

Original Article

## Psychosocial Effects of Retirement on the Elderly: A Systematic Review

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### Abstract

**Background:** Retirement, as an important transition in life which is characterized by changes at the social, economic and psychological level, is associated with many factors that can contribute to development of psychopathology in later life. Understanding how these risk factors impact health and well-being is expected to highlight opportunities to promote mental health during this transition.

**Objective:** To identify and evaluate literature on the effects of retirement on mental health, life satisfaction, loneliness, and changes in social networks. Moreover, we examined protective and risk factors for mental health and well-being after retirement.

**Methods:** The literature search was performed in Scopus until October 02, 2023, using the following search strategy in all fields: (elderly OR seniors) AND (retirement OR pension) AND (transition) AND (depression OR anxiety OR “mental health” OR socialization OR loneliness).

**Results:** Applying the inclusion criteria, we found 23 studies that investigated both protective and risk factors for postretirement mental health. We found that both involuntary and early retirement were associated with greater risk of reporting major depression and worse perceived health, while positive attitudes toward aging were associated with increased participation in leisure activities after retirement. Other risk factors for developing depressive symptoms were poor working conditions and spousal assistance in activities of daily living. Lastly, the social support network was a protective factor, as it was related to better physical health and less loneliness.

**Conclusions:** Evidence indicated that early and involuntary retirement are possible risk factors for mental health, however the results couldn't support that an extension of working life beyond retirement age would be beneficial. Taking into account the above, we suggest that pension reforms should be adapted according to circumstances such as the country, professional sector, needs and preferences of the population. Therefore, designing a pension policy that would provide flexibility regarding the timing of retirement is expected to be more beneficial compared to the current, age-based pension policies.

**Key-words:** elderly, retirement, depression, anxiety, mental health, risk factors

## Introduction

Thanks to technological development, medical progress and the improvement of living conditions, life expectancy is steadily increasing, especially in developed countries. The increase in life expectancy combined with the decrease in fertility has led to an increasing percentage of the elderly, a phenomenon known as demographic ageing. On 1 January 2022, the median age of the European Union population reached 44.4 years, 0.3 years more than in 2021. It has increased by 2.5 years (on average by 0.25 years per annum) from 41.9 years in 2012 (Eurostat, 2023).

Ageing can be defined as the time-related deterioration of the physiological functions necessary for survival and fertility. The characteristics of aging, as distinguished from diseases of aging, affect all the individuals of a species (Gilbert, 2000). As people age, they undergo a number of physiological changes, including a general slowing of all organ systems due to a gradual decrease in cellular activity (Morewitz, 2007). Conventionally, "elderly" has been defined as a person aged 65 years old or older, however this view is often challenged due to the improvement in life expectancy, quality of life and level of functioning of the older adults nowadays (Sabharwal et al., 2015).

Demographic aging has brought up pension policy at the center of social and political dialogue due to the upcoming challenges, such as the shrinking workforce and a rising concern about the financial sustainability of pension systems, which depend to a large extent on the current pensionable age. In response to these challenges, many countries have established policies that encourage prolonging working life to older workers by raising the retirement age.

Activity theory suggests that successful aging that is, aging with the minimum decrease in functioning and well-being, occurs when the elderly stay active. Maintaining an active

