

A META-ANALYSIS OF AGING, TENURE, THE PSYCHOLOGICAL CONTRACT,
AND WORK-RELATED OUTCOMES

Running Head: Psychological Contracts and Age

P. MATTHIJS BAL

Department of Management & Organization, VU University Amsterdam, the Netherlands

ANNET H. DE LANGE

Department of Social and Organizational Psychology, University of Groningen, the
Netherlands

PAUL G.W. JANSEN

Department of Management & Organization, VU University Amsterdam, the Netherlands

MANDY E.G. VAN DER VELDE

Utrecht School of Governance, Utrecht University, the Netherlands

Correspondence to: Matthijs Bal, Department of Management & Organization,
VU University Amsterdam, De Boelelaan 1105, 1081 HV Amsterdam, The Netherlands.
Ph. 0031 20 5986187 E-mail: pbal@feweb.vu.nl

ABSTRACT

In this meta-analysis the size and nature of the relations between aging, organizational tenure, psychological contracts, and work-related outcomes were examined. It was expected that aging and organizational tenure would be positively related to content of the psychological contract and relational contracts, and negatively related to transactional contracts. Next, it was expected that psychological contract breach was related to a number of affects, behavioral intentions and behavior. Furthermore, the relations between aging, tenure and outcomes (affects, behavioral intentions, and behavior) were investigated. Finally, aging and tenure were investigated as moderators in the relation between psychological contract breach and affective and behavioral outcomes.

The results of $k=94$ studies revealed no direct relations between aging, tenure, and content and types of psychological contracts. However, psychological contract breach was related to affective and behavioral outcomes, and aging was related to commitment, turnover intentions and performance. Moreover, our results revealed that aging moderated the relations between psychological contract breach and commitment, perceived organizational support, and organizational citizenship behaviors, indicating stronger reactions on contract breach among young employees compared to older employees. The conclusions, theoretical as well as practical implications of these results are discussed.

Keywords: aging, age-related variables, psychological contract, meta-analysis

Introduction

The workforce in the US and Europe is aging rapidly (Ashworth, 2006; Brooke & Taylor, 2005; European Commission, 2005; Griffiths, 1997; Kanfer & Ackerman, 2004). The number of people aged over fifty in Europe will increase with 25%, (i.e. approximately 13 million people) in the next 25 years, whereas the number of young adults (25-39 years old) will decrease with 20%, i.e. about 20 million people (European Commission, 2005). Moreover, an increasing number of older workers will not retire before the age of 65 (Collins, 2003; De Lange et al., 2006; Schein, 1996).

As a consequence, the available workforce of organizations will increasingly be composed of older workers, and organizations will have to put more effort in retaining and motivating their older workers. Organizational policies, which were traditionally focused on younger workers, will have to be tailored to older workers (Hedge, Borman, & Lammlein, 2006; Schein, 1996). At the same time, the nature and type of the relationship, or working contracts, between employers and their employees has changed due to trends like downsizing, organizational change and globalization of the labor market. Instead of life-time employment within one organization, employees face increased job insecurity and job turnover (Farr & Ringseis, 2002).

This 'working contract' has been conceptualized as the *psychological contract* (Morrison & Robinson, 1997; Rousseau, 1989). It refers to the employees' beliefs regarding the terms of the exchange agreement between the employee and the organization (Rousseau, 1995).

Previous research suggests that the psychological contract may be crucial in motivating workers because fulfillment of psychological contracts leads to job satisfaction and commitment to the organization (Guest, 1998; Tekleab, Takeuchi & Taylor, 2005). Some

authors have argued that due to aging or seniority at work, the psychological contract will also change (Farr & Ringseis, 2002; Lester, Kickul & Bergmann, 2006; Rousseau, 1989). For instance, according to Farr & Ringseis (2002), older workers think they deserve more entitlements than younger workers, due to their experience and seniority. Although a number of reviews on the psychological contract have been published (*cf.* Anderson & Schalk, 1998; Cullinane & Dundon, 2006; Guest, 2004a,b; Guest & Conway, 2003; Roehling, 1997; Taylor & Tekleab, 2004), and on aging in organizations (Hansson, DeKoekkoek, Neece & Patterson, 1997; Sterns & Miklos, 1995; Warr, 1994, 2001), up until now no review has linked these two important factors age and the psychological contract.

