

Employment over the life course and post-retirement social networks: a gendered perspective

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ABSTRACT

Objectives: The present study examines how different lifelong employment patterns are related to social relationships in old age, and whether there are gender differences in the impact of lifelong employment patterns.

Designs and participants: The study was based on data collected among European adults as part of the Health, Aging and Retirement Survey in Europe (SHARE) and focuses on retired adults.

Measurements: The study combines data on social relationships, collected in 2015, with retrospective data on employment history (number of jobs and years of employment) collected in 2017.

Results: The findings show that adults who worked in more jobs had overall better structural characteristics of their later life networks – they had larger social networks and were more likely to include children and friends within those networks but less likely to include their spouse. On the other hand, working in more jobs was related to less emotional closeness with the network. These results varied between men and women; women who were involved in the labor market over their life had larger social networks and tended to include friends as confidants. Among men, working for more years was related to higher emotional closeness with the social network.

Conclusions: The study may indicate a gendered pattern of social advantages and disadvantages to involvement in the labor market over the work course. Practitioners should consider the lifelong employment of adults to identify those who might be at risk of social isolation.

Key words: family, friends, gender, job-related networks, older adults, retirement

Introduction

Labor-force participation over the life course is gendered and influences social relationships of adults by creating the opportunity to establish social networks outside an individual's household (Schmitz *et al.*, 2023). Over time, these work-related ties might grow in value, turning colleagues into friends and confidants and a source of support (Cozijnsen *et al.*, 2010; Loe and Johnston, 2016). Labor market inactivity, on the contrary, may lead to smaller networks that are characterized by a stronger orientation toward family ties (Patacchini and Engelhardt, 2016). Adults who are embedded in large and diverse networks in later life show better

mental health (Santini *et al.*, 2015), less cognitive decline (Cohn-Schwartz *et al.*, 2021; Ellwardt *et al.*, 2015), and reduced mortality risk (Litwin and Shiovitz-Ezra, 2006). Whereas multiple studies have highlighted how social networks influence labor market participation (Denaeghel *et al.*, 2011; Granovetter, 1995; Granovetter, 1977), little work has been done on the reverse direction. Thus, a research gap exists on how labor market participation shapes social networks in later life and especially following retirement.

As labor market participation over the life course differs between social groups, those being less active in the labor market might be disadvantaged when trying to establish supportive and meaningful social networks. Taking on a gendered perspective seems especially fruitful since networks differ between men and women, and the prevalent gendered life courses have proven to result in women being less involved in the labor market, especially in older birth cohorts (Moen, 2016; Schmitz *et al.*, 2023). In addition,

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there are differences in regard to access to and characteristics of work-related networks (e.g. emotional closeness, friendship ties) between men and women (Campbell, 1988; Ibarra, 1993). Therefore, chances of “turning a colleague into a friend” might be gendered, resulting in varying network compositions that can act as a source of support and help in older age. Thus, the current study aims to add to research looking at the effect of one’s work history on social ties and relationships of older retired people. Here we are especially interested in differences in regard to gender and levels of labor market integration.

Personal relationships and gender

Social relationships are a fundamental aspect of life for older adults. Personal social networks are conceptualized as the collection of social relations that affect an individual’s life and from which one might receive support. They are often composed of close family and friends (Litwin *et al.*, 2020) but might also include contacts made in the context of one’s work history (Dahlin *et al.*, 2008). The convoy model of social relationships states that close relationships are based on emotional attachment and move with individuals throughout the life course (Kahn and Antonucci, 1980). More peripheral relationships are based on role requirements associated with participation in specific social fields and are present in people’s lives out of convenience (Antonucci *et al.*, 2014). The model divides social relationships into structural and functional aspects. Functional aspects, such as emotional closeness, are more strongly associated with well-being (Santini *et al.*, 2015; Schwartz and Litwin, 2017). Structural aspects, such as network size and composition, are also meaningful for well-being and also for cognitive health and the attainment of resources (Cornwell, 2011; Rafnsson, *et al.*, 2015; Sharifian *et al.*, 2019).

The convoy model identifies gender as a central aspect affecting social relationships (Antonucci *et al.*, 2014). Concordantly, a wide body of literature indicates that men and women approach social relationships differently. Women typically maintain larger, more emotionally supportive and diverse personal networks compared to men (Ajrouch *et al.*, 2018; Cornwell, *et al.*, 2008; Stevens and Van Tilburg, 2011). This gap continues and even widens with age (Fischer and Beresford, 2015; Schwartz and Litwin, 2018). For example, a study focusing on older Europeans found that men had smaller networks, which included a higher proportion of family members over time (Schwartz and Litwin, 2018). Men also tended to consider their spouse as an emotionally meaningful tie, more than women (Dahlin *et al.*, 2008).

Employment histories and social networks

Discussions of the effects of work experiences on social relationships in later life should be placed within the context of lifelong work histories (Price and Dean, 2009). Nevertheless, simply knowing whether an individual was employed at a particular point in time is less useful than understanding the duration and pattern of their labor-force participation throughout life. The life course perspective draws attention to the life trajectories and transitions into and out of social roles that condition opportunities to form and maintain relationships (Settersten, 2015). This perspective would emphasize that the experiences during later life are related to earlier life course events, such as gendered employment patterns (Elder Jr, 1994; Schmitz *et al.*, 2023). Additionally, individual life courses are interwoven as people’s lives are linked with those of others (“linked-lives”) (Bengtson *et al.*, 2012; Settersten, 2015). These “links” may derive from one’s immediate family, but lives can also be linked with professional contacts such as colleagues or other business contacts (Henning and Lieberg, 1996).

The opportunity to link one’s life with people from the workplace might be structured by overall labor market integration – the duration of years spent working and the number of jobs one obtained over the life course. Whereas labor market inactivity limits the exposure, having many different jobs leads to meeting a wide array of individuals. In addition, working for more years overall could also lead to meeting more new people and to form meaningful relationships that last over time (Zarankin and Kunkel, 2019). For example, adults who were employed at age 33 reported more support compared to those who were unemployed (Matthews *et al.*, 1999). These experiences can also be gendered, for example, men are more likely to incorporate work-related contacts into their networks (Dahlin *et al.*, 2008), whereas women discuss important work-related matters more often with family members (Renzulli *et al.*, 2000).

Regarding social connectedness, retirement itself, as a major life course event, has proven to have a lasting impact, although studies find mixed effects. Some show that retirement leads to a reduction in the share of colleagues and friends and an increase in the share of family members (Comi *et al.*, 2022), although not all retirees are found to disengage from work-related ties (Cozijn *et al.*, 2010). These studies, however, focus on the effects of retirement itself. Albeit, the creation and maintenance of social ties is a lifelong process, as the convoy model stresses. Thus, it is imperative to examine how they can be shaped by employment throughout the life course.

Currently, limited research considers the long-term effect that employment histories of adults have in relation to their late-life relationships. Using the convoy model, the current study stipulates that adults who worked for more years and in more jobs had more opportunities to “collect” convoy members from different workplaces, although the quality in regard to emotional depth of these relationships may vary. Furthermore, people who are more involved in the workforce may be used to frequent social interactions, therefore designing their social lives as more diverse and active to mimic their work lives (Price and Nesteruk, 2015).

Employment histories may also affect the relationship with family members. It is possible that people who were involved to a larger extent in the labor market have had less time and opportunities to invest in their close family. The idea of work interfering with family has been widely recognized and studies have highlighted the effect labor market involvement can have on parental time, family involvement, and work–family conflict (Byron, 2005; Cho and Allen, 2012; Michel *et al.*, 2011). Such a pattern could manifest in less close kin relationships in later life.

With reference to the life course perspective, gender differences should be taken into account since men and women differ both in their social relationships (as described above) and in their involvement in the workforce. Despite an increasing convergence of gender roles in recent times, life courses can follow a “gendered path,” when women assume more household and care responsibilities and showcase a lower and more interrupted labor market activity as well as an earlier retirement timing than men (Moen, 2001; Moen, 2016; Williams and Umberson, 2004). Men tend to work for more years as they are less likely to take breaks for childcare and family care and to change their place of employment more frequently (Steiber and Haas, 2012). Feminist scholars have pointed out that these persistent gendered work courses are resulting in “new social risks” for women while working for longer years can benefit women, for example, in terms of their financial situation (Geyer *et al.*, 2021) or health (Cai, 2010).

However, less is known about the effects of life course employment on personal networks in later life. In this regard, women who were continuously working until their retirement were found to engage more in volunteer activities and less in solitary activities compared to women whose involvement in the workforce was discontinued during their life (Price and Dean, 2009). This may stem from continuously employed women maintaining relationships with former coworkers (Loe and Johnston, 2016). However, these studies focused

only on women, and thus research is lacking that compares men and women. Gender differences could emerge not only due to different levels of involvement in the labor force, but also men and women who were similarly involved could show gender differences due to gendered ways of “collecting” and (emotionally) investing in work ties, resulting in ties transferring differently into older age. While women who are involved in the labor market could collect more friends over their life, women might also be impacted to a larger extent by their work histories in relation to their family ties. Due to role expectations, they could be expected to a larger degree to spend time and provide care to their families. Violating such expectations, due to working more, could have stronger consequences for their relationships with close family. Men might not face similar consequences, due to lower expectations from them to spend time and care for their families.

To summarize, this study will examine whether the employment histories of men and women, namely years in employment and number of jobs, are associated with their social relationships in later life. This advances existing research in several ways: first, by utilizing retrospective data, we are able to apply a life course perspective to social networks in retirement, linking social connectedness in older age to earlier life course events and individual employment histories. Secondly, by employing a gender perspective, we are able to pay attention to the effects of gendered work courses on social relationships.

We will test the following hypotheses:

1. Working for longer years and in more jobs will be associated with larger social networks, particularly with more friendship ties in the social networks.
2. Working for longer years and in more jobs will be associated with worse relationships with family members, namely one’s spouse and children, and with lower emotional closeness with the network.
3. Women will have larger social networks, which will be more likely to include their friends and children and less likely to include their spouse, compared to men.
4. The associations between employment histories and personal networks (hypotheses 1 and 2) will be stronger among women.

Data and methods

Participants and procedure

The study is based on the Survey of Health, Aging, and Retirement in Europe (SHARE). The survey collects information on a variety of domains in a representative sample of community-dwelling adults aged 50 and above and their spouses of any

age (Börsch-Supan *et al.*, 2013). Questionnaires are administered in the respondents' house by trained interviewers, using a computer-assisted personal interviewing program, following the participants' informed consent. The current study combines data collected in 2015 and 2017. The 2015 data collection wave was used since it collects information on social networks. The 2017 wave, called SHARELIFE, gathered retrospective information on respondents' life course, including questions about employment history. Eighteen countries participated in both waves and were included in the study: Austria, Germany, Sweden, Spain, Italy, France, Denmark, Greece, Switzerland, Belgium, Israel, Czech Republic, Poland, Luxembourg, Portugal, Slovenia, Estonia, and Croatia.

The analytical sample consisted of adults aged 50 + . We included respondents who participated in both the 2015 and 2017 waves and had information on the study variables. The final analytical sample numbered 18,478 participants. Attrition analysis indicated that of the participants in the 2015 wave, those who had full information were ($p < .05$) younger, more likely to be women, more educated, were in better financial, mental and physical health, and were more likely to have worked for more years and in a larger number of jobs. They had a larger social network, reported higher emotional closeness, and were more likely to mention friends as confidants. They did not differ in terms of mentioning their spouse or children as confidants.

Measures

SOCIAL NETWORKS

Social networks were assessed using a name-generator approach, which maps individuals' social milieu from their perspective. Respondents are asked to name up to seven persons with whom they discuss important matters and are subsequently asked to provide more information about these "confidants" and about the relationship with them (Schwartz and Litwin, 2018). The study devised five outcome variables based on this measure. The size of the network summed the number of persons named (0–7). The types of persons in the network were assessed using three dummy variables indicating the citation (yes/no) of a spouse, child, and friend in the network. The spouse and child variables included only those who had a spouse or children, respectively. Emotional closeness was probed by asking respondents "How close do you feel to (confidant's name)?" with answers ranging from "Not very close" (1) to "Extremely close" (4). The score on this measure was the average rate of emotional closeness with confidants.

EMPLOYMENT HISTORY

The information was taken from the job episodes panel, a dataset generated from SHARELIFE (Brugiavini *et al.*, 2019). The job episodes panel is a longitudinal dataset, including information regarding respondents' employment situation for every year from the time they entered the labor market. It has been shown that the share of missing observations in the job episodes panel is quite low, with missing data on employment events being retrieved from other information provided at SHARELIFE (Brugiavini *et al.*, 2019). Since the outcome social networks data used in this study were collected in 2015, the study only included employment history up to 2015. This information was used to create summary measures of years in employment and number of jobs that lasted for 6 months or longer.

Gender was measured as a binary variable of men and women.

COVARIATES

The covariates included sociodemographic and health variables that were previously found to be associated with late-life social networks (Cornwell and Laumann, 2015; Litwin and Stoeckel, 2014; Schwartz and Litwin, 2017). Age was used as a continuous variable, and education was measured as a binary variable (below secondary education/secondary education and above). We also measured the number of children (continuous variable) and whether the respondent provided care to anyone within the household (yes/no). Financial adequacy was measured using a question about the extent to which the respondent's household is able to make ends meet, with response options ranging from "with great difficulty" (1) to "easily" (4). Self-assessed health was measured on a 5-point Likert scale. Physical health was also measured by the number of mobility, arm function, and fine motor limitations (range: 0–10). Depressive symptoms were examined *via* the Euro-D scale for late-life depressive symptoms (Prince *et al.*, 1999), composed of 12 yes/no questions about symptoms experienced in the past month (range: 0–12).

Data analysis

Data analysis showed descriptive data of the sample characteristics and a bivariate comparison between men and women, using chi-square or *t*-tests. The main analysis consisted of regression analyses, with the different aspects of the networks as the outcome measures. Ordinary least squares (OLS) regressions were used for social network size and mean emotional closeness with the network (Lumley

Table 1. Sample characteristic and bivariate comparison between men and women

VARIABLE	ALL; MEAN (SD)/%; N = 18,478	MEN; MEAN (SD)/%; N = 8,688	WOMEN; MEAN (SD)/%; N = 9,790	BIVARIATE; T-TEST/ χ^2
Gender		47.02%	52.98%	
SN size	2.68 (1.51)	2.48 (1.47)	2.86 (1.52)	$t = -17.05^{***}$
Spouse confidant	84.68%	89.20%	79.09%	$\chi^2 = 267.04^{***}$
Child confidant	66.89%	58.86%	73.99%	$\chi^2 = 436.36^{***}$
Friend confidant	28.37%	21.54%	34.44%	$\chi^2 = 376.35^{***}$
Emotional closeness	3.33 (0.60)	3.33 (0.61)	3.33 (0.59)	$t = 0.15$
Years in employment	36.91 (12.25)	40.65 (9.78)	33.59 (13.22)	$t = 41.56^{***}$
Number of jobs	2.55 (1.84)	2.65 (1.88)	2.47 (1.79)	$t = 6.76^{***}$
Age	71.07 (7.62)	71.17 (7.52)	70.98 (7.71)	$t = 1.73$
Education (secondary +)	60.85%	62.56%	59.34%	$\chi^2 = 19.92^{***}$
Number of children	2.13 (1.31)	2.17 (1.36)	2.09 (1.26)	$t = 4.39^{***}$
Providing care	7.26%	7.20%	7.32%	$\chi^2 = 0.1$
Financial status	2.90 (0.98)	2.95 (0.99)	2.86 (0.98)	$t = 5.92^{***}$
Self-rated health	2.70 (1.02)	2.77 (1.03)	2.64 (1.01)	$t = 8.91^{***}$
Mobility limitations	1.73 (2.28)	1.32 (2.02)	2.09 (2.43)	$t = -23.60^{***}$
Depressive symptoms	2.35 (2.14)	1.93 (1.93)	2.74 (2.24)	$t = -26.41^{***}$

* $p < .05$, ** $p < .01$, *** $p < .001$.

Table 2. OLS regression models predicting social network size with employment histories and gender

VARIABLE	MODEL 1			MODEL 2			MODEL 3		
	B	SE	B	B	SE	B	B	SE	B
Gender: women	0.40	0.02	0.13 ^{***}	0.43	0.02	0.14 ^{***}	0.34	0.04	0.11 ^{***}
Years in employment	0.00	0.00	0.02 [*]	0.00	0.00	0.03 ^{**}	0.00	0.00	0.02 ^{**}
Number of jobs	0.07	0.01	0.09 ^{***}	0.05	0.01	0.07 ^{***}	0.04	0.01	0.04 ^{***}
Number of jobs × gender							0.04	0.01	0.04 ^{**}
R ²			0.02			0.07			0.07

B = coefficient, β = standardized coefficient; Models 2 and 3 control for age, education, number of children, providing care, financial status, self-rated health, mobility limitations, depressive symptoms, and country effects (not shown). * $p < .05$, ** $p < .01$, *** $p < .001$.

et al., 2002). Logistic regressions were used for the three binary measures of citing a spouse, child, and friend within the network. Each regression predicted the outcome variables using employment history and gender in the first model and in the second model added the covariates. The second stage of analysis in each regression was an interaction of employment history with gender. The final models present the interactions that emerged as significant.

Results

Table 1 shows the sample characteristics and a bivariate comparison of men and women. The sample consisted of 53% women. Women reported larger social networks, compared to men, and were more likely to cite a child and friend as confidants. Men were more likely to cite their spouse as a confidant. The participants reported having been

employed for an average of 37 years and having worked in over two jobs. Women reported fewer years in employment and were employed in fewer jobs. Women were less likely to have secondary or higher education, had less children on average, reported worse financial status, worse self-rated health, and more mobility limitations compared to men.

Table 2 presents OLS regression models predicting social network size with employment histories and gender. The first model examined the main effects of employment histories and gender. It showed that women reported larger social networks, and adults who worked for more years and in more jobs also reported larger networks. The second model added the covariates and found similar trends. The third model examined the interaction of gender with employment history, with a significant interaction between gender and number of jobs. A simple slope analysis of the

Table 3. Logistic regression models predicting the presence of a spouse, children, and friends in the social networks, with employment histories and gender

VARIABLE	SPOUSE CONFIDANT		CHILD CONFIDANT		FRIEND CONFIDANT		
	OR	OR	OR	OR	OR	OR	OR
	MODEL 1	MODEL 2	MODEL 1	MODEL 2	MODEL 1	MODEL 2	MODEL 3
Gender: women	0.46***	0.45***	2.07***	2.09***	1.99***	2.06***	1.76***
Years in employment	1.00	1.00	1.01***	1.01***	1.00	1.00	1.00
Number of jobs	0.97**	0.97*	1.00	1.00	1.99***	2.06***	1.08***
Number of jobs × gender							1.06***

SN = social networks. OR = odds ratio; Models 2 and 3 control for age, education, number of children, providing care, financial status, self-rated health, mobility limitations, depressive symptoms, and country effects (not shown). * $p < .05$, ** $p < .01$, *** $p < .001$.

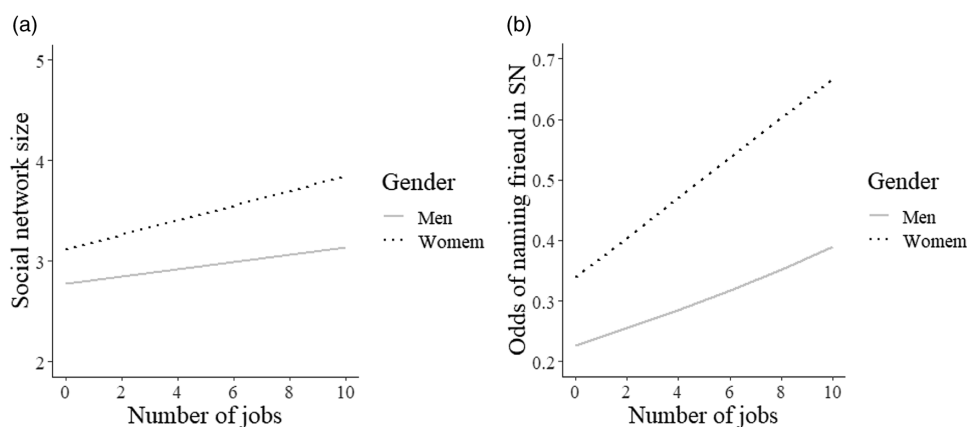


Figure 1. (a) and (b) The interaction between gender and number of jobs over the life course in relation to social network size and to the odds of mentioning a friend as a social network (SN) member.

interaction indicated that among women there was a positive association between number of jobs and social network size ($\beta = 0.09$, $p < .001$). This association between number of jobs and social network size was seen among men as well, albeit it was smaller ($\beta = 0.04$, $p < .001$). Figure 1a shows a graphical representation of the interaction. While we follow the guidelines of Lumley *et al.* (2002), which indicated that linear regression analyses are robust for any distribution of data in large samples (such as our sample), we conducted a supplementary Poisson regression analysis (available upon request) to predict social network size, since it could be considered as a count variable. This additional analysis also found the interaction of gender with number of jobs to be significant.

Table 3 shows logistic regression models that predict the presence of three categories of social network members in the networks – a spouse, children, and friends. The first and second models showed that women were less likely, compared to men, to mention a spouse among their social network members. Adults who worked in more jobs were also less likely to mention their spouse as a confidant. These results were also seen after adding

the covariates. The interactions of employment history with gender were not significant. The next outcome variable was having children in the social networks. Women were twice as likely, compared to men, to mention their children in the network. Adults who worked for more years were also more likely to cite children. This was seen both without and with the covariates. The interaction terms were not significant.

The next model examined mentioning of a friend in the network as the outcome. It shows that women had over twice the likelihood of mentioning friends, as was the case for adults who worked in more jobs over their life course. The interactions of gender with number of jobs were significant. The association between number of jobs and citing friends in the social network was positive for both men and women, but it was stronger among women. Figure 1b shows a graphical presentation of this interaction effect. We carried out an additional interaction analysis with the R package *modglm* (McCabe *et al.*, 2022) since nonlinear models require special considerations that have to be taken into account when interpreting interaction effects in generalized linear models. This package defines interactions as the change in

Table 4. OLS regression models predicting emotional closeness, with employment histories and gender

VARIABLE	MODEL 1			MODEL 2			MODEL 3		
	B	SE	B	B	SE	B	B	SE	B
Gender: women	0.01	0.01	0.00	0.01	0.01	0.01	0.09	0.03	0.08 ^{***}
Years in employment	0.01	0.01	0.03 ^{***}	0.01	0.01	0.01	0.01	0.01	0.04 ^{**}
Number of jobs	-0.02	0.00	-0.06 ^{***}	-0.01	0.00	-0.03 ^{***}	-0.01	0.00	-0.03 ^{***}
Years in employment × gender							0.01	0.01	-0.07 ^{**}
R ²			0.01			0.13			0.13

B = coefficient, β = standardized coefficient; Models 2 and 3 control for age, education, number of children, providing care, financial status, self-rated health, mobility limitations, depressive symptoms, and country effects (not shown). * $p < .05$, ** $p < .01$, *** $p < .001$.

a marginal effect of one variable as a function of change in another variable with the use of partial derivatives and discrete differences to quantify these effects. We found that the average interaction effect across observations was significant ($B = 0.014$, $SE = 0.003$, 95% CI [0.007, 0.020]), and it was significant for 98.6% of the sample.

Table 4 presents OLS regression models predicting emotional closeness with one's social network. The first model predicted emotional closeness with one's social network members. The results found no gender difference in emotional closeness, and this result remained after adding the covariates. Adults who had a larger number of jobs over their life course reported lower emotional closeness with their social networks, and this association remained after adding the covariates. Those who worked for more years reported higher emotional closeness, although this became nonsignificant after adding the covariates. The interaction of gender with years of employment was significant. A simple slope analysis of the interaction indicated that among men there was a positive association between years in employment and emotional closeness with the social network ($\beta = 0.04$, $p < .01$). This association was not significant among women ($\beta = 0.00$, $p > .05$).

Discussion

Drawing on a life course perspective, the current study sets out to explore the associations of employment history with social networks in later life, and whether these associations differ by gender. By doing so, the study helps to better understand the composition and coming to be of networks in older age that play an important role in older people's well-being and are an important pillar of social support. Our results show a complex, gendered, pattern. Adults who worked in more jobs had overall better structural characteristics of their networks – reported larger social networks in later life and were more likely to include their children and friends

within those close networks, although they were less likely to include their spouse. On the other hand, working in more jobs was related to lower emotional closeness with the network. These results varied between men and women; women who were involved to a larger degree in the labor market over their life course had larger social networks in later life and were more likely to include friends in these networks. Among men, on the other hand, working for more years was related to higher emotional closeness with the network.

Our results show that adults who worked in a larger number of jobs had larger social networks and were more likely to mention their children and friends as close confidants, in accordance with our first hypothesis. Thus, their networks had better structural characteristics and included more diverse sources of support (Antonucci *et al.*, 2014). A potential explanation is that employment could be related to a more active life (Barnett and Hyde, 2001), and these adults could have maintained such high levels of activity also in their social lives. The inclusion of both friends and family members indicates the diversity of ties, which can offer more varied types of interactions and activities, with potentially beneficial health implications (Cohn-Schwartz *et al.*, 2021; Fiori *et al.*, 2006; Park *et al.*, 2015). Adults who worked in more workplaces may have been in more contexts in which they could meet new friends and could have collected more members to their “convoy” over the years (Antonucci *et al.*, 2014). Some of these nominated friends might have started as colleagues and became friends over time. Although the percentage of network members who are defined as a colleague or ex-colleague is low (2%), it is possible that these colleagues are currently considered to be more friends than colleagues. Alternatively, since the participants are retired, such ex-colleagues might not be considered as colleagues anymore.

These results partly contradict our hypothesis that extensive employment histories will be related to worse family relationships. However, our findings

could be explained by indications that multiple roles due to involvement in the labor market and with one's family could be beneficial to family ties (Barnett and Hyde, 2001). Although previous studies focused on the effects of retirement itself on network composition in later life (Comi *et al.*, 2022), this study applies a life course perspective and shows the effects of lifelong work events instead of focusing on a single event.

On the other hand, extensive employment histories were related to worse functional aspects of the networks, which were deemed less emotionally close and were also less likely to include one's spouse. It is possible that the expansion of one's network over the life course and the inclusion of less close confidants such as friends came at the expense of the emotional depth of the network, as such ties are often less close compared to one's spouse (Litwin and Stoeckel, 2014). Thus, it is possible that the expansion of the network over the work course could have some disadvantages in terms of the network quality. Moreover, it is possible that working in more jobs over time meant having a less meaningful role as a partner, with harmful implications for the spousal relationship (Barnett and Hyde, 2001).

Gender differences indicate that, in accordance with our hypothesis, women had larger social networks and were more likely to name children and friends as confidants, while men were more likely to mention their partners (Fischer and Beresford, 2015; Schwartz and Litwin, 2018). Our study adds to the literature by pointing to gender differences in the associations of employment history with later life social relationships, in accordance with our fourth hypothesis. These differences indicate that women may have "benefited" from working in more jobs, especially in terms of the structural aspects of their relationships. That is, among women, working in more jobs was more strongly related to larger social networks, which include friends. Women who are more involved in the labor market could be used to more social interactions and this tendency might have been reflected in their social lives (Price and Dean, 2009). Women may also have a stronger social motive for working (Thrasher *et al.*, 2016) and could focus more on creating social ties in the workplace and maintaining these ties as friendships (Loe and Johnston, 2016). Women who are involved in the labor market can experience better mental health (Wan *et al.*, 2018), which may also lead to greater social involvement. Working may help women form multiple roles and interests, which can translate into richer social lives that include varied confidants (Barnett and Hyde, 2001). On the other hand, women who were less involved in the

labor market might have adhered to more traditional gender roles of being active within the household (Eggers *et al.*, 2020) and were less inclined to form relationships with friends who are outside of their family.

Men, on the other hand, showed advantages of their work histories in terms of the emotional aspects of their social networks; men who were employed for more years reported better emotional closeness with their network compared to women. These results can attest to the different social needs of men and women, with men potentially perceiving their social milieu as better when going through more varied work environments. Future research should better understand the underlying mechanisms of these trends.

The current study has some limitations. The outcome measure of close social networks disregards weaker ties. While close ties are meaningful to later life health (Cornwell and Laumann, 2015; Schwartz and Litwin, 2017), weaker ties are also beneficial (Huxhold *et al.*, 2020), especially since adults may have kept in touch with colleagues who were not defined as close friends. An additional limitation is that we had no information on the social networks of participants when they entered the workforce. Thus, our results could also reflect the other direction of influence that sociable adults participate more in the workforce. Social networks can impact labor-force participation, for example, networks can help gain employment or advance in the labor market (Hess *et al.*, 2020; Woehler *et al.*, 2021). Furthermore, the study does not go into much detail regarding workplace-related characteristics such as company size and type, as these were not available in the retrospective data. It can be assumed that, for example, work-related networks in small- and medium-sized companies differ from those in large enterprises or family-run businesses. Additionally, it should be noted that some respondents were not included in the final analysis due to missing information and they differed in several attributes from those who were included. We also note that the effects found in this study are small, but they are of potential theoretical interest. It would be desirable for our study results to be repeated by other researchers with different data and analytical procedures, such as qualitative methods, which could analyze underlying mechanisms in more detail.

To sum up, this study contributes to the literature in several ways. It adopts a life course gendered perspective which can contribute to a greater understanding of social development in later life. Our study adds to the understanding of what impacts social networks in later life, which were recently shown to be related to mental health

resilience (Hopper *et al.*, 2023), living conditions (van der Velpen *et al.*, 2022), and time perspective (Soylu and Ozekes, 2022). We add an examination of life course factors, in addition to the more prevalent focus on later life factors. Our gendered outlook shows that men and women differ in the effects of work histories, suggesting that women are more advantageous in regard to the structural aspects of their networks and men could “benefit” in terms of the functional aspects. These results extend previous research on the employment histories and social milieu of women by examining such trends among both genders and looking at structural as well as functional aspects of networks. Policymakers and practitioners should be made aware that labor market inclusion over the life course has implication on social networks in later life. It might be especially worthwhile to support the involvement of women in the labor market to enhance their social ties in later life. In increasingly aging societies, social embeddedness may be worth promoting to establish sources for support of aging individuals.

Conflict of interest

None.

Description of authors' roles

E. Cohn-Schwartz was responsible for the statistical design of the study and for carrying out the statistical analysis and wrote the paper. L. Naegle assisted the design of the study, and with writing and editing the article.

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References

- Ajrouch, K. J., Fuller, H. R., Akiyama, H. and Antonucci, T. C. (2018). Convoys of social relations in cross-national context. *The Gerontologist*, 58, 488–499. <https://doi.org/10.1093/geronb/cwx064>
- Antonucci, T. C., Ajrouch, K. J. and Birditt, K. S. (2014). The convoy model: explaining social relations from a multidisciplinary perspective. *The Gerontologist*, 54, 82–92. <https://doi.org/10.1093/geront/gnt118>
- Barnett, R. C. and Hyde, J. S. (2001). Women, men, work, and family. *American Psychologist*, 56, 781–796. <https://doi.org/10.1037/0003-066X.56.10.781>
- Bengtson, V. L., Elder Jr, G. H. and Putney, N. M. (2012). The life course perspective on ageing: linked lives, timing, and history. In: M. L. Johnson (Ed.), *Adult Lives: A Life Course Perspective* (pp 9–17). Bristol: Bristol University Press.
- Börsch-Supan, A. *et al.* (2013). Data resource profile: The Survey of Health, Ageing and Retirement in Europe (SHARE). *International Journal of Epidemiology*, 42, 992–1001. <https://doi.org/10.1093/ije/dyt088>
- Brugiavini, A., Orso, C. E., Genie, M. G. and Naci, R. (2019). Combining the retrospective interviews of Wave 3 and Wave 7: the third release of the SHARE job episodes panel 1. *SHARE Working Paper Series*, 36, 1–18.
- Byron, K. (2005). A meta-analytic review of work-family conflict and its antecedents. *Journal of Vocational Behavior*, 67, 169–198. <https://doi.org/10.1016/j.jvb.2004.08.009>
- Cai, L. (2010). The relationship between health and labour force participation: evidence from a panel data simultaneous equation model. *Labour Economics*, 17, 77–90. <https://doi.org/10.1016/j.labeco.2009.04.001>
- Campbell, K. E. (1988). Gender differences in job-related networks. *Work and Occupations*, 15, 179–200. <https://doi.org/10.1177%2F0730888488015002003>
- Cho, E. and Allen, T. D. (2012). Relationship between work interference with family and parent-child interactive behavior: can guilt help? *Journal of Vocational Behavior*, 80, 276–287. <https://doi.org/10.1016/j.jvb.2011.12.002>

- Cohn-Schwartz, E., Levinsky, M. and Litwin, H.** (2021). Social network type and subsequent cognitive health among older Europeans. *International Psychogeriatrics*, 33, 495–504. <https://doi.org/10.1017/S1041610220003439>
- Comi, S. L., Cottini, E. and Lucifora, C.** (2022). The effect of retirement on social relationships. *German Economic Review*, 23, 275–299. <https://doi.org/10.1515/ger-2020-0109>
- Cornwell, B.** (2011). Independence through social networks: bridging potential among older women and men. *The Journals of Gerontology. Series B, Psychological Sciences and Social Sciences*, 66, 782–794. <https://doi.org/10.1093/geronb/gbr111>
- Cornwell, B. and Laumann, E. O.** (2015). The health benefits of network growth: new evidence from a national survey of older adults. *Social Science & Medicine*, 125, 94–106. <https://doi.org/10.1016/j.socscimed.2013.09.011>
- Cornwell, B., Schumm, L. P. and Laumann, E. O.** (2008). The social connectedness of older adults: a national profile. *American Sociological Review*, 73, 185–203. <https://doi.org/10.1177/000312240807300201>
- Cozijnsen, R., Stevens, N. A. N. L. and Theo, G.** (2010). Maintaining work-related personal ties following retirement. *Personal Relationships*, 17, 345–356. <https://doi.org/10.1111/j.1475-6811.2010.01283.x>
- Dahlin, E., Kelly, E. and Moen, P.** (2008). Is work the new neighborhood? Social ties in the workplace, family, and neighborhood. *The Sociological Quarterly*, 49, 719–736. <https://doi.org/10.1111/j.1533-8525.2008.00133.x>
- Denaeghel, K., Mortelmans, D. and Borghgraef, A.** (2011). Spousal influence on the retirement decisions of single-earner and dual-earner couples. *Advances in Life Course Research*, 16, 112–123. <https://doi.org/10.1016/j.alcr.2011.06.001>
- Eggers, T., Grages, C., Pfau-Effinger, B. and Och, R.** (2020). Re-conceptualising the relationship between defamilialisation and familialisation and the implications for gender equality—the case of long-term care policies for older people. *Ageing and Society*, 40, 869–895. <https://doi.org/10.1017/S0144686X18001435>
- Elder Jr, G. H.** (1994). Time, human agency, and social change: perspectives on the life course. *Social Psychology Quarterly*, 1, 4–15.
- Ellwardt, L., Van Tilburg, T. G. and Aartsen, M. J.** (2015). The mix matters: complex personal networks relate to higher cognitive functioning in old age. *Social Science & Medicine*, 125, 107–115. <https://doi.org/10.1016/j.socscimed.2014.05.007>
- Fiori, K. L., Antonucci, T. C. and Cortina, K. S.** (2006). Social network typologies and mental health among older adults. *The Journals of Gerontology, Series B: Psychological Sciences and Social Sciences*, 61, P25–P32. <https://doi.org/10.1093/geronb/61.1.P25>
- Fischer, C. S. and Beresford, L.** (2015). Changes in support networks in late middle age: the extension of gender and educational differences. *The Journals of Gerontology. Series B, Psychological Sciences and Social Sciences*, 70, 123–131. <https://doi.org/10.1093/geronb/gbu057>
- Geyer, J., Welteke, C., Resources, H., Geyer, J. and Welteke, C.** (2021). Closing routes to retirement for women: how do they respond? *Journal of Human Resources*, 56, 311–341. <https://doi.org/10.3368/jhr.56.1.0717-8947R2>
- Granovetter, M.** (1995). *Getting a Job: A Study of Contacts and Careers* (2nd ed.). Chicago: The University of Chicago Press.
- Granovetter, M. S.** (1977). The strength of weak ties. *Social Networks*, 78, 347–367.
- Henning, C. and Lieberg, M.** (1996). Strong ties or weak ties? Neighbourhood networks in a new perspective. *Scandinavian Housing and Planning Research*, 13, 3–26.
- Hess, M., Naegele, L. and Mäcken, J.** (2020). Attitudes towards working in retirement: a latent class analysis of older workers' motives. *European Journal of Ageing*, 18, 357–368. <https://doi.org/10.1007/s10433-020-00584-5>
- Hopper, S., Best, J. R., Wister, A. V. and Cosco, T. D.** (2023). Contributors to mental health resilience in middle-aged and older adults: an analysis of the Canadian Longitudinal Study on Aging. *International Psychogeriatrics*, 1–10. <https://doi.org/10.1017/S1041610223000224>
- Huxhold, O., Antonucci, T. C., Fiori, K. L., Webster, N. J. and Arbor, A.** (2020). The strength of weaker ties: an underexplored resource for maintaining emotional well-being in later life. *Journals of Gerontology, Series B: Psychological Sciences and Social Sciences*, 75, 1433–1442. <https://doi.org/10.1093/geronb/gbaa019>
- Ibarra, H.** (1993). Personal networks of women and minorities in management: a conceptual framework. *The Academy of Management Review*, 18, 56. <https://doi.org/10.2307/258823>
- Kahn, R. L. and Antonucci, T. C.** (1980). Convoys over the life course: attachment, roles, and social support. In: P. B. Baltes and O. G. Brim Jr (Eds.), *Life-Span Development and Behavior* (pp 253–286). New York: Academic Press.
- Litwin, H., Levinsky, M. and Schwartz, E.** (2020). Network type, transition patterns and well-being among older Europeans. *European Journal of Ageing*, 17, 241–250. <https://doi.org/10.1007/s10433-019-00545-7>
- Litwin, H. and Shiovitz-Ezra, S.** (2006). Network type and mortality risk in later life. *Gerontologist*, 46, 735–743. <https://doi.org/10.1093/geront/46.6.735>
- Litwin, H. and Stoeckel, K. J.** (2014). Confidant network types and well-being among older Europeans. *The Gerontologist*, 54, 762–772. <https://doi.org/10.1093/geront/gnt056>
- Loe, M. and Johnston, D. K.** (2016). Professional women, rebalancing, in retirement: time, relationships, and body. *Journal of Women & Aging*, 28, 418–430. <https://doi.org/10.1080/08952841.2015.1018047>
- Lumley, T., Diehr, P., Emerson, S. and Chen, L.** (2002). The importance of the normality assumption in large public health data sets. *Annual Reviews of Public Health*, 23, 151–169. <https://doi.org/10.1146/annurev.publhealth.23.100901.140546>
- Matthews, S., Stansfeld, S. and Power, C.** (1999). Social support at age 33: the influence of gender, employment status and social class. *Social Science & Medicine*, 49, 133–142.
- Mccabe, C. J. et al.** (2022). Interpreting interaction effects in generalized linear models of nonlinear probabilities and

- counts. *Multivariate Behavioral Research*, 57, 243–263. <https://doi.org/10.1080/00273171.2020.1868966>
- Michel, J. S., Kotrba, L. M., Mitchelson, J. K., Clark, M. A. and Baltes, B. B.** (2011). Antecedents of work family conflict: a meta-analytic review. *Journal of Organizational Behavior*, 32, 689–725.
- Moen, P.** (2001). Constructing a life course. *Marriage & Family Review*, 30, 97–109. <https://doi.org/10.4324/9780203049792>
- Moen, P.** (2016). Work over the gendered life course. In: M. Shanahan, J. Mortimer and J. M. Kirkpatrick (Eds.), *Handbook of the Life Course. Handbooks of Sociology and Social Research*. New York: Springer. https://doi.org/10.1007/978-3-319-20880-0_11
- Park, N. S. et al.** (2015). An empirical typology of social networks and its association with physical and mental health: a study with older Korean immigrants. *The Journals of Gerontology, Series B: Psychological Sciences and Social Sciences*, 70, 67–76. <https://doi.org/10.1093/geronb/gbt065>
- Patacchini, E. and Engelhardt, G.** (2016). Work, retirement, and social networks at older ages. CRR Working Paper 2016-15. Available at SSRN: <https://ssrn.com/abstract=2867594>.
- Price, C. A. and Dean, K. J.** (2009). Exploring the relationship between employment history and retired women's social relationships. *Journal of Women & Aging*, 21, 85–98. <https://doi.org/10.1080/08952840902837046>
- Price, C. A. and Nesteruk, O.** (2015). What to expect when you retire: by women for women. *Marriage & Family Review*, 51, 418–440. <https://doi.org/10.1080/01494929.2015.1059784>
- Prince, M. J. et al.** (1999). Development of the EURO-D scale—a European Union initiative to compare symptoms of depression in 14 European centres. *The British Journal of Psychiatry*, 174, 330–338. <https://doi.org/10.1192/bjp.174.4.330>
- Rafnsson, S. B., Shankar, A. and Steptoe, A.** (2015). Longitudinal influences of social network characteristics on subjective well-being of older adults: findings from the ELSA Study. *Journal of Aging and Health*, 27, 919–934. <https://doi.org/10.1177/0898264315572111>
- Renzulli, L. A., Aldrich, H. and Moody, J.** (2000). Family matters: gender, networks, and entrepreneurial outcomes. *Social Forces*, 79, 523–546. <https://doi.org/10.2307/2675508>
- Santini, Z. I., Koyanagi, A., Tyrovolas, S., Mason, C. and Haro, J. M.** (2015). The association between social relationships and depression: a systematic review. *Journal of Affective Disorders*, 175, 53–65. <https://doi.org/10.1016/j.jad.2014.12.049>
- Schmitz, W., Naegele, L., Frerichs, F. and Ellwardt, L.** (2023). Gendered late working life trajectories, family history and welfare regimes: evidence from SHARELIFE. *European Journal of Ageing*, 20, 5. <https://doi.org/10.1007/s10433-023-00752-3>
- Schwartz, E. and Litwin, H.** (2017). Are newly added and lost confidants in later life related to subsequent mental health? *International Psychogeriatrics*, 29, 2047–2057. <https://doi.org/10.1017/S1041610217001338>
- Schwartz, E. and Litwin, H.** (2018). Social network changes among older Europeans: the role of gender. *European Journal of Ageing*, 15, 359–367. <https://doi.org/10.1007/s10433-017-0454-z>
- Settersten, R. A.** (2015). Relationships in time and the life course: the significance of linked lives. *Research in Human Development*, 12, 217–223. <https://doi.org/10.1080/15427609.2015.1071944>
- Sharifian, N., Kraal, A. Z., Zaheed, A. B., Sol, K. and Laura, B.** (2019). The longitudinal association between social network composition and episodic memory in older adulthood: the importance of contact frequency with friends. *Aging & Mental Health*, 24, 1789–1795. <https://doi.org/10.1080/13607863.2019.1660850>
- Soylu, C. and Ozekes, B. C.** (2022). Testing a model of biosychosocial successful aging based on socioemotional selectivity theory in the second half of life. *International Psychogeriatrics*, 1–11. <https://doi.org/10.1017/s1041610222001090>
- Steiber, N. and Haas, B.** (2012). Advances in explaining women's employment patterns. *Socio-Economic Review*, 10, 343–367.
- Stevens, N. L. and Van Tilburg, T. G.** (2011). Cohort differences in having and retaining friends in personal networks in later life. *Journal of Social and Personal Relationships*, 28, 24–43. <https://doi.org/10.1177/0265407510386191>
- Thrasher, G. R., Zabel, K., Wynne, K. and Baltes, B. B.** (2016). The importance of workplace motives in understanding work-family issues for older workers. *Work, Aging and Retirement*, 2, 1–11. <https://doi.org/10.1093/workar/wav021>
- van der Velpen, I. F. et al.** (2022). Determinants of social health trajectories during the COVID-19 pandemic in older adults: the Rotterdam Study. *International Psychogeriatrics*, 1–15.
- Wan, W. H., Antonucci, T. C., Birditt, K. S. and Smith, J.** (2018). Work-hour trajectories and depressive symptoms among midlife and older married couples. *Work, Aging and Retirement*, 4, 108–122. <https://doi.org/10.1093/workar/wax028>
- Williams, K. and Umberson, D.** (2004). Marital status, marital transitions, and health: a gendered life course perspective. *Journal of Health and Social Behavior*, 45, 81–98.
- Woehler, M. L., Cullen-Lester, K. L., Porter, C. M. and Frear, K. A.** (2021). Whether, how, and why networks influence men's and women's career success: review and research agenda. *Journal of Management*, 47, 207–236. <https://doi.org/10.1177/0149206320960529>
- Zarankin, T. G. and Kunkel, D.** (2019). Colleagues and friends: a theoretical framework of workplace friendship. *Academy of Management Proceedings*, 19, 156–170. <https://doi.org/10.5465/ambpp.2019.10100abstract>