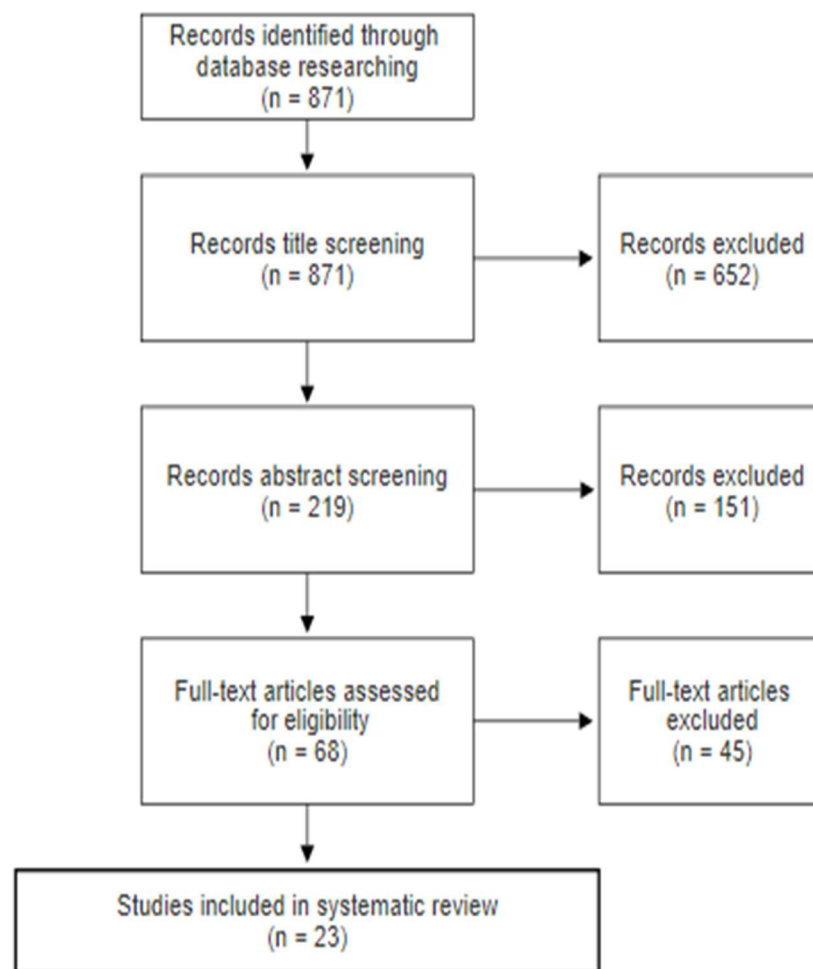
lifestyle and replacing lost social roles such as professional role with new ones, is a major adjustment mechanism during important psychosocial transitions. Retirement, as a major transition in life characterized by changes in social, economic and psychological level, is associated with many factors that can contribute to the development of psychopathology in later life. Understanding how these risk factors impact health and well-being in older adults through the present study is expected to highlight opportunities to promote mental health during this transition.

## Methods

This systematic literature review was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines (PRISMA) (Page et al, 2021). The literature search was performed in Scopus until October 02, 2023, using the following search strategy in all fields: (elderly OR seniors) AND (retirement OR pension) AND (transition) AND (depression OR anxiety OR "mental health" OR socialization OR loneliness). We applied our inclusion and exclusion criteria according to the guidelines (Galanis 2009). Studies that met the following inclusion criteria were included in the systematic review: (a) published in English, (b) observational studies, (c) studies whose population is 50 years old or older, (d) published between 2014 and 2024. We applied the following exclusion criteria: intervention studies, secondary studies, studies in which the study population belongs to a specific occupational category (veterans, hockey players, etc.).

## Results

The flow diagram of the systematic review according to PRISMA guidelines is shown in Figure 1. From the research in Scopus 871 records were identified. Applying the inclusion criteria, the total number of studies that were included in the review was 23.



**Figure 1.** Flow diagram in this systematic review.

### Main characteristics of studies

The main characteristics of the 23 studies included in the systematic review are shown in Table 1. The total of studies consists of 19 retrospective cohorts, 3 prospective studies and 1 cross-sectional study. Studies were conducted through 2014-2024. Three of them investigate the effect of retirement intention, while five of them investigate the effect of retirement timing, such as age of labor force exit, retirement incentives and mandatory or voluntary prolongation of working life on mental health after retirement. Four studies investigate the impact of socioeconomic factors, including workplace environment and demands as well as standard of living. Three studies examine the effects of age-related self-views on mental health and reallocation of available time to activities. Furthermore, four

studies investigate the influence of gender and social roles. Regarding social network, one study examines work-family role conflict as a risk factor for mental health issues after retirement, and two studies examine the influence of social support as a protective factor.

Ten studies used Center for Epidemiological Studies-Depression Scale (CES-D) as a measure scale for developing a depressive disorder and three studies used General Health Questionnaire (GHQ). Some other scales used to assess mental health are: Hospital Anxiety and Depression Scale (HADS-14), Symptom Checklist-core depression scale (SCL-CD6), Depression, Anxiety and Stress Scale (DASS-21) and EURO-D scale. Regarding the measurement

of well-being and life satisfaction, the following tools were used: Psychological Well-Being Scale (PWBS-84), Personal Well-being Index (PWI), Rosenberg Self-Esteem Scale (RSES-10), The Short Form-12 (SF-12) scale and World Health Organization Quality-Of-Life scale (WHOQOL). Lastly, Copenhagen Psychosocial Questionnaire (COPSOQ II) and Job Content Questionnaire (JCQ) were used to evaluate psychosocial working environment.