The present meta-analysis aims to overcome these limitations by examining: the size and nature of the relations between aging, organizational tenure and the psychological contract. In this meta-analysis the relations between aging, organizational tenure and the content and types of psychological contracts are investigated, as well as relations between psychological contract breach and attitudinal and behavioral outcomes, and the moderating role of aging and tenure in these relationships.

Before discussing the specific research questions of the current meta-analysis, we will start with a brief overview of the conceptual background of the psychological contract.

Conceptual development of the psychological contract. In general, psychological contract relates to the employee-employer relationship (Rousseau, 1995). Yet, there is an ongoing debate about how to best conceptualize the psychological contract in a more specific sense (Anderson & Schalk, 1998; Conway & Briner, 2005; Cullinane & Dundon, 2006; Guest, 1998a,b, 2004; Rousseau, 1998; *cf.* Table 1 with different conceptualizations found in

earlier research). For instance, opinions differ on whether the psychological contract consists of the employee's perceptions of obligations between the employee and the organization (Rousseau, 1989, 1990, 1995, 2001), or whether it relates to an agreement between employee and organization (Guest, 1998a,b; Guest & Conway, 2002; Herriot & Pemberton, 1996, 1997; see Cullinane & Dundon, 2006 for a conceptual review). In Table 1 the various conceptualizations of the psychological contracts are presented.

<Table 1 here>

In this study we will conceptualize the psychological contract by applying attitude-behavior theories (Ajzen & Fishbein, 1980; Breckler, 1984; Eagly & Chaiken, 1993; 1998; Pratkanis & Greenwald, 1989). The attitude-behavior framework is useful: (1) to incorporate different conceptualizations of the psychological contract, and (2) to understand the relations between aging, tenure and the psychological contract.

In earlier conceptualizations, the content of the psychological contract was described as beliefs of the employee regarding mutual obligations, promises and expectations between the employee and the employer (Guest, 1998; Rousseau, 1995). Employees evaluate what they receive from their employer in relation to what they think they should receive (Morrison & Robinson, 1997). A negative comparison may result in a negative attitude. An attitude is defined as the psychological tendency to evaluate a particular entity (e.g., object or thought) with favor or disfavor (Eagly & Chaiken, 1993; Pratkanis & Greenwald, 1989). An attitude can be observed through cognitions or affects. Cognitions include perceptions

of ‘contract breach’, and affects include feelings of ‘contract violation’ (i.e. anger, frustration, Morrison & Robinson, 1997; Robinson & Morrison, 2000), job satisfaction, commitment, and trust (Rousseau, 1995). In the psychological contract model of Morrison & Robinson (1997) cognitions of breach precede feelings of violation. Finally, an attitude leads to a behavioral intention (e.g. turnover intention), which might be followed by actual behavior (e.g., actual turnover; Ajzen, 1991; Eagly & Chaiken, 1993,1998).

Figure 1 presents a summary model of the aforementioned theoretical notions. This model serves as a meta-model, in which existing conceptualizations of the psychological contract can be incorporated. In the next sections, we will explain each path in the model (marked by a letter) and formulate the research questions. As can be seen in the model, aging and tenure are primarily related to *content* of the psychological contract, whereas psychological contract *breach* is assumed to be related to affective and behavioral outcomes. Content of the psychological contract is conceptualized as the employees’ perceived obligations, promises and expectations of the employer (Guest, 1998; Rousseau, 1995), whereas psychological contract breach is conceptualized as the evaluation of the extent to which these obligations, promises, and expectations are fulfilled or unfulfilled (Rousseau & Tijoriwala, 1998). First, we will discuss the concept of aging and the influence of aging and tenure in the development of the psychological contract (path A in Figure 1).

<Figure 1 here>

Aging. The factor age has often been used as control variable or confounder in previous studies on psychological contracts (e.g., Coyle-Shapiro & Conway, 2005; George, 2003).

