Training, a tool for retaining?

A quantitative study on the effect of work-related training on the desired

retirement age in Western Europe

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Master's thesis – Sociology: Contemporary Social Problems

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Foreword

Before you, you will find my master's thesis on the effect of work-related training on the desired retirement age amongst adults aged 25 to 64 in Western Europe. This thesis is also the final component for completing my master's degree in *Sociology: Contemporary Social Problems*. The emerging popularity of the topic of sustainable employability and pensioning has tickled me to explore this topic further, especially in a world where we, as adolescents, will have to work until at least the age of 70.

I would like to thank my thesis supervisor Dr Marleen Damman for reading my countless emails when I panicked. In addition, thanks to her specialisation in this field, she was able to give me constructive feedback on my thesis, which led me to insights that were otherwise far from my path. I would also like to thank my parents who wiped away my tears when needed, and overall, supported me through my whole (pre-)master's programme.

I hope you enjoy reading it.

Nica Huizer

Abstract

A tremendous amount of effort is put into education and training due to societal ageing. While the focus of policy is mainly on the effect of training on the *ability* to continue working, it is equally important to investigate the effect of this on the *willingness* to continue working. In addition, little research has been done on the direct effect of training on retirement age. This study focused on identifying the effect of training, offered by employers, on the desired retirement age of employees in Western Europe (concentrated on the Netherlands, Belgium, Germany, Denmark and the UK). The theoretical framework aimed to identify the underlying mechanisms of the effect of training on the willingness to continue working. Amongst other things, this framework proposed that training leads to up-to-date skills that would result in a better job fit, after which employees would choose to stay in work longer, thus hypothesising positive effects on the desired retirement age. Using data from the EWCS6, logistic regression analyses and linear regression analyses were performed. The total sample for the logistic regression analyses was 5,110 respondents and the total sample for the linear regression analyses was 4,134 respondents. The desired retirement age was examined in two ways in this study: according to working beyond the state pension age (logistic) and according to the preferred exit age (linear). The results showed that employees who have received training are less likely to want to continue working beyond the state pension age. In addition, it became apparent that the differences in preferred exit age after training only applied to senior employees. Based on the findings of the study, it was advised, amongst other things, to critically review training as a factor for motivating people to work longer.

Keywords

Ethical statement

This study has been approved by the Ethical Review Board of the Faculty of Social and Behavioural Sciences of Utrecht University, the UUSER. This approval is valid through 24 June 2022. The reference number for this study is: 22-1051. The Ethical Review Board has specifically looked at the ethical aspects within this study, such as where the data was collected, whether informed consent was present, and the privacy of the respondents.

Introduction

Western Europe is ageing. The proportion of people in the labour force is decreasing while the proportion of older people is increasing (Eurostat, 2020a). This trend, which can be measured all over the world, predicts that by 2030, 1 in 6 people in the world will be 60 years or older (World Health Organization, 2021). For years, ageing has been on the agenda as something that needs to be drastically addressed (European Commission, n.d.). It is no wonder that policies are regularly tightened or adjusted. An ageing population means that more must be invested to counteract the increasing costs associated with this shifting demographic.

Since 2009, there has been an increase in the employment rate in Western Europe (Eurostat, 2020b), partly due to the increase in the state pension age in many countries (European Commission, n.d.). Similarly, a change can be seen in the labour market, namely that employees will have to stay in the labour market for longer (De Coen et al., 2007; Conen et al., 2011). Companies and organisations face a challenge: what to do about this change (Ekamper & Henkens, 2006)? Organisations and governments are forced to adjust their policies to keep the labour market contained to some extent. For organisations, this change means betting on retaining younger employees as well as older employees, especially if one strives to keep employees in the labour market longer. Many studies have been done investigating older employees in relation to working longer (e.g., Hairault et al., 2010; Hofäcker et al., 2016; Van Solinge & Henkens, 2014) and employee retainment (e.g., Berg et al., 2017; Hermansen, 2016; Morisette et al., 2004; Picchio & Van Ours, 2013). The definition given to the (new) policy trend is *sustainable employability*. The term already gives away part of the definition: sustaining employees throughout their career by creating a healthy environment to ensure they are employable in the labour market for longer (Fleuren et al., 2016; Van der Klink, 2016).

But how can one ensure that employees remain sustainably employable and want to stay in the labour market? Wittekind et al. (2010), for instance, showed that various variables are of influence when it comes to employability. The researchers establish that education is of influence, as well as skills. Fisher et al. (2016) contributed to this knowledge through a review study. They created a model that presents antecedents, moderators and consequences of retirement timing based on earlier studies. One of the antecedents of timing of retirement within their model is the provision of skill development opportunities through *training*. The interesting thing about this determinant is that it can be influenced. For example, investments in training can be made in the short term to create a lasting effect in the long term.

Job training has become increasingly popular over the last decades. This is partly due to the competition on the market (Alcázar & Flegl, 2019), but also since people need to work longer nowadays because of the augmented state pension age in most countries. In 2015, the European Union announced an increased focus on skill development for both unemployed and employed people using training. The idea behind this was that it would lead to higher labour force participation and keep current workers vital and up-to-speed (European Parliament, 2016).

Studies regarding the effect of age on training are mixed. On the one hand, studies state that older employees have more negative training outcomes, for example, when it comes to task performance and speed of learning (Raemdonck et al., 2015; Williams van Rooij, 2012). On the other hand, studies on older employees report that training has a positive effect on the retention of older employees (Fouarge & Schils, 2009; Picchio & Van Ours, 2013). Many of these studies focused on on-the-job training but little research focuses on work-related training other than on-the-job. In view of the policies that are continually being delivered in the area of (employee) training, it is important not only to deploy this training for younger employees but also, and especially, for older employees, since this is precisely the group that will be the first to have to work for longer. Thus, the implications of the relationship between training and age necessitates further exploration.

Furthermore, it is important to look at policy recommendations based on the results of this study. As stated earlier, attention has been paid to (re)training employees for several years. Fairly recently, in 2020, the European Commission announced a new plan: the European Skill Agenda. Amongst other things, they stated that having the right skills makes it easier for employees to stay in work. Some of the goals that tie in with this include mobilising partners (such as employers) to manifest more and better training opportunities, updating training to suit all learners and times, and shortening and digitising training courses (European Commission, 2020). However, these policies mainly focus on the fact that employees *can* continue to work, but little is done on the policy towards *wanting* to work longer.

This study focuses on examining the relationship between training and employees' desire to work longer, as well as examining whether age plays a role in this relationship, in Western Europe (specifically concentrating on the Netherlands, Belgium, Germany, Denmark and the UK). This study is focused on 25- to 64-year-old employees, thus excluding youth employment. Within this group of employees, a distinction is made between ages. The study

uses the 6th wave of the European Working Conditions Survey (EWCS), which focuses on the characteristics of respondents' working lives.

Based on the situation outlined above, the following research questions guide this study:

➜ What percentage of adults between the age of 25 and 64 are planning on working beyond the age of 65?

➜ What is the influence of work-related training on the desired retirement age amongst adults between the age of 25 and 64 in Western Europe?

➜ Does the strength of the effect of work-related training on the desired retirement age in Western Europe differ in age?

➜ How could employees' motivation to continue working be encouraged?

Theoretical framework

Many factors are involved in the timing of retirement. An example of a model that explains retirement timing is that of Fisher et al. (2016). They operationalised retirement timing as 'the specific age by which workers retire, either from their current or main job or from the workforce altogether' (Fisher et al., 2016, pp. 231). The proposed model of Fisher et al. (2016), Figure 1, outlined a summary of the various literature (outcomes) on retirement and its timing. The model includes the antecedents of retirement timing and moderators that influence this process. These antecedents are categorised into different levels (macroeconomic, family, work-related, person-job factors and individual factors) and have a direct effect on the timing of retirement. Within this study, the focus lies on the 'work related' level. This level includes factors such as HR policies, company retirement plans, certain standards within the company and training/skill development opportunities (Fisher et al., 2016). The latter factor is central to this research paper. The remainder of the theoretical framework will therefore focus on the literature regarding training and skill development.
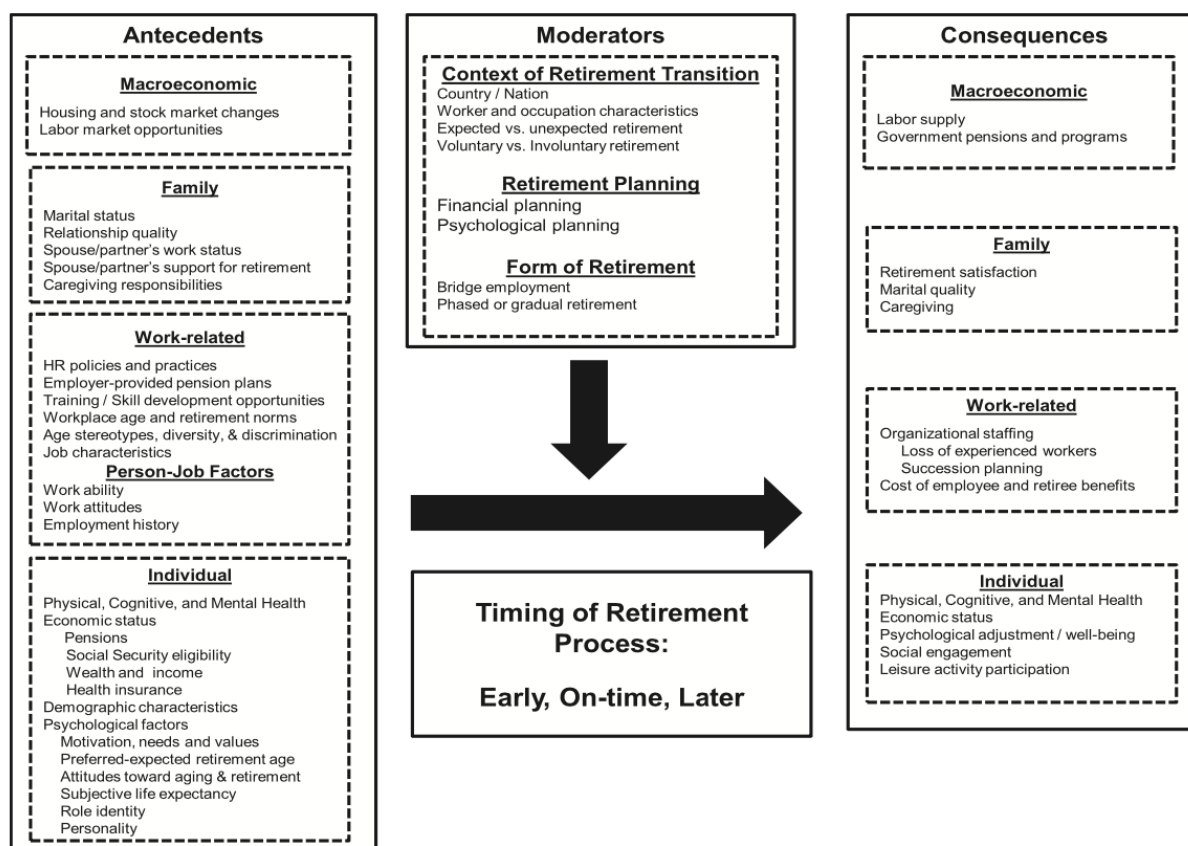
Figure 1. Timing of Retirement model