### **The role of retirement intent**

Involuntary exit from the labor force was associated with 3-fold higher odds of depression and increased relative risk for prescription of antidepressants compared to voluntary exit from work. Risk factors were found to be the history of depression and poor health, while being unmarried, exercising regularly and not smoking were associated with lower odds of reporting depressive symptoms after retirement (Hyde et al., 2015).

The cohort study of Rhee et al. (2016) had similar results regarding the effect of involuntary retirement on self-reported general and mental health. In this retrospective cohort study, retirement overall had no effect on health compared to working. Regarding retirement intention, involuntary retirement was directly negatively related to the assessment of general health and indirectly negatively related to mental health through the perception of less financial control. Voluntary retirement was indirectly positively associated with both self-rated overall health and mental health, through the perception of more financial control. Finally, considering the mediating factors, the low financial control score observed in the involuntary retirement group had an adverse indirect effect on mental health.

Another cohort study found no significant differences in depressive symptoms between workers and retirees. However, the findings indicated that there is a gender difference in the effect of different types of early retirement on mental health. For men, voluntary retirement was associated with fewer depressive symptoms ( $b = -1.83$ , 95% CI =  $-3.22, -.43$ ). For females, retirement near the median retirement age was associated with lower depressive symptomatology ( $b = -2.00$ , 95% CI =  $-3.99; -.02$ ), whereas retirement due

to poor health was associated with increased symptoms depression ( $b = 4.68$ , 95% CI =  $1.71; 7.65$ ) (Zuelke et al., 2020).

Han's (2021) retrospective cohort study investigated the relationship between retirement due to health problems with the occurrence of depressive symptomatology. It was observed that retirement that was not due to health reasons was associated with better self-rated health ( $b = -0.447$ ,  $p < .001$ ), and fewer depressive symptoms ( $b = -0.382$ ,  $p < .001$ ), than those who continued to work. In contrast, retirement due to health reasons was associated with significantly worse health assessment ( $b = 0.219$ ,  $p < .001$ ) and more depressive symptoms ( $b = 1.46$ ,  $p < .001$ ).

### **The effects of retirement timing**

A cohort study investigated the relationship between retirement age and reported general and mental health, provided that retirement was not due to ill health. For those who remained in the labor force until the end of follow-up, health status declined linearly per year. Participants who retired before the age of 62 were more likely to have depressive symptoms, while no significant negative effect was found for retiring beyond this age. After age 62, however, it appears that the physical and emotional health of those who continue to work decline, while the physical health of retirees enters a downward trajectory after age 67. Lastly, retirement showed a short-term positive effect on mental health. The findings support both the psychosocial-materialist hypothesis, suggesting that the extension of working life is preferred and the cultural-institutional hypothesis, according to which "early" retirements bring the greatest benefit (Calvo et al., 2023).

The retrospective cohort study of Vo et al. (2023) investigated the effect of retirement on the mental health of European citizens. It was also examined whether the reasons for retirement, categorized as positive (fulfilling criteria for public/private pension, offer of early retirement), aspirational (personal motivations such as ensuring more time for family or to enjoy life) and negative (loss of job due to layoff, poor health, etc.), could predict changes in mental health during retirement. The results indicated that retirement under aspirational motivation ( $b = -0.115$ ,  $p < 0.001$ ) and positive conditions ( $b$

= - 0.038,  $p < 0.001$ ) significantly reduced depression score, while retirement under negative conditions was associated with worse mental health ( $b = 0.087$ ,  $p < 0.001$ ). Regarding longitudinal changes in retirement, anticipating retirement within the next two years was significantly associated with fewer depressive symptoms compared to the rest of the workforce, but anticipating retirement within the next four or more years had no effect. Lastly, retirement was associated with lower depressive symptoms during the first year ( $b = -0.166$ ,  $p < 0.05$ ) but not in the long run. Surprisingly, the anticipation of retirement had a stronger positive effect on mental health than the retirement itself. Carrino et al. (2020) investigated the health impact of a pension reform that gradually increased the statutory pensionable age from age 60 up to 66 years for women born after March 1950 in the United Kingdom. Raising the state pension age lead to an increase of up to 12 percentage points in the probability of depressive symptoms, alongside an increase in self-reported medically diagnosed depression among women in a lower occupational grade.

