



# The influence of human resource practices on perceived work ability and the preferred retirement age: A latent growth modelling approach

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## Abstract

Organisations are challenged to extend working lives of older workers. However, there is little empirical evidence available on how organisations should do this. This study aims to fill this gap by testing the effect of Human Resource (HR) practices on perceived work ability and the preferred retirement age. Based on the Conversation of Resources theory, we expected that the use of HR practices has a positive effect on perceived work ability and preferred retirement age. We have conducted latent growth curve modelling to test our hypotheses amongst 12,444 employees aged 45 and older at four time points. The results indicate that developmental practices are positively related to work ability, whereas maintenance practices are negatively related to work ability and the preferred retirement age. Accommodative practices are negatively related to the intercepts of both outcomes but not to the slopes, whereas utilisation practices are not related to the outcomes at all.

## KEYWORDS

ageing workforce, human resource strategy, longitudinal research, motivation to work, work ability

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## Practitioner Notes

### What is currently known

- Perceived work ability and the preferred retirement age are important indicators of the extension of working lives.
- Personal and job resources are assumed to be beneficial for perceived work ability and the preferred retirement age.

### How this paper adds to current knowledge

- We examine how outcomes related to the extension of working lives (i.e., perceived work ability and preferred retirement age) develop over time.
- We examine whether HR practices influence perceived work ability and preferred retirement age over time.

### Practical implications

- Perceived work ability decreases over the course of 3 years, whereas the preferred retirement age increases over the course of 3 years.
- Developmental practices are positively related to perceived work ability.
- Maintenance practices are negatively related to perceived work ability and the preferred retirement age.
- Accommodative practices are negatively related to the starting levels of perceived work ability and preferred retirement age.
- Utilisation practices are negatively related to the starting levels of perceived work ability, but are unrelated to the preferred retirement age.

## 1 | INTRODUCTION

Driven by population trends like the ageing of the workforce, there has been an increasing amount of pressure on pension systems and labour shortages are expected to occur in the near future (Ng & Feldman, 2008; Taylor & Earl, 2016). Governments of many developed countries have responded to these challenges by taking measures to postpone the retirement age and prevent people from retiring at an earlier age (United Nations, 2017). In order to work, longer people should remain able and motivated to continue working until or even past their retirement age. These outcomes will be referred to as perceived work ability and preferred retirement age.

The body of research on the extension of working lives is growing (see e.g., Zacher, Kooij, & Beier, 2018) and previous research suggests that organisations can enhance perceived work ability and preferred retirement age through the use of Human Resource (HR) management (Truxillo, Cadiz, Rineer, Zaniboni, & Fraccaroli, 2012). However, little empirical evidence is available on the effects of HR practices on perceived work ability and preferred retirement age (Pak, Kooij, De Lange, & Van Veldhoven, 2019). In a systematic review, Pak et al. (2019) showed that although maintenance and accommodative practices have a positive effect on work ability, effects of developmental and utilisation practices were mixed. Moreover, although developmental practices have a positive effect on preferred retirement age, there was insufficient evidence to determine the effect of maintenance, utilisation and accommodative practices on preferred retirement age. Furthermore, the majority of studies focusing on work ability and preferred retirement age rely on cross-sectional data (Pak et al., 2019). However, ageing at work implies a temporal dimension (Wang et al., 2017) which cannot be captured with cross-sectional data. Longitudinal growth models

would allow us to advance the field of the extension of working lives by providing insight in the stability, growth and decline of worker outcomes over time (Duncan, Duncan, & Strycker, 2013).

This article aims to contribute to the literature on the extension of working lives in two ways. First, we contribute to the limited knowledge on facilitators of the extension of working lives by examining the effect of HR practices on perceived work ability and preferred retirement age. Previous studies have either not examined this relation or found mixed results. With this study, we aim to clarify the relationship between four different types of HR practices and perceived work ability and preferred retirement age. Second, this article examines changes in perceived work ability and preferred retirement age over time with the use of latent growth curve modelling. As a result, we can build further on current work that is mostly cross-sectional in nature by giving insight into the stability and change in perceived work ability and preferred retirement age.

### 1.1 | HR practices as predictors of perceived work ability and preferred retirement age

Building on the Conservation of Resources (COR) theory (Hobfoll, 1989) and person-environment fit theory (Edwards, Cable, Williamson, Lambert, & Shipp, 2006) we propose that the use of HR practices, an organisational resource, will be positively associated with perceived work ability and preferred retirement age. Work ability represents the physical and mental capacity to perform one's job (Ilmarinen, Tuomi, & Klockars, 1997). Having a low work ability is found to be a predictor of sickness absence and early retirement (Sell, 2009). In line with previous studies on the extension of working lives the motivation to continue working is indicated by preferred retirement age (see e.g., Carr et al., 2016; Henkens & Leenders, 2010).

COR theory posits that it is stressful for individuals to lose resources. To avoid losing resources individuals will invest their current resources to protect their resources and potentially gain new ones. In addition, resources are crucial in achieving one's (work-related) goals (Freund & Riediger, 2001). Since ageing is associated with gains (e.g., crystallised intelligence) and losses (e.g., information processing speed and physical strength) in one's resources, the preservation and generation of resources becomes more important to achieve (work-related) goals as one becomes older (Baltes, Staudinger, & Lindenberger, 1999). Therefore, De Lange, Kooij, and Van der Heijden (2015) argue that employees will work longer when they are capable of preserving and generating resources over the course of their working life. Indeed, Pak et al. (2019), Airila et al. (2014) and Carr et al. (2016) found that job resources have a positive influence on (perceived) work ability and preferred retirement age of older workers. In this study, we argue that the use of HR practices as organisational resources can help individuals to compensate for age-related losses, thereby preserving their resources, or generate new resources in order to start a resource gain cycle that is beneficial or prevent a resource loss cycle that is detrimental to perceived work ability and the preferred retirement age.

Kooij, Jansen, Dikkers, and De Lange (2014) formulated four bundles of HR practices (e.g., developmental, maintenance, utilisation and accommodative practices) based on the selection optimisation and compensation (SOC) model (Baltes et al., 1999). The SOC model suggests that employees allocate their resources in line with four major life goals namely; growth, maintenance, recovery and the regulation of loss. We propose that organisations can facilitate this allocation of resources by offering bundles of HR practices in line with these four major life goals. More specifically, developmental practices reinforce growth strategies, maintenance practices reinforce maintenance strategies, utilisation practices reinforce recovery strategies and accommodative practices reinforce strategies focused on the regulation of losses. As the HR practices are bundled according to these employee goals, we argue that employees will use HR practices that fit their goals (Bowen & Ostroff, 2004; Wright & Nishii, 2013). Building on person-environment fit theory (Edwards et al., 2006), we argue that these bundles of HR practices are valuable organisational resources that can help older workers generate additional personal and job resources to help them achieve relevant life-span goals.

First, developmental practices aim to aid workers in improving their performance (e.g., training and promotion). They are seen as important organisational resources (Wheeler, Halbesleben, & Shanine, 2013) which can help employees generate additional person and job resources that are cognitive and/or behavioural in nature. For example,

De Lange, De Witte, and Notelaers (2008) showed that employees gained autonomy and departmental resources after receiving a promotion. As developmental practices are classified as organisational resources and can help workers generate additional job resources we argue that they will be beneficial for the extension of working lives. In line with this expectation Aittomaki, Lahelma, and Roos (2003) and Bugajska and Łastowiecka (2005) found that the opportunity to follow training courses (developmental practices) had a positive effect on perceived work ability. Moreover, Henkens and Leenders (2010) and Thorsen et al. (2012) found that having a lack of developmental practices had a negative effect on preferred retirement age. As developmental practices are likely to be used by employees who want to improve their performance even further (Kooij et al., 2014) these individuals are likely to have good levels of perceived work ability and preferred retirement age. Furthermore, based on the notion of resource caravans the use of developmental practices can be seen as a resource that is expected to lead to the generation of additional resources. Therefore, we expect that the developmental practices are positively related to the starting levels as well as the slopes of work ability and the preferred retirement age. Therefore, we formulate the following hypotheses:

**Hypothesis 1a** The use of developmental practices is positively related to starting levels of perceived work ability.

**Hypothesis 1** Increases in the use of developmental practices over time have a positive effect on changes in perceived work ability.

**Hypothesis 2a** The use of developmental practices is positively related to starting levels of preferred retirement age.

**Hypothesis 2b** Increases in the use of developmental practices over time have a positive effect on changes in preferred retirement age.

Second, maintenance practices are practices that facilitate workers to sustain their performance in spite of (age-related) loss of resources (e.g., declines in physical capabilities). These practices are mainly focused on security and protection of personal resources (e.g., health; Gong, Law, Chang, & Xin, 2009; Kooij et al., 2014). Examples of maintenance practices are health checks and performance appraisals (Kooij et al., 2014). Maintenance practices can help individuals boost physical resources. For example, Robertson and O'Neill (2003) showed that ergonomic adjustments made to the workplace can reduce the number of work-related disorders (and thus increase health). As these practices are likely to be used by employees who face a loss of resources (Kooij et al., 2014), these individuals are likely to have lower levels of perceived work ability and preferred retirement age. Therefore, we expect that the use of maintenance practices is negatively related to the starting levels of work ability and the preferred retirement age. However, as maintenance practices can be seen as organisational resources that can help individuals create additional personal and job resources we expect that they have a positive effect on the slopes of perceived work ability and preferred retirement age. In line with this expectation, Kuoppala, Lamminpää, and Husman (2008) found moderate evidence on the effect of health promotion activities on perceived work ability in their meta-analysis. Furthermore, Shacklock, Brunetto, and Nelson (2009) showed that flexible work options have a positive influence on older workers' decision to continue working. Therefore, we formulate the following hypotheses:

**Hypothesis 3a** The use of maintenance practices is negatively related to starting levels of perceived work ability.

**Hypothesis 3b** Increases in the use of maintenance practices over time have a positive effect on changes in perceived work ability.

**Hypothesis 4a** The use of maintenance practices is negatively related to starting levels of preferred retirement age.

**Hypothesis 4b** Increases in the use of maintenance practices over time have a positive effect on changes in preferred retirement age.

Third, utilisation practices are practices that make use of the experience, knowledge and competencies of older workers (e.g., mentoring roles and participation in decision making) thus optimising these personal resources. These practices can be used to assist workers in regaining performance after having experienced a drop in performance. They usually make use of lateral development in which job demands that are no longer achievable for the employee are replaced by other demands that fit better with the existing personal resources of the individual (Zaleska & de Menezes, 2007). For example, through mentoring an older worker is better able to use his or her resources (e.g., knowledge and skills of the company and the profession). As these practices are likely to be used by employees who experienced a drop in their performance (Kooij et al., 2014), these individuals are likely to have lower levels of perceived work ability and preferred retirement age. Therefore, we expect that the use of utilisation practices is negatively related to the starting levels of work ability and the preferred retirement age. However, as utilisation practices can be seen as organisational resources that can help individuals make better use of their existing personal cognitive resources (e.g., knowledge and skills) we expect that utilisation practices have a positive effect on the slope of perceived work ability and preferred retirement age. In line with this expectation, two studies found a positive effect of participation in decision making on the ability to continue working (de Croon et al., 2005; Tuomi, Vanhala, Nykyri, & Janhonen, 2004). Furthermore, Bal and Visser (2011) found that having the opportunity to change work roles had a positive effect on preferred retirement age. Therefore, we formulate the following hypotheses:

**Hypothesis 5a** The use of utilisation practices is negatively related to starting levels of perceived work ability.

**Hypothesis 5b** Increases in the use of utilisation practices over time have a positive effect on changes in perceived work ability.

**Hypothesis 6a** The use of utilisation practices is negatively related to starting levels of preferred retirement age.

**Hypothesis 6b** Increases in the use of utilisation practices over time have a positive effect on changes in preferred retirement age.

Fourth, accommodative practices (e.g., demotions and receiving an exemption from overtime) are used when an employee can no longer regain previous levels of performance and needs to be assisted in functioning at a lower level (Remery, Henkens, Schippers, & Ekamper, 2003). According to Kooij et al. (2014), these practices help to regulate the loss of resources; by reducing demands there is less strain on the available resources of the employee. To illustrate, a worker who had a burnout can be offered a demotion to a less challenging position which reduces the strain on the resources that the individual has available. Indeed, Josten and Schalk (2010) found that demotions can reduce exhaustion among older workers when they are moved to less physically challenging positions. As these practices are likely to be used by employees who experienced a drop in their performance and can no longer regain their previous levels of performance (Kooij et al., 2014) these individuals are likely to have lower levels of perceived work ability and preferred retirement age. Indeed, Van der Meer et al. (2016) showed that people with a lower work ability were more likely to use the company practice of reducing workload compared to people with a higher work ability. Therefore, we expect that the use of accommodative practices is negatively related to the starting levels of work ability and the preferred retirement age. However, as accommodative practices can be seen as organisational resources that can reduce strain on personal cognitive and physical resources, we expect that accommodative practices have a positive effect on changes in perceived work ability and preferred retirement age over time. In line with this expectation, the accommodative practices workplace rehabilitation, reducing the number of working hours and getting exemptions from evening and night

work were found to have a positive effect on perceived work ability (Ahlstrom, Hagberg, & Dellve, 2013; Jensen, 2013; Van der Meer et al., 2016). Therefore, we formulate the following hypotheses:

**Hypothesis 7a** The use of accommodative practices is negatively related to starting levels of perceived work ability.

**Hypothesis 7b** Increases in the use of accommodative practices over time have a positive effect on changes in perceived work ability.

**Hypothesis 8a** The use of accommodative practices is negatively related to starting levels of preferred retirement age.

**Hypothesis 8b** Increases in the use of accommodative practices over time have a positive effect on changes in preferred retirement age.

An overview of all HR practices that are included in the different bundles can be found in Table 1.

## 2 | METHOD

### 2.1 | Design of the study and procedure

This research is a secondary data analysis of the Study on Transitions in Employment, Ability and Motivation (STREAM; Ybema et al., 2014). STREAM is a longitudinal prospective cohort study among Dutch employed, self-employed and non-employed persons aged 45 and older. In this study, only data from employed persons were analysed. Data were collected with the help of questionnaires at seven measurement points. The first measurement (T1) took place in 2010, with yearly follow-ups in 2011 (T2), 2012 (T3), 2013 (T4), 2015 (T5), 2016 (T6) and 2017 (T7). We used the first four waves for the present study as changes were made in the questionnaire after the fourth wave.

### 2.2 | Sample

Participants of the STREAM study were recruited from an existing panel of Intomart GfK (i.e., a marketing company) in October and November 2010. This panel consisted of about 110,000 persons, of which

**TABLE 1** Overview of the HR practices included in the questionnaire (cf. Kooij et al., 2014)

Accommodative practices	Utilisation practices	Maintenance practices	Developmental practices
Reduction of tasks and/or responsibilities	Task enrichment	Compressed workweek	Promotion
Additional leave	(Partial) change in tasks or responsibilities	Ergonomic adjustments to the workplace	Training or instruction on the job
Demotion	Retraining for a new profession	Adjustments to work tasks due to illness	1–5 day course or education
Early retirement			Course or education that takes more than 5 days
Exemption from working overtime/night shifts			Visit to trade fair, conference or seminar
Reduced workload			Visit to the supplier, trade association or business counter

approximately 35,000 were in the appropriate age range for the study. From these 35,000 eligible participants, a stratified sample by age and initial employment status of 26,601 persons was invited to participate. They received a maximum of two reminders to complete the questionnaire. Intomart GfK recruited their panel members through the contacts of current panel members, newsletters and banners and by approaching participants of previous nationally representative research. Participants received a small financial reward for participating in this study (a maximum of 3 euro's per questionnaire when participants devoted sufficient time to the questions; Ybema et al. (2014).

Of the 26,601 invited individuals, 15,118 persons filled in the questionnaire at T1 (response of 71%). Of these 15,118 respondents, 2,674 were either self-employed or unemployed during the entire study and were removed from the analysis. Individuals who were employed during at least one measurement moment during the study were retained for those measurement moments at which they reported being employed. Although only 5,872 of the respondents filled in the questionnaire at all four measurement moments all 12,444 employees who filled in at least one of the questionnaires were included as Mplus is capable of dealing with missing data points. The age of the respondents ranged from 45 to 65 ( $M = 54.40$ ,  $SD = 5.49$ ) and 55.9% of the respondents were male. Respondents worked 30.86 hr on average ( $SD = 10.22$ ). Education level was fairly equally distributed with 27.4% being low educated, 38.8% of the respondents having a middle level education and 38.8% having a high level of education. The respondents worked in a range of different professions with administrative professions (16.4%), health care professions (14.2%) and managerial positions (10.1%) reported most often. With regard to industry, most participants reported that they worked in the health care (19.2%), government (12.7%) and education sector (12.5%). Finally, 41.3% of the respondents worked in large companies with 249 employees or more.

## 2.3 | Measures

### 2.3.1 | Perceived work ability

Perceived work ability was measured with the first three items of the work ability index (Tuomi, Ilmarinen, Jahkola, Katajarinne, & Tulkki, 1998). An example item is 'Assume that your work ability at its best has had a value of 10. How many points would you give your current work ability?'

### 2.3.2 | Preferred retirement age

Preferred retirement age was measured with one open-ended question which stated, 'Until what age would you like to continue working?'. To assess the validity of the single item measure of preferred retirement age we tested the association with the related concept engagement (Polat, Bal, & Jansen, 2017) measured with the Utrecht Work Engagement Scale (Schaufeli, Salanova, González-Romá, & Bakker, 2002). As expected, preferred retirement age was positively correlated with engagement (T1:  $r = .136$ ,  $p < .01$ , T2:  $r = .127$ ,  $p < .01$ , T3:  $r = .143$ ,  $p < .01$ , T4:  $r = .148$ ,  $p < .01$ ).

### 2.3.3 | HR practices

The use of HR practices in the last 12 months was measured with 18 self-constructed dichotomous items. An example question is 'Have you made a promotion in the past 12 months?' These items were categorised and added together as developmental ( $N = 6$ ), accommodative ( $N = 6$ ), utilisation ( $N = 3$ ) and maintenance ( $N = 3$ ) practices according to the HR bundles of Kooij et al. (2014). Table 1 shows which HR practices are covered in each bundle. The bundles of HR

practices were conceptualised as a composite formative measurement model in line with the checklist for formative or reflective models of Fleuren, van Amelsvoort, Zijlstra, de Grip, and Kant (2018) (see Appendix S1).

### 2.3.4 | Control variables

Calendar age, gender and health were included as control variables. Previous studies have shown that age (see e.g., Ilmarinen et al., 1997), gender (Hsu & Jones, 2012) and health (Topa, Moriano, Depolo, Alcover, & Morales, 2009) are predictive of perceived work ability and preferred retirement age. Gender is a dummy variable in which males are the reference category.

## 2.4 | Analysis

Latent growth curve modelling was conducted in Mplus (version 8; Muthén & Muthén, 1998-2017). First, scale scores were created to simplify the model. Growth curves consisting of the mean-level of the intercept and the mean level of change were estimated for perceived work ability and preferred retirement age separately over a span of 3 years. The intercept represents the starting level with higher scores representing higher starting levels, whereas the slope represents the level of change over the four measurement points with higher scores representing higher increases over time (Duncan et al., 2013). Next, growth curves consisting of the mean level of the intercept and the mean level of change in HR practices were used to predict variation in the intercept and slope of the outcome variables. The intercepts of the HR practices were used to predict variation in the intercepts of the outcome variables whereas the slopes of the HR practices were used to predict variation in the slopes of the outcome variables.

## 3 | RESULTS

### 3.1 | Preliminary analysis

The full correlation table including the correlations of all variables included in this study, their means and standard deviations are reported in Appendix S2.

### 3.2 | Latent growth curve modelling

First, latent growth curve models for both outcome measures were created without including HR practices and control variables as predictors. The fit statistics, mean levels and variance levels of these models are displayed in Table 2. The intercept of perceived work ability is 7.83 (on a scale ranging from 0 to 10), meaning that the initial level of perceived work ability is rather high ( $p = .00$ ). The slope of perceived work ability is  $-.06$ , meaning that over time perceived work ability significantly decreases ( $p = .010$ ). The intercept of preferred retirement age is 63.63 ( $p = .00$ ). The slope of preferred retirement age is 0.37 ( $p = .00$ ), meaning that preferred retirement age increases over time.

Subsequently, HR practices and control variables were added to the model for both outcomes. The standardised estimates of the effects of HR practices over time on both outcomes can be found in Table 3. With regard to perceived work ability model fit was good ( $\chi^2[222] = 4,105.020, p < .001, RMSEA = .038, CFI = .920$ ). The intercepts of accommodative ( $\beta = -.17, p = .00$ ), maintenance ( $\beta = -.06, p = .00$ ) and utilisation practices ( $\beta = -.10, p = .00$ ) have a negative effect on the intercept of perceived work ability. The slope of maintenance practices ( $\beta = -.26, p = .03$ ) also have a negative effect on the slope of perceived work ability, whereas the slopes of accommodative ( $\beta = -.09, p = .55$ ) and



**TABLE 2** Parameter estimates (unstandardised) and fit statistics of the outcome variables

Latent growth curve model	Estimate	SE	$\chi^2$	df	CFI	RMSEA
Perceived work ability			73.36***	8	0.993	0.026
<i>Means</i>						
Intercept	7.83***	0.01				
Slope	-0.06***	0.01				
<i>Variances</i>						
Intercept	1.38***	0.03				
Slope	0.10***	0.01				
Preferred retirement age			72.83***	8	0.995	0.026
<i>Means</i>						
Intercept	63.63***	0.03				
Slope	0.37***	0.01				
<i>Variances</i>						
Intercept	8.37***	0.16				
Slope	0.41***	0.02				

Note: \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .  $N = 11,243$  for perceived work ability,  $N = 10,784$  for preferred retirement age.

**TABLE 3** The effect of HR practices over time on the different outcome variables

Outcome	Predictor	Intercept		Slope	
		Standardised estimate	SE	Standardised estimate	SE
Perceived work ability	Development	0.13***	0.01	0.36***	0.08
	Maintenance	-0.06***	0.02	-0.26*	0.12
	Utilisation	-0.10***	0.02	-0.12	0.13
	Accommodation	-0.17***	0.02	-0.09	0.15
	Age	0.04***	0.01	0.01	0.03
	Gender	-0.05***	0.01	-0.00	0.03
	Health	0.61***	0.01	-0.32***	0.03
Preferred retirement age	Development	0.02	0.01	0.09	0.06
	Maintenance	-0.06***	0.02	-0.21**	0.08
	Utilisation	-0.01	0.02	0.07	0.09
	Accommodation	-0.06**	0.02	0.06	0.10
	Age	0.28***	0.01	-0.04	0.02
	Gender	-0.05***	0.01	-0.03	0.02
	Health	0.07***	0.01	-0.02	0.02

Note: \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .  $N = 12,423$ .

utilisation practices ( $\beta = -.12$ ,  $p = .33$ ) do not affect the slope of work ability. Developmental practices have a positive effect on the intercept ( $\beta = .13$ ,  $p = .00$ ) and slope of perceived work ability ( $\beta = .36$ ,  $p = .00$ ). Gender had a negative effect on the intercept of workability ( $\beta = -.05$ ,  $p = .00$ ), whereas age ( $\beta = .04$ ,  $p = .00$ ) and health ( $\beta = .61$ ,  $p = .00$ ) had a positive effect. Health had a negative effect on the slope of perceived work ability ( $\beta = -.32$ ,  $p = .00$ ).

With regard to the preferred retirement age model fit was good ( $\chi^2[222] = 4,053.296$ ,  $p < .001$ , RMSEA = 0.037, CFI = 0.924). The intercepts of accommodative ( $\beta = -.06$ ,  $p = .00$ ) and maintenance practices ( $\beta = -.07$ ,  $p = .00$ ) had a

**TABLE 4** Overview of the hypotheses

Hypothesis	Supported?
1a The use of developmental practices is positively related to starting levels of perceived work ability	Yes
1b Increases in the use of developmental practices over time have a positive effect on changes in perceived work ability	Yes
2a The use of developmental practices is positively related to starting levels of preferred retirement age	No
2b Increases in the use of developmental practices over time have a positive effect on changes in preferred retirement age	No
3a The use of maintenance practices is negatively related to starting levels of perceived work ability	Yes
3b Increases in the use of maintenance practices over time have a positive effect on changes in perceived work ability	No
4a The use of maintenance practices is negatively related to starting levels of preferred retirement age	Yes
4b Increases in the use of maintenance practices over time have a positive effect on changes in preferred retirement age	No
5a The use of utilisation practices is negatively related to starting levels of perceived work ability	Yes
5b Increases in the use of utilisation practices over time have a positive effect on changes in perceived work ability	No
6a The use of utilisation practices is negatively related to starting levels of preferred retirement age	No
6b Increases in the use of utilisation practices over time have a positive effect on changes in preferred retirement age	No
7a The use of accommodative practices is negatively related to starting levels of perceived work ability.	Yes
7b Increases in the use of accommodative practices over time have a positive effect on changes in perceived work ability	No
8a The use of accommodative practices is negatively related to starting levels of preferred retirement age	Yes
8b Increases in the use of accommodative practices over time have a positive effect on changes in preferred retirement age	No

negative effect on the intercept of preferred retirement age, whereas the intercepts of developmental ( $\beta = .02, p = .19$ ) and utilisation practices ( $\beta = -.01, p = .50$ ) had no effect. Furthermore, the slope of maintenance practices had a negative effect on the slope of preferred retirement age ( $\beta = -.21, p = .01$ ), whereas the slopes of accommodative ( $\beta = .06, p = .55$ ), utilisation ( $\beta = .07, p = .43$ ) and developmental practices ( $\beta = .09, p = .11$ ) did not affect the slope of the preferred retirement age. The intercepts control variables age ( $\beta = .28, p = .00$ ) and health ( $\beta = .07, p = .00$ ) had a positive effect on the intercept of the preferred retirement age, whereas the intercept of gender had a negative effect ( $\beta = -.05, p = .00$ ). The slopes of the control variables did not affect the slope of the preferred retirement age. An overview of which hypotheses are supported and which are not can be found in Table 4.

## 4 | DISCUSSION

This study investigated the relationship between HR practices and perceived work ability and preferred retirement age through a secondary data analysis of the longitudinal STREAM (Ybema et al., 2014) amongst 12,444 employees aged 45–64.

Latent growth curve modelling revealed a slight decrease in perceived work ability over time. Furthermore, we found a positive effect of the use of developmental practices on the intercept and slope, which was in line with our

expectations. Furthermore, in line with our expectations we found a negative effect of the use of utilisation, maintenance and accommodative practices on the intercept of perceived work ability. Contrary to our expectations, maintenance practices had a negative effect on the slope of perceived work ability and utilisation and accommodative practices did not influence the slope of perceived work ability. This negative effect and lack of an effect might be explained by the implementation of these practices. Accommodative (autoregressive correlations ranging from 0.33 to 0.36), utilisation (autoregressive correlations ranging from 0.29 to 0.36) and maintenance practices (ranging from 0.56 to 0.58) correlate weakly with themselves over time. This could indicate that these practices are mostly used in a curative ad hoc manner, rather than in a consistent preventive manner, thereby limiting their potential positive effect.

Furthermore, our analyses revealed a slight increase in preferred retirement age over time. Furthermore, in line with our expectations the use of accommodative and maintenance practices had a negative effect on the intercept of the preferred retirement age. Contrary to our expectations, accommodative practices did not affect the slope of the preferred retirement age, the use of maintenance practices had a negative effect on the slope of preferred retirement age, and the use of utilisation and developmental practices did not affect the intercept nor the slope of the preferred retirement age. A possible explanation for the lack of an effect of developmental, utilisation and accommodative practices is that in the retirement decision-making process work-related factors are merely one of the possible predictors. Personal factors and societal norms also play an important role (Wang & Shultz, 2010) and might outperform work-related factors (Kanfer, Beier, & Ackerman, 2013). Furthermore, the curative ad hoc implementation of these practices could also have caused this lack of an effect.

#### 4.1 | Theoretical contributions

This study contributes to the literature on the extension of working lives in two ways. First, we examined how the use of HR practices related to perceived work ability and preferred retirement age over time. These analyses revealed that the use of developmental practices has a positive effect on both the intercept and the slope of perceived work ability but does not affect the preferred retirement age. The use of maintenance practices had a negative effect on the intercept and the slope of perceived work ability and on the intercept and the slope of the preferred retirement age. The use of utilisation practices had a negative effect on the intercept of work ability, but did not affect the slope of work ability or the intercept and the slope of the preferred retirement age. The use of accommodative practices had a negative effect on the intercept of perceived work ability and the preferred retirement, but did not affect their slopes. As evidence on the relationship between HR practices and outcomes related to the extension of working lives is limited and results were mixed, these results improve our understanding of how HR practices have an effect on the extension of working lives. Based on our findings, we argue that the use of developmental practices (rather than the availability of development practices) are important job resources that can facilitate the extension of working lives, whereas HR practices that are traditionally offered to older workers (e.g., maintenance and accommodative practices) do not appear to facilitate the extension of working lives. Nevertheless, the variables are not strongly correlated with one another (Hemphill, 2003) which indicates that HR practices only predict a small amount of the variance in the outcomes and that other variables, such as personal characteristics or societal norms might play a larger role in predicting the extension of working lives (Wang & Shultz, 2010).

Second, we have studied changes over time with the use of latent growth curve modelling. Latent growth modelling revealed that perceived work ability decreases over time whereas preferred retirement age increases over time. These changes in both outcome measures over time highlight the need for more longitudinal research in the field of the extension of working lives. Cross-sectional studies cannot capture these changes over time and therefore do not say anything about the trajectories in these work outcomes and their predictors. With the use of this longitudinal design, we could relate predictors (i.e., HR practices) to both the intercepts and the changes in perceived work ability and preferred retirement over time, which cannot be done in cross-sectional studies.

## 4.2 | Limitations

Several limitations should be noted with regard to this study. First, preferred retirement age was measured with a single item measure. Although single-item measures reduce the burden on respondents (Fuchs & Diamantopoulos, 2009), it is preferable to use multi-item scales for independent and dependent variables as these are considered to be more reliable and precise (Boyd, Gove, & Hitt, 2005). However, as the majority of studies that use preferred retirement age as an outcome variable use a single item measure we considered it appropriate (see e.g., Carr et al., 2016). Furthermore, Solem et al. (2016) showed that preferred retirement age is significantly related to the actual retirement age. Second, the content validity of the HR items might be limited as respondents might have different notions of the individual HR practices. For example, one employee might define a flexible work schedule as starting between 8 and 9, whereas another employee might define this as complete freedom when to start working. In future research this issue may be overcome by using company data on the usage of HR practices or by adding a more elaborate description for each HR practice. Finally, Parker and Andrei (2020) distinguish between three different HR strategies towards older workers: include (i.e., age-inclusive HR practices, see e.g., Boehm, Kunze, & Bruch, 2013), individualise (i.e., age-specific HR practices, such as the HR bundles of Kooij et al., 2014) and integrate (i.e., HR strategies aimed at facilitating interaction between age diverse colleagues, see for example Burmeister & Deller, 2016). In this study, we focused particularly on the individualisation strategy. However, practitioners should be aware that beside the four bundles of HR practices that we examined in this study more approaches are available. In future studies it might be relevant to compare these three different strategies with regard to their effectiveness in maintaining and stimulating perceived work ability and preferred retirement age.

## 4.3 | Practical implications

This study has several important implications for practice. Based on the results of this study, we suggest that organisations should focus on the use of developmental practices to stimulate perceived work ability. However, previous research shows that older workers have fewer opportunities to participate in training compared to younger workers (Canduela et al., 2012). Based on our findings, we urge practitioners to offer development opportunities to workers of all ages to stimulate the extension of working lives. Furthermore, the findings of our study reveal that the use of accommodative, utilisation and maintenance practices, which are traditionally offered to older workers, have either a negative effect or no effect on perceived work ability and preferred retirement age. Therefore, we recommend organisations to offer developmental practices instead of accommodative, utilisation and maintenance practices to older workers and only offer accommodative, utilisation and maintenance practices when older workers face problems at work.

### CONFLICT OF INTEREST

The authors declare no potential conflict of interest.

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