Source. Fisher et al. (2016)

The relationship between training and retirement

Work-related training has been proven to have a positive effect on a variety of factors (e.g., Anguinis & Kraiger, 2009; Blundell et al., 1996; Carlisle et al., 2019; Niati et al., 2021), but the relationship between training and retirement age is complicated. When diving deeper into this relationship, it is seen that there are many intermediate steps. Therefore, it is important to incorporate these steps to provide firm evidence on which to base the hypotheses of this work.

Firstly, the Government of the United Kingdom has given the following definition of work-related training: 'Any training course or other activity which is designed to impart, instil, improve or reinforce any knowledge, skills, or personal qualities' (GOV.UK, 2019). These trainings should be valuable to the employee in terms of their performance of tasks and help the employee to participate better throughout their period of employment and could be in the form of practical or theoretical skill-learning (GOV.UK, 2019).

Indisputably, training has multiple advantages. A literature review from Aguinis and Kraiger (2009) revealed that training has both beneficial values for individuals and for organisations. The number one effect of training was on *job performance*. Multiple studies have shown that training enhances certain behaviours, such as 'tacit and innovation skills', which are beneficial for increasing job performance and consistency (Anguinis & Kraiger, 2009; Kennett, 2013). Not only these types of skills were acquired through training but technical skills were also improved by following training. Aside from individual benefits, training has also been associated with positive effects on team performance, adaptivity and communication (Aguinis & Kraiger, 2009). These skills (technical, social and collaboration) are necessary to be able to function effectively in the labour market and specifically in one's job. Thus, training updates and enhances the skills required for optimal job performance. This positive job performance can be expected to lead to employees not wanting to leave the labour market (Feldman & Beehr, 2011).

Secondly, research on the link between skills, obtained through training, and *job demands* have supported the statement that there is a relationship between the two concepts. Having the right skills can complement the demands a job has, which leads to, for instance, less work-related stress. The general association here is that too little as well as too many job demands can lead to health risks. By focusing on teaching the right skills to employees, such as the ability to switch quickly between tasks, the risk of health issues can be reduced

(Trautmann et al., 2011). Having the right skills leads to a good fit with the labour market, i.e., a good job fit. This could mean that employees have the right resources and skills to do their job. Beier et al. (2020) concluded that this aligned model – the fit between resources and demands – lowers the intention to retire. Having the right skills also makes employees of value to the labour market, making it easier for them to stay in their (current) job position (Niks et al., 2020).

Lastly, Becker's human capital theory (Becker, 1962; Becker, 1993) also provides an explanation for the effect of training on *retirement timing*. Human capital, in short, is about what one can do. For employees to work optimally, investing in human capital, such as skills and competencies, is necessary. These can be seen as resources. An eminent way to invest in these resources (i.e., skills), is through training, according to Becker (Becker, 1962; Reder, 1967). Chen (2004) indicated that when it comes to training, investments are primarily made in intellectual capital (i.e., knowledge, skills and expertise). This capital ensures that employees achieve higher productivity (Becker, 1962; Becker, 1993; Chen, 2004; Fourage & Schils, 2009). As stated earlier, these skills will also lead to better job fit and job performance. Based on these arguments, the following hypothesis is derived:

> *H1: Employees who have followed training are more inclined to work until an older*
> *age than employees who have not followed training.*

The moderating effect of age

Quinn and Burkhauser (1994) pointed out that younger people indicate an earlier desired retirement age than older people. This effect was confirmed by Taylor and Shore (1995). As retirement approaches, people seem more inclined to gather information about it (Evans et al., 1985). In addition, the career stage theory states that people who are in the work field longer pivot their attention to other details of life, besides work. Within this stage, which is known as the 'later career stage', an important factor is that individuals tend to look at retirement (Griffin et al. 2014). Also, it is often stated that learning skills becomes more difficult as people get older (Raemdonck et al., 2015; Williams van Rooij, 2012). Partly for these reasons, it is interesting to look at the effect of training on the desired retirement age by age group. Because it is difficult to say in advance whether the effect of training is stronger or weaker for older employees compared to younger employees, two opposing hypotheses can be formulated. The

first hypothesis focuses on a stronger effect for older employees, whilst the second hypothesis focuses on a weaker effect for older employees.

For the clarity of the study, we refer to younger employees as *mature employees* (age 25-54) and to older employees as *senior employees* (age 55-64) in the hypotheses and further on (Eurostat, 2022; OECD, 2022).

Positive

Studies have not only made it evident that training leads to skill enhancement (Becker, 1962; Aguinis & Kraiger, 2009) but training provision can also be linked to a positive relationship between the employer and the employee. Various studies have shown that the provision of training by an employer has a positive effect on the reciprocal relationship between the employer and employee (Montizaan et al., 2014). This is because it gives employees the feeling that the employer is willing to help their employees to remain properly employable, which increases employee productivity and motivation. This positive relationship, built on the *gift-exchange theory*, provides a boost in the employee's motivation to continue to work longer, according to Montizaan et al. (2014). The gift-exchange theory in the workplace is based on the idea that an employer can give certain benefits, which in this case is providing training, but then expects something in return from the employee. This phenomenon is mostly based on trust, reciprocity, and fairness (Dodlova & Yudkevich, 2009). The incentives for employers to provide training include increasing the skills, productivity and knowledge of employees, which would benefit the employer. The provided training could be perceived by the employees as being treated well and being recognised, as a result of which they would increase their effort and commitment. This may manifest itself in continuing to work longer (Montizaan et al., 2014). Because retirement is closer for older employees than for younger employees, older employees are more likely to continue working until after retirement in exchange for the offered training. In addition, it is known that older workers are generally offered less training (Schultz, 2003). By still being offered training, an older employee may feel even more valued and supported leading to a higher level of trust with the employer, which may make an employee want to continue working longer and resulting in higher employee retention (Chen, 2004). Based on these arguments, the following hypothesis is stated:

> *H2: The positive effect of following training on the inclination to work until an older*
> *age is stronger for senior employees than for mature employees.*

Negative

Although some studies indicated that there is no difference between older and younger people when it comes to obtaining skills (Bootsma et al., 2021), many other studies indicated that there is indeed a measurable difference between the groups (Murman, 2015; Park & Kim, 2020; Williams van Rooij, 2012). While it could be said that there is a general decline in cognition for older individuals, some studies dove deeper into the term 'cognition' because the relationship between age and cognition is not as simple as presented in some studies. For example, a study of Murman (2015) showed that there is a difference between types of skill-learning when it comes to cognitive skills. The researchers make the distinction between *crystallised abilities* and *fluid abilities*. Crystallised abilities focus on cumulative skills that mostly focus on knowledge reproduction. It was observed that these skills improved with age. Fluid abilities focus on the application of knowledge. This means that it is not a simple matter of reciting information but rather applying it to other situations, for example. This type of skill is seen to be rapidly declining over the lifespan of an individual (Murman, 2015). Additionally, it is seen that the younger generation has less of a problem picking up digital and technological skills because of the presence of technology during their youth. Therefore, for older people who did not experience this, it appears to be more difficult to learn these skills (Park & Kim, 2020). Considering motor skills, it was shown that older individuals, in comparison to younger individuals, perform motor-related skills slower and less accurately.

Not being able to perform skills well can also lead to job dissatisfaction and a low job fit. Several studies have shown that low job satisfaction increases the probability of (early) retirement (Clark et al., 2015; Sibbald et al., 2003) and high job satisfaction has been positively linked to the intention to postpone retirement (Kautonen et al., 2012). Based on these statements, the following hypothesis is formulated:

> *H3: The positive effect of following training on the inclination to work until an older*
> *age is weaker for senior employees than for mature employees.*

The relationship between training days and retirement

Not only does it matter whether training is provided, the extent of the training might also play a role in the relationship between training and working longer. Research from Netspar (De Grip et al., 2015) indicated that an intensive training programme delays retirement by approximately

2 months. In addition, a study by Van Vuuren et al. (2018) stated that it is important for employees to continue learning to improve knowledge, skills and competences, to keep up with the labour market and their function. Their study, on the effect of education and training on sustainable employability, concluded that non-regular training has a significant effect on vitality and work ability. Non-regular training is defined as training that is of short duration (less than a year) or training of longer duration but taking up to a maximum of 6 hours per week (Van Vuuren et al., 2018). The study of Van Vuuren et al. (2018) gave the explanation that non-regular training provides qualifications that are relevant to the job, such as skills. Improving these qualifications can help employees to stay employable for a longer period. Van Vuuren et al.'s (2018) study showed that the work ability, vitality and employability of employees increases when employees follow more training and education, with regards to non-regular training. Not only does it increase these three vital points when it comes to motivation to work for longer, it also decreases outflow of employees (Van Vuuren et al., 2018). This leads to the following hypothesis:

H4: Employees who follow more training (days) will be more inclined to work until an older age than employees who did not follow any training.

In summary, the theory states that positive effects of training will be found on wanting to work longer. Through skill enhancement and obtainment, it will be easier for employees to function well in their jobs, which will make them want to work longer (H1). In addition, the outcome of the moderating effect of age is uncertain. On the one hand, an older age can, for instance, lead to stronger positive feelings towards the employer, which will make them want to work longer (H2). On the other hand, studies indicate that skill obtainment is more difficult for this group (H3). Finally, it is suggested that following more training has a more positive outcome on wanting to work longer (H4). Figure 2 presents the conceptual framework and the corresponding hypotheses of this study.
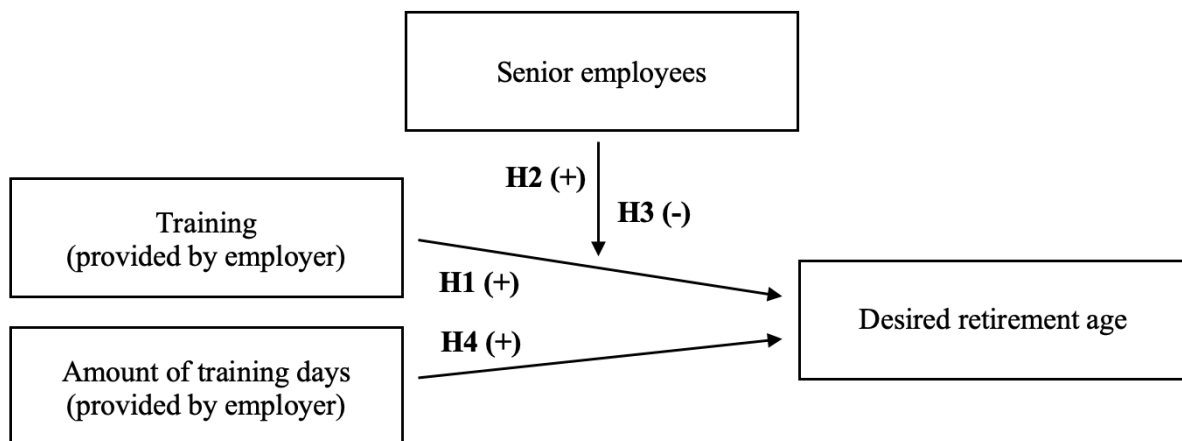
Figure 2. Conceptual framework and corresponding hypotheses

Methods

Data and sample

The data source that is used for this research is the *6th wave of the European Working Conditions Survey (EWCS)* from Eurofound (European Foundation for the Improvement of Living and Working Conditions, 2022). 35 countries, including EU Member States and candidate countries, participated in the survey which provides information on, amongst other things, the organisation of work, work-life balance and wellbeing of individuals. The EWCS6 has a total number of 43,850 respondents, which corresponds to a mean response rate (RR) of 41%. The country sample ranged from 1,000-3,000 individuals, depending on the size of that specific country. The individuals were randomly chosen from a statistical sample that represented a cross-section of society (Eurofound, n.d.-b). Ipsos – well-known for its market research – provided interviewers that had received extensive training, who conducted face-to-face interviews at the respondents' home. The interviews lasted an average of 45 minutes (Eurofound, n.d.-a; Ipsos, 2015).

Included countries

Not all countries were included in the analyses for this study. The most important motivation for this was because the state pension age varied significantly between some countries (OECD, 2015, pp. 15-44). Another consideration in the country selection process regarded the differences in country characteristics. The Country Similarity Index (CSI) measures the similarity between countries based on five key aspects: demographics, culture, geography, infrastructure and politics (Objective Lists, 2021). Based on the CSI and the state pension ages of European countries, which was 65 years, the following countries were included in the analyses: the Netherlands, Belgium, Germany, Denmark and the United Kingdom. The sample size for the five countries together is 8,333 respondents.

Ethics and report of unanticipated events

Eurofound does not have an official Ethics Board. Instead, the EWCS was approved by their tripartite Management Board and reviewed by the Advisory Committee. Respondents received an informed consent form beforehand and were given the option to stop their participation at any point of the study. This was discussed with the participants, as well as communicated to

the interviewers. Additionally, Eurofound used a set of criteria to ensure quality: 'relevance, accuracy, timeliness and punctuality, accessibility and clarity, and coherence and comparability' (Eurofound, 2018).

Within the original survey data, responses that seemed unlikely, such as having two spouses, were blocked from entering as answers. Besides this, Ipsos investigated all interviews and interviewers when a non-response threshold above 10% was reached. Based on these findings, the non-response item was created (UK Data Service, n.d.).

Operationalisation

Desired retirement age

The dependent variable in this study is the *desired retirement age*. To measure this variable, the following question was asked: *'Until what age do you want to work?'*. This was an open-ended question. Additionally, they were also offered the option *'as long as possible'* as a spontaneous response, prompted by the interviewer. The variable *desired retirement age* was analysed in two ways.

The first way was to split these response options into two categories with age 65 as the threshold, in line with the state pension age. Thus, a dichotomous variable was used that involved *wanting/not wanting to continue working beyond the stage pension age*. The advantage of this was that all answers were incorporated, including the category 'as long as possible'. The disadvantage was that the variation in desired retirement ages could not be measured.

Therefore, the second operationalisation of the variable regarded *preferred exit age*, where the focus was only on the desired retirement age as an age scale (continuous variable). The disadvantage of this was that not all responses could be included but the advantage was that this allows the variation in retirement ages to be measured.

By taking this approach of operationalising in two ways, an extensive picture of the relationship between training and desired retirement age was obtained.

Training (days)

Training

The first independent variable of this study was *training*. This variable arose from the following survey question: *'Over the past 12 months, have you undergone any of the following types of training to improve your skills?'*, with the follow-up question: *'Training paid for or provided by your employer'*. Respondents were given the option to answer 'yes' or 'no'. In this study, this dummy was coded as follows: 0 = no; 1 = yes.

Training days

The second independent variable of this study was *training days*. Respondents who had responded 'yes' to the question whether they had undergone training provided by their employer, were asked the following question: *'Over the past 12 months, how many days in total did you spend in training paid for or provided by your employer?'*. The response categories were as follows: (1) 1 day or less, (2) 2-3 days, (3) 4-5 days, (4) 6-9 days, (5) 10-19 days, and (6) 20 days or more. The category '1 day or less' could also indicate a half day or only several hours, since this was a follow-up question for employees who said they participated in training in the past year. The answer 'no' to the first question about training was included in the variable *training days*. The categories were merged into four new categories to make the subsequent analyses more manageable. These were as follows: (0) no training, (1) $\leq$ 1 – 5 training days [1 workweek], (2) 6 – 19 training days [1 work month], and (3) $\geq$ 20 training days [> 1 work month]. The reference group for these categories was 'no training days'.

Senior employees

The moderator within this study was *senior employees*. Respondents were asked the following question: *"Starting with yourself, how old are you?"*. Within the study, the youngest participant was 15 years old, and the oldest was 89 years old. However, only adult respondents aged 25 to 64 were included in the analyses. In addition, the ages within the analyses were divided into groups, in accordance with the distribution used by Eurostat (2022) and OECD (2022). 'Mature employees' refers to employees between the ages of 25 and 54. 'Senior employees' refers to employees in the age group 55 to 64 (Eurostat, 2022; OECD, 2022). Thus, the variable *senior employees* was transformed into a dummy variable using 'mature employees' as the reference group.

Control variables

Country

Not only was this study conducted within the Netherlands, Belgium, Germany, Denmark and the UK, but these countries were also included as control variables because there also may be differences within countries. These differences can be controlled for by introducing the countries as control variables. The Netherlands, Belgium, Germany, Denmark and the UK were included as control variables, where 'the Netherlands' was the reference group.

Education

Less-educated individuals might not have a choice regarding retiring earlier because of, for instance, their financial situation (König et al., 2019). They receive less training compared to the middle- and highly educated individuals (Boermans et al., 2018, pp. 114-135). Additionally, employees with higher education and higher skill levels generally want to retire later than those with lower education and skill levels (Esser, 2006; Hess, 2017). Within the dataset, a variable was already created which coded education levels to the ISCED classification, containing the following values: (1) early childhood education, (2) primary education, (3) lower secondary education, (4) upper secondary education, (5) post-secondary non-tertiary education, (6) short-cycle tertiary education, (7) bachelor or equivalent, (8) master or equivalent, and (9) doctorate or equivalent.

Gender

An early study from 1996 showed that men were more likely to participate in training provided by their company or organisation (Barron et al., 1993; Blundell, 1996). Evertsson (2004) marked this by a so-called 'two-step model of gender inequality' (Evertsson, 2004, pp. 79). This consists of 1) women are less likely to participate in training, and 2) when they do, they are not as well compensated for their obtained skills as men (Evertsson, 2004). The variable *gender* was operationalised as a dummy. This variable was recoded into a dummy variable (0 = male; 1 = female).

Health

The health of individuals can work counterproductively to the desired retirement age. Mentally or physically demanding work can discourage individuals from continuing to work beyond the state pension age. There is a wide-ranging collection of research showing that work practices have been immensely influenced by the state of, mostly, mental health of employees (e.g.,

Harnois & Gabriel, 2000; Peters et al., 2018; Song et al., 2020). Good or bad health depends on many other factors, both personal and on other levels. Factors that are often mentioned when it comes to health in combination with work include coping ability with stress, whether a stable personal situation exists and different work characteristics (e.g., shift-type, flexibility and high workload) (Van den Heuvel & Van Egmond, 2018, pp. 86-113). To measure the respondents' health, the following question was asked: *'How is your health in general?'*, following answer-options based on a Likert-scale: (1) very good, (2) good, (3) fair, (4) bad, and (5) very bad. These variable values were recoded into the same variable, where 1 means 'very bad' and 5 'very good'.

Spouse or partner

Having a partner can be of influence on how someone views retirement (Fisher et al., 2016). For example, someone will be more likely to retire (earlier) if their partner is already retired. Often, therefore, the timing of retirement is coordinated by mutual agreement (Fisher et al., 2016). It was challenging to include this variable because of how the question was phrased: *'Including yourself, can you please tell me how many people live in this household?'*, followed by: *'What is this person's relationship to you? [...]'*, to which respondents could answer 'spouse/partner'. Consequently, it could be that the respondent has a partner but they are not living together. Nevertheless, this variable was controlled for because it can clearly affect retirement age. The variable for the analyses was therefore a dummy: 'spouse/partner in household' and 'no spouse/partner in household'.

Final sample size

Several additional steps were taken to arrive at the final sample size. Firstly, desired retirement ages below 60 were excluded from the analyses because in Western Europe it is technically financially possible to retire at the earliest around 60 if one is to receive a pension (OECD, 2017). Therefore, the most extreme indications were removed from the analyses and the threshold was set at a (more) realistic age of 60 years. Secondly, categories of questions that were not applicable to the analyses, such as 'refusal' and missing values, were excluded as well.

Because this study focused on two dependent variables for the analyses and for answering the hypotheses and research questions, there were also two sample sizes within this

study. The first set of analyses focused on the dependent variable 'wanting/not wanting to continue working beyond the state pension age' and had a total respondent count of 5,110. The second set of analyses focus on the dependent variable 'preferred exit age' and had a total respondent count of 4,134.

Analyses and assumptions

To test the hypotheses within this study, logistic regression analyses and linear regression analyses were used with a confidence interval of 95% (*p* = .05). The programme IBM SPSS Statistics version 28 was used to execute these analyses. In total, 5 models were tested with logistic regression analyses: 3 models regarding *training* and 2 models regarding *training days*. In addition, 5 models were also tested using linear regression analyses: likewise, 3 models regarding *training* and 2 models regarding *training days*.

Table 1 and 2, in chronological order, present the descriptives of the logistic regression analyses and of the linear regression analyses regarding this study.

Assumptions for logistic regression

Performing logistic regression requires considering four assumptions. The first of these is *linearity*. Because a logistic regression uses a categorical outcome variable, the *linearity of the logit* was assessed. This assumption was met. The second assumption concerns *independence of errors*. This assumption was met because there are only two categories in the outcome variable. The third assumption is *independence of observations*, which was also met because there were no repeated measures. Concerning the fourth assumption, which is *multicollinearity*, there were no variables with a high correlation to each other, satisfying the assumption.

Assumptions for linear regression

For a linear regression, six assumptions are considered. The first and foremost assumption is *linearity*. This assumption was met because dummy variables always display linearity. The second assumption concerns *normality*. There is a normal distribution of the Y-variable; thus, this assumption is met. The third assumption is *homoscedasticity*. Levene's Test showed a non-significant result, indicating that this assumption was met. The next assumption is *multicollinearity*. No problems were encountered regarding the multicollinearity assumption. All VIF values were well below 10 and the tolerance values were also satisfactory.

Consequently, this assumption was met. A check for *outliers* was also performed. The standard residuals did not score between -3.3 and +3.3, so this assumption was violated. This can be explained by the fact that respondents were allowed to indicate their preferred exit age. These outliers will not be removed from the analyses because it is plausible that people want to continue working until an older age than usual. Lastly, the *observations* were made independently of each other.

Table 1

Descriptive statistics for logistic regression analyses

($N = 5,110$)	Min	Max	Mean	Standard deviation
Working beyond the state pension age	0	1	31%	.462
Training (yes)	0	1	47%	.499
Training days				
No training	0	1	53%	.499
$\leq 1 - 5$ training days	0	1	31%	.461
$6 - 19$ training days	0	1	13%	.340
≥ 20 training days	0	1	3.4%	.181
Senior employees	0	1	30%	.456
Country				
Netherlands	0	1	13%	.331
Belgium	0	1	29%	.456
Germany	0	1	26%	.439
Denmark	0	1	15%	.353
UK	0	1	17%	.379
Education (ISCED)	1	9	5.05	1.768
Gender (female)	0	1	50%	.500
Health	1	5	4.04	.748
Spouse/partner in household	0	1	66%	.472

Table 2

Descriptive statistics for linear regression analyses

(N = 4,134)	Min	Max	Mean	Standard deviation
Preferred exit age	60	100	63.17	3.344
Training (yes)	0	1	50%	.500
Training days				
No training	0	1	50%	.500
≤ 1 – 5 training days	0	1	32%	.468
6 – 19 training days	0	1	14%	.350
≥ 20 training days	0	1	3.5%	.183
Senior employees	0	1	25%	.435
Country				
Netherlands	0	1	13%	,338
Belgium	0	1	30%	.459
Germany	0	1	23%	.420
Denmark	0	1	15%	.354
UK	0	1	19%	.395
Education (ISCED)	1	9	5.12	1.795
Gender (female)	0	1	49%	.500
Health	1	5	4.04	.741
Spouse/partner in household	0	1	68%	.467

Results

Descriptives

Descriptives logistic regression analyses

Table 1 provides an overview of the descriptive statistics related to the variables used in the logistic regression analyses. On average, 31% of the employees had the incentive to continue working beyond the state pension age. Around one-third of the respondents were senior employees (30%). The percentage of respondents who had received training (47%) was about the same as the percentage who had not received training (53%). The majority of those who had received training received less than 1 to 5 days of training (31%). The smallest proportion had attended 20 or more days of training in the past year (3.4%).

Regarding the control variables, the largest number of respondents was from Belgium. The educational level of respondents was around 5, which corresponds with 'post-secondary non-tertiary education'. Some variation can be found within this group (S.D. = 1.768). The distribution of men and women was equal (50/50) and respondents reported on average good health (4 on a 5-point scale). Variation was present within this variable but it was not very large (S.D. = .748). Finally, 66% stated they have a partner or spouse in their household.

Descriptives linear regression analyses

The descriptive statistics related to the variables used for the linear regression analyses can be found in Table 2. The average preferred exit age of the respondents was 63 years. There was a large variation in this (S.D. = 3.344). The percentage of senior employees is slightly lower, at 25%. The proportion that followed training versus no training was equal. The distribution in number of training days was almost the same as in Table 1.

The majority of the respondents still originated from Belgium (30%). Once again, the educational level was 'post-secondary non-tertiary education' on average, with a reasonable variation (S.D. = 1.795). The male/female ratio was almost equal (51/49) and respondents reported on average good health (4 on a 5-point scale). Variation was present but this was not very large (S.D. = .741). Finally, 68% reported having a partner or spouse in the household.

Descriptives desired retirement ages

Figure 3 shows a pie chart of the indicated desired retirement ages, divided into three categories: (1) retiring before the age of 65, (2) retiring between the age of 65 and 100, and (3) continuing to work for as long as possible.

The vast majority of respondents did not want to continue working beyond the state pension age. This included 69.2% of respondents between the ages of 25 and 64. On the other hand, just over 30% of respondents had the desire to delay their retirement. Within this group, they either indicated a specific age (11.7%) or indicated that they would like to continue working for as long as possible (19.1%).
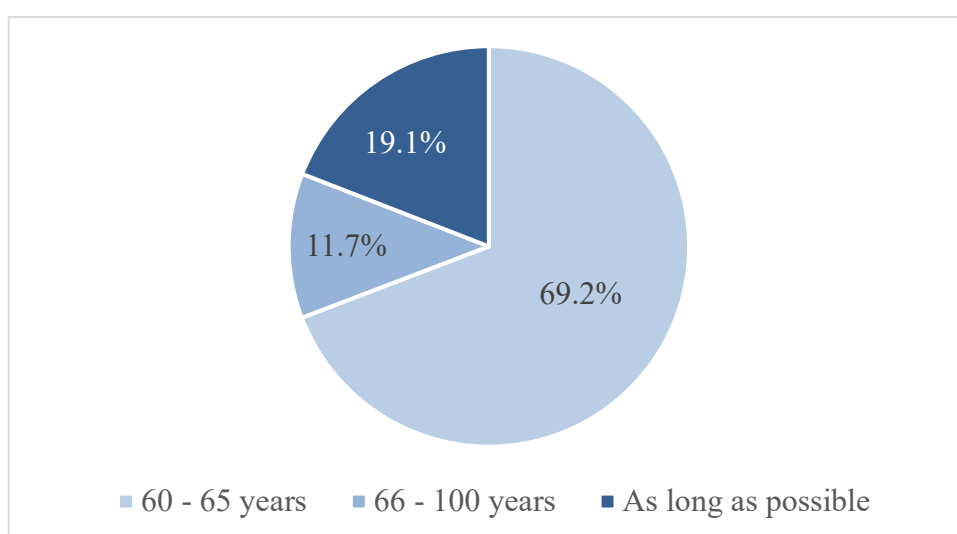
Figure 3. Desired retirement age of respondents

Training and retirement age

Results logistic regression

Table 3 displays the logistic regression analyses of the relationship between *training* and *wanting to continue working beyond the state pension age*. Model 1 shows the regression parameters for the direct effect of training on wanting to continue working beyond the state pension age. Model 2 shows the parameters for the same effect, while also controlling for the variables *country*, *education*, *health*, and *spouse/partner in household*. In this model, the moderator *senior employees* was also added as a separate variable. Model 3 includes the interaction effect of training and being a senior employee.

Model 1 shows the direct effect of training on wanting to continue working beyond the state pension age. The overall model was significant, $X^2(1) = 16.325$, $p < .001$, and explained 70.5% of the prediction of wanting to continue working beyond the state pension age accurately. The explained variance of the model was 0.6%. The model shows that there is a significant effect of training on wanting to continue working beyond the state pension age ($Exp(B) = .757$, $p < .001$). This means that the odds for employees who have participated in training on wanting to continue working beyond the state pension are 1.3 (1/.757) times lower than for employees who have not received training.

Model 2 shows the direct effect of training on wanting to continue working beyond the state pension age, whilst controlling for *country*, *education*, *gender*, *health*, and *spouse/partner* and including *senior employees*. The model was significant, $X^2(10) = 159.856$, $p < .001$, and was for 70.4% accurate in its prediction of wanting to continue working beyond the state pension age. The explained variance of the model was 5.4%. The model shows a negative significant effect of training on wanting to continue working beyond the state pension age ($Exp(B) = .756$, $p < .001$). This significant effect means that the odds are 1.3 (1/.756) times lower for employees who have received training to want to continue to work beyond the state pension age compared to the employees who have not received training, whilst holding the control variables constant. Senior employees are less likely to continue working beyond the state pension age ($Exp(B) = .834$, $p = .021$). An important control variable that shows a positive effect on willingness to continue working is health. Good health displayed a positive significant effect. This means that employees who indicated better health are more likely to continue working past the age of 65 than those with poorer health ($Exp(B) = 1.131$, $p = .012$).

Model 3 shows the direct relationship as well as the interaction effect of training and being a senior employee. The model was significant, $X^2(11) = 159.910$, $p < .001$, and explained 70.4% of the prediction of wanting to continue working beyond the state pension age accurately, as it did for Model 2. The effect of training has become slightly less negative compared to Model 2 and is still significant ($Exp(B) = .764$, $p = .002$). Thus, employees who have not followed training have 0.8 higher odds of wanting to continue working beyond the state pension age than employees who have participated in training. The interaction term of training and senior employee does not appear to be significant ($Exp(B) = .964$, $p = .816$). This means that being a senior employee does not play a role in the relationship between training and the odds of wanting to continue working beyond the state pension age. Senior employees as a separate variable also plays no significant role in wanting to continue working beyond this age. Again,

health plays an important role in the probability of wanting to continue working beyond the state pension age, just as in Model 2.

Table 3

Logistic regression analyses for training predicting wanting to work beyond the state pension age

(*N*=5,110)	Model 1		Model 2		Model 3	
	B (SE)	Exp(B) [CI 95%]	B (SE)	Exp(B) [CI 95%]	B (SE)	Exp(B) [CI 95%]
(Constant)	-.744 (.046)***		-.517 (.239)*		-.522 (.240)*	
Training (yes)	-.278 (.069)***	.757 [.661 - .867]	-.280 (.073)***	.756 [.655 - .872]	-.270 (.085)**	.764 [.646 - .902]
Senior employees			-.181 (.078)*	.834 [.715 - .973]	-.166 (.102)	.847 [.694 - 1.034]
Country (ref. = NL)						
Belgium			-.884 (.118)***	.413 [.328 - .520]	-.885 (.118)***	.413 [.328 - .520]
Germany			-.404 (.115)***	.667 [.533 - .836]	-.405 (.115)***	.667 [.532 - .835]
Denmark			.050 (.124)	1.051 [.824 - 1.341]	.049 (.124)	1.051 [.824 - 1.340]
UK			-.779 (.129)***	.459 [.357 - .591]	-.780 (.129)***	.459 [.356 - .590]
Education			.020 (.021)	1.020 [.979 - 1.063]	.020 (.021)	1.020 [.979 - 1.063]
Gender (female)			-.163 (.070)*	.850 [.740 - .976]	-.162 (.070)*	.850 [.741 - .976]
Health			.123 (.049)*	1.131 [1.028 - 1.245]	.124 (.049)*	1.132 [1.028 - 1.246]
Spouse/partner in household			-.345 (.075)***	.708 [.612 - .820]	-.345 (.075)***	.708 [.612 - .820]
Training × senior employees					-.037 (.157)	.964 [.708 - 1.312]
Nagelkerke R^2	.006		.054		.054	

Note. Dependent variable = working beyond the state pension age

* *p* < .05

** *p* < .01

*** *p* < .001

Results linear regression

Table 4 displays the linear regression analyses of the relationship between *training* and the *preferred exit age*. Model 1 shows the regression parameters for the direct effect of training on the preferred exit age. Model 2 shows the parameters for the same effect, whilst also controlling for *country*, *education*, *health*, and *spouse/partner in household*. In this model, the moderator *senior employees* is also added as a separate variable. Model 3 includes the interaction effect of training and being a senior employee.

Model 1 was not significant ($R^2 = .000$, $F(1 , 4132) = .529$, $p = .467$). Therefore, the model also shows no significant effect of training on the preferred exit age (B = -.076, $p = .467$).

In contrast, Model 2 was significant ($R^2 = .122$, $F(10, 4123) = p < .001$). It seems that training has a negative significant effect (B = -.210, $p = .039$). Thus, employees with training indicate an earlier preferred exit age than employees without training. Being a senior employee has a significant positive effect on the preferred exit age (B = .690, $p < .001$). This means that senior employees report an average preferred exit age that is approximately half a year higher than mature employees. Two control variables that have a positive effect on the preferred exit age are education (B = .188, $p < .001$) and health (B = .290, $p < .001$). In other words, higher educated and healthy employees indicate that they want to retire later than lower educated and less healthy employees.

Model 3 was also significant ($R^2 = .123$, $F(11, 4122) = 52.452$, $p < .001$). In contrast with Model 2, there is no significant effect of training on the preferred exit age (B = -.094, $p = .414$). Taking senior employees as a separate predictor, as in Model 2, results in a positive significant effect (B = .905, $p < .001$). The control variables education and health still show the same direction and significance level. Finally, it is striking that the interaction between training and being a senior employee is significant ($p = .040$), which indicates a negative direction (B = -.463), meaning that the direct effect of training on the preferred exit age is not present in general, but when this is combined with being a senior employee, there is an effect, namely a negative one. This implies that only senior employees who have followed training indicate an earlier preferred exit age.

Table 4

Linear regression analyses for training predicting preferred exit age

(*N*=4,134)	Model 1		Model 2		Model 3	
	B	SE	B	SE	B	SE
(Constant)	63.212***	.074	62.853***	.339	62.771***	.342
Training (yes)	-.076	.104	-.210*	.101	-.094	.116
Senior employees			.690***	.114	.905***	.155
Country (ref. = NL)						
Belgium			-2.146***	.163	-2.153***	.163
Germany			-1.607***	.171	-1.613***	.171
Denmark			.314	.187	.311	.187
UK			-1.467***	.175	-1.473***	.175
Education			.188***	.029	.188***	.029
Gender (female)			-.793***	.098	-.791***	.098
Health			.290***	.068	.295***	.068
Spouse/partner in household			-.353***	.106	-.353***	.106
Training × senior employees					-.463*	.226
R^2	.000		.122		.123	
F	.529		57.232***		52.452***	

Note. Dependent variable = preferred exit age

* *p* < .05

** *p* < .01

*** *p* < .001

Hypotheses 1, 2 and 3

With respect to hypothesis 1, *employees who have followed training are more inclined to work until an older age than employees who have not followed training*, the following conclusion can be drawn. The results show that there is a significant difference between training and the preferred exit age when comparing the groups of training vs. no training and holding constant for the control variables. In addition, when looking at the state pension age, employees who have received training are less likely to continue working beyond the state pension age than employees who have not received training. This signifies that training has a negative effect on

the desire to continue working beyond the specific age of 65 and on the preferred exit age. This means that hypothesis 1 is *rejected*.

Regarding hypothesis 2 and 3, which posited the opposite effect of being a senior employee on the relationship between training and the inclination to work until an older age, the following was observed. The results of the logistic and linear regression analyses seem somewhat contradictory, as there is no interaction effect when it comes the desire to continue working beyond the state pension age but this interaction effect is present for the preferred exit age. These results mean that senior employees who have received training are less willing to continue working compared to mature employees. On the other hand, regarding the state pension age, it does not matter how old the respondent is concerning the effect of training on the desire to continue working beyond the state pension age. In any case, both hypotheses are *rejected* because it was hypothesised that there would be a positive effect of training on the inclination to work until an older age in the first place.

Training days and the retirement age

As an additional test, whether the amount of training also influences the retirement age was examined. The corresponding tables can be found in Appendix A and Appendix B. Regarding the logistic regression analysis (dependent variable is *wanting to continue working beyond the state pension age*), there is a significant effect of the categories *≤ 1 – 5 training days* and *9 – 16 training days*, when holding the control variables constant. This effect is negative, meaning that employees who have not received any training are more likely to want to continue working beyond the state pension age than those who have received a certain number of days of training. The linear regression analysis shows that initially there is only a significant positive effect of *≥ 20 training days*. Once the control variables are added, this effect disappears and a negative effect of *≤ 1 – 5 training days* and *6 – 19 training days* on the preferred exit age persists.

Hypothesis 4

Hypothesis 4 is *rejected*. The hypothesis stated that the more training days employees followed, the more inclined they would be to work until an older age compared to employees who have not followed any training. First of all, the effect is negative, where it was stated according to theoretical framework that it would be positive. Secondly, the negative effect increases with the

number of training days but is no longer significant after 19 training days for both the desire to continue working beyond the state pension age and the preferred exit age.

Summary of the results

Based on the logistic regression analyses, employees who have *not* followed training are more likely to continue working beyond the state pension age compared to employees who have followed training. It does not matter what the age of the employees is, both senior and mature employees experience training as having a negative effect on their desire to continue working beyond the state pension age. In addition, the number of training days also has a negative effect on the motivation to continue working beyond the state pension age, when the control variables have been added. This effect only applies for up to 19 training days per year.

The preferred exit age, regardless of the state pension age, shows a difference in effect between in following training and not following training across the whole group of employees. When the interaction is added, there is only an effect of training on the preferred exit age for senior employees and not for mature employees.

Table 3 summarises the results of the performed analyses and their outcomes in relation to the hypotheses.

Table 5

Hypothesised effects and results of analyses

	Desired retirement age			
	Wanting to continue working beyond the state pension age		Preferred exit age	
	Hypothesis	Result	Hypothesis	Result
Training	+	−	+	−
Training × senior employees	+/−	~	+/−	−
Training days	+	−	+	−

+ positive effect

− negative effect

~ no effect

Discussion

Conclusion

This study aimed to identify whether the effect of training, provided by employers, affects employees' inclination to continue working into old age, in addition to the already in research established fact that training enables employees to continue working for longer. The desired retirement age has been examined in two ways in this study: according to working past the state pension age and according to the preferred exit age. The explanatory research question to this study was: *'What is the influence of work-related training on the desired retirement age amongst adults between the age of 25 and 64 in Western Europe – and does the strength of the effect differ in age?'*.

The most important finding in this study is that the effect of received training on the preferred exit age is only specifically present amongst senior employees. When looking at the state pension age, training has a negative impact on the incentive of all age groups to continue working beyond this age. Furthermore, regarding the descriptive question, employees already have a low inclination to work beyond the state pension age of 65 (69.2%). It is possibly the case that for many employees, continuing to work even beyond the state pension age is a major obstacle.

These results regarding training contradict the hypotheses that were postulated based on literature, namely that there would be a *positive* relationship between training and the desired retirement age. Why there is a negative effect of *training* on wanting to continue working beyond the state pension age can be found in several studies that stated that there are intervening factors in the success of training (Carlisle et al., 2019; Glaveski, 2019; Hicks & Klimoski, 1987; Kraiger & Ford, 2021). Additionally, Huang's (2019) model of training effectiveness shows that if the factors of training do not fit the employees undergoing training, they may experience training as ineffective, which has consequences for their motivation to continue working beyond the state pension age (Huang, 2019). This may also explain why training has no influence on the preferred exit age. Furthermore, training may be given mainly to those employees who perform poorly to ensure that they are on the same level as the rest of the employees. It will therefore be more difficult for them to reach the same level and this may have a negative impact on their motivation to continue working.

A second explanation can be found in Becker's human capital theory, which explains the relationship between training and *not* wanting to continue working beyond the state pension age. As Becker (1962; 1993) argued, investing in training has the benefit of acquiring more skills but may also increase financial resources. These increased resources could result in individuals having the opportunity to stop working sooner than the state pension age.

Regarding the negative effect of senior employees on the preferred exit age, Kubeck et al.'s (1996) 'general slowing down' model implies that older adults are less likely to acquire new skills. Their results showed that age was negatively related to training material mastery, also becoming increasingly negative with age. Training mastery scores included criteria that would assess the degree of knowledge or skill. In addition, they found that older respondents took more time to master training content (Kubeck et al., 1996). Low(er) skill mastery leads to low(er) job satisfaction, which leads to an earlier retirement (Fisher et al., 2016; Mein et al., 2000).

A second important finding in this study is that the *amount of training days* has a negative effect on the desired retirement age. Becker's human capital theory argued that investing in more training days has the benefit of acquiring more skills and financial resources (Becker 1962; Becker 1993). These resources can again trigger individuals to have the opportunity to stop working sooner.

Taking a closer look at the amount of training days, participating in up to 19 training days has a negative effect on the desired retirement age. For the preferred exit age, 20 or more training days had a positive effect. When the control variables were added, this effect disappeared. It is highly likely that the positive effect is not directly related to 20 or more training days but related to the fact that highly educated people continue to work longer and this group follows more training. It is also plausible that healthy people mimic this effect as they work longer and through mental health keep themselves active in the field of training. Finally, countries can have an influence and it may be that in some countries employees indicate that they want to work longer and are offered more training.

Thus, the effect of the amount of training days stops at 20 or more days. There are two explanations: only a small portion of the employees (3.5%) followed 20 or more training days. Therefore, there is a chance that the group was too small to make a statistically valid statement. Also, training saturation can occur.

The last important finding in this study shows that health is a positive predictor for the desired retirement age. Theory suggests that different types of health (i.e., cognitive, mental and physical) play an important role in the decision process of retiring. Thus, poor mental and physical health could lead to early retirement (Fisher et al., 2016). Additionally, education is a positive predictor for a later preferred exit age. This could be due to the stated theory that higher educated people want to work longer compared to lower educated people (Esser, 2006; Hess, 2017; Hofäcker & Naumann, 2015).

Limitations and strengths

This research has several strengths and limitations. One limitation within this study is the dataset. The European Working Conditions Survey is a cross-sectional dataset. This means that the data was collected in one period and this differs per country within the dataset. Therefore, differences in the data collection period cannot be taken into account. The disadvantage of this is that it is difficult to clearly identify the relationship between cause and effect. Thus, it influences causality (i.e., does one explain the other or vice versa). So, it may be that people have already decided they want to stop working earlier and therefore training is perceived as negatively affecting retirement age. This also has implications for the generalisation of the study. However, this study did consider a chronological perspective, namely whether respondents had attended training in the past year. Only after this question the respondents were asked about their desired retirement age. Thus, the training was already completed when they participated as respondents.

A second limitation relates to the measurement of training. Within the questionnaire, the interviewers only asked about whether the respondent had received training, but not *how* the training was perceived/received, which is important for the outcome of training (Huang, 2019). As stated earlier in the discussion, these are factors that influence satisfaction and thus the degree of skill improvement and obtainment.

Thirdly, not all variables that literature suggested that may also affect the process of timing or retirement, were controlled for. For example, the variable 'income' was not recorded within the dataset, therefore the variable 'education' was used instead, as these two variables tend to have high correlations. In addition, it was indicated that having a partner also affects retirement timing (Fisher et al., 2016). This study included this variable but the questionnaire only specifically asked about partners within the household. However, it is also possible that

people have a partner with whom they do not live together. This situation was not recorded in the questionnaire.

Using this cross-sectional dataset also has its strengths. For example, the number of respondents within this study is high, at around 4,000 to 5,000 in total. Firstly, this makes the results less sensitive to outliers. Additionally, these large groups make it easier to identify differences between subgroups, in this case age groups.

A second strength of this study was the inclusion of multiple countries. By including multiple Western European countries, a clearer effect could be demonstrated. By controlling for these Western European countries, it can also be stated whether the relationship between training and retirement age is considered negative in each of these countries separately.

A third strength is that this study provided an extensive glimpse into a field that had not been directly explored until now, namely the direct effect of training on the preferred exit age, as this is a personal preference, regardless of the state pension age. Especially now, when a lot of money and effort is invested in offering education and training to employees, it is important to investigate the effect of this on the sustainable employability and preferred/planned retirement age of adult employees. By exploring the desired retirement age in two ways, a comprehensive understanding of the state of affairs was obtained.

Future research

For future research, it is recommended to build on this study using longitudinal research to further investigate the relationship between training and the desired retirement age, especially since the state pension age is continuously being raised. Some additions should be considered to make the relationship between training and desired retirement age more solid. It is recommended to follow respondents over a period of time. This starts even before they attend a certain training, to see how they are positioned towards retirement and whether these thoughts change over time (through the years but also because of the received training). It is also prudent to have a reasonably equal distribution, or at least in line with the European employment distribution, of mature and senior employees beforehand, so that effects can be properly measured. A follow-up should take place after the training to see what employees' attitudes are towards retirement at that moment. It could also be insightful to ask the employees about the characteristics of the training that was followed, such as the methods of the training and

characteristics of the individuals. Multiple studies indicated that this affects the outcomes of training (Carlisle et al., 2019; Glaveski, 2019; Hicks & Klimoski, 1987; Huang, 2019; Kraiger & Ford, 2021). Also, in a future study, factors should be added that were not present in this current dataset to control for their relationships, such as income, marital status, and attitudes towards retirement (Fisher et al., 2016).

Finally, it is important to briefly discuss the global influence factor COVID-19. This study used a dataset from 2015, where there was no impact of COVID-19 in the workplace. Future research outcomes will be influenced by the ongoing pandemic (seasonal or non-seasonal). Investigating effects of taking online training versus physical training is prudent because working hybrid or exclusively from home is becoming increasingly popular. Online training might be expected to be less effective than physical training, as there is less control by the trainer or employer over the learning process and less interaction (Continu, 2021).

Policy recommendations

The trend of an ageing population is visible all over Europe. This brings with it challenges, such as retaining workers for longer. With time, state pension ages are being raised but this also means that a change must take place within society and companies to keep people in the labour market for longer. The government is doing much to try to keep employees vital and employable. To retain employees, efforts are being made to, amongst other things, educate and train them. Many of these policies focus exclusively on enabling people to being *able* to continue working (European Commission, n.d.; European Parliamentary Research Service, n.d.), while another important factor is whether people *want* to continue to work.

In 2020 the European Commission set up a new agenda – the Skills Agenda – to ensure that every person has the opportunity to be retrained or receive vocational training. So, it appears that the European Commission, governments, and other agencies see the importance of training in relation to working longer. Also, the new trend of lifelong learning aims to ensure that people can work longer through training (European Parliamentary Research Service, n.d.).

This study provides only a narrow perspective within examining the motives for employees to delay their retirement, namely the effect of training provided by the employer. This factor is interesting to investigate because it can be influenced. Namely, training can be invested in over the short term, in terms of financial investment but also in the approach to training and its frequency, whereas it can produce lasting effects in the long term. Ideally, the effect should be that people *want* to work longer. At the heart of this lies the following policy question: *'How could employees' motivation to continue working be encouraged?'*.

In terms of policy, it is important to state at the outset that policies related to skill enhancement through training are thus far aimed at the fact that governments want people to be *able* to work longer. However, little attention is paid to people's motives for *wanting* to work longer. It is therefore important that a policy is based on how people can be motivated to also *want* to continue to work longer.

The most important finding in this study is that training has a negative influence on the inclination to continue working beyond the state pension age. In addition, the average preferred exit age is below 65 years. In any case, employees tend to indicate an earlier desired retirement age than 65 years. Whilst, in policy, training is used as a deployment factor to increase the ability to continue working, this does not apply to increasing the inclination to continue working

and will therefore need to be critically re-evaluated within future policies, especially for senior employees as they indicate an even earlier preferred exit age below age 65.

The new policy is a two-track approach: 1) that people continue to work until they reach the state pension age, and 2) that people's wish to retire earlier is converted as far as possible into the wish to work longer (i.e., state pension age or longer). The starting point for this policy is to focus primarily on health and education, as these are important predictors. Because there is such a large gap between the state pension age and the preferred exit age, the primary goal is to close the gap. In the long term, the focus should be on permanently extending working (giving a substantial meaning to lifelong learning into lifelong working).

Regarding health, this has a positive influence on the inclination to raise the desired retirement age. Not only this study, but also other studies indicate that health is a relevant factor (Fisher et al., 2016; Harnois & Gabriel, 2000; Peters et al., 2018; Song et al., 2020; Van der Put & Mandemakers, 2019). When discussing health in the context of work, relevant (modifiable) factors such as work characteristics are often discussed (Van den Heuvel & van Egmond, 2018, pp. 86-113). For example, good health can be promoted through the active use of workplace health promotion (WHP). By offering facilities such as sport, employees experience multiple benefits, for example, higher productivity but also better health. Regarding WHP, all countries within this study are to some extent involved in Good Practice. Good Practice provides models that can be used by companies to see how they can successfully implement WHP programmes, although participation in this is non-binding (European Network for Workplace Health Promotion, n.d.). Because health plays such a large part in the process of wanting to continue working, as also demonstrated by this study, it is strongly recommended that this is made compulsory at a European level.

The second factor to focus on in policy is education. It is important to invest in education to close the gap between the preferred exit age and the state pension age of 65. Since higher educated individuals indicate a higher desired retirement age, it is important to primarily invest in lower educated people. Through programmes such as the Skills Agenda and lifelong learning, a large contribution is already being made to this. It is of utmost importance to continue this investment, specifically in education, since it will not only lead to being *able* to work longer, but also to *wanting* to work longer.

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Appendices

Appendix A. Logistic regression regarding training days

Logistic regression analyses for training days predicting desired retirement age

(*N*=5,110)	Model 1		Model 2	
	B (SE)	Exp(B) [CI 95%]	B (SE)	Exp(B) [CI 95%]
(Constant)	-.665 (.041)***		-.778 (.208)***	
Training days (ref. = no training days)				
≤ 1 – 5 training days	-.362 (.070)***	.696 [.606 - .799]	-.311 (.073)***	.733 [.635 - .846]
6 – 19 training days	-.325 (.095)***	.723 [.600 - .871]	-.372 (.099)***	.689 [.567 - .838]
≥ 20 training days	.099 (.163)	1.104 [.802 - 1.519]	.030 (.168)	1.1031 [.742 - 1.432]
Country (ref. = Netherlands)				
Belgium			-.843 (.102)***	.430 [.352 - .526]
Germany			-.300 (.102)**	.741 [.607 - .904]
Denmark			.019 (.112)	1.019 [.819 - 1.269]
UK			-.886 (.115)***	.412 [.329 - .517]
Education			.027 (.019)	1.028 [.991 - 1.023]
Gender (female)			-.099 (.062)	.906 [.801 - 1.023]
Health			.168 (.043)***	1.182 [1.087 - 1.286]
Spouse/partner in household			-.324 (.066)***	.723 [.636 - .822]
Nagelkerke R²	.009		.059	

Note. Dependent variable = working beyond the state pension age
* $p < .05$
** $p < .01$
*** $p < .001$

Appendix B. Linear regression regarding training days

Linear regression analyses for training days predicting desired retirement age

(*N*=4,134)	Model 1		Model 2	
	B	SE	B	SE
(Constant)	63.212***	.074	63.340***	.408
Training days (ref. = no training days)				
≤ 1 – 5 training days	-.206	.117	-.241*	.113
6 – 19 training days	-.005	.156	-.376*	.151
≥ 20 training days	.884**	.228	.327	.274
Country (ref. = Netherlands)				
Belgium			-2.261***	.163
Germany			-1.661***	.172
Denmark			.250	.188
UK			-1.537***	.167
Education			.179***	.029
Gender (female)			-.785***	.099
Health			.242***	.068
Spouse/partner in household			-.347***	.106
R^2	.003		.115	
F	4.584**		48.860***	

Note. Dependent variable = preferred exit age

* $p < .05$

** $p < .01$

*** $p < .001$

Appendix C. Syntax logistic regression

* Encoding: UTF-8.

* Nica Huizer.

* 5399025.

* Thesis syntax logistic regression.

***.

*METHODS + LOGISTIC REGRESSION.

***.

DATASET ACTIVATE DataSet1.

*countries.

RECODE Country (20=1) (2=2) (11=3) (7=4) (28=5) (ELSE=SYSMIS) INTO Countries.

VARIABLE LABELS Countries 'Countries similar to NL, including NL'.

EXECUTE.

VALUE LABELS

Countries

1 "The Netherlands"

2 "Belgium"

3 "Germany"

4 "Denmark"

5 "UK".

EXECUTE.

formats Countries (f8.0).

SELECT IF (Countries <6).

EXECUTE.

*age 18-65.

SELECT IF (Q2b>24) AND (Q2b<65).

EXECUTE.


```
***********************************************.
*X VARIABLE.
***********************************************.
```

```
*recode training (yes/no).
RECODE Q65a (1=copy) (2=0) (ELSE=SYSMIS) INTO Training_dich.
VARIABLE LABELS Training_dich 'yes/no training'.
EXECUTE.
```

```
formats Training_dich (f8.0).
```

```
*recode training days (categories).
RECODE Q66 (SYSMIS=0) (1=Copy) (2=1) (3=1) (4=2) (5=2) (6=3) (8=SYSMIS)
(9=SYSMIS) (ELSE=Copy)
    INTO Training_days.
VARIABLE LABELS  Training_days 'Provided training in days'.
EXECUTE.
```

```
formats Training_days (f8.0).
```

```
VALUE LABELS
Training_days
0 "no training days"
1 "<= 1 - 5 training days (1 workweek)"
2 "6-19 training days"
3 ">= 20 training days".
EXECUTE.
```

```
*compute dummies.
COMPUTE training_d0=Training_days=0.
EXECUTE.
```

COMPUTE training_d1=Training_days=1.
EXECUTE.

COMPUTE training_d2=Training_days=2.
EXECUTE.

COMPUTE training_d3=Training_days=3.
EXECUTE.

**.
*Y VARIABLE.
**.

*recode desired working age (categorical).
RECODE Q92 (666=3) (18 thru 59=SYSMIS) (60 thru 65=1) (66 thru 100=2)
(ELSE=SYSMIS) INTO Retirement_cat.
VARIABLE LABELS Retirement_cat 'Desired retirement age devided into categories'.
EXECUTE.

formats Retirement_cat (f8.0).

*recode desired working age (yes/no).
RECODE Q92 (18 thru 59=SYSMIS) (60 thru 65=0) (66 thru HIGHEST=1) (888=SYSMIS)
(999=SYSMIS) INTO Pension_dich.
VARIABLE LABELS Pension_dich 'Yes/no working state pension age'.
EXECUTE.

formats Pension_dich (f8.0).

**.
*MODERATOR.

**.

*age into dummy.
RECODE Q2b (35 thru 54=0) (55 thru 64=1) into Senior.
VARIABLE LABELS Senior 'senior employees'.
EXECUTE.

**.
*(RECODE) CONTROL VARIABLES.
**.

*recode countries into dummies (ref = NL).
*Netherlands.
COMPUTE Netherlands=Countries=1.
EXECUTE.

*Belgium.
COMPUTE Belgium=Countries=2.
EXECUTE.

*Germany.
COMPUTE Germany=Countries=3.
EXECUTE.

*Denmark.
COMPUTE Denmark=Countries=4.
EXECUTE.

*UK.
COMPUTE UK=Countries=5.
EXECUTE.

*recode ISCED education.

```
RECODE ISCED (88=SYSMIS) (99=SYSMIS) (1 thru 9=Copy) INTO Education.
VARIABLE LABELS  Education 'Education based on ISCED'.
EXECUTE.


formats Education (f8.0).


VARIABLE LEVEL
Education
(ORDINAL).


*recode gender into dummy.
RECODE Q2a (1=0) (2=1) (9=SYSMIS) INTO Gender.
VARIABLE LABELS  Gender 'Gender male/female'.
EXECUTE.


formats Gender (f8.0).


VALUE LABELS
Gender
0 "Male"
1 "Female".
EXECUTE.


*health.
RECODE Q75 (1=5) (2=4) (3=Copy) (4=2) (5=1) (ELSE=SYSMIS) INTO Health.
VARIABLE LABELS  Health 'Health on scale 1-5'.
EXECUTE.


VARIABLE LEVEL
Health
(ORDINAL).


*Partner/spouse.
COMPUTE Spouse_partner = 0.
```

IF (Q3c_1=1) Spouse_partner = 1.

IF (Q3c_2=1) Spouse_partner = 1.

IF (Q3c_3=1) Spouse_partner = 1.

IF (Q3c_5=1) Spouse_partner = 1.

VARIABLE LEVEL

Spouse_partner

(NOMINAL).

freq Spouse_partner.

**.

*DELETE MISSINGS.

**.

*delete missings.

COMPUTE nomiss = nmiss (Countries, Q2b, Training_dich, Training_days, Retirement_cat, Pension_dich, Education, Gender, Health) = 0.

FILTER by nomiss.

**.

*DESCRIPTIVE TABLE.

**.

FREQUENCIES Pension_dich, Retirement_cat.

*descriptives.

DESCRIPTIVES Pension_dich, Training_dich, Training_d0, Training_d1, Training_d2, Training_d3, Senior, Netherlands, Belgium, Germany, Denmark, UK, Education, Gender, Health, Spouse_partner.

```
***********************************************.
*INTERACTION TERMS.
***********************************************.


*training * age groups.
COMPUTE training_senior=Training_dich * Senior.
EXECUTE.




***********************************************.
*ASSUMPTIONS.
***********************************************.
*training.
*correlations.
NONPAR CORR
  /VARIABLES=Training_dich Senior Netherlands Belgium Germany Denmark UK
Education Gender Health
   Spouse_partner
  /PRINT=SPEARMAN TWOTAIL NOSIG FULL
  /MISSING=PAIRWISE.


*correlations training days.
NONPAR CORR
  /VARIABLES=Training_days Senior Netherlands Belgium Germany Denmark UK
Education Gender Health Spouse_partner
  /PRINT=TWOTAIL NOSIG FULL
  /MISSING=PAIRWISE.




***********************************************.
*LOGISTIC REGRESSION.
***********************************************.


*training.
```

LOGISTIC REGRESSION VARIABLES Pension_dich

 /METHOD=ENTER Training_dich

 /METHOD=ENTER Training_dich Senior Countries Education Gender Health

Spouse_partner

 /METHOD=ENTER Training_dich Senior Countries Education Gender Health

Spouse_partner training_senior

 /CONTRAST (Countries)=Indicator(1)

 /PRINT=CI(95)

 /CRITERIA=PIN(0.05) POUT(0.10) ITERATE(20) CUT(0.5).

*training days.

LOGISTIC REGRESSION VARIABLES Pension_dich

 /METHOD=ENTER Training_days

 /METHOD=ENTER Training_days Countries Education Gender Health Spouse_partner

 /CONTRAST (Training_days)=Indicator(1)

 /CONTRAST (Countries)=Indicator(1)

 /PRINT=CI(95)

 /CRITERIA=PIN(0.05) POUT(0.10) ITERATE(20) CUT(0.5).

Appendix D. Syntax linear regression

* Encoding: UTF-8.

* Nica Huizer.

* 5399025.

* Thesis syntax linear regression.

**.

*METHODS + LINEAR REGRESSION.

**.

DATASET ACTIVATE DataSet1.

*countries.

RECODE Country (20=0) (2=1) (11=2) (7=3) (28=4) (ELSE=SYSMIS) INTO Countries.

VARIABLE LABELS Countries 'Countries similar to NL, including NL'.

EXECUTE.

VALUE LABELS

Countries

0 "The Netherlands"

1 "Belgium"

2 "Germany"

3 "Denmark"

4 "UK".

EXECUTE.

formats Countries (f8.0).

SELECT IF (Countries <6).

EXECUTE.

*age 18-65.

SELECT IF (Q2b>24) AND (Q2b<65).

EXECUTE.

**.

*X VARIABLE.

**.

*recode training (yes/no).
RECODE Q65a (1=copy) (2=0) (ELSE=SYSMIS) INTO Training_dich.
VARIABLE LABELS Training_dich 'yes/no training'.
EXECUTE.

formats Training_dich (f8.0).

*recode training days (categories).
RECODE Q66 (SYSMIS=0) (1=Copy) (2=1) (3=1) (4=2) (5=2) (6=3) (8=SYSMIS)
(9=SYSMIS) (ELSE=Copy)
   INTO Training_days.
VARIABLE LABELS Training_days 'Provided training in days'.
EXECUTE.

formats Training_days (f8.0).

VALUE LABELS
Training_days
0 "no training days"
1 "<= 1 - 5 training days (1 workweek)"
2 "6-19 training days"
3 ">= 20 training days".
EXECUTE.

*compute dummies.
COMPUTE training_d0=Training_days=0.
EXECUTE.

```
COMPUTE training_d1=Training_days=1.
EXECUTE.


COMPUTE training_d2=Training_days=2.
EXECUTE.


COMPUTE training_d3=Training_days=3.
EXECUTE.



**********************************************.
*Y VARIABLE.
**********************************************.


*recode desired working age (minus 'as long as possible') - ages below 60 excluded.
RECODE Q92 (18 thru 59=SYSMIS) (60 thru 100=COPY) (ELSE=SYSMIS) INTO
Exit_age.
VARIABLE LABELS  Exit_age 'Preferred exit age'.
EXECUTE.


formats Pension_age (f8.0).



**********************************************.
*MODERATOR.
**********************************************.


*age into dummy.
RECODE Q2b (25 thru 54=0) (55 thru 64=1) into Senior.
VARIABLE LABELS Senior 'senior employees'.
EXECUTE.
```

```
***********************************************.
*(RECODE) CONTROL VARIABLES.
***********************************************.


*recode countries into dummies (ref = NL).
*Netherlands.
COMPUTE Netherlands=Countries=0.
EXECUTE.


*Belgium.
COMPUTE Belgium=Countries=1.
EXECUTE.


*Germany.
COMPUTE Germany=Countries=2.
EXECUTE.


*Denmark.
COMPUTE Denmark=Countries=3.
EXECUTE.


*UK.
COMPUTE UK=Countries=4.
EXECUTE.


*recode ISCED education.
RECODE ISCED (88=SYSMIS) (99=SYSMIS) (1 thru 9=Copy) INTO Education.
VARIABLE LABELS  Education 'Education based on ISCED'.
EXECUTE.


formats Education (f8.0).


VARIABLE LEVEL
Education
```

(ORDINAL).

*recode gender into dummy.
RECODE Q2a (1=0) (2=1) (9=SYSMIS) INTO Gender.
VARIABLE LABELS Gender 'Gender male/female'.
EXECUTE.

formats Gender (f8.0).

VALUE LABELS
Gender
0 "Male"
1 "Female".
EXECUTE.

*health.
RECODE Q75 (1=5) (2=4) (3=Copy) (4=2) (5=1) (ELSE=SYSMIS) INTO Health.
VARIABLE LABELS Health 'Health on scale 1-5'.
EXECUTE.

VARIABLE LEVEL
Health
(ORDINAL).

*Partner/spouse.
COMPUTE Spouse_partner = 0.
IF (Q3c_1=1) Spouse_partner = 1.
IF (Q3c_2=1) Spouse_partner = 1.
IF (Q3c_3=1) Spouse_partner = 1.
IF (Q3c_5=1) Spouse_partner = 1.

VARIABLE LEVEL
Spouse_partner
(NOMINAL).

freq Spouse_partner.

**.

*DELETE MISSINGS.

**.

*delete missings.
COMPUTE nomiss = nmiss (Countries, Q2b, Training_dich, Training_days, Exit_age,
Education, Gender, Health) = 0.
FILTER by nomiss.

***.

*DESCRIPTIVE TABLE.

***.

*descriptives.
DESCRIPTIVES Exit_age, Training_dich, training_d0, Training_d1, Training_d2,
Training_d3, Senior,
   Netherlands, Belgium, Germany, Denmark, UK, Education, Gender, Health,
Spouse_partner.

***.

*INTERACTION TERMS.

***.

*training * age groups.
COMPUTE training_senior=Training_dich * Senior.
EXECUTE.

```
*************************************************.
*ASSUMPTIONS.
*************************************************.


*training.
EXAMINE VARIABLES=Exit_age Training_dich Senior Netherlands Belgium Germany
Denmark UK Education Gender Health Spouse_partner
  /PLOT BOXPLOT STEMLEAF HISTOGRAM NPPLOT
  /COMPARE GROUPS
  /STATISTICS DESCRIPTIVES EXTREME
  /CINTERVAL 95
  /MISSING LISTWISE
  /NOTOTAL.


REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA COLLIN TOL
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT Exit_age
  /METHOD=ENTER Training_dich Senior Netherlands Belgium Germany Denmark UK
Education Gender Health
    Spouse_partner
  /SCATTERPLOT=(*ZRESID ,*ZPRED)
  /RESIDUALS NORMPROB(ZRESID).


*training days.
EXAMINE VARIABLES=Exit_age training_d0 training_d1 training_d2 training_d3 Senior
Netherlands
  Belgium Germany Denmark UK Education Gender Health Spouse_partner
  /PLOT BOXPLOT STEMLEAF HISTOGRAM NPPLOT
  /COMPARE GROUPS
  /STATISTICS DESCRIPTIVES EXTREME
  /CINTERVAL 95
```

```
/MISSING LISTWISE
/NOTOTAL.


REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA COLLIN TOL
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT Exit_age
/METHOD=ENTER  training_d0 training_d1 training_d2 training_d3 Senior Netherlands
Belgium Germany Denmark UK Education Gender Health
   Spouse_partner
/SCATTERPLOT=(*ZRESID ,*ZPRED)
/RESIDUALS NORMPROB(ZRESID).


*training/training days homoscedasticity.
UNIANOVA Exit_age BY Training_days training_d0 training_d1 training_d2 training_d3
/METHOD=SSTYPE(3)
/INTERCEPT=INCLUDE
/PRINT HOMOGENEITY
/CRITERIA=ALPHA(.05)
/DESIGN=Training_days training_d0 training_d1 training_d2 training_d3
Training_days*training_d0
   Training_days*training_d1 Training_days*training_d2 Training_days*training_d3
   training_d0*training_d1 training_d0*training_d2 training_d0*training_d3
training_d1*training_d2
   training_d1*training_d3 training_d2*training_d3 Training_days*training_d0*training_d1
   Training_days*training_d0*training_d2 Training_days*training_d0*training_d3
   Training_days*training_d1*training_d2 Training_days*training_d1*training_d3
   Training_days*training_d2*training_d3 training_d0*training_d1*training_d2
   training_d0*training_d1*training_d3 training_d0*training_d2*training_d3
   training_d1*training_d2*training_d3 Training_days*training_d0*training_d1*training_d2
   Training_days*training_d0*training_d1*training_d3
Training_days*training_d0*training_d2*training_d3
```

Training_days*training_d1*training_d2*training_d3

training_d0*training_d1*training_d2*training_d3

Training_days*training_d0*training_d1*training_d2*training_d3.

**.

*MULTIPLE REGRESSION ANALYSES.

**.

*training.
REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT Exit_age
  /METHOD=ENTER Training_dich
  /METHOD=ENTER Training_dich Senior Belgium Germany Denmark UK Education
Gender Health Spouse_partner
  /METHOD=ENTER Training_dich Senior Belgium Germany Denmark UK Education
Gender Health Spouse_partner
    training_senior.

*training days.
REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT Exit_age
  /METHOD=ENTER training_d1 training_d2 training_d3
  /METHOD=ENTER training_d1 training_d2 training_d3 Senior Belgium Germany
Denmark UK Education Gender
    Health Spouse_partner.