Regarding the voluntary prolonging working life beyond the retirement eligibility age, the study found that participants who continued to work after the age of 65 were 6.8% more likely to report better health during retirement, compared to those who had retired at the age of 65. However, this positive effect of prolonging working life on mental health fades within the first 6 years of retirement (Anxo et al., 2018). Also, working beyond retirement had a positive effect on mental health for those between 60 to 69 years old (Cheng et al., 2018).

#### **Attitudes about aging and retirement**

A cross-sectional study investigated the effect of personal beliefs on sense of meaning in life (i.e. life satisfaction, sense of freedom, fear of death, suicidal ideation and sense of purpose), among retired and working people. Results suggest that education level, stress, spirituality and optimism, social support from friends, and physical health-related quality of life seem to contribute to the sense of purpose in life, both for retirees and workers. Furthermore, older age played a negative role for the sense of purpose, even for participants who continued to work, suggesting that

prolonged working is mainly driven by economic necessity and not as a source of meaning or purpose in life. Overall, retirement transition had no significant effect in well-being (Coelho et al., 2023). Given the relationship between daily activities and health, Olds et al. (2018) investigated the changes in leisure time resulting from the retirement and the reallocation of the time to new activities. The 40% of the time was spent on household tasks, and the remaining 60% was divided between screen time, rest and quiet activities. Changes in time use were significantly associated with changes in depression, anxiety, and self-esteem. Specifically, replacing work time with physical activity and sleep was associated with improvements in all measures of mental health, while replacing work with screen time and social activities was associated with fewer declines. Mental health generally improved during retirement, with significant reductions in depression and anxiety scores and improvements in well-being and self-esteem, with no significant gender differences observed.

#### **Socioeconomic risk factors**

Regarding the effect of socioeconomic factors on mental health, participants who were skilled manual workers had a similar probability with elementary workers, [gender-adjusted risk ratio (RR) 0.95, 95% confidence interval (95% CI) 0.72-1.23], while lower grade non-manual workers had a 2.03-fold (95% CI 1.59-2.58), and managers and professionals had a 1.79-fold (95% CI 1.41-2.27) probability of working beyond the pensionable age. Adjustment for physical workload (32.0% in lower non-manual, 36.7% in managers and professionals), work time control (20.4% and 11.4%) and perceived work ability (16.5% and 29.1%) contributed to the largest attenuation for these associations. As for psychosocial adversities, high work pressure and few close relationships increased the odds of depression by 52% and 51%, respectively. Overall, prolonged mental distress increased the odds of developing depression after retirement by 7 times compared to those not exposed to this factor at any time point (Virtanen et al., 2017).

The retrospective cohort study investigated trajectories of purchases of psychotropic drugs in relation to labor market exit later in



life in a context with and without downsizing. During the period around the exit, old-age retirees experiencing a downsizing or workplace closure did not decrease their purchases of sedatives (OR 1.01 95% CI 0.95–1.07) while the unexposed decreased their purchases during this period (OR 0.95 95% CI 0.92–0.98). The results were similar for those who retired due to disability. The difference can be attributed to the psychological stress that downsizing and workplace closures put on the decision to retire and secure resources (Blomqvist et al., 2020). Lahdenperä et al. (2023) examined how psychosocial working conditions, social living environment, and cumulative risk factors are associated with mental health changes during the retirement transition. Psychological distress was higher among those from poorer psychosocial working conditions (high job demands, low decision authority, job strain), poorer social living environment (low neighborhood social cohesion, small social network), and more cumulative risk factors (work/social/both). During the retirement transition, greatest reductions in psychological distress were observed among those with poorer conditions.

