

Retirement intentions: links with the quality of work and personality traits

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Abstract: While the population of Europe is rapidly aging, extended working life has been increasingly promoted. However, a fair amount of older workers prefer to retire early. The question is, whether we know enough about what makes people want to retire as soon as they can. Research on the relationship between the quality of work and retirement intentions has received significant attention but delivered ambiguous results, which may mean that the relationship between retirement intentions and the quality of work is more complex, i.e. moderated by other constructs. Therefore, using data obtained from the seventh wave of the Survey of Health, Ageing and Retirement in Europe (SHARE), we assess the relationship of the retirement intentions with the quality of work, and personality traits. In addition, we investigate whether personality traits moderate the relationship between retirement intentions and the quality of work. We found that physical demands, psychosocial demands, social support at work, control, and reward predict retirement intentions. Neuroticism, extraversion, and agreeableness predict retirement intentions too. The relationship between the quality of work and retirement intentions is not moderated by personality traits.

Keywords: retirement intentions, quality of work, personality traits

Namera za upokojitev: povezanost s kakovostjo dela ter osebnostnimi lastnostmi

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Povzetek: Ker se prebivalstvo v Evropi hitro stara, je vse več pozornosti namenjene promociji podaljševanja delovne dobe. Vseeno pa si pomemben delež starejših zaposlenih še naprej želi zgodnejše upokojitve. Pri tem se zastavlja vprašanje ali vemo dovolj o tem, zakaj si ljudje želijo upokojitve kakor hitro je to mogoče. Raziskovanje odnosa med kakovostjo dela ter namero po upokojitvi je dejavno, a ponuja nejasne rezultate, kar kaže, da bi bil lahko odnos med namero po upokojitvi ter kakovostjo dela bolj kompleksen (ga npr. moderirajo druge spremenljivke). Z uporabo podatkov sedmega zajema podatkov študije o Zdravju, staranju in upokojevanju v Evropi (Survey of Health, Aging and Retirement, SHARE) smo zato ocenili odnose med namero po upokojitvi ter kakovostjo dela in osebnostnimi značilnostmi. Poleg tega smo raziskali ali osebnostne značilnosti moderirajo odnos med namero po upokojitvi in kakovostjo dela. Ugotovili smo, da telesne in psihosocialne zahteve, socialna opora na delu, nadzor ter nagrade napovedujejo namero po upokojitvi. To prav tako napovedujejo nevroticizem, ekstravertnost in spremljivost, vendar pa odnosa med kakovostjo dela ter namero po upokojitvi osebnostne značilnosti ne moderirajo.

Ključne besede: namera po upokojitvi, kakovost dela, osebnostne značilnosti

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The population of Europe is rapidly aging. In 2016, people aged 65 or over comprised 19 % of the European Union's population, and it is predicted that this number will increase to 29 % in 2070. The number of working-age people (15-64 years old) is projected to decrease from 65 % to 56 %. Therefore, policymakers will be facing inevitable challenges related to economy, budget, and society in general (European Commission, 2018). Having that in mind, it is only natural that extended working life has been increasingly promoted. One approach to making people work longer involves increasing the mandatory retirement age and/or cutting pension benefits. The problem with this approach is that people are forced to retire later in life without considering whether they desire to continue working. Encouraging people to continue to work beyond the retirement age voluntarily would be a more appropriate option. However, some studies have shown that approximately half of older workers intend to stop working after retirement age (Stynen et al., 2016). In the Van Solinge and Henkens (2014) research 81 % of older workers intended to stop working before age 65. Thus, approaches that make people not just stay in work but want to stay in work are more sustainable (Böckerman & Ilmakunnas, 2020). The question is, however, whether we know enough about what makes people want to retire as soon as they can.

Böckerman and Ilmakunnas (2020) propose that unobservable characteristics, such as job characteristics or personality traits, play an important role in retirement decisions. Regarding the results of the systematic review performed by Browne et al. (2019), research on the relationship between the quality of work and retirement intentions has received significant attention but delivered ambiguous results. In contrast, personality traits have not attracted the deserved amount of attention in retirement research, despite being an important factor which influences various decisions, including those related to retirement, and may also play an important role in retirement intentions (Wang et al., 2011). Since the psychology of the individual is shaped by the interaction of their personality traits with life experiences (McCrae, 2005), the moderating role of the personality traits in the relationship between quality of work and retirement intentions should also be considered. Therefore, if we want to encourage workers to remain in work longer, we need to have a better understanding of what makes people want to leave the labor market early.

The quality of work and retirement

Although various authors propose slightly different definitions of retirement highlighting its different nuances (e.g., decreased psychological commitment to work and considering oneself retired), the decision to leave the labor force remains the primary focus of research in this area (Gustman & Steinmeier, 2001; Wang & Shi, 2014). In this paper, individual's intentions to retire represent their desire to leave their job, which is analyzed in various research using different work-related variables, including the quality of work (Browne et al., 2019; Dal Bianco et al., 2015; Gommans et al., 2016). The quality of work is multidimensional and encompasses some aspects of work itself and working

conditions that affect the well-being of workers (Muñoz de Bustillo et al., 2011). Various aspects of the quality of work are widely analyzed using two models that complement each other: the demand-control model (also known as the job strain model) (Karasek et al., 1998) and the effort-reward imbalance model (Siegrist et al., 2004). These models represent the aspects of the quality of work that might play an important role in retirement intentions. The demand-control model analyzes work-related stress through the interaction of two core dimensions – job demands and the level of autonomy. The model claims that high psychosocial demands at work and low control (low decision latitude) result in stress at work. Thus, high work pace and lack of decision authority at work would result in job strain. Such conditions can be mentally and physically exhausting and strengthen one's retirement intentions (Karasek et al., 1998). The effort-reward imbalance model emphasizes the work contract between the employer and the employee which is based on social reciprocity. The work contract is failed when satisfactory rewards (such as money, esteem, job security) are not provided in return for the efforts spent at work. Therefore, one may feel not appreciated, not treated fairly, and disappointed. In the long run, these strain reactions, besides being harmful to one's health, may also lead to having thoughts about retiring (Siegrist et al., 2004).