However, the reasons to control for the influence of age have scarcely been given. De Lange et al. (2006) argue that age should be viewed as a proxy measure of other age-related variables (in line with: Kanfer & Ackerman, 2004; Sterns & Miklos, 1995; Warr, 2001). Age can best be seen as a multidimensional concept which refers to changes in biological, psychological, social, as well as societal functioning across time (De Lange et al., 2006). That is, next to *chronological age*, other age-related variables may explain differences in attitudes and behaviors at work (Cleveland & Shore, 1992; Henderson, Goldsmith & Flynn, 1995; Kaliterna, Larsen & Brkljacic, 2002). De Lange et al. (2006) have proposed a framework for studying definitions of the concept of aging. Based on earlier work of Sterns and Doverspike (1989), chronological, functional, psychosocial, organizational, and life-span age were distinguished as separate operationalizations of age. In the present meta-analysis, we will focus on: chronological or calendar age and organizational tenure (i.e. how many years one works within the current organization). Other age-related variables (e.g., job tenure, work experience) may also influence the psychological contract, but these factors have scarcely been investigated in relation to psychological contracts, and, as a consequence, are not included in the meta-analysis.

Question 1a: What is the relation between aging, tenure, and content of the psychological contract? In studies of the psychological contract and its relations with attitudes and behaviors (Guest, 1998, 2004; Morrison & Robinson, 1997; Taylor & Tekleab, 2004), age has not been a factor of major interest. Nevertheless, previous research does provide some valuable clues for understanding the relation between aging, tenure and psychological contracts. For example, Guest's model (2004) of the psychological contract contains (chronological) age and tenure as contextual factors which possibly influence the

relations between organizational policies and practices, and the psychological contract. When people grow older, their perceptions about what they should receive from their employer may change (Schein, 1978). Moreover, when employees are longer in the organization their perceptions of the psychological contract may change as well (Lester et al., 2006; Rousseau, 1989). Rousseau (1989) stated that with longer tenure within organizations, employees have higher expectations of their employers. As young employees are often new in organizations and relatively inexperienced they may feel that they first have to prove themselves to their employers in order to expect something in return, whereas older workers already have proven themselves to their employers and, as a result, they have higher expectations (Robinson, Kraatz & Rousseau, 1994). Moreover, employees with long tenure may have higher expectations of their employer because of their loyalty to the organization. Due to their years of hard working and loyalty to the organization, employees may perceive that their employers should offer them more inducements than young employees (Robinson et al., 1994; Rousseau, 1989). Such age-related differences were recently confirmed for a number of psychological contract dimensions in a study of Westwood, Sparrow and Leung (2005). They found that the employees' perceptions of employers' promises to provide a secure and rewarding job, was lowest among the youngest group of employees, and increased linearly with age. Further, perceptions of employers' promises to provide an intrinsically satisfying and challenging environment were characterized by an inverted U-shape. According to Farr and Ringseis (2002), older workers may experience a more severe contract violation compared to younger workers when the employer does not fulfill its obligations, because they think they should receive more because of their seniority. Thus, it is expected that when people grow older and have

longer tenure in the organization, their perceptions of their employers' obligations increase. As a consequence, our first hypothesis is that: *Chronological age and organizational tenure are positively related to content of the psychological contract (conceived as employee's beliefs about obligations, promises and expectations of the organization; hypothesis 1a).*

Question 1b: What is the relation between aging, tenure, and relational and, transactional psychological contracts? Researchers have stated that not only the strength of psychological contract obligations may differ with age, but also specific types of contracts may be age-related (Rousseau & McLean Parks, 1993). In psychological contract theory, authors have distinguished several types of psychological contracts (Rousseau, 1995; Rousseau & McLean Parks, 1993). The main distinction is between transactional contracts and relational contracts (Morrison & Robinson, 1997). Regarded as two ends of a continuum, the transactional and relational contracts are assumed to be unipolar. On the one hand, transactional contracts are described as short-term financial exchanges between the employee and the organization, characterized by little mutual involvement of the parties (Rousseau & McLean Parks, 1993). On the other hand, relational contracts are characterized by a long-term relation between the employee and organization, in which both socio-emotional and financial elements are exchanged. It can be argued that with increasing tenure, employee and organization develop a more relational contract (Rousseau & McLean Parks, 1993). In the beginning of an employment relationship, the focus may be on transactional exchanges, since mutual trust has to be established between the two parties, and hence the focus is on the short-term. The relation between longer-tenured employees and the employer will focus not solely on exchanges of goods or services, but

the focus will be more on socio-emotional exchanges, such as loyalty of the employee towards the organization, and fair treatment by the organization. As a consequence, employees will be more committed to the organization. Therefore, we hypothesize that: *Chronological age and organizational tenure are negatively related to transactional psychological contracts and positively related to relational psychological contracts (Hypothesis 1b).*