The retrospective study by Nyberg et al. (2019) examined the effect of socioeconomic status, including hierarchical level of occupational position, income, and marital status to depression after retirement. Higher educational level was associated with higher odds of belonging to trajectory groups with mild (OR 1.55, 95% CI: 1.28–1.89), moderate (OR 1.97, 95% CI 1.56–2.49) and severe depressive symptoms (OR 2.08, 95% CI: 1.22–3.52) for both sexes. Conversely, better subjectively rated social status was associated with lower odds of mild, moderate, and severe depressive symptoms. For men, married status was associated with even lower odds of belonging to one of the groups with higher depression scores compared to the reference group. No significant effect in depressive symptoms was found during retirement transition.

#### **The effect of gender and the multiple social roles**

Kubicek et al. (2011) investigated the influence of gender on the acquisition of resources that ensure psychological well-being in retirement. Findings indicate that

preretirement physical health, tenacity in goal pursuit and flexibility in goal adjustment are beneficial for both men's and women's well-being. On the contrary, financial resources and job dissatisfaction are more strongly related to men's psychological well-being in retirement and preretirement social contacts to that of women. The possession of key resources before retirement as well as the loss or gain of resources during the transition to retirement affect the well-being of retirees, therefore it is important to consider gender differences when designing pension policy reforms.

A cohort study examined the relationship of retirement with people's subjective quality of life, assessed by levels of happiness and loneliness and the gender heterogeneity. Regarding the effect of employment status on the level of happiness, for those who retired during the follow-up period, their level of happiness did not change significantly after retirement. It also did not differ significantly between employed and retired participants. For men, retirement increased the odds of loneliness compared to non-retired and non-working respondents ( $r=0.72$ ,  $p < 0.05$ ). Working beyond retirement reduced the odds of loneliness compared to participants who neither were working or retired ( $r=12.67$ ,  $p < 0.01$ ). These findings suggest that men's social networks tend to shrink after retirement, leading to less social interactions and consequently higher levels of loneliness (Abramowska et al., 2021). As for providing instrumental activities of daily living (IADL) and activities of daily living (ADL) assistance to a spouse and depressive symptoms, working status shows a moderating effect. Working while ADL spousal care further exacerbated caregivers' depressive symptoms by 14,7% for women and 9,1% for men. Working full-time while providing assistance to IADLs was only associated with elevated depressive symptoms for women. Interestingly, providing IADL assistance to spouse was associated with lower depressive symptoms for those who were not working. Chen's (2022) retrospective cohort study investigates changes brought about by retirement at the within-household level among residents of urban China. The effects of retirement differ significantly by gender. In particular, it was found that men's subjective

health and well-being tend to be negatively affected by their retirement. On the contrary, the husband's retirement was associated with better mental and physical health for his spouse.

### Social networks

The study by Chiao *et al.* (2022) attempted to investigate the relationship of work-family role conflict in relation to the level of post-retirement loneliness, across two generations. In addition, the effects of stressful life events and socioeconomic status on mental health after retirement were examined. The observation groups of the two generations were distinguished into persons aged 50 to 64 and 65 to 74 years. The results showed that for both age groups, work and family role conflict increased by 52% and 45% respectively, the relative risk of belonging to the category that reported feelings of loneliness at both time points of observation, in relation to the category that he only mentioned it at the beginning of the follow-up. In contrast, increased social contacts after retirement had a protective effect both for the early onset and prolonged duration of loneliness. The results may not be representative for non-Asian cultures, as the culture factor differs significantly in terms of social roles. Another study found that social network was not independently associated with changes in health. However, as a mediator between retirement and overall health, social network size reduction explained 58% of the decrease in the likelihood of reporting good physical health after retirement, contact frequency explained about 7.5% of that, with a small mediating contribution of network diversity. The estimation of the mediation coefficient of social network size suggests that retirees with smaller social network size are more likely to report poorer physical health than non-retirees, while at the same levels of contact frequency and diversity. In particular, shrinking social network size explained 79.5% of the decrease in the probability of reporting good physical health among retirees, *ceteris paribus*- holding constant the frequency and diversity of contacts (Pilehvari *et al.*, 2023).