Siegrist and Wahrendorf (2011) integrated the models of demand-control-support (Karasek et al., 1998) and effort-reward imbalance (Siegrist et al., 2004) and proposed the following dimensions of the quality of work: physical demands, psychosocial demands, social support at work, control at work, and reward. We aim to further analyze the research on retirement intentions and the quality of work by using the model structure based on the dimensions proposed by Siegrist and Wahrendorf (2011). The results from research which used dimensions of the quality of work that were measured and labelled differently are presented alongside the results with theoretically analogous dimensions.

Physical and psychosocial demands. Siegrist and Wahrendorf (2011) define physical demands as having uncomfortable environment, experiencing heat, crowding, noises, etc. They describe psychosocial demands as experiencing time pressure due to heavy workload, being exposed to conflicts and disturbances, and feeling emotional demands. Although Siegrist and Wahrendorf (2011) distinguish physical and psychosocial demands as different dimensions of the quality of work, they are not always clearly distinguished in other authors' research. Without drawing a more precise distinction between different types of job demands, Browne et al. (2019) performed a systematic review and concluded that there was limited evidence to suggest the association between job demands (such as subjective stress/pressure, work pace, role conflicts, time pressure, etc.) and retirement intentions. Gommans et al. (2016) found no significant correlations between physical demands at work and retirement intentions. Oakman and Wells (2013) who measured various demands (such as physical, emotional, cognitive, etc.) did not find that high job demands predicted retirement intentions as well. However, other studies provide contradicting results, suggesting that early retirement

intentions are related to perceived workplace harm (such as heat, cold and dust) (Böckerman & Ilmakunnas, 2020), workload demands (Harkonmaki et al., 2006; Schreurs et al., 2010, 2011), problems with change at work (Schreurs et al., 2010, 2011), and having a physically demanding or stressful job (Dal Bianco et al., 2015).

Social support at work. Various studies define social support differently (Browne et al., 2019). Siegrist and Wahrendorf (2011) include general support in difficult situations, good atmosphere among colleagues, and fair treatment of employees as having social support at work. Results from previous studies do not provide consistent evidence on the relationship between retirement intentions and social support at work. Browne et al. (2019) categorize support from co-workers, support from supervisors, quality of leadership, team-working, and perceived support from supervisors for working till the age of 65 as measures of social support and conclude that there exists moderate evidence that social support at work promotes later retirement intentions. Dal Bianco et al. (2015) study revealed that receiving support in difficult situations contributes to a lower probability of desiring early retirement but only among men and not women. Social support from colleagues and superior was negatively related to retirement intentions (Schreurs et al., 2010, 2011).

Control at work. According to Siegrist and Wahrendorf (2011), control at work can be described as having freedom in work decisions, having opportunities to develop new skills. Compared to the body of research on the dimensions of the quality of work and retirement intentions, research on control at work and retirement intentions provides a much clearer picture. Browne et al. (2019) conclude that there is strong evidence that greater job resources (and specifically greater job control) are associated with later retirement intentions. Job resources in their analyses included job control, opportunities to develop, skill discretion, recognition at work, work variety, and greater social cohesion. In Dal Bianco et al. (2015) study, the opportunities provided for skills development contributed to a lower probability of desiring to retire as soon as possible. The studies of Schreurs et al. (2010, 2011) and Koponen et al. (2016) also revealed that control at work was negatively related to retirement intentions. Similarly, Harkonmaki et al. (2006) and von Bonsdorff et al. (2010) found that employees who experienced less job control were more likely to report strong intentions to retire.

Reward. Siegrist and Wahrendorf (2011) describe reward as receiving deserved recognition, having adequate salary, and having efforts and achievements recognized. Only two papers on effort-reward imbalance and retirement intentions were analyzed in the systematic review by Browne et al. (2019), which is insufficient to draw conclusions. It is, however, worth mentioning that both papers (Siegrist et al., 2007; Wahrendorf et al., 2013) found high effort-reward imbalance to be associated with earlier retirement intentions. Effort-reward imbalance was defined by the imbalance between the effort that one puts into their work (such as commitment to work) and reward that he or she receives (e.g., salary, promotion prospects). Although earning an adequate salary has no effect on the probability of desiring to retire as soon as possible, recognition for one's work, another

item associated with the reward dimension, decreases the probability of desiring to retire early (Dal Bianco et al., 2015). Reward satisfaction was also a predictor of early retirement intentions in Koponen et al. (2016) study. However, Hodgkin et al. (2017) found that rewards, such as salary or promotion prospects, are not related to retirement intentions.

It appears that there is evidence to posit a relationship between retirement intentions and some dimensions of the quality of work. But it is difficult to draw conclusions without consistent evidence. Inconsistent results may mean that the relationship between retirement intentions and the quality of work is more complex, i.e., moderated by other constructs. In the present paper, we draw our attention to one such construct which might play a role in retirement intentions, namely personality traits.