Question 2: What is the relation between psychological contract breach and affective and behavioral outcomes? Whereas aging and tenure may have an impact on the perceptions of obligations, perceptions of obligation fulfillment may also lead to work-related attitudes and behaviors. According to the model in Figure 1, when evaluations of obligations and inducements (i.e. perceptions whether the employer has fulfilled its obligations) are negative, often labeled as “psychological contract breach” in the literature, an affective reaction will follow (path B in Figure 1). When the employer does not fulfill its promises and/or obligations the employee may be less satisfied with the job, and will be less committed to the organization (Guest, 1998; Rousseau, 1995). Psychological contract breach has been related to dissatisfaction (Rousseau, 1995), feelings of anger and frustration (Morrison & Robinson, 1997), lower trust in the organization and the employee (Robinson, 1996), the feeling that the organization offers less support (POS; Coyle-Shapiro & Conway, 2005), lower perceived fairness (Guest, 1998), increased negative affectivity (Kickul, 2001b), and a decline in organizational commitment (Bunderson, 2001). Therefore, we hypothesize that: *Psychological contract breach is negatively related to job satisfaction, organizational commitment, perceived organizational support, trust in the*

organization and perceived justice, and positively related to feelings of violations and negative affectivity (Hypothesis 2a).

Negative contract evaluations may also lead to turnover intentions (path C in Figure 1) and actual turnover (path D; Rousseau, 1995). Moreover, employees may respond to unfulfilled obligations by lowering their organizational citizenship behaviors (OCB; Coyle-Shapiro, 2002) and performance (Tekleab & Taylor, 2003). Based on these results, we hypothesize that: *Psychological contract breach is positively related to turnover intentions, and negatively related to job performance and organizational citizenship behaviors (Hypotheses 2b).*

Question 3: What is the relation between aging, tenure and affective and behavioral outcomes? Next to influencing content of psychological contracts (path A in Figure 1), aging and tenure may also have a direct impact (path E in figure 1) on attitudes and behaviors (Warr, 1994). Earlier reviews have revealed that age is related to some attitudes and behaviors at work (Sterns & Miklos, 1995; Warr, 1994, 2001). For instance, Hansson et al. (1997) stated that seniority (i.e. high chronological age) increased commitment to the organization and decreased intention to leave the organization (cf. Allen & Meyer, 1993; Hedge, Borman, & Lammlein, 2006; Sterns & Miklos, 1995). However, the relation between age and job satisfaction is found to be U-shaped (Hedge et al., 2006; Warr, 1994), resulting in a low overall correlation between age and job satisfaction. Other meta-analyses on relations between age, tenure, and POS (Rhoades & Eisenberger, 2002), perceived justice (Cohen-Charash & Spector, 2001), and trust (Dirks & Ferrin, 2002) showed low correlations. Previous meta-analyses on the relations between age and job performance

have revealed that this relation is small and dependent on the type of demands of a particular job (McEvoy & Cascio, 1989; Waldman & Avolio, 1986; Warr, 2000). In a study of Wagner and Rush (2000), it was shown that age did not have a direct impact on OCB's but moderated the relations between antecedents and OCB. As a consequence, the third research question in this meta-analysis concerns the evidence of relations between age, tenure and attitudes and behavior. More specifically we hypothesize that: *Aging and tenure are positively related to commitment and negatively related to turnover intentions. Aging and tenure are not related to job satisfaction, perceived organizational support, trust, perceived justice, negative affectivity, performance, and organizational citizenship behaviors (Hypothesis 3).*

Aging and tenure may be directly related to attitudes and behaviors at work. However, researchers have proposed that aging and tenure may act as moderators in relations between contract breach and outcomes. In the next section, we discuss these relationships.

Question 4: Which moderating effects do age, tenure, design, measure, and publication source have on the relations between psychological contract breach and affective and behavioral outcomes? Aging and tenure may function as a moderator in the relation between psychological contract breach and attitudes and behaviors (path F in Figure 1). Farr and Ringseis (2002) stated that contract violations may have stronger impact on attitudes and behavior among older workers than among young workers, because older workers may feel that they are entitled more than younger employees. Therefore age and tenure may have a moderating effect on the relation between contract breach and outcomes.

However, since there is no conclusive evidence of the moderators, we do not postulate a specific hypothesis.

Other moderators may influence correlations of single studies as well and may cause differences in correlations between studies. For instance, research design and measures may have an impact on the relations between the variables. In this study the following moderators were also investigated: First, correlations are assumed to be higher when they are measured at the same time points, due to systematic covariation (i.e. common method bias: Podsakoff, MacKenzie, Lee & Podsakoff, 2003). Therefore, we will investigate whether correlations of longitudinal studies and cross-sectional studies differ. Second, the measurement procedure of psychological contract breach may have an impact on the correlations. Two kinds of measurements have been employed in earlier studies: specific and global measurements of breach. Specific breach is measured by providing a list of specific items (e.g., training obligations, high pay) which the employer has, or has not, fulfilled, as perceived by the employee (Robinson et al., 1994). Global breach is measured by asking employees how well their employers *in general* have fulfilled obligations (Robinson & Morrison, 2000). Third, publication bias (Hunter & Schmidt, 2004) may be present as a consequence of the tendency that significant results have a larger probability to be published in journals compared to non-significant results. Therefore, dissertations, conference papers, and working papers were also included in the meta-analysis. A moderator analysis may reveal whether there are differences between peer-reviewed articles and other manuscripts. Further analyses on differences in correlations between dissertations, conference papers and research reports could not be conducted due to limitations in number of studies and respondents. The last research question is:

Which effect do aging and tenure, research design, psychological contract breach measures, publication source have on the relations between psychological contract breach and affective and behavioral outcomes?

In sum, the overall aim of this new meta-analytic review is to provide more knowledge about the role of aging in psychological contract theory as well as the role of aging within organizations. Using the method of meta-analysis, results from a number of studies can be summarized statistically (Hunter & Schmidt, 2004), providing more information than earlier (systematic reviews of) single studies only. Summarizing, we will pay attention to the following research questions:

1. What is the relation between aging, tenure and content and types of the psychological contract?
2. What is the relation between psychological contract breach and affective and behavioral outcomes?
3. What is the relation between aging, tenure and affective and behavioral outcomes?
4. Which moderating effects do age, tenure, design, measure, and publication source have on the relations between psychological contract breach and affective and behavioral outcomes?

Method

Search Strategy

In order to find relevant articles about the psychological contract, several search strategies were conducted. First, the ABI-Inform, Psycinfo, and Medline databases (1989-2006) were

investigated using key-terms as psychological contract(s), contract violation(s), contract breach, contract feature(s), contract dimension(s), contract content, promise(s), and mutual obligations. Databases were searched after 1989, since in that year Rousseau published the redefinition of the psychological contract (Rousseau, 1989). In addition, the reference lists of several (review-) articles about the psychological contract were scrutinized (Anderson & Schalk, 1998; Shore et al., 2004), as well as reference lists of articles which were obtained from the database searches. Furthermore, electronic searches were conducted among a wide range of journals, such as *Journal of Applied Psychology*, *Journal of Organizational Behavior*, and *Academy of Management Journal*.

Presenters at the Annual Academy of Management Conference (2005, 2006) who presented papers about psychological contracts were emailed and asked to send their papers (see, e.g., Bingham, 2005; Dulac, Coyle-Shapiro, Henderson & Wayne, 2006). In order to obtain as much unpublished studies as possible and avoid publication bias, authors of the published articles were mailed and asked whether they had or knew relevant unpublished studies. In total, these searches obtained 347 articles and studies on psychological contracts¹.

Subsequently, theoretical papers, qualitative studies and studies which were not in English or Dutch were eliminated; resulting in a database of 157 studies on the psychological contract. Next, only studies with samples of employees working in organizations were taken into account since the psychological contract describes the mutual obligations between employees and their organizations (Rousseau, 1995); studies with students in experiments (Edwards, Rust, McKinley & Moon, 2003), costumers and suppliers (Koh, Ang & Straub, 2004), and buyers and sellers (Pavlou & Gefen, 2005) were eliminated.

¹ A list of publications can be obtained from the first author

There were a number of studies conducted with samples of (MBA-) students working in organizations (e.g. Robinson & Rousseau, 1994). When these studies focused on their psychological contracts with their organizations, these studies were included in the meta-analysis.

The studies were coded, and it was indicated whether psychological contract content, types, and/or breach was measured, whether relations were reported between age and/or organizational tenure and the psychological contract measures, and outcomes. A number of articles did not report correlations between age-related variables (i.e. chronological age, organizational tