple moderating factors, though findings relevant to three in particular are worth noting. First, despite recognised gender-based differences in financial, social and physical health, results suggest that the association between each category and adjustment did not differ between genders. This finding is consistent with that of Barbosa and colleagues who found no effect of gender on retirement adjustment in most studies, and where an effect was present, the findings were contradictory (Barbosa et al., 2016).

Second, results suggest there was no difference between younger and older retirees. In their review, based on a similar mean (65.4) and range (50–88) to the present study, Barbosa and colleagues found some evidence that younger retirees were better adjusted compared to older retirees, but that overall age did not predict adjustment in more than half the studies examined. While these findings suggest that gender and age may not be important moderators of retirement adjustment, an alternative explanation could be that the nature and strength of these relationships have changed over time in response to changing retirement contexts.

Lastly, there were a few notable findings in the case of generation. In particular, findings suggest that social participation and exit conditions may be less important for more recent generations of retirees, whereas financial status may be more important for more recent generations. Changes in the strength of these relationships could be a reflection of the changing nature of retirement. In particular, the increased importance of financial status and planning could be due to recent changes in job market conditions and pension coverage that has largely impacted more recent generations (Coronado, 2016). It could also be an indication that newer generations are engaging in more superannuation planning, and this, in turn, is influencing adjustment. Thus, policymakers should be aware that the relationships between established predictors and adjustment may be more or less important for different generations, highlighting the need to draw on the most recent evidence for informing decisions that will impact current and future generations in their retirement.

4.3. Implications, limitations and recommendations for future research

The present meta-analysis has several strengths that extend upon previous narrative reviews. It provides not only the first comprehensive systematic review coupled with a meta-analysis that can compare different predictors in their strengths of associations with retirement adjustment, but it also provides an analysis that assesses subfactors within each predictor. Nevertheless, there are some limitations worth noting. First, while our analysis included five important and established predictors of retirement adjustment, this was not exhaustive and did not include all potential variables that may be associated with retirement adjustment. Further work is needed to determine the relative contribution of other predictors not examined in this meta-analysis.

Second, it is important to recognise that because this meta-analysis relies on correlational data, it is not possible to make inferences about the causality between predictor categories and retirement adjustment. However, what it does provide is evidence for the plausibility of causal relationships, which is useful for informing the direction of future research (Aguinis et al., 2011). In this regard, there would be value in future research that examines causal impact (e.g., in experiments or interventions) of not only retirement planning but also other factors such as social participation and physical health.

Third, due to the nature and structure of data extracted from studies, it was not possible to examine interrelationships and potential interactions between the predictor categories. This is an important limitation to recognise as we do not have an independent assessment of the overlap between predictor categories. In future primary studies, it will be important to disentangle potentially overlapping influences and explore interactions between different predictors to clarify whether, and how, these factors combine to affect adjustment outcomes, ideally by means of experimental/intervention designs that can address issues of causality.

Finally, as is commonly known, the quality of a meta-analysis is only as good as the quality of its primary studies (Garg et al., 2008). There are several key limitations of the primary studies included in this meta-analysis and these inform our recommendations for future research in this field. One recommendation is to invest in broader sampling of retirees outside the US. Given that more than half the samples were from the US, it is difficult to make broader generalisations about the nature of the relationships examined in this meta-analysis, since characteristics of different countries (e.g., values, preferences, laws, pension plans) will likely influence the retirement process and subsequently affect retirement adjustment and well-being (Peiró et al., 2012). A second recommendation for future studies is to improve the reporting of study characteristics, particularly when describing how variables are measured and explicitly reporting any procedures that affect the direction of correlations (e.g., reverse coding). Too often, this information was not provided which made it difficult to accurately interpret the direction of the effect reported. A final point worth noting is that some measures of retirement adjustment contained items that potentially overlapped with relevant variables of interest. For example, the Retirement Satisfaction Inventory (Floyd et al., 1992) contains items assessing satisfaction with physical health, marriage and relations with extended family. The extent of conceptual overlap and its potential to inflate the validity of such measures is unknown, making it

difficult to gauge the degree to which results may have varied if there was less overlap in the concepts that the measures assessed. As we discussed above, greater conceptual clarity in theories and awareness of this issue when designing future studies will be important in advancing our understanding of the factors that contribute to adjustment.

5. Conclusion

The transition to retirement can be a challenging experience for a substantial proportion of the working population. The present meta-analysis examines nearly 5 decades of empirical work to better understand the extent to which key factors — physical health, finances, exit conditions, social participation and marital relationships — affect retirement adjustment outcomes. This study is the first quantitative synthesis of empirical work in this field, providing evidence of the relative contribution of these factors to adjustment. Additionally, the findings highlight the importance of social participation and marital relationships for successful retirement adjustment where the previous evidence had been unclear and provides the evidence that some factors — in particular, social participation and physical health — are most strongly associated with adjustment. Beyond these key findings, the results also uncover substantial variation in the strength of association of various subfactors and adjustment outcomes, stressing the need in future theory development and empirical research to provide clear conceptual definitions of retirement predictors. In doing so, it is our hope that the findings of this meta-analysis open new avenues for research and intervention to better explain and manage this important transition.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Additional sensitivity analyses can be found online at https://doi.org/10.1016/j.jvb.2022.103723. Additional materials, including the full dataset and R code can be found on the open science framework http://doi.org/10.17605/OSF.IO/6K7S4.

References

Aguinis, H., Pierce, C. A., Bosco, F. A., Dalton, D. R., & Dalton, C. M. (2011). Debunking myths and urban legends about meta-analysis. *Organizational Research Methods, 14*(2), 306–331. https://doi.org/10.1177/1094428110375720

Alpass, F. (2013). In F. M. Alpass, & J. Paddison (Eds.), *Psychological dimensions of retirement*. Massey University.

Amorim, S. M., & França, L. H.d. F. P. (2019). Retirement well-being: A systematic review of the literature. *Trends in Psychology, 27*(1), 155–172. https://doi.org/10.9788/TP2019.1-12

Antonucci, T. C., & Akiyama, H. (1987). An examination of sex differences in social support among older men and women. *Sex Roles, 17*(11–12), 737–749. https://doi.org/10.1007/BF00287685

Asebedo, S. D., & Seay, M. C. (2014). Positive psychological attributes and retirement satisfaction. *Journal of Financial Counseling and Planning, 25*(2), 161–173. https://doi.org/10.2469/dig.v45.n6.1

Ashforth, B. E., Harrison, S. H., & Corley, K. G. (2008). Identification in organizations: An examination of four fundamental questions. *Journal of Management, 34*(3), 325–374. https://doi.org/10.1177/0149206308316059

Assink, M., & Wibbelink, C. J. M. (2016). Fitting three-level meta-analytic models in R: A step-by-step tutorial. *Quantitative Methods for Psychology, 12*(3), 154–174.

Atchley, R. C. (1999). *Continuity and adaptation in aging: Creating positive experiences*. The John Hopkins University Press.

Australian Bureau of Statistics. (2019). *Retirement and retirement intentions, 2018-19. 6238.0*.

Baker, P., Dworkin, S. L., Tong, S., Banks, I., Shand, T., & Yamey, G. (2014). The men's health gap: Men must be included in the global health equity agenda. *Bulletin of the World Health Organization, 92*(8), 618–620. https://doi.org/10.2471/BLT.13.132795

Barbosa, L. M., Monteiro, B., & Murta, S. G. (2016). Retirement adjustment predictors - a systematic review. *Work, Aging and Retirement, 2*(2), 262–280. https://doi.org/10.1093/workar/waw008

Beehr, T. A. (1986). The process of retirement: A review and recommendations for future investigation. *Personnel Psychology, 39*, 31–55. https://doi.org/10.1111/j.1744-6570.1986.tb00573.x

Bender, K. A. (2012). An analysis of well-being in retirement: The role of pensions, health, and "voluntariness" of retirement. *Journal of Socio-Economics, 41*(4), 424–433. https://doi.org/10.1016/j.socec.2011.05.010

Bonsang, E., & Klein, T. J. (2012). Retirement and subjective well-being. *Journal of Economic Behavior and Organization, 83*(3), 311–329. https://doi.org/10.1016/j.jebo.2012.06.002

Borenstein, M., Hedges, L. V., Higgins, J. P. T., & Rothstein, H. R. (2009). Introduction to meta-analysis. In *Introduction to meta-analysis*. https://doi.org/10.1002/9780470743386

Bossé, R., Spiro, A., & Kressin, N. R. (1996). The psychology of retirement. In R. T. Woods (Ed.), *Handbook of the clinical psychology of ageing* (pp. 141–157). John Wiley & Sons. https://doi.org/10.1111/j.1532-5415.1954.tb02594.x.

de Bruin, W. B., Parker, A. M., & Strough, J. N. (2020). Age differences in reported social networks and well-being. *Psychology and Aging, 35*(2), 159–168. https://doi.org/10.1037/pag0000415

Byles, J. E., Vo, K., Forder, P. M., Thomas, L., Banks, E., Rodgers, B., & Bauman, A. (2016). Gender, mental health, physical health and retirement: A prospective study of 21,608 australians aged 55–69 years. *Maturitas, 87*, 40–48. https://doi.org/10.1016/j.maturitas.2016.02.011

Calvo, E., Haverstick, K., & Sass, S. A. (2009). Gradual retirement, sense of control, and retirees' happiness. *Research on Aging, 31*(1), 112–135. https://doi.org/10.1177/0164027508324704

Cheung, M. W. L. (2019). A guide to conducting a meta-analysis with non-independent effect sizes. *Neuropsychology Review, 29*(4), 387–396. https://doi.org/10.1007/s11065-019-09415-6

Cohen, S. (2004). Social relationships and health. *American Psychologist, 59*(8), 676–684. https://doi.org/10.1037/0003-066X.59.8.676

Cohen, S., Gottlieb, B. H., & Underwood, L. G. (2001). Social relationships and health: Challenges for measurement and intervention. *Advances in Mind-Body Medicine, 17*(2), 129–141.

Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin, 98*(2), 310–357. https://doi.org/10.1037/0033-2909.98.2.310

Coronado, J. (2016). *The changing nature of retirement* (pp. 61–73). September: Reimagining Pensions. https://doi.org/10.1093/acprof:oso/9780198755449.003.0004

Cruwys, T., Dingle, G. A., Haslam, C., Haslam, S. A., Jetten, J., & Morton, T. A. (2013). Social group memberships protect against future depression, alleviate depression symptoms and prevent depression relapse. *Social Science and Medicine, 98*, 179–186. https://doi.org/10.1016/j.socscimed.2013.09.013

Dawes, R. V. (1994). The theory of work adjustment as convergent theory. In M. L. Savikas, & R. W. Lent (Eds.), *Convergence in career development theories: Implications for science and practice* (pp. 33–43). CPP Books.

Dawes, R. V., & Lofquist, L. H. (1984). *A psychological theory of work adjustment*. University of Minnesota Press.

Egger, M., Smith, G. D., Schneider, M., & Minder, C. (1997). Bias in meta-analysis detected by a simple, graphical test. *British Medical Journal, 315*(7109), 629–634. https://doi.org/10.1136/bmj.316.7129.469

Elder, G. H. (1995). The life course paradigm: Social change and individual development. In P. Moen, G. H. Elder, & K. Lüscher (Eds.), *Examining lives in context: Perspectives on the ecology of human development* (pp. 101–139). https://doi.org/10.1037/10176-003

Fiori, K. L., Antonucci, T. C., & Cortina, K. S. (2006). Social network typologies and mental health among older adults. *Journals of Gerontology - Series B Psychological Sciences and Social Sciences, 61*(1), 25–32. https://doi.org/10.1093/geronb/61.1.P25

Floyd, F. J., Haynes, S. N., Doll, E. R., Winemiller, D., Lemsky, C., Burgy, T. M., Werle, M., & Heilman, N. (1992). Assessing retirement satisfaction and perceptions of retirement experiences. *Psychology and Aging, 7*(4), 609–621. https://doi.org/10.1037/0882-7974.7.4.609

Froidevaux, A., Hirschi, A., & Wang, M. (2016). The role of mattering as an overlooked key challenge in retirement planning and adjustment. *Journal of Vocational Behavior., 94*, 57–69. https://doi.org/10.1016/j.jvb.2016.02.016

Gall, T. L., Evans, D. R., & Howard, J. (1997). The retirement adjustment process: Changes in the well-being of male retirees across time. *Journals of Gerontology - Series B Psychological Sciences and Social Sciences, 52*(3), 110–117. https://doi.org/10.1093/geronb/52B.3.P110

Garg, A. X., Hackam, D., & Tonelli, M. (2008). Systematic review and meta-analysis: When one study is just not enough. *Clinical Journal of the American Society of Nephrology, 3*(1), 253–260. https://doi.org/10.2215/CJN.01430307

Gibaldi, C. P. (2013). The changing trends of retirement: Baby boomers leading the charge. *Review of Business, 34*(1), 50–57.

Haring, M. J., Okun, M. A., & Stock, W. A. (1984). A quantitative synthesis of literature on work status and subjective well-being. *Journal of Vocational Behavior., 25*, 316–324.

Haslam, C., Cruwys, T., Haslam, S. A., Dingle, G., & Chang, M. X. L. (2016). GROUPS 4 HEALTH: Evidence that a social-identity intervention that builds and strengthens social group membership improves mental health. *Journal of Affective Disorders, 194*, 188–195. https://doi.org/10.1016/j.jad.2016.01.010

Haslam, C., Cruwys, T., Haslam, S. A., & Jetten, J. (2015). Social connectedness and health. In *Encyclopedia of geropsychology* (pp. 1–10). https://doi.org/10.1007/978-981-287-080-3_46-1

Haslam, C., Steffens, N. K., Branscombe, N. R., Haslam, S. A., Cruwys, T., Lam, B. C. P., Pachana, N. A., & Yang, J. (2019). The importance of social groups for retirement adjustment: Evidence, application, and policy implications of the social identity model of identity change. *Social Issues and Policy Review, 13*(1), 93–124. https://doi.org/10.1111/sipr.12049

Haslam, S. A., O'Brien, A., Jetten, J., Vormedal, K., & Penna, S. (2005). Taking the strain: Social identity, social support, and the experience of stress. *British Journal of Social Psychology, 44*(3), 355–370. https://doi.org/10.1348/014466605X37468

Heller-Sahlgren, G. (2017). Retirement blues. *Journal of Health Economics, 54*, 66–78. https://doi.org/10.1016/j.jhealeco.2017.03.007

Hesketh, B., Griffin, B., Dawis, R., & Bayl-Smith, P. (2015). Extensions to the dynamic aspects of the retirement transition and adjustment framework (RTAF): Adjustment behaviors, work styles, and identity. *Work, Aging and Retirement, 1*(1), 79–91. https://doi.org/10.1093/workar/wau004

Hesketh, B., Griffin, B., & Loh, V. (2011). A future-oriented retirement transition adjustment framework. *Journal of Vocational Behavior., 79*, 303–314. https://doi.org/10.1016/j.jvb.2011.03.008

Higgins, J. P. T., & Thompson, S. G. (2002). Quantifying heterogeneity in a meta-analysis. *Statistics in Medicine, 21*(11), 1539–1558. https://doi.org/10.1002/sim.1186

Himes, C. L. (2015). Aging and health in old age. In (Second Edi), *Vol. 1. International Encyclopedia of the Social & Behavioral Sciences: Second Edition*. Elsevier. https://doi.org/10.1016/B978-0-08-097086-8.31046-7.

Holcomb, T. F. (2010). Transitioning into retirement as a stressful life event. In T. W. Miller (Ed.), *Handbook of stressful transitions across the lifespan* (pp. 133–146). Springer Science+Business Media. https://doi.org/10.1007/978-1-4419-0748-6_7.

Holmes, T., & Rahe, R. (1967). The Holmes-Rahe life stress inventory life event. *Journal of Psychosomatic Research, 2*.

IntHout, J., Ioannidis, J. P. A., Rovers, M. M., & Goeman, J. J. (2016). Plea for routinely presenting prediction intervals in meta-analysis. *BMJ Open, 6*(7), Article e010247. https://doi.org/10.1136/bmjopen-2015-010247

Kim, J. E., & Moen, P. (2002). Retirement transitions, gender, and psychological well-being: A life-course, ecological model. *Journals of Gerontology - Series B Psychological Sciences and Social Sciences, 57*(3), 212–222. https://doi.org/10.1093/geronb/57.3.P212

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

Koopmann, J., & Wang, M. (2015). Resource-based dynamic perspective. In *The encyclopedia of adulthood and aging* (pp. 1–4). https://doi.org/10.1002/9781118521373.wbeaa082

Kubicek, B., Korunka, C., Raymo, J. M., & Hoonakker, P. (2011). Psychological well-being in retirement: The effects of personal and gendered contextual resources. *Journal of Occupational Health Psychology, 16*(2), 230–246. https://doi.org/10.1037/a0022334

Kühberger, A., Fritz, A., & Scherndl, T. (2014). Publication bias in psychology: A diagnosis based on the correlation between effect size and sample size. *PLoS ONE, 9*(9), 1–8. https://doi.org/10.1371/journal.pone.0105825

Latif, E. (2011). The impact of retirement on psychological well-being in Canada. *The Journal of Socio-Economics, 40*(4), 373–380. https://doi.org/10.1016/j.socec.2010.12.011

Leandro-França, C., & Murta, S. G. (2017). Fatores de Risco e de proteção na adaptação à aposentadoria. *Psicologia Argumento, 32*(76), 33–43. https://doi.org/10.7213/psicol.argum.32.076.ds03

Leung, C. S. Y., & Earl, J. K. (2012). Retirement resources inventory: Construction, factor structure and psychometric properties. *Journal of Vocational Behavior, 81*, 171–182. https://doi.org/10.1016/j.jvb.2012.06.005

Linton, R. (1936). *The study of man: An introduction*. New York, London: D. Appleton-Century Co.

Litwin, H. (2001). Social network type and morale in old age. *Gerontologist, 41*(4), 516–524. https://doi.org/10.1093/geront/41.4.516

Luong, G., Charles, S. T., & Fingerman, K. L. (2011). Better with age: Social relationships across adulthood. *Journal of Social and Personal Relationships, 28*(1), 9–23. https://doi.org/10.1177/0265407510391362

Lusardi, A., & Mitchell, O. S. (2008). Planning and financial literacy: How do women fare? *American Economic Review, 98*(2), 413–417. https://doi.org/10.1257/aer.98.2.413

McGowan, J., & Sampson, M. (2005). Systematic reviews need systematic searchers. *Journal of the Medical Library Association, 93*(1), 74–80.

Michinov, E., Fouquereau, E., & Fernandez, A. (2008). Retirees' social identity and satisfaction with retirement. *The International Journal of Aging and Human Development, 66*(3), 175–194. https://doi.org/10.2190/AG.66.3.a

Moen, P., & Flood, S. (2013). Limited engagements? Women's and men's work/volunteer time in the encore life course stage. *Social Problems, 60*(2), 206–233. https://doi.org/10.1525/sp.2013.60.2.206

Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., Altman, D., Antes, G., Atkins, D., Barbour, V., Barrowman, N., Berlin, J. A., Clark, J., Clarke, M., Cook, D., D'Amico, R., Deeks, J. J., Devereaux, P. J., Dickersin, K., Egger, M., Ernst, E.Tugwell, P., … (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *PLoS Medicine, 6*(7), 873–880. https://doi.org/10.1371/journal.pmed.1000097

Noone, J. H., & Alpass, F. M. (2009). Preretirement planning and well-being in later life. *Rowlingson, 2002*, 295–317.

Noone, J., Alpass, F., & Stephens, C. (2010). Do men and women differ in their retirement planning? Testing a theoretical model of gendered pathways to retirement preparation. *Research on Aging, 32*(6), 715–738. https://doi.org/10.1177/0164027510383531

Ohrnberger, J., Fichera, E., & Sutton, M. (2017). The dynamics of physical and mental health in the older population. *Journal of the Economics of Ageing, 9*, 52–62. https://doi.org/10.1016/j.jeoa.2016.07.002

Peiró, J. M., Tordera, N., & Potočnik, K. (2012). Retirement practices in different countries. In M. Wang (Ed.), *The Oxford handbook of retirement*. https://doi.org/10.1093/oxfordhb/9780199746521.013.0157

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

Pinquart, M., & Sörensen, S. (2000). Influences of socioeconomic status, social network, and competence on subjective well-being in later life: A meta-analysis preparation for future care needs-general interest area view project how effective are interventions with caregivers? View project. *Psychology and Aging, 15*(2), 187–224. https://doi.org/10.1037/0882-7974.15.2.187

Quick, H. E., & Moen, P. (1998). Gender, employment, and retirement quality: A life course approach to the differential experiences of men and women. *Journal of Occupational Health Psychology, 3*(1), 44–64. https://doi.org/10.1037//1076-8998.3.1.44

Quintana, D. S. (2015). From pre-registration to publication: A non-technical primer for conducting a meta-analysis to synthesize correlational data. *Frontiers in Psychology, 6*(1549), 1–9. https://doi.org/10.3389/fpsyg.2015.01549

Raudenbush, S. W. (2009). Analyzing effect sizes: Fixed-effects models. In H. Cooper, L. V. Hedges, & J. C. Valentine (Eds.), *The handbook of research synthesis and meta-analysis* (2nd ed., pp. 295–315). Russell Sage Foundation, 2nd ed.

Reitzes, D. C., & Mutran, E. J. (2004). The transition to retirement: Stages and factors that influence retirement adjustment. *The International Journal of Aging and Human Development, 59*(1), 63–84. https://doi.org/10.2190/NYPP-RFFP-5RFK-8EB8

Reitzes, D. C., Mutran, E. J., & Fernandez, M. E. (1996). Does retirement hurt well-being? Factors influencing self-esteem and depression among retirees and workers. *Gerontologist, 36*(5), 649–656. https://doi.org/10.1093/geront/36.5.649

Rice, N. E., Lang, I. A., Henley, W., & Melzer, D. (2010). Baby boomers nearing retirement: The healthiest generation? *Rejuvenation Research, 13*(1), 105–114. https://doi.org/10.1089/rej.2009.0896

Seccombe, K., & Lee, G. R. (1986). Gender differences in retirement satisfaction and its antecedents. *Research on Aging, 8*(3), 426–440. https://doi.org/10.1177/0164027586008003005

Selkirk, A. E. (2017). *A longitudinal study of retirement satisfaction in baby boomers and Vietnam-era veterans*.

Shultz, K. S., & Wang, M. (2011). Psychological perspectives on the changing nature of retirement. *American Psychologist, 66*(3), 170–179. https://doi.org/10.1037/a0022411

Stawski, R. S., Hershey, D. A., & Jacobs-Lawson, J. M. (2007). Goal clarity and financial planning activities as determinants of retirement savings contributions. *International Journal of Aging and Human Development, 64*(1), 13–32. https://doi.org/10.2190/13GK-5H72-H324-16P2

Steffens, N. K., Cruwys, T., Haslam, C., Jetten, J., & Haslam, S. A. (2016). Social group memberships in retirement are associated with reduced risk of premature death: Evidence from a longitudinal cohort study. *BMJ Open, 6*(2), 1–9. https://doi.org/10.1136/bmjopen-2015-010164

Sterne, J. A. C., & Egger, M. (2001). Funnel plots for detecting bias in meta-analysis: Guidelines on choice of axis. *Journal of Clinical Epidemiology, 54*, 1046–1055.

Sun, J., Harris, K., & Vazire, S. (2019). Is well-being associated with the quantity and quality of social interactions? *Journal of Personality and Social Psychology*. https://doi.org/10.1037/pspp0000272

Topa, G., Moriano, J. A., Depolo, M., Alcover, C., & Morales, F. J. (2009). Antecedents and consequences of retirement planning and decision-making: A meta-analysis and model. *Journal of Vocational Behavior, 75*, 38–55.

Umberson, D., Chen, M. D., House, J. S., Hopkins, K., & Slaten, E. (1996). The effect of social relationships on psychological well-being: Are men and women really so different? *American Sociological Review, 61*(5), 837–857. https://doi.org/10.2307/2096456

United Nations. (2019). World population ageing 2019: Highlights. https://www.un.org/en/development/desa/population/publications/pdf/ageing/WorldPopulationAgeing2019-Highlights.pdf.

Van den Noortgate, W., López-López, J. A., Marín-Martínez, F., & Sánchez-Meca, J. (2013). Three-level meta-analysis of dependent effect sizes. *Behavior Research Methods, 45*(2), 576–594. https://doi.org/10.3758/s13428-012-0261-6

Van Solinge, H. (2012). In M. Wang (Ed.), *Adjustment to retirement*. Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199746521.013.0117.

Viechtbauer, W. (2010). Conducting meta-analyses in R with the metafor. *Journal of Statistical Software, 36*(3), 1–48. https://doi.org/10.18637/jss.v036.i03

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), 455–474. https://doi.org/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

Wang, M., & Hesketh, B. (2012). Achieving well-being in retirement: Recommendations from 20 years of research. *SIOP White Paper Series, 22*. https://doi.org/10.1037/e520162013-001

Wang, M., & Shi, J. (2014). Psychological research on retirement. *Annual Review of Psychology, 65*(1), 209–233. https://doi.org/10.1146/annurev-psych-010213-115131

Wang, M., & Shultz, K. S. (2010). Employee retirement: A review and recommendations for future investigation. *Journal of Management, 36*(1), 172–206. https://doi.org/10.1177/0149206309347957

Wenger, G. C. (1997). Social networks and the prediction of elderly people at risk. *Aging and Mental Health, 1*(4), 311–320. https://doi.org/10.1080/13607869757001

Wheaton, B. (1990). Life transitions, role histories, and mental health. *American Sociological Review, 55*(2), 209–223.

Wiernik, B. M., Kostal, J. W., Wilmot, M. P., Dilchert, S., & Ones, D. S. (2017). Empirical benchmarks for interpreting effect size variability in meta-analysis. *Industrial and Organizational Psychology, 10*(3), 472–479. https://doi.org/10.1017/iop.2017.44

Wilcox, B. L. (1981). Social support, life stress, and psychological adjustment: A test of the buffering hypothesis. *American Journal of Community Psychology, 9*(4), 371–386. https://doi.org/10.1007/BF00918169

Yeung, D. Y., & Zhou, X. (2017). Planning for retirement: Longitudinal effect on retirement resources and post-retirement well-being. *Frontiers in Psychology, 8*(1300). https://doi.org/10.3389/fpsyg.2017.01300