Personality traits and retirement

One of the most prominent personality models in the field of personality research is the Five-Factor Model (also known as the Big Five), which introduces the main dimensions of personality that allow us to explain different tendencies related to how people think, feel or act. The model posits five theoretical dimensions of personality, also known as personality traits, which include: neuroticism, extraversion, openness to experience (or just openness), agreeableness, and conscientiousness. Neuroticism refers to negative emotionality which can include anxiousness, sadness, self-pity, feeling tense, impulsive, and having irrational thoughts. Extraversion is described as a tendency to be social, positive, warm, assertive, energetic, and in need for stimulation. Openness to experience refers to one's tendency to be unconventional, curious, and creative. Agreeableness is construed as the tendency to be forgiving, tender-minded, sympathetic, helpful, trusting, and modest. Conscientiousness refers to the tendency to be organized, reliable, self-disciplined, efficient, and goal-oriented (McCrae, 2005; McCrae & Costa, 2008).

No research on the relationship between retirement intentions and personality traits was found but the influence of personality traits on retirement intentions could be presumed from the research on actual exiting from work and the retirees' personality traits. Although some of the research found no relationship between the timing of retirement and personality traits (e.g., Blekesaune & Skirbekk, 2012; Löckenhoff et al., 2009), there were studies that have shown a relationship between staying in work at older ages and greater levels of extraversion (Hudomiet et al., 2018), openness to experience and conscientiousness (Angrisani et al., 2017). Angrisani et al. (2017) found that higher levels of agreeableness predict choosing to remain in work after the age of 65. Such ambiguous results suggest that there might be an interaction at play between personality traits and job characteristics, such as the quality of work. Therefore, personality traits might influence decisions regarding the retirement path directly and by interacting with the quality of work. Angrisani et al. (2017) assume that personality determines the way in which individuals perceive different work environments and cope with them, which may result in different retirement paths. The results of their study show that

individuals with higher levels of neuroticism are more likely to retire from physically demanding jobs and workplaces where age discrimination occurs. Less agreeable individuals are also more likely to retire from workplaces where there is discrimination based on age. Higher levels of openness to experience are related to retiring when work is perceived as lacking flexibility in terms of hours worked and job tasks. This research supports the assumption that personality traits could be a moderating factor between retirement intentions and the quality of work. Taking into account that personality traits play an important role in social interactions and stress regulation (McCrae, 2005; McCrae & Costa, 2008), the moderating effect of personality seems plausible.

The aforementioned body of research on the relationship between the retirement behavior and personality traits helps us understand why people tend to leave the labor market early; however, we should interpret the findings of the studies about actual retirement with caution because actual retirement is not the same as intention to retire. Some older workers might not have opportunities to retire. For example, Nemoto et al. (2020) found that 76 % of people over 65 years old cited financial motives for working in later life. Munnell et al. (2018) found that poor health might also play an important role in retirement behavior: workers with poor health are more likely to have earlier-than-planned retirement than others. Earlier retirement age is also related to work discrimination (Gonzales et al., 2021). Furthermore, the results discussed above mostly represent the U.S. population; it remains unclear if the observed tendencies apply in other parts of the world. In this paper an international dataset from seventeen European and two Asian countries is used. Therefore, the data from European and Asian countries could fill the gap.

It was aimed to assess the relationship of the retirement intentions with the quality of work and personality traits, and to investigate whether personality traits moderate the relationship between retirement intentions and the quality of work.

Considering the above literature analysis, following hypotheses are derived.

Hypothesis 1: Quality of work predicts retirement intentions.

Hypothesis 2: Personality traits predict retirement intentions.

Hypothesis 3: The relationship between the quality of work and retirement intentions is moderated by personality traits.

Methods

Data

Data were obtained from the seventh wave (2017) of the Survey of Health, Ageing and Retirement in Europe (SHARE; Börsch-Supan, 2020). SHARE is an ongoing longitudinal study which started in 2004. It collects **multidisciplinary and cross-national comparative data from 28 European countries and Israel**. Participants of the SHARE study are selected through random sampling; data

are collected through individual interviews. On average, one respondent's interview lasts about 80 minutes. Data are collected every two years, and the same survey procedure is used in all countries. During each wave, some questions are repeated, but the interview is supplemented with a block of new questions. The SHARE study is aligned with other studies, such as the US Health and Retirement Study and the English Longitudinal Study of Aging. The data are freely available to the scientific community worldwide. There are currently 13,000 registered users of SHARE data (Bergmann et al., 2019). SHARE currently offers seven waves of data and focuses on the older population (50+). See Börsch-Supan et al. (2013) and Bergmann et al. (2019) for methodological details. For our analysis, we have chosen data from the seventh wave instead of the longitudinal data because the seventh wave covers a wider range of countries. Furthermore, the seventh wave includes personality assessment, and longitudinal data is not required for the analysis of retirement intentions. The analysis is focused on the employed population of individuals aged 50 to 65 who do not receive any public pension benefits (old-age, public old-age supplementary/second, or public early/pre-retirement). Self-employed workers were excluded because of their ability to control their working conditions. Since we are focused on the relationship between retirement intentions, quality of work and personality traits, we also excluded individuals who did not answer the question about retirement intentions and/or did not answer any of the 12 questions on the quality of work or any of the 10 questions on personality traits. These inclusion criteria have yielded a sample of 8,168 respondents. The list of the countries covered includes Austria, Spain, France, Denmark, Switzerland, Belgium, Israel, Poland, Luxembourg, Hungary, Portugal, Estonia, Croatia, Lithuania, Bulgaria, Cyprus, Finland, Latvia, and Romania. In accordance with the United Nations Geoscheme (UN Statistics Division, n.d.) and in line with previous studies (Ahmed et al., 2018; Ahrenfeldt & Möller, 2021; Horackova et al., 2019), European countries were classified into four geographic regions: Western Europe (Austria, France, Switzerland, Belgium, Luxembourg), Southern Europe (Spain, Portugal, Croatia), Northern Europe (Denmark, Lithuania, Estonia, Finland, Latvia), and Eastern Europe (Poland, Hungary, Bulgaria, Romania); Israel and Cyprus were put under the category "Western Asia". The mean age of participants is 56.9 years (SD = 3.5), males comprising 44 % of the sample.

Measures

Retirement Intentions. Respondents' intentions of early retirement were measured using the following question: Thinking about your present job, would you like to retire as early as you can from this job? There were two categories of answers: yes (coded as 0) and no (coded as 1).

Work Quality. The quality of work was measured by 12 questions derived from the Job Content Questionnaire (JCQ; Karasek et al., 1998) and the Effort-Reward Imbalance (ERI) questionnaire (Siegrist et al., 2004). The JCQ is based on the demand-control model and measures social and psychological characteristics of jobs. The ERI is grounded in the effort-

reward imbalance model and measures work-related stress. Items were measured on a Likert scale from 1 (“*strongly agree*”) to 4 (“*strongly disagree*”). The five dimensions were calculated following Siegrist and Wahrendorf (2011). The scores were added up for each of the dimensions. The indicators of the quality of work are physical demands (2 items), psychosocial demands (3 items), social support at work (3 items), control at work (2 items), and reward (2 items). A higher score on each of the dimensions indicates better quality of work. The method of calculating internal consistency was selected depending on the number of items – Pearson’s correlation for two-item measures and Cronbach’s alpha for three-item measures. Pearson’s correlation r ranged from .18 to .42, Cronbach’s alphas from .67 to .68. Internal consistency of the scale was only satisfactory, but a higher value was not expected due to the length of the scale (Gosling et al., 2003). The factor analysis, which was conducted to test whether the proposed structure could be replicated, confirmed the factorial structure of the questionnaire: $\chi^2 = 1874$; $p < .001$; $\chi^2 / df = 44$; RMSEA = .071 (90% CI = [.069, .074]); CFI = .909.

Personality Traits. Personality traits were measured using the 10-item Big Five Inventory (BFI-10) introduced by Rammstedt and John (2007). BFI-10 measures five major factors: neuroticism, extraversion, openness, agreeableness, and conscientiousness. Items of this scale are rated on a Likert scale from 1 (“*disagree strongly*”) to 5 (“*agree strongly*”). Personality traits were measured as an average of two items. Calculated scores indicate the degree to which a particular personality trait is expressed in an individual (the higher the score, the more expressed the trait). The internal consistency of the inventory was low, which could be explained by the length of the inventory – it is hard to achieve high internal consistency for short instruments that measure broad domains with only two items per dimension (Gosling et al., 2003). Inner correlations ranged from .11 to .39. These personality dimensions were replicated in factor analysis, which confirmed appropriate structural validity of the questionnaire: $\chi^2 = 888$; $p < .001$; $\chi^2 / df = 26$; RMSEA = .064 (90% CI = [.060, .067]); CFI = .837.

Health. Respondents’ self-reported health was measured by asking them to rate their health on a 5-point Likert scale with responses ranging from excellent (1) to poor (5). Before conducting regression analysis, responses were dichotomized into “*less than very good health (0)*” and “*very good/excellent health (1)*”.

Financial situation. Self-reported financial situation was measured by asking the respondents to rate how often shortage of money stops them from doing the things they want to do. Responses ranged from often (1) to never (4) and before conducting regression analysis, they were dichotomized into “*often*” or “*sometimes*” = 0 and “*rarely*” or “*never*” = 1.

Data analyses

Statistical analyses were conducted using IBM SPSS Statistics Software (version 23.0; IBM Corp., 2015).

Confirmatory factor analyses with the maximum likelihood estimator were conducted using SPSS

AMOS (Arbuckle, 2014). Correlation analysis between variables was conducted using Pearson’s r . A small percentage of data were missing (0.1 % of values, 2.7 % of cases). The number of missing data for each variable is provided in Table 1. To account for the missing data, before conducting hierarchical logistic regression analysis, multiple imputation (regression method) with 5 imputations was applied. To examine whether personality moderated the relationship between retirement intentions and the quality of work, hierarchical logistic regression was conducted. To analyze the relationships among the variables more precisely, age, gender, health, financial situation, and geographic region were added in the first step as controlling variables. The dimensions of the quality of work were added in the second step, and the personality traits in the third step. In the fourth step, interaction effects of personality traits and dimensions of the quality of work on retirement intentions were added. In order to reduce the impact of multicollinearity on the interactions and main effects, values that were continuous were mean-centered (Aiken & West, 1991).

Results

Table 1 describes the variables used in the analyses: gender, age, health, financial situation, geographic region, retirement intentions, dimensions of the quality of work, and personality traits. It shows that around half of the participants (49.5 %) would like to retire from their job as early as possible.

Correlations between variables are presented in the Table 2. Retirement intentions were related with all the variables except agreeableness, and gender. Keeping in mind the sample size, correlations were weak (Cohen, 1988), yet significant. Correlation analysis showed that older participants ($r = .03$, $p < .01$), those with better health ($r = .15$, $p < .001$), and financial situation ($r = .09$, $p < .01$) were less likely to have early retirement intentions. It was also determined that persons with more physically demanding jobs ($r = .19$, $p < .001$), more psychosocially demanding jobs ($r = .11$, $p < .001$), more social support at work ($r = .18$, $p < .001$), more control at work ($r = .18$, $p < .001$), and higher rewards at work ($r = .21$, $p < .001$) were less likely to have early retirement intentions. The results showed that people who were more extraverted ($r = .07$, $p < .001$), open to experience ($r = .05$, $p < .001$), and conscientious ($r = .03$, $p < .001$) were less likely to have early retirement intentions, while those with higher levels on neuroticism ($r = -.13$, $p < .001$) were more likely to have early retirement intentions.

Results of the hierarchical logistic regression analysis are presented in Table 3. Since not all the estimations required can be calculated using imputed data, results in the table are presented using imputed data, model information below the table is presented for original data.

The first step of the regression analysis showed that older people (OR = 1.02, 95% CI = 1.01 – 1.02, $p < .05$) were less likely to have retirement intentions than younger. Having better health (OR = 1.76, 95% CI = 1.60 – 1.94, $p < .001$) and better financial situation (OR = 1.34, 95% CI = 1.23 – 1.47, $p < .001$) were also associated with a lower probability of having early retirement intentions. The regression results showed

that, compared to the respondents from Northern Europe, those from Western Europe (OR = 0.88, 95% CI = 0.83 – 0.94, $p < .05$), Southern Europe (OR = 0.52, 95% CI = 0.46 – 0.59, $p < .001$), and Eastern Europe (OR = 0.70, 95% CI = 0.66 – 0.75, $p < .001$) were more likely to have early retirement intentions. Compared to the respondents from Northern Europe, those from Western Asia were less likely to have early retirement intentions (OR = 2.06, 95% CI = 1.65 – 2.56, $p < .001$). There were no significant gender effects on retirement intentions

(OR = 1.01, 95% CI = 0.96 – 1.05, $p = .90$). The model was significant, $\chi^2(8, N = 8168) = 386.96$, $p < .001$, Nagelkerke's $R^2 = .06$.

In the next step of the regression analysis, we tested whether quality of work predicts retirement intentions (hypothesis 1). The regression results showed that, having more physically demanding job (OR = 1.13, 95% CI = 1.09 – 1.16, $p < .001$), more psychosocially demanding job (OR = 1.04, 95% CI = 1.02 – 1.06, $p < .01$), receiving less social

Table 1.
Descriptive statistics of the variables

Variable	<i>n</i>	%	Missing	<i>M (SD)</i>	Range
Gender					
Male	3564	43.6			
Female	4604	56.4	0		0-1
Age	8168		0	56.90 (3.49)	50-65
Health					
Very good/excellent health	2686	32.9			
Less than very good health	5479	67.1	3		0-1
Financial situation					
Stops from doing the things often/sometimes	4035	49.4			
Stops from doing the things rarely/never	4122	50.5	11		0-1
Region					
Western Europe	2013	24.6			
Southern Europe	935	11.4			
Northern Europe	3148	38.5	0		0-5
Eastern Europe	1601	19.6			
Western Asia	471	5.8			
Retirement intentions					
Yes	4047	49.5			
No	4121	50.5	0		0-1
Dimension of the quality of work					
Physical demands	8161		7	5.21 (1.69)	2-8
Psychosocial demands	8149		19	7.66 (2.17)	3-12
Social support at work	8030		138	9.29 (1.65)	3-12
Control at work	8158		10	5.71 (1.39)	2-8
Reward	8138		30	5.37 (1.43)	2-8
Personality trait					
Neuroticism	8161		7	2.52 (0.99)	1-5
Extraversion	8155		13	3.58 (0.93)	1-5
Openness	8156		12	3.40 (0.95)	1-5
Agreeableness	8156		12	3.67 (0.84)	1-5
Conscientiousness	8161		7	4.18 (0.80)	1-5

Notes. Results are presented for original data.

Looking for early retirement was coded as 0, not looking for it as 1.

Male was coded as 1, female as 0.

A higher score on each dimension indicates better work quality.

The higher the score on a personality trait – the more expressed the trait.

Very good/excellent health was coded as 1, less than very good health as 0.

Financial situation stops from doing the things rarely/never was coded as 1, often/sometimes was coded as 0.

Table 2.
Correlations between study variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
2	.12***													
3	.03**	-.04***												
4	.04**	.07***	.18***											
5	.01	.03**	.15***	.09***										
6	-.08***	.07***	.17***	.21***	.19***									
7	.04***	.06***	.04***	.06***	.11***	.28***								
8	.01	.03**	.12***	.16***	.18***	.25***	.27***							
9	.02	.03*	.14***	.19***	.18***	.33***	.12***	.34***						
10	.06***	.03**	.16***	.25***	.21***	.26***	.19***	.55***	.35***					
11	-.10***	-.03*	-.15***	-.16***	-.13***	-.13***	-.14***	-.22***	-.18***	-.16***				
12	-.07***	-.02*	.07***	.09***	.07***	.05***	.03**	.15***	.10***	.08***	-.21***			
13	-.08***	.03*	-.01	.003	.05***	.09***	-.05***	.06***	.15***	.04***	-.05***	.10***		
14	-.04***	.04***	.07***	.11***	.02	.12***	.07***	.19***	.12***	.09***	-.25***	.20***	.06***	
15	-.06***	.02	.09***	.08***	.03*	.03*	.04**	.10***	.08***	.06***	-.12***	.18***	.04***	.16***

Notes. Results are presented for original data.

1 – gender, 2 – age, 3 – health, 4 – financial situation, 5 – retirement intentions, 6 – physical demands, 7 – psychosocial demands, 8 – social support at work, 9 – control at work, 10 – reward, 11 – neuroticism, 12 – extraversion, 13 – openness, 14 – agreeableness, 15 – conscientiousness.

