

A Longitudinal Study of Age-Related Differences in Reactions to Psychological Contract Breach

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The current paper investigated age-related differences in the relations of psychological contract breach with work outcomes over time. Based on affective events theory, we expected job satisfaction to mediate the longitudinal relationship of contract breach with changes in job performance. Moreover, based on socio-emotional selectivity theory, it was predicted that reactions to contract breach on job satisfaction and job performance would be stronger among younger workers than older workers. This two-wave panel study among 240 employees investigated interactions of age with psychological contract breach in relation to changes in job satisfaction and job performance over time. Moderated structural equation modeling showed that job satisfaction partially mediated the longitudinal relationships between contract breach and job performance. Moreover, the analyses supported socio-emotional selectivity theory; older workers reacted less intensely to psychological contract breach towards job satisfaction and job performance, indicating a general decreased responsiveness of older workers towards the psychological contract. It is concluded that age plays an important role in how contract breaches relate to changes in work outcomes over time.

INTRODUCTION

The proportion of older workers relative to younger workers is growing rapidly in North America and Europe (De Lange, Taris, Jansen, Kompier, Houtman, & Bongers, 2010). The baby boom generation is currently entering

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the second half of their career and birth rates have decreased over recent decades, resulting in a workforce that will increasingly be composed of older workers. Therefore, organisations will have to put more effort into the retention as well as the motivation of older workers. Consequently, psychological contracts, defined as the mutual obligations between an employee and the organisation, as perceived by the employee (Rousseau, 1995), will have to be tailored to the needs and preferences of older workers (Kooij, De Lange, Jansen, & Dikkers, 2008). Parallel with these demographic trends, research on the role of age in psychological contracts has increased substantially over recent years (Bal, De Lange, Jansen, & Van der Velde, 2008; Bal, Jansen, Van der Velde, De Lange, & Rousseau, 2010; Bellou, 2009; Ng & Feldman, 2009). The main focus in these studies has been on employees' perceptions of contract breach, or the cognition that the organisation has failed to fulfill its obligations (Zhao, Wayne, Glibkowski, & Bravo, 2007).

Ng and Feldman (2009) presented theoretical arguments based on socio-emotional selectivity theory (Carstensen, 2006) for a less intense effect of psychological contract breach on attitudinal and behavioral outcomes among older workers than among younger workers. According to Ng and Feldman (2009), when employees become older, their psychological contracts become more malleable, meaning that older workers develop higher tolerance for contract deviations (i.e. contract breaches). This is due to older workers' emotional maturation and increased altruism. However, in general previous studies have found mixed results concerning age-related differences in the psychological contract (Bal et al., 2008; Bellou, 2009). Bal and colleagues (2008) showed in their meta-analysis that older workers reacted less strongly to contract breaches in terms of trust and affective commitment but also found stronger effects among older workers on job satisfaction. A limitation of the meta-analysis of Bal et al. (2008), however, was that the measure of age was based on mean age in individual studies, which is a proxy for age and therefore excluded variance within studies, or the extent to which there were many younger or older workers in the sample. Therefore, it is important to ascertain the influence of age using primary data, which can show how age influences the relationships. Moreover, the current research was designed to assess whether contract breach causes change in attitudes and behaviors over time. To ascertain these relationships, it is therefore necessary to longitudinally investigate the effects of contract breach on *change* in attitudes and behaviors over time. Finally, previous research on age-related differences in reactions to psychological contract breach did not investigate behavioral outcomes, such as job performance.

Given this evidence of the impact of employee age on employee attitudes and behaviors (De Lange et al., 2010; Kanfer & Ackerman, 2004; Ng & Feldman, 2008), we expect age to play a significant role in how employees respond to psychological contract breach. In the current paper we aim to

extend existing psychological contract literature by investigating how psychological contract breach (economic, socio-emotional, and developmental breach; see Bal et al., 2010) relates to changes in work outcomes across time, as well as by examining whether these relations are moderated by age. Hypotheses will be tested based on three theoretical notions from earlier research. Affective events theory (Weiss & Cropanzano, 1996) is used to explain the relationships between psychological contract breach and work outcomes. Furthermore, socio-emotional selectivity theory (Carstensen, 2006) and the process model of emotion regulation (Gross, 1998, 2001) are used to explain the fact that older workers react less intensely to psychological contract breach than younger workers. In line with previous research, we expect age to moderate the effects of contract breach with outcomes, rather than to directly influence outcomes (Bal et al., 2008, 2010). The current paper contributes to previous research in the following ways. First, the present study investigates a process model of how psychological contract breach is related to change in work outcomes *over time*. By controlling for stability in the work outcomes, we not only show that contract breach and work outcomes are correlated with each other, but that contract breach is related to changes in job satisfaction and job performance over time. Moreover, we investigate a longitudinal process model, suggested by Zhao et al. (2007), with job satisfaction mediating the relationship between contract breach and job performance. The study also contributes to previous research (e.g. Bal et al., 2008) by expanding the range of work outcomes, through including job performance as outcome. Finally, we test for the influence of job content and organisational tenure as possible confounders of the effects of age on the hypothesised relations.

The Psychological Contract

To understand the employment relation between an employee and his or her organisation, Rousseau (1995) developed the concept of the psychological contract. The psychological contract is defined as the employee's beliefs regarding mutual obligations between the employee and the organisation (Conway & Briner, 2005; Rousseau, 1995). Psychological contracts differ from legal contracts such that psychological contracts are subjective in nature and exist in the eye of the beholder (Suazo, Martínez, & Sandoval, 2009). Thus, the psychological contract is a metaphor for understanding perceived written and unwritten obligations between an employee and the organisation (Guest, 2004). Employees form perceptions of employer obligations and the extent to which their employer honors or fulfills its obligations. When the employee perceives that the organisation does not fulfill its obligations, psychological contract breach takes place. Psychological contract breach accordingly is defined as "the employee's perceptions regarding

the extent to which the organisation has failed to fulfill its promises or obligations” (Zhao et al., 2007, p. 649).

In line with previous studies on psychological contracts (e.g. Bal et al., 2010), we include three main types of contract breach: economic breach refers to breach of those employer obligations that embody short-term specific monetary inducements which are primarily materialistic in nature (Raja, Johns, & Ntalianis, 2004). Socio-emotional breach concerns breach of obligations of long-term exchanges that maintain the employee–employer relationship and are less specific in nature than breach of economic obligations (e.g. participation in decision making and interesting work; Zhao et al., 2007). Finally, developmental breach consists of employee training and developmental opportunities (Maurer, Weiss, & Barbeite, 2003).

An Affective Events Theory Perspective on the Effects of Psychological Contract Breach on Work Outcomes

Previous studies on the effects of psychological contracts have shown that perceptions of contract breach are profoundly related to work outcomes. Researchers have used affective events theory (AET) to explain the process of how psychological contract breach influences work outcomes (Weiss & Cropanzano, 1996; Zhao et al., 2007). According to AET, events at the workplace often evoke emotional reactions among people (Weiss & Cropanzano, 1996). It is through these affective experiences that employees’ attitudes and behaviors are influenced. Thus, a negative event at the workplace colors the cognitive evaluations of one’s job, in such a way that experience of negative events will cause a more negative view of the job and consequently lower motivation to put effort into the job (Thoresen, Kaplan, Barsky, Warren, & de Chermont, 2003). Zhao and colleagues (2007) argued that psychological contract breaches, in particular, are perceived as negative emotional events. Contract breach refers to work events where an employee perceives that organisational obligations are not kept, and thus is inherently related to affective reactions, which in turn contribute to the establishment of job satisfaction and job performance.

In this study, we focus on the effects on two core work outcome variables that have been identified as crucial in upholding employee motivation and effectiveness: job satisfaction and job performance (Harrison, Newman, & Roth, 2006). Job satisfaction and job performance are two of the most central constructs in organisational psychology and are crucially important for employees in their motivation and effectiveness at work (Harrison et al., 2006). According to AET, negative events (e.g. contract breaches) influence an employee’s state of mind, consequently leading to work attitudes (i.e. job satisfaction) and work behaviors (i.e. job performance; Weiss & Cropanzano, 1996). Hence, AET proposes a mediated effect of job satisfaction in the

relation between contract breach and job performance (Zhao et al., 2007). In sum, we expect that psychological contract breach is negatively related to changes in job performance over time, and this relationship is mediated by job satisfaction. Hypothesis 1 is:

H1: The negative relation between psychological contract breach (economic, socio-emotional, and developmental) and job performance over time is mediated by job satisfaction.

Age-Related Differences in the Relations between Contract Breach and Work Outcomes

Furthermore, based on socio-emotional selectivity theory (Carstensen, 2006) and the model of emotion regulation (Gross, 2001), we expect age to moderate the relations between contract breach and work outcomes. Socio-emotional selectivity theory (Carstensen, 2006; Carstensen & Mikels, 2005) and the model of emotion regulation (Gross, 1998, 2001; Gross, Carstensen, Pasupathi, Tsai, Skorpen, & Hsu, 1997; John & Gross, 2004) have been used extensively in understanding how older people differ from younger people in motivation and behavior, as well as in explaining the impact of age on work behaviors (see e.g. Davis, Kraus, & Copabianco, 2009; Kooij, De Lange, Jansen, Kanfer, & Dikkers, 2011; Ng & Feldman, 2009).

Socio-emotional selectivity theory states that in young adulthood time is perceived as expansive (Carstensen, Isaacowitz, & Charles, 1999). Young people prepare for a long and unknown future and therefore primarily focus on growth and knowledge-related goals. For older people, however, the experience of approaching the end of life causes a shift towards present-related emotional goals over knowledge goals, and a focus on emotional well-being. Older people increasingly focus on the present, and in particular on maintaining positive feelings and avoidance of negative feelings (Carstensen, Fung, & Charles, 2003; Carstensen & Mikels, 2005). Although older people may be sensitive to emotional situations, they are more focused on maintaining positive feelings (Carstensen & Mikels, 2005; Kunzmann & Richter, 2009). Therefore, even though both younger workers and older workers experience contract breach as a negative event, older workers are expected to be more focused on maintaining a positive relationship with their organisation when their psychological contract has been broken. Consequently, older workers' satisfaction and performance are influenced less strongly by negative events than is the case for younger workers, whose needs for growth and learning are impeded by contract breaches.

The process model of emotion regulation provides further evidence for why older workers will react differently from younger workers to contract breaches (Diamond & Aspinwall, 2003; Gross, 1998, 2001; Gross et al., 1997;

John & Gross, 2004). With increasing maturity, people learn to cope with their emotions, and are better at interpreting, managing, and deriving meaning from conflicting emotions (Diamond & Aspinwall, 2003; Heckhausen, Wrosch, & Schulz, 2010). Hence, older people are better at regulating their emotions after negative events than younger people (Carstensen, 1995; Carstensen et al., 2003). Moreover, when older people experience negative emotions, they are quicker at returning to positive moods than younger people (Carstensen, Pasupathi, Mayr, & Nesselroade, 2000; John & Gross, 2004; Lawton, Kleban, Rajagopal, & Dean, 1992). Research has shown that older people may experience similar emotions to younger people immediately after experiencing a negative event, but their attitudinal and behavioral reactions are less intense than those of younger people (Kunzmann, Kupperbusch, & Levenson, 2005; Kunzmann & Richter, 2009). Thus, in general younger workers react more intensely to negative events than older workers.

There are some empirical investigations of this notion in the work setting. The aforementioned meta-analysis of Bal and colleagues (2008) showed some age-related differences in reactions to psychological contract breach. Moreover, Cohen (1991) found that the relation between organisational commitment and turnover was stronger for younger workers than for older workers. Finally, other studies have found stronger reactions among younger workers as well (e.g. Wagner & Rush, 2000). Based on these findings, we argue that the relations of contract breach with changes in work outcomes over time weaken with age. This is because older workers are more focused on positive aspects of their relationship with their organisation (socio-emotional selectivity), and because they are better at regulating their emotions after negative events (such as contract breach) and are quicker at returning to positive moods after contract breach (enhanced emotion regulation skills). The second hypothesis is:

H2: Age moderates the relations between psychological contract breach and changes in (a) job satisfaction and (b) job performance over time, such that the relations are stronger for younger workers than for older workers.

METHOD

Sample and Procedure

This study was conducted in a Dutch division of a multinational risk management organisation. In June 2006 (T1), 1,298 employees were invited to participate in the study at the first measurement. In June 2007 (T2), all respondents at T1 were emailed and asked to participate in a follow-up study. Because the participating organisation held its yearly performance appraisals with the employees in May, the questionnaires were distributed in June, so

that employees had received evaluations by their supervisors and were already prompted to think about their performance in the previous year. Therefore, it was deemed appropriate to assess whether employees experienced contract breach at T1, and whether their performance had changed a year later (T2). The review study of De Lange, Taris, Kompier, Houtman, and Bongers (2003) also indicated that the effects of job demands on well-being could best be demonstrated with studies using a time lag of one year. By means of online survey software employees were asked to fill out the questionnaire, resulting in a total response of $N = 727$ (response rate 56%) at T1. Of the 727 participants at T1, 240 responded to the second questionnaire (response of 33%; overall response rate 18%). Analyses showed that the final sample did not differ significantly from the company's total employee population in terms of age, gender, tenure, contract, or educational level. Further analyses showed that the sample at T2 did not differ significantly on any demographic variable from the sample at T1. Among the respondents at T1, 9 per cent had left the company at T2.

Of the 240 participants, 40 per cent were female, at T1 the average age was 42 years ($SD = 9.27$; range 19–63 years), the average organisational tenure was 11 years ($SD = 10.39$), and average job tenure was 6 years ($SD = 5.37$). Of the employees, 96 per cent had a permanent contract, 76 per cent worked full-time, and 17 per cent of the respondents had a university degree. Age was measured as a continuous variable at T1. Regarding age, 12.5 per cent of the respondents were 30 years or younger, 35 per cent were between 31 and 40 years old, 31.3 per cent were between 41 and 50 years, 20.8 per cent were between 51 and 60 years old, and 0.4 per cent were 61 years or older.

Measures

Psychological Contract Breach. We measured contract breach using the three economic, socio-emotional, and developmental breach scales at T1 with an adapted measure of Coyle-Shapiro and Conway (2005; see Bal et al., 2010). Respondents indicated the extent to which they felt their employer had fulfilled a list of obligations (Coyle-Shapiro & Conway, 2005; De Vos, Buyens, & Schalk, 2003). We checked whether psychological contract obligations as measured in the current study were indeed part of perceived obligations by the participating organisation towards their employees, through interviews with HR managers in the organisation prior to the study. Scores were reversed to indicate psychological contract breach (see Zhao et al., 2007). The items were measured on a 5-point Likert scale (“not at all” to “to a very great extent”). Economic breach ($\alpha = .85$) was measured with five items, an example being “fair pay for the responsibilities of the job”. Socio-emotional breach ($\alpha = .77$) was measured with four items. An example item is “opportunities to be involved in decisions that affect me”. Develop-

mental breach ($\alpha = .82$) was measured with three items, an example being “career support and mentoring”. The three contract breach scales were used as indicators of the contract breach scale, which obtained a reliability of .87.

Work-Related Outcomes. Job satisfaction and job performance were both measured both at T1 and T2. *Job satisfaction* was measured with the four-item job satisfaction scale from the Copenhagen Psychosocial Questionnaire (COPSOQ; Kristensen, Bjorner, Christensen, & Borg, 2004; Kristensen, Hannerz, Høgh, & Borg, 2005). The scale measured the extent to which respondents felt they were satisfied with their work prospects, physical work conditions, the way their abilities are used, and their job as a whole. Reliability was .71 at T1 and .76 at T2. Self-rated *job performance* was measured with three items from Williams and Anderson (1991). Whereas self-rated job performance may be a less objective indicator of performance than measures such as sales rates (Williams & Anderson, 1991), the measure of job performance that is used in the current study indicates an assessment by the employee about their performance on the job (see e.g. Bal et al., 2010; De Vos et al., 2003). Subjective performance measures are valid for the current study. First, objective and subjective measures of performance are positively correlated and are similarly predicted by independent variables (Bommer, Johnson, Rich, Podsakoff, & MacKenzie, 1995; Wall, Michie, Patterson, Wood, Sheehan, Clegg, & West, 2004). Moreover, subordinates’ perceptions of their own performance *add* to other ratings of performance (e.g. objective performance and supervisor rated performance) since they contribute in a unique way to the overall concept of performance (Conway & Huffcutt, 1997). Moreover, Sturman, Cheramie, and Cashen (2005), in their meta-analysis, showed that subjective ratings of performance are more reliable *over time* than objective ratings. Since our study focused on change of job performance over time, we deemed it appropriate to have subjective ratings of performance. Respondents rated the extent to which three items were representative for their behavior at work on a 6-point scale ranging from 1 = “not at all” to 6 = “to a very great extent”. The three items were selected based on the items with the highest factor loadings in the Williams and Anderson (1991) study. The items were: “Adequately complete assigned duties”, “Fulfill responsibilities specified in job description”, and “Perform tasks that are expected of you”. Reliability at T1 was .83 and at T2 .84.

Analysis

To investigate the construct validity of the psychological contract breach measures and the work outcomes, measurement models including all items were tested by means of confirmatory factor analyses (CFA with Lisrel 8.72; Jöreskog & Sörbom, 2005). To evaluate models, established goodness-of-fit

indices were used (Hu & Bentler, 1999). For the Root Mean Square Error of Approximation, a value of .05 or below is indicated as good fit, and below .08 as acceptable (MacCallum, Browne, & Sugawara, 1996). Further, the Standardised Root Mean Square Residual (SRMR) should be lower than .05. The Non-Normed Fit Index (NNFI), Comparative Fit Index (CFI), and Incremental Fit Index (IFI) should all be above .90. First, a baseline model was tested with seven factors (the three contract breach types, job satisfaction at T1 and T2, and job performance at T1 and T2). Subsequently, we tested whether the model improved when a second-order factor was added for the three contract breach types. The baseline model was further tested against a range of models with fewer factors, and a model including an unmeasured latent factor in order to control for common method bias. The proposed seven-factor model reached acceptable fit ($\chi^2 = 633.28$, $df = 251$; $p < .001$; RMSEA = .07; SRMR = .06; CFI = .96). All items loaded significantly on their latent factor with factor loadings well above .45. The Appendix presents various models that were tested. Moreover, the seven-factor model fit significantly better than the other models. The model with the second-order factor for contract breach did not reach a significantly improved fit; however, the paths from the three types to contract breach were significant and ranged from .61 to .72. Hence, it was deemed appropriate to construct a latent variable for contract breach consisting of the three contract breach types.

Hypotheses were tested with moderated structural equation modeling using Lisrel 8.72 (MSEM; Jöreskog & Sörbom, 2005). All independent variables were mean-centered before interactions were calculated. One latent factor contract breach was constructed with the three contract breach scales as indicators. For job satisfaction and job performance, scale items served as indicators of the latent variables. We built different models to test the mediating role of job satisfaction in the relation between contract breach and job performance T2 (according to recommendations by Baron & Kenny, 1986). First, we tested a model M_1 to investigate whether contract breach was related to change in job performance. Paths were included from contract breach and job performance T1 to job performance T2. Subsequently, we tested a model M_2 to test whether contract breach was related to job satisfaction T2, with paths from contract breach and job satisfaction T1 to job satisfaction T2. Moreover, we tested three other models to investigate whether a partial mediation (paths from contract breach to job satisfaction T2 and job performance T2, from job satisfaction T2 to job performance T2, and stability of job satisfaction and performance over time), a full mediation (partial mediation model excluding direct path from contract breach to job performance T2) or a direct effects model produced the best fit (only paths from contract breach to job satisfaction T2 and job performance T2, and stability paths; see Zhao et al., 2007). To conduct the moderator analyses, the procedure of Mathieu, Tannenbaum, and Salas (1992; see also Cortina,

Chen, & Dunlap, 2001) was followed. The results are shown in Model M₆ (shown in Figure 1). Finally, Model M₇ was constructed to test for reversed causation of job satisfaction T1 and job performance T1 as predictors of contract breach T2 (which was not included in the other analyses).

For all the models, work outcomes at T1 were included to calculate changes in the outcomes over the year as a consequence of the independent variables. Next, the interaction model was tested including interactions between contract breach and age in relation to job satisfaction T2 and job performance T2. The latent variable age had one indicator. The paths from this latent factor to the indicator were fixed with the square root of the scale reliability, which was estimated at a conservative .90, whereas the error variance of the indicator was set equal to the product of their variances and one minus the reliability. A similar procedure was followed for the latent interaction term (see Cortina et al., 2001, for an extensive description of the procedure). Moreover, the correlation between age and the interaction term was set to zero, as well as the correlation between contract breach and the interaction term. In line with recommendations of Cortina et al. (2001), we set these correlations to zero because we expected little relationship between the interaction term and the main effect variables, which results in fewer model identification problems (Cortina et al., 2001, p. 329). For the endogenous variables, we used total disaggregation models with the separate items as indicators of the latent variable (Bagozzi & Edwards, 1998). Job satisfaction T1 was treated as predictor of job satisfaction T2, and hence the other predictors refer to *change* in job satisfaction over time. The same procedure was conducted for job performance. Significant interactions were plotted using simple slope analysis with slopes one standard deviation below and above the mean of the moderator, in line with recommendations of Aiken and West (1991). Table 1 presents the means and standard deviations, alpha coefficients, and correlations among the variables. Age was not significantly related to contract breach, indicating that older workers did not differ from younger workers in their perceptions of contract breach.

A possible confounder in the current study is that older workers might have jobs that are different from those of younger workers (e.g. more demanding or resourceful jobs; Ng & Feldman, 2008), and therefore react differently from younger workers to psychological contract breach. We therefore included scales from the COPSQ job characteristics survey of Kristensen and colleagues (2004) in the survey at time 1. We investigated job demands, autonomy, opportunities to use skills in the job, social support from the supervisor, and the availability of learning opportunities in the job (all scales were reliable with Cronbach's alphas above .75). It was found that age was not significantly correlated to any of these job characteristics (correlations ranging from $r = -.03$ to $r = .10$), suggesting that older workers' perceptions of their jobs did not differ from those of younger workers. In

TABLE 1
Means, Standard Deviations, Reliabilities, and Correlations of the Study Variables

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11
1 Age	42.14	9.27	—										
2 Organisational tenure	10.78	10.39	.61**	—									
3 Job tenure	5.51	5.37	.37**	.52**	—								
4 Gender	.60	—	.27**	.18**	.14*	—							
5 Work status	.76	—	.15*	.11	.03	.43**	—						
6 Education	4.37	1.64	-.21**	-.28**	-.15*	.14*	.17*	—					
7 Contract breach T1	3.28	.54	-.02	.01	-.06	.09	-.03	.11	.87	—			
8 Job satisfaction T1	2.91	.38	.06	.00	-.06	-.02	.02	.02	-.61**	.93	—		
9 Job performance T1	4.65	.83	.15	.01	-.03	-.04	-.02	.04	-.17**	.06	.83	—	
10 Job satisfaction T2	2.98	.41	.06	.01	.00	.00	-.02	-.01	-.45**	.53**	.18**	.94	—
11 Job performance T2	4.81	.78	.12	.06	.05	-.01	-.06	.03	-.17**	.07	.58**	.24**	.84

Note: N = 240. Values in bold along the main diagonal are coefficient alphas for scaled variables. Gender: 0 = female, 1 = male; work status: 0 = part-time, 1 = full-time. Education: measured on a scale from 1 = "primary school" to 7 = "university degree". * p < .05; ** p < .01.

addition, no significant curvilinear relations were found between age and the job characteristics. Consequently, the job characteristics were excluded from further analysis.

RESULTS

Hypothesis 1 predicted that the relation between psychological contract breach and job performance was mediated by job satisfaction. Table 2 shows the results of the various structural equation models that were tested and Table 3 shows the coefficients of the paths in the various models. The partial mediation model obtained the best fit, and a full mediation model and a direct effects model did not obtain a significantly better fit. Hence, job satisfaction only partially mediated the relationships between contract breach and job performance. Contract breach was negatively related to job performance T2 ($b = -.18, p < .001$), thereby supporting the first condition for mediation. Contract breach was also significantly related to job satisfaction T2 ($b = -.40, p < .001$), thereby supporting the second condition for mediation. We further tested the third condition for mediation through fitting a partial mediation model including a path from job satisfaction T2 to job performance T2, which was significant ($b = .25, p < .01$). However, the full mediation model did not reach a significantly better fit than the partial mediation model. Moreover, the relation between contract breach and job performance T2 was still significant when job satisfaction T2 was accounted for ($b = -.16, p < .01$). We also tested an alternative model M₇, in which reversed causation was tested with job satisfaction T1 and job performance T1 predicted contract breach T2. After controlling for the stability in contract breach over time (indicated by a path from contract breach T1 to contract breach T2; $b = .81, p < .001$), neither job satisfaction T1 ($b = -.14, ns$) nor job performance T1 ($b = -.06, ns$) was significantly related to contract breach T2. Therefore, we found no evidence for reversed causation. In all, Hypothesis 1 is partly supported: job satisfaction partially mediated the relationship between contract breach and job performance.

Hypothesis 2 predicted stronger reactions among younger workers to psychological contract breach than among older workers. Hypothesis 2 was tested through including main effects of age and the interaction between age and contract breach T1 in the model, with paths to job satisfaction T2 and job performance T2. Table 2 shows the fit statistics of the Model M₆ and Figure 1 shows the standardised coefficients of Model M₆, the partial mediation model including the interactions.

The analyses show strong support for the impact of age on the relations between contract breach and work outcomes. Age interacted significantly with contract breach in relation to job satisfaction T2 ($b = .16, p < .05$). The slope was negative for younger workers (1 standard deviation below the

TABLE 2
Fit Statistics for Hypothesised and Alternative Models

Model	Fit statistics						
	χ^2	df	SRMR	RMSEA	CFI	NNFI	$\Delta\chi^2$
M ₁ Contract Breach–Job Performance T2 Model	727.22***	141	.08	.07	.89	.93	–
M ₂ Contract Breach–Job Satisfaction T2 Model	654.44***	141	.07	.06	.92	.95	–
M ₃ Partial Mediation Model	732.15***	144	.07	.07	.90	.93	–
M ₄ Full Mediation Model	732.32***	145	.07	.07	.90	.94	.17 ns
M ₅ Direct Effects Model	733.72***	145	.07	.07	.90	.94	1.57 ns
M ₆ Interaction Model	711.76***	140	.08	.07	.90	.95	–
M ₇ Reverse Causation Model	553.86***	142	.07	.09	.89	.87	–

Note: * $p < .05$; ** $p < .01$; *** $p < .001$. SRMR = Standardised root-mean-square residual; RMSEA = root-mean-square error of approximation; CFI = comparative fit index; NNFI = non-normed fit index. Contract breach is a second-order factor including economic, socio-emotional, and developmental breach. Separate analyses with each of the contract breach types produced similar results.

M₁ = Baron & Kenny step 1: the independent variable (Contract Breach) is related to the dependent variable (Job Performance T2).

M₂ = Baron & Kenny step 2: the independent variable (Contract Breach) is related to the mediator (Job Satisfaction T2).

M₃ = Baron & Kenny step 3: the mediator (Job Satisfaction T2) is related to the dependent variable (Job Performance T2), while controlling for the independent variable (Contract Breach).

M₄ = Baron & Kenny step 4: the mediator fully mediates the relation between the independent variable and the dependent variable.

M₅ = Alternative model: Contract Breach is directly related to Job Satisfaction T2 and to Job Performance T2.

M₆ = Test for Hypothesis 2: Age moderates the relation between Contract Breach and Job Satisfaction T2 and Job Performance T2.

M₇ = Test for alternative model: reversed causation of job satisfaction T1 and job performance T1 towards contract breach T2 (not included in previous models).

TABLE 3
Coefficients of the Relationships in the Various Models

Model	Relation	Coefficients				
		Breach T1–Job Satisfaction T2	Breach T1–Job Performance T2	Job Satisfaction T2–Job Performance T2	Job Satisfaction T1–Job Satisfaction T2	Job Performance T1–Job Performance T2
M ₁	Contract Breach–Job Performance T2 Model	–	–.18***	–	.45***	.59***
M ₂	Contract Breach–Job Satisfaction T2 Model	–.40***	–	–	.32***	.60***
M ₃	Partial Mediation Model	–.40***	–.16**	.25**	.32***	.55***
M ₄	Full Mediation Model	–.40***	–	.30***	.32***	.57***
M ₅	Direct Effects Model	–.40***	–.18***	–	.32***	.55***

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

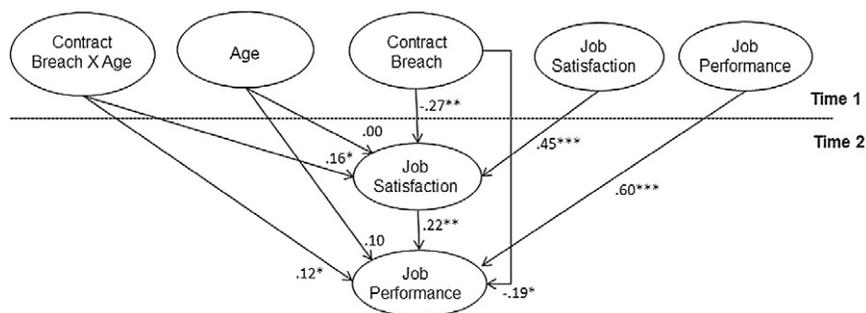


FIGURE 1. Results of the structural model for the relations of contract breach with changes in job satisfaction and job performance over time, and the interaction between age and contract breach in relation to changes in job satisfaction and job performance over time. Lines from the latent variables to their indicators are not shown for the clarity of the figures.

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

mean: 32.9 years: $b = -.37$, $p < .001$), while the relation was less strong for older workers (1 SD above the mean: 51.4 years: $b = -.13$, $p < .05$). Age also interacted significantly with contract breach in relation to job performance ($b = .12$, $p < .05$). Figure 2 shows the interaction pattern. The slope was negative for younger workers ($b = -.20$, $p < .01$) while the relation was not significant for older workers ($b = -.04$, ns). In sum, the relations between contract breach and changes in job satisfaction and job performance over time were stronger for younger workers than for older workers, thereby providing support for Hypothesis 2.

Supplementary Analyses

To estimate the validity of our results, we conducted a robustness test, by creating 10 random samples (each consisting of about 50% of the total sample) from the total dataset of 240 employees. Subsequently, hypotheses were tested for each of the 10 samples, producing 60 estimates of the interactions between age and the three contract breach types in relation to the outcomes (job satisfaction T2 and job performance T2). On average, power to detect significant interactions decreased from .47 in the original analyses (including 240 respondents) to .31 for the random samples. Coefficients ranged from $-.04$ to $.29$, $p < .001$, and delta R -squared ranged from .00 to .12. However, even though power to detect significant interactions substantially decreased due to the smaller sample sizes, 58 per cent of the interactions were

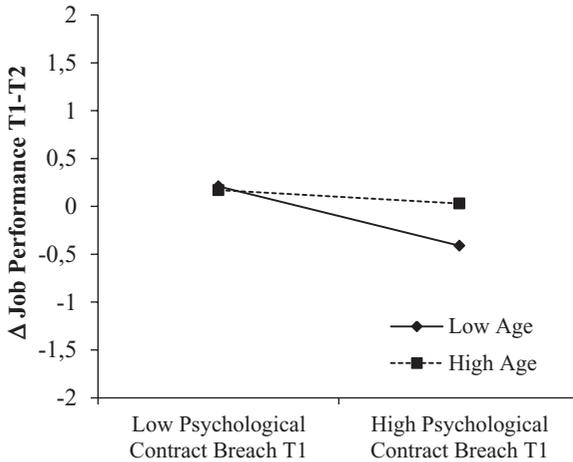


FIGURE 2. Interaction effect of contract breach and age in relation to change in job performance over time.

still significant, and in the same direction as the total interaction effects. In sum, we believe that our results can be largely replicated through random sampling.

An alternative explanation of the results could be that changes in workers' reactions towards psychological contract breaches are not the result of aging processes but occur because of longer tenure with the organisation (Rousseau & Parks, 1993; Wright & Bonett, 2002). Therefore, hypotheses were tested with organisational tenure as moderator in the relations of psychological contract breach with job satisfaction and performance. Neither the moderating effect of organisational tenure on the relations of contract breach with job satisfaction ($b = .00$) nor with job performance was significant ($b = .05$). Therefore, it can be concluded that less intense reactions of older workers to contract breaches are due to greater age rather than to longer tenure with their organisation.

DISCUSSION

The present study shows that job satisfaction partially mediates the longitudinal relationship between psychological contract breach and changes in job performance (Zhao et al., 2007). Moreover, the study shows that age has an important impact on how psychological contract breach is related to changes in work outcomes over time. Through perceptions of contract breach, in particular, people adapt their attitudes towards the organisation and conse-

quently the effort they put into the job (Zhao et al., 2007). However, the results showed that these relations are contingent on employee age; in general, younger workers react more intensely to contract breach, regardless of the type of breach (economic, socio-emotional, or developmental). The interaction patterns between age and contract breach revealed that in cases of serious contract breach, in particular, job satisfaction and job performance of younger workers became lower than those of older workers. A possible explanation is that older workers are able to buffer the negative effects of contract breach by regulating their emotions in a constructive way (Davis et al., 2009; Ng & Feldman, 2009). Even though contract breaches may be strongly related to changes in job satisfaction and job performance, older workers' job satisfaction and job performance are less influenced by contract breaches than younger workers'.

Perceptions of psychological contract breach have less impact on work outcomes among older workers than among younger workers. Alternative explanations of the current results were ruled out by showing that organisational tenure did not moderate the relations between contract breach and work outcomes, and that job characteristics were not significantly different among younger and older workers, and therefore older employees do not react differently to psychological contract breaches because they have more demanding or resourceful jobs than younger workers.

The findings of the current study are in line with notions of socio-emotional selectivity theory (Carstensen, 2006), which suggests that since older people focus increasingly on positive aspects in their work and avoid negative feelings, their satisfaction and performance are harmed less severely when contract breach occurs than is the case for younger workers. Another explanation for the current results can be found in emotion regulation (Gross, 2001). Accordingly, with increasing maturity people learn to cope with their emotions and are better at interpreting, managing, and deriving meaning from conflicting emotions (Diamond & Aspinwall, 2003). For instance, facing interpersonal tensions, older people are more likely to report fewer negative emotions than younger people (Birditt, Fingerman, & Almeida, 2005), and older people are better at regulating their emotions after negative events than younger people and are quicker at returning to positive moods (Carstensen, 1995; Carstensen et al., 2003; John & Gross, 2004). Therefore, consequences of emotional reactions tend to be more intense for younger people than for older people (Gross et al., 1997). This also applies to reactions to psychological contract breaches, where younger workers reacted more intensely in terms of decreased job satisfaction and job performance.

The findings of the current study are partly in line with the work of Zhao and colleagues (2007), who explained the relations of psychological contract breach with work outcomes using an affective events framework (Weiss & Cropanzano, 1996). Psychological contract evaluations are triggered by

events that take place and which are emotionally meaningful (Zhao et al., 2007). Emotions are informational and motivational (Izard, 2009). Thus, psychological contracts are inherently affective in nature (Morrison & Robinson, 1997). Therefore, taking an emotion regulation perspective on the effects of psychological contracts on job attitudes and work behaviors explains differences between younger and older workers in how they respond to contract fulfillments and breaches. Moreover, we have investigated three types of contract breach, which, due to their empirical overlap, we combined in one second-order breach factor in order to obtain a more parsimonious model. Previous research (e.g. Morrison & Robinson, 1997) has used contract breach as a single construct, and it may consist of assessments regarding multiple components in the psychological contract; these tend to correlate highly. Hence, the extent to which employees perceive their psychological contract to be broken consists of breach of multiple components rather than a specific domain. For future research on contract breach, how these components interact and complement each other should be further investigated.

The findings concerning job satisfaction were in contrast to those of Bal et al. (2008), who found in their meta-analysis that correlations of contract breach with job satisfaction were stronger for older workers than for younger workers. Bal et al. (2008) explained their finding in that job satisfaction is not primarily aimed at the organisation, such as trust in the organisation and commitment. However, these differences can be explained in that the current study used age of employees as a moderator, rather than a proxy of age by using mean age in the meta-analysis. Moreover, another explanation is that the current study was based in the Netherlands, and that older workers react less intensely because they have fewer job alternatives (Kooij et al., 2008, 2011). In other words, because they know that they could not easily find a new job, they maintain job satisfaction, even though their contract has been broken.

Limitations of the Present Study

The study also has some limitations. First, we could not distinguish between age and cohort effects. Hence, possible differences in reactions to psychological contracts might be attributed to generational differences as well as to aging processes (Schaie, 1986; Smola & Sutton, 2002). It might be that younger workers react more strongly to contract breaches because they were raised in a different age from the older workers, who were primarily baby boomers. Therefore, future research should also investigate generational differences in psychological contracts. Second, all data were collected through self-reports. This could lead to common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). However, through our longitudinal

design we have tried to minimise common method bias. Furthermore, the explained variance of the interaction terms was between 1 and 2 per cent. Although it may seem that the explained variance of the interactions was not high, previous research has shown that in field studies it might be harder to detect interaction effects (McClelland & Judd, 1993). Therefore, interaction effects of limited sizes are meaningful in understanding the role of age in organisational research. Finally, healthy worker effects could influence the results (Zapf, Dormann, & Frese, 1996). There is a selection effect of healthy people staying in the workforce and unhealthy people quitting the workforce. However, since older workers in the study are the healthy and motivated survivors, this study may be a study of survival behavior in organisations (Noonan, 2005). By reacting less intensely than younger workers to contract breach, older workers may survive within the organisation. Finally, a limitation was that we did not include emotional reactions as mediators in the relationships between contract breach and outcomes. Therefore, it could be that older workers react less intensely because they have fewer job opportunities. It is therefore imperative for future research to include the full model as proposed by Zhao et al. (2007), which includes emotions as well as work outcomes.

Suggestions for Future Research

This study focused on the moderating effects of age on self-reported work outcomes; future research should also investigate objective measures of work behaviors, such as objective performance, absenteeism, and turnover. In line with the findings of Zhao et al. (2007), psychological contract breach is related to several types of work behaviors, and it may be that age also moderates the relations of contract breach with objective outcomes.

Further, due to shortages in the labor market and recent changes in retirement ages, more people will be working after the age of 65. However, older workers (age > 50) are underrepresented in psychological contract research to date. We therefore need additional research that includes employees with a wider age range in order to investigate more specifically how older workers perceive their psychological contracts. It is also important to investigate how psychological contracts develop when people continue working after retirement, since it is likely that more and more workers will be active at an older age (Bal et al., 2010; Peterson & Spiker, 2005).

Finally, age is a proxy of several age-related changes that people experience, and refers to biological, psychological, social, and societal changes (De Lange, Taris, Jansen, Smulder, Houtman, & Kompier, 2006). For instance, age is linked to time spent within the organisation or job (Wright & Bonett, 2002), family status (Roehling, Roehling, & Moen, 2001), and to future time perspectives (Lang & Carstensen, 2002). Thus, the influence of age could be

a proxy effect of other relevant age-related factors. Future research should study in depth how age-related factors, such as tenure and family status, are related to the psychological contract.

Practical Implications

The results of the current study also have important implications for organisational practice. The study has shown that for younger workers it is important to fulfill the psychological contract to maintain and enhance positive attitudes towards the job. If they perceive that the employer does not fulfill its obligations towards them, their satisfaction will be lower and they will feel less obligated towards the organisation to perform well. For older workers, however, the impact of contract breaches is less visible. Older workers are more focused on positive emotions and tend to avoid negative emotions impacting their work, and they are also better at regulating emotions after negative events, such as contract breach. They are generally more benevolent employees (Ng & Feldman, 2008; Wagner & Rush, 2000), and their attitudes towards the job and their performance are less influenced by contract breach (Bal et al., 2008).

Therefore, organisations can benefit more from their older workers by offering them more complex tasks and projects, because older workers are better at regulating their negative emotions and dealing with complex issues (Bal et al., 2010). Older workers' decreased emotional responsiveness towards negative events at the workplace makes them more emotionally stable employees, and therefore attractive in work settings where regulation of emotions plays an important role, such as police work and teaching.

Conclusion

This study showed that age plays an important role in how psychological contract breach affects job attitudes and behaviors. We integrated theoretical perspectives from affective events theory (Weiss & Cropanzano, 1996), the model of emotion regulation (Gross, 1998), and socio-emotional selectivity theory (Carstensen, 2006) with psychological contract research and found that when people grow older, reactions towards psychological contract breach decrease in strength. Older workers have less intense reactions to psychological contract breach than younger workers, perhaps indicating better emotion regulation of older workers after psychological contract breaches.

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APPENDIX

Results of Scale Analyses using Confirmatory Factor Analysis

<i>Model</i>	χ^2	df	$\Delta\chi^2$	Δdf	<i>RMSEA</i>	<i>SRMR</i>	<i>CFI</i>
7-factor	633.28***	251	Baseline Model		.07	.06	.96
8-factor	622.55***	232	10.73 _{ns}	19	.09	.06	.96
9-factor	564.03***	198	69.25 _{ns}	53	.08	.06	.96
6-factor _a	1029.68***	257	396.40***	6	.11	.09	.88
6-factor _b	737.01***	257	103.73***	6	.09	.07	.94
5-factor	1351.77***	262	718.49***	11	.13	.13	.89
3-factor	1761.81***	269	1128.53***	18	.15	.14	.82
2-factor _a	1660.36***	271	1027.08***	20	.15	.10	.79
2-factor _b	2578.17***	271	1944.89***	20	.19	.24	.77
1-factor	2413.02***	272	1779.74***	21	.18	.14	.72

Note: *** $p < .001$; 7-factor: economic breach, socio-emotional breach, developmental breach, job satisfaction T1, job performance T1, job satisfaction T2, and job performance T2. 8-factor: economic breach, socio-emotional breach, developmental breach, a second-order factor of the three types of psychological contract breach, job satisfaction T1, job performance T1, job satisfaction T2, and job performance T2. 9-factor: economic breach, socio-emotional breach, developmental breach, a second-order factor of the three types of psychological contract breach, job satisfaction T1, job performance T1, job satisfaction T2, job performance T2, and all items to an unmeasured latent factor. 6-factor_a: economic breach, socio-emotional breach, developmental breach, job satisfaction T1 and T2, job performance T1, and job performance T2. 6-factor_b: economic breach, socio-emotional breach, developmental breach, job satisfaction T1, job performance T1 and T2, job satisfaction T2. 5-factor: contract breach (economic, socio-emotional, and developmental breach), job satisfaction T1, job performance T1, job satisfaction T2, and job performance T2. 3-factor: contract breach (economic, socio-emotional, and developmental breach), job satisfaction T1 and T2, and job performance T1 and T2. 2-factor_a: contract breach and job satisfaction (economic, socio-emotional, developmental breach, and job satisfaction T1 and T2), and job performance T1 and T2. 2-factor_b: contract breach (economic, socio-emotional, and developmental breach) and work outcomes (job satisfaction T1 and T2, and job performance T1 and T2). 1-factor: All items loading on one factor.