### Discussion

The present systematic review aimed to examine the effect of retirement on mental

health. A second aim was to identify individual, workplace and social environment factors that have a positive or negative effect on mental health and social isolation after retirement. Results indicate that the effect of retirement cannot be entirely interpreted as positive or negative, as it varies depending on both interpersonal and psychosocial factors. Involuntary retirement was moderately associated with psychopathology manifestation. The findings of two studies support that involuntary retirement is associated with a greater risk of reporting major depression (Hyde *et al.*, 2015), and lower self-rated health (Rhee *et al.*, 2016). Moreover, indirect effects on mental health were also identified, through self-rated lower financial control. Early retirement due to ill health, which is also a form of involuntary retirement, was related with more depressive symptoms and worse perceived health (Han, 2021). These findings partly confirm the hypothesis that retirement planning provides the margin for psychological preparation as well as better management of available resources.

Both early retirement, which occurs before the age of 62, (Calvo *et al.*, 2023) and mandatory extension of working life (Carrino *et al.*, 2020) were associated with more depressive symptoms, while prolonged work participation beyond the retirement age was not shown to be beneficial (Calvo *et al.*, 2023). Positive attitude towards aging was associated with increased engagement with leisure activities during the retirement transition, as supported by the findings of de Paula Couto *et al.* (2022). Major psychosocial transitions like retirement, through the changes they bring, offer the opportunity for adopting a healthier lifestyle, or conversely, unhealthy behavior patterns. The effect of reallocation of available time resulting from retirement was shown to be beneficial to retirement adjustment, as it was significantly related with fewer depressive symptoms and anxiety, and more self-appreciation. Replacing work time with physical activity or rest was associated with better self-rated mental health, whereas replacing work with screen time and social interactions, with worse self-rated mental health (Olds *et al.*, 2018).

Regarding the socioeconomic risk factors, exposure to downsizing or workplace closure showed negative effect on mental health by increasing the consumption of psychotropic medications, both during the pre-retirement and during transition period (Blomqvist *et al.*, 2020). Findings regarding psychosocial risk factors in the workplace were inconsistent. Low-status jobs and high work pressure (Virtanen *et al.*, 2015), higher educational level and lower perceived social status (Nyberg *et al.*, 2019) were risk factors for developing depressive symptoms after retirement. An interesting finding shows that individuals exposed to high job demands, low decision-making authority, and work pressure significantly reduced psychological distress during retirement, compared to non-exposed individuals (Lahdenperä *et al.*, 2022). One possible explanation is that while poor working conditions increase the risk of depression before retirement, the benefits of retirement are clearly greater for this group as it recovers from workplace adversities quickly.

Given that gender roles often set behavioral expectations based on biological sex in all aspects of social life, Kubicek *et al.* (2011) considered it appropriate to investigate the effect of gender and the differences of social roles during retirement transition. For men, financial and asset security and job dissatisfaction were significant predictors of post-retirement psychological well-being, while for females it was the social network. Another interesting finding was the effect of retirement on loneliness. Working after retirement was associated with lower odds of reporting loneliness for men, compared to those who were not working and had not retired, whereas permanent labor-force exit after retirement increased the odds (Abramowska *et al.*, 2021). Retirement transition had a similarly negative effect on men's health assessment, as it was associated with lower subjective health and well-being (Chen, 2022). A possible interpretation is that self-definition through profession is stronger for the male sex, therefore retirement is more strongly associated with reduction of social networks, which leads to an increased feeling of loneliness. As to multiple social roles, spousal assistance with basic Activities of

Daily Living (ADL) alongside part-time or full-time job was strongly associated with more depressive symptoms, especially for women (Duan *et al.*, 2023). The type of caregiving was also associated with the severity of depressive symptoms, as assistance with basic self-care needs is clearly more demanding, highlighting the impact of informal caregiving for older workers. Lastly, social networks showed a protective effect on loneliness after retirement. Working life offers opportunities to create and maintain social networks, while retirement may change these networks. The findings from Kauppi *et al.* (2021) support that retirement is associated with social network size reduction for the wider circle connections, while family and personal network size remains unaffected. The shrinking of social networks is an important risk factor as it can explain 79.5% of the reduction in the probability of reporting good physical health among retirees (Pilehvari *et al.*, 2023). Conversely, maintaining social network ties after retirement appears to have a protective role both for onset and duration of loneliness (Chiao *et al.*, 2022).

In conclusion, the positive or negative effect of retirement on mental health and well-being varies, depending on individual, psychosocial and work characteristics. There has been evidence that early and involuntary retirement increased the risk of mental illness, but the results could not support that an eventual extension of working life beyond the normal retirement age would be beneficial. While high job demands, low decision-making authority and job strain were associated with increased depressive symptoms after retirement, the overall improvement in mental health was greater for the exposed group. Assisting with ADLs was also a risk factor for depression, while male gender was associated with increased risk of loneliness and depression. Taking into account the above, we suggest that pension reforms should be adapted according to circumstances such as the country, professional sector, needs and preferences of the population. Therefore, designing a pension policy that would provide flexibility regarding the timing of retirement is expected to be more beneficial compared to the current, age-based pension policies.



**Table 1.** Main characteristics of the studies included in the systematic review.

First author and year of publication	Country	Sample size (n) and characteristics	Study design	Main variables/ measurement tools	Main findings
Hyde et al.(2015)	Sweden	n= 1433 Participants $\geq$ 50 years	Retrospective cohort study	Dependent variables: depressive symptoms (Checklist Core Depression Scale SCL-CD6), antidepressant prescriptions	Older workers who retired involuntary are three times more likely to experience depressive symptoms compared to the control group
Rhee et al.(2016)	U.S.A	n= 1195 Participants $\geq$ 50 years	Retrospective cohort study	Dependent variables: depressive symptoms (CES-D) and self-rated health (Likert scale 1-5)	Involuntary retirement was directly associated with worse self-rated health and indirectly with worse mental health, through self-perceived lower financial control. Voluntary retirement was positively associated with both self-esteem and mental health through the perception of greater financial control
Zuelke et al. (2020)	Germany	n= 4808 40-65 years old, of which 654 retired and 4,154 employed.	Retrospective cohort study	Dependent variable: depressive symptoms (CES-D)	For men, voluntary retirement was associated with fewer depressive symptoms. For women, old-age pension was associated with fewer depressive symptoms, while retirement due to ill health was associated with increased depressive symptoms
Han (2021)	USA	n= 9347 Participants $\geq$ 51 years old	Retrospective cohort study	Dependent variables: self-rated health, depressive symptoms (CES-D)	Retirement due to ill health was associated with significantly greater depressive symptoms compared to those who were still working

Calvo et al. (2023)	USA	n=6624	Retrospective cohort study	Dependent variables: subjective health, depressive symptoms (CES-D scale)	Early retirement had negative impact on mental health scores. In contrast, retiring between the age of 62 and 67 showed a short-term improvement on mental health
Vo et al. (2023)	12 European countries and Israel	n=182,142 Participants $\geq$ 51 years old at the beginning of the study	Retrospective cohort study	Dependent variable: depressive symptoms (EURO-D) Explanatory variables: employment status (employed/retired), retirement motivation	Retirement due to inspirational motivation and positive circumstances was associated with fewer depressive symptoms. Retirement under adverse conditions worsened mental health. Anticipation of the retirement event in the next two years was associated with lower depressive symptoms compared to the rest of the workforce.
Carrino et al. (2020)	United Kingdom	n=3452	Retrospective cohort study	Psychological Distress: General Health Questionnaire (GHQ-12) Quality of Life and Mental Health: The Short Form-12(SF-12)	The GHQ score increased by 1.96 points for 6-24 months delaying retirement and by 3.1 points for delaying retirement 36 months or more (+10.1%). Routine work position increased by 12% the odds for depressive symptoms and self-reported depression.
Anxo et al.(2018)	Sweden	n=8022 Participants $\geq$ 65 years old	Retrospective cohort study	Dependent variables: self-rated physical health, mental health and life satisfaction (Likert scale)	Working beyond the age of 65 increases the likelihood of reporting better health by 6.8%, with this relationship disappearing in the long run(<6 years)
Cheng et al.(2018)	China	n=4316	Retrospective cohort study	Dependent variable: depressive symptoms	Work was associated with fewer depressive symptoms compared to retired between 60-69 years old
Virtanen et al. (2015)	United Kingdom	n=4762 Participants occupation: public	Retrospective cohort study	Independent variables: socioeconomic adversities and	Exposure to psychosocial and/or socioeconomic adversities was

		servants		psychosocial adversities (work pressure, social network size). Dependent variables: depressive symptoms, general health	associated with increased odds for depressive symptoms
Blomqvist et al. (2020)	Sweden	n=235,430 Participants 53-63 years old at the beginning of the study	Prospective cohort study	Independent variables: downsizing/closure of workplace. Dependent variable: prescription of psychotropic drugs	Contrary to the control group, exposure to downsizing/workplace closure was not associated with a reduction in psychotropic medication prescriptions.
Lahdenperä et al. (2023)	Finland	n = 3338 Participants occupation: public servants	Retrospective cohort study	Dependent variables: mental distress (General Health Questionnaire), work strain (Karasek's Job Content Questionnaire), socio-economic factors and social networks	Exposure to two or more adversities in the workplace or four or more adversities from any category, were associated with greater reduction in psychological distress during the retirement transition
Nyberg et al. (2019)	Sweden	n=1813	Retrospective cohort study	Independent variables: socioeconomic factors Dependent variable: depressive symptoms. e-Symptom Checklist-Core Depression Scale (SCL-CD6)	For both sexes, higher educational attainment and low perceived social status were associated with greater odds of belonging to the group with more depressive symptoms
Coelho et al. (2023)	Portugal	n=1,330 Participants 50-89 years old	Cross-sectional study	Independent variables: employment status, work psychosocial environment, quality of life, supportive social network, spirituality and cognitive style Dependent variable: sense of purpose in life	Age, marital status, educational level, stress, burnout, spirituality and social support were moderate factors for the sense of purpose in retirees

Olds et al. (2018)	Australia	n=105	Prospective cohort study	Dependent variables: depression/ anxiety/stress (DASS21 questionnaire), well-being (SWEMWBS), life satisfaction (PWI), self-confidence (Rosenberg Self-Esteem Scale) and leisure time	Retirement was associated with significant reduction in depression and anxiety, as well as improvements in well-being and self- confidence. Life satisfaction and stress did not change significantly
de Paula Couto et al. (2022)	U.S.A, Germany, Hong Kong	n=451, 50-65 years old	Retrospective cohort study	Dependent variable: engaging in leisure activities. Independent variable: employment status	For new retirees, positive attitudes about aging predicted increased engagement in leisure activities
Kubicek et al. (2011)	U.S.A	n=2,899 Median age of participants: 65 years	Retrospective cohort study	Dependent variables: well-being, depressive symptoms	Persistence in goal pursuit and goal flexibility were associated with greater well-being and less depressive symptoms after retirement, for both sexes
Abramowska-Kmon et al. (2021)	Poland	n=1,503 (567 men, 936 women)	Retrospective cohort study	Assessment of happiness: Likert scale (1-4), assessment of loneliness: dichotomous question	Working status did not significantly affect happiness levels, but it did have an impact on men's loneliness.
Duan et al. (2023)	China	n= 20,213	Retrospective cohort study	Dependent variable: depressive symptoms	Spousal assistance in ADLs was associated with increased depressive symptoms for working adults

Chen (2022)	China	n=19,000	Retrospective cohort study	Dependent variables: self-reported general health, mental health (CES-D scale), life satisfaction and health-related behaviors	Men's self-rated health and subjective well-being tend to be negatively affected by their own retirement, while women's physical and mental health are both positively influenced by the retirement of their husbands
Chiao et al. (2022)	Taiwan	n=2370 Participants aged 50-74	Prospective cohort study	Independent variables: stressful life events Dependent variable: loneliness	Work-family conflict increased the risk of post-retirement loneliness for those aged 65 and over, while not having a partner increased the risk for people aged <65 (R=1.52, p <.01). Social network reduced the risk of loneliness (RRR = 0.91, p<0.001)
Pilehvari et al. (2023)	U.S.A	n=1160	Retrospective cohort study	Dependent variables: overall health (Likert scale 1-5), depressive symptoms (CES-D scale), anxiety symptoms: Hospital Anxiety and Depression Scale (HADS)	58% of the reduction in the probability of reporting good physical health and 4.5% of increment in odds for experiencing depression post-retirement can be explained by shrinkage in the size of social network in retirees. Social network size induces 79.5% reduction in probability of reporting good physical health and 18.6% increase in probability of having depression in retirees as compared to non-retirees
Kauppi et al. (2021)	Finland	n=2319 Median age of participants: 63 years, 84% female	Retrospective cohort study	Dependent variable: social networks	Between the retirement transition period and the post-retirement period a significant decrease in social network size was observed, only for the wider social circle



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