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

Looking for early retirement was coded as 0, not looking for it as 1.

Male was coded as 1, female as 0.

A higher score on each dimension indicates better work quality.

The higher the score on a personality trait – the more expressed the trait.

Very good/excellent health was coded as 1, less than very good health as 0.

Financial situation stops from doing the things rarely/never was coded as 1, often/sometimes was coded as 0.

support at work (OR = 1.06, 95% CI = 1.02 – 1.10, $p < .01$), having less control at work (OR = 1.12, 95% CI = 1.08 – 1.16, $p < .001$), and being rewarded at work less (OR = 1.18, 95% CI = 1.14 – 1.23, $p < .001$) were related to a higher probability of having early retirement intentions. The model was significant, $\chi^2(13, N = 8168) = 804.60, p < .001$, Nagelkerke's $R^2 = .13$. As hypothesized, quality of work predicted retirement intentions.

To examine whether personality traits predict retirement intentions (hypothesis 2), personality traits were added in the third step of the regression analysis. The findings demonstrated that higher levels of neuroticism (OR = 0.87, 95% CI = 0.83 – 0.92, $p < .001$), and agreeableness (OR = 0.88, 95% CI = 0.83 – 0.94, $p < .001$) were related to a higher probability of having early retirement intentions. Higher levels of extraversion (OR = 1.12, 95% CI = 1.06 – 1.18, $p < .001$) were associated with a lower probability of having early retirement intentions. Findings revealed no significant effects of openness (OR = 1.04, 95% CI = 0.99 – 1.10, $p = .10$), and conscientiousness (OR = 0.99, 95% CI = 0.93 – 1.05, $p = .78$) on retirement intentions. The model was significant, $\chi^2(18, N = 8168) = 870.82, p < .001$, Nagelkerke's $R^2 = .14$. The second hypothesis was partially supported.

In the fourth step of the regression analysis, the third hypothesis was tested. We hypothesized that the relationship between the quality of work and retirement intentions would be moderated by personality traits. The overall model was significant, $\chi^2(43, N = 8168) = 893.94, p < .001$, Nagelkerke's

$R^2 = .14$. Although findings revealed no significant moderation effects. Thus, this study did not find support for the fourth hypothesis.

Discussion

The purpose of this study was to assess the direct relationship of the retirement intentions with the quality of work and personality traits, as well as to investigate whether personality traits moderate the relationship between retirement intentions and the quality of work. We first hypothesized that quality of work would predict retirement intentions. We have found that, similarly to the findings of some previous research, older workers' desire to have early retirement is predicted by having more physically demanding job (Böckerman & Ilmakunnas, 2020; Dal Bianco et al., 2015), more psychosocially demanding job (Dal Bianco et al., 2015; Harkonmaki et al., 2006; Schreurs et al., 2010, 2011), receiving less social support at work (Browne et al., 2019; Schreurs et al., 2010, 2011), having less control at work (Browne et al., 2019; Dal Bianco et al., 2015; Harkonmaki et al., 2006; Koponen et al., 2016; Schreurs et al., 2010, 2011; von Bonsdorff et al., 2010), and being rewarded at work less (Browne et al., 2019; Dal Bianco et al., 2015; Koponen et al., 2016). We can conclude that there is growing evidence to support the claim that these are the most important

Table 3. Hierarchical logistic regression analysis: interaction effects of personality traits, and dimensions of the quality of work on retirement intentions

Variable	Step 1			Step 2			Step 3			Step 4		
	B	SE B	OR (95% CI)	B	SE B	OR (95% CI)	B	SE B	OR (95% CI)	B	SE B	OR (95% CI)
Gender	.01	.05	1.01 [0.96, 1.05]	.01	.05	1.01 [0.92, 1.10]	-.002	.05	1.00 [0.91, 1.10]	.002	.05	1.002 [0.91, 1.10]
Age	.02*	.01	1.02 [1.01, 1.02]	.01	.01	1.01 [1.00, 1.02]	.01	.01	1.01 [1.00, 1.02]	.01	.01	1.01 [1.00, 1.03]
Health	.57***	.05	1.76 [1.60, 1.94]	.41***	.05	1.51 [1.36, 1.67]	.38***	.05	1.47 [1.32, 1.63]	.39***	.05	1.47 [1.33, 1.63]
Financial situation	.30***	.05	1.34 [1.23, 1.47]	.06	.05	1.06 [0.96, 1.17]	.04	.05	1.04 [0.94, 1.14]	.04	.05	1.04 [0.94, 1.15]
Region												
Northern Europe vs. Western Europe	-.12*	.06	0.88 [0.83, 0.94]	-.12*	.06	0.88 [0.78, 1.00]	-.09	.06	0.91 [0.81, 1.04]	-.10	.06	0.91 [0.80, 1.03]
Northern Europe vs. Southern Europe	-.66***	.08	0.52 [0.46, 0.59]	-.54***	.08	0.58 [0.50, 0.68]	-.52***	.08	0.60 [0.51, 0.70]	-.53***	.08	0.59 [0.51, 0.69]
Northern Europe vs. Eastern Europe	-.36***	.06	0.70 [0.66, 0.75]	-.17**	.07	0.84 [0.74, 0.96]	-.18**	.07	0.84 [0.73, 0.96]	-.18*	.07	0.84 [0.74, 0.96]
Northern Europe vs. Western Asia	.72***	.11	2.06 [1.65, 2.56]	.80***	.12	2.22 [1.77, 2.78]	.85***	.12	2.33 [1.85, 2.94]	.84***	.12	2.32 [1.84, 2.93]
Dimension of the quality of work												
Physical demands				.12***	.02	1.13 [1.09, 1.16]	.12***	.02	1.13 [1.09, 1.16]	.12***	.02	1.13 [1.09, 1.16]
Psychosocial demands				.04**	.01	1.04 [1.02, 1.06]	.04**	.01	1.04 [1.02, 1.06]	.04**	.01	1.04 [1.02, 1.06]
Social support at work				.06**	.02	1.06 [1.02, 1.10]	.05**	.02	1.05 [1.02, 1.09]	.05**	.02	1.05 [1.02, 1.09]
Control at work				.11***	.02	1.12 [1.08, 1.16]	.10***	.02	1.11 [1.06, 1.15]	.10***	.02	1.11 [1.06, 1.15]
Reward				.17***	.02	1.18 [1.14, 1.23]	.17***	.02	1.18 [1.13, 1.23]	.17***	.02	1.18 [1.14, 1.23]
Personality trait												
Neuroticism							-.14***	.03	0.87 [0.83, 0.92]	-.14***	.03	0.87 [0.83, 0.92]
Extraversion							.11***	.03	1.12 [1.06, 1.18]	.12***	.03	1.13 [1.07, 1.18]
Openness							.04	.03	1.04 [0.99, 1.10]	.04	.03	1.04 [0.99, 1.10]
Agreeableness							-.13***	.03	0.88 [0.83, 0.94]	-.12***	.03	0.88 [0.83, 0.94]
Conscientiousness							-.01	.03	0.99 [0.93, 1.05]	-.01	.03	0.99 [0.94, 1.06]
Neuroticism x physical demands										-.003	.02	1.00 [0.97, 1.03]
Neuroticism x psychosocial demands										.02	.01	1.02 [1.00, 1.04]
Neuroticism x social support at work										.01	.02	1.01 [0.97, 1.04]
Neuroticism x control at work										-.003	.02	1.00 [0.96, 1.04]
Neuroticism x reward										.02	.02	1.02 [0.98, 1.06]
Extraversion x physical demands										-.02	.02	0.98 [0.95, 1.02]
Extraversion x psychosocial demands										.001	.01	1.001 [0.98, 1.03]

Table 3 (continued)

Variable	Step 1			Step 2			Step 3			Step 4		
	B	SE B	OR (95% CI)	B	SE B	OR (95% CI)	B	SE B	OR (95% CI)	B	SE B	OR (95% CI)
Extraversion x social support at work							.02	.02	1.02 [0.98, 1.06]			
Extraversion x control at work							-.03	.02	0.97 [0.93, 1.01]			
Extraversion x reward							-.02	.02	0.98 [0.94, 1.03]			
Openness x physical demands							.001	.02	1.00 [0.97, 1.03]			
Openness x psychosocial demands							.01	.01	1.01 [0.99, 1.03]			
Openness x social support at work							-.02	.02	0.98 [0.95, 1.02]			
Openness x control at work							.001	.02	1.00 [0.96, 1.04]			
Openness x reward							-.01	.02	0.99 [0.95, 1.03]			
Agreeableness x physical demands							-.04*	.02	0.96 [0.93, 1.00]			
Agreeableness x psychosocial demands							.002	.01	1.00 [0.97, 1.03]			
Agreeableness x social support at work							-.01	.02	0.99 [0.95, 1.03]			
Agreeableness x control at work							-.01	.02	0.99 [0.95, 1.03]			
Agreeableness x reward							.02	.02	1.02 [0.97, 1.07]			
Conscientiousness x physical demands							.01	.02	1.01 [0.97, 1.05]			
Conscientiousness x psychosocial demands							-.004	.02	1.00 [0.97, 1.03]			
Conscientiousness x social support at work							.01	.02	1.01 [0.96, 1.05]			
Conscientiousness x control at work							.03	.02	1.03 [0.98, 1.08]			
Conscientiousness x reward							-.01	.03	0.99 [0.94, 1.04]			

Notes: * $p < .05$; ** $p < .01$; *** $p < .001$.

Results in the table are presented using imputed data.

Model information is provided for original data:

Step 1: $\chi^2 (8, N = 8168) = 386.96, p < .001$, Nagelkerke's $R^2 = .06$

Step 2: $\chi^2 (13, N = 8168) = 804.60, p < .001$, Nagelkerke's $R^2 = .13$

Step 3: $\chi^2 (18, N = 8168) = 870.82, p < .001$, Nagelkerke's $R^2 = .14$

Step 4: $\chi^2 (43, N = 8168) = 893.94, p < .001$, Nagelkerke's $R^2 = .14$

Looking for early retirement was coded as 0, not looking for it as 1.

Male was coded as 1, female as 0.

A higher score on each dimension indicates better work quality.

The higher the score on a personality trait – the more expressed the trait.

Very good/excellent health was coded as 1, less than very good health as 0.

Financial situation stops from doing the things rarely/never was coded as 1, often/sometimes was coded as 0.

Northern Europe was chosen as reference and was coded as 0, other regions as 1.

characteristics of the quality of work related to retirement intentions. These results are consistent with our hypothesis and indicate that quality of work predicts retirement intentions. The results can be explained using continuity theory (Atchley, 1989, 1999), which is one of the dominant theories that help understand how people adapt to changes in the aging process. According to the continuity theory, people tend to seek continuity in life, which is important for people's psychological well-being. This principle applies to a variety of things – social relationships, financial status, skills, etc. (Atchley, 1989, 1999), which are inevitably related to work. Work shapes a person's identity, and what a person does often becomes an integral part of his personality. Work helps to structure time and life, to give it meaning (Lent & Brown, 2013). All this could be reasons to continue working instead of retiring early. But for workers to be able to work into old age, they must also be in good physical and mental condition. Thus, the quality of work should be adequate (Von Bonsdorff & Ilmarine, 2013). According to the continuity theory, retirement may provide a relieve from the strain of work, and people who experience lower levels of the quality of work might have intentions to retire as soon as they can, so psychological well-being would be improved (Tambellini, 2021).

Regarding associations between retirement intentions and personality traits, retirement intentions were predicted by three personality traits. Therefore, our results partially supported our hypothesis that personality traits predict retirement intentions. We found that higher levels of neuroticism predict workers' desire for early retirement. Those with higher levels of neuroticism tend to have pessimistic attitudes, so they may have a negative perception of their current job and prefer early retirement. Analysis confirmed that older workers with higher levels of neuroticism indeed rate their quality of work as worse, which supports our explanation. Individuals who have higher levels of neuroticism can also be impulsive (McCrae, 2005; McCrae & Costa, 2008), so it is not surprising that, presented with theoretical idea of leaving their job, they would be willing to do so. We also found that higher levels of agreeableness predict having early retirement intentions. In contrast to our results, Angrisani et al. (2017) found that higher agreeableness levels predict working after the age of 65; however, it should be noted that they measured the actual behavior, which in this case might have resulted in a different relationship. More agreeable people need pleasant relations with other people (Borghans et al., 2008). That means that our results might indicate that workers prefer to retire early so they could maintain good relationships with their family and friends outside of the workplace. Since our study participants were older people, it is not surprising that spending time with family members or friends becomes more significant. Our results show that lower levels of extraversion predict workers' desire for early retirement. Similar to our results, the relationship between retirement behavior and extraversion was previously found in the research by Hudomiet et al. (2018). Since extraverted people need a lot of interpersonal interactions and social stimulation (McCrae, 2005; McCrae & Costa, 2008), that may be the reason for their willingness to remain in a job where these needs are likely to be met.

These social reasons might be combined with vocational reasons, as extraverted workers also have enterprising vocational interests (McCrae, 2005; McCrae & Costa, 2008). The relationship between intentions to retire and openness or conscientiousness was not found in our research, which is consistent with previous research on retirement timing and personality traits (Blekesaune & Skirbekk, 2012; Löckenhoff et al., 2009).

Contrary to our hypothesis, the relationship between the quality of work and retirement intentions was not moderated by personality traits. Although personality moderates the relationship between the quality of work and retirement behavior (Angrisani et al., 2017), that is not the case when only intentions and not the actual behavior related to retirement are analyzed. These results might indicate that the quality of work is a robust predictor of retirement intentions, and personality traits do not have an effect on their relationship with retirement intentions. Another possible reason for these results could be due to methodological nuances. Including a particular amount of interactions might have weakened their effect. It is also possible that only satisfactory internal consistency of the scales used could be the reason why some effects or interactions have not been found.

The present study adds to the existing research on retirement. The results of the present study contribute to a better understanding of factors that are important to consider if we want people not just to stay in work but to want to continue to work even when they could retire. However, several limitations must be noted. First, our analysis was cross-sectional, which does not allow for conclusions about causality. Second, variables were assessed using self-reported measures that may not necessarily reflect the actual behavior. Third, the major variable (retirement intentions) is binary and therefore represents narrow categories of answers. Measuring constructs representing intentions on a wider range of choices might provide more accurate information. Fourth, internal consistency of the scales measuring the quality of work and personality traits was only satisfactory. It is also worth mentioning that our statistical analyses mostly rely on data from European countries, and therefore the results may not be generalizable to other regions. In the future, it would be useful to assess other possible antecedents of retirement intentions, such as retirement preparation. Furthermore, other potential contextual factors of person's life should be considered, such as domain of one's work, the duration of their working life, their partner's career status, etc. It would also be useful to measure the strength of the intentions to retire early or ask about retirement intentions, considering if workers have practical reasons for staying employed (e. g. debts).

This research has important practical implications for employers. It may be possible to prevent workers from intentions to retire early by improving work conditions. First, attention should be drawn to physical and psychosocial demands. Employers should ensure an appropriate environment for employees in which they would feel comfortable physically. This means that the workplace must be at the right temperature, quiet, and workers need to have their workspace where they can work without any disturbances. Employers should also take care of adequate

workload, flexible work hours, an appropriate work pace, and try to manage the stress of employees at work. Social support is another work condition that employers should take care of. Fair and equal treatment of all employees should be ensured; mutual support and assistance, when necessary, should be encouraged. Employers must aim to ensure that employees seek help not only from colleagues, but also from employers themselves. Employers also need to help employees feel like a team, where every member is valued. Given that we are discussing older workers, inclusion in the team becomes even important. As for control at work, employees must be given the opportunity to make important decisions themselves, do meaningful tasks, improve their skills, and acquire the necessary knowledge for their work. Employers should focus on reward as work condition the most. Workers' achievements and contribution should be recognised, valued, and respected. Not only that could be done by paying fair, well-deserved, and sufficient salary, but also by providing promotions, verbal encouragements, and any possible bonuses at work (such as free days, extra money, etc.). Bearing in mind that working conditions are very much dependent on the employer, they should be taken care of to reduce the likelihood of early retirement intentions. Then employers could identify the reasons for such intentions and provide possible solutions, so workers would have incentives to stay at work instead of retiring or at least having such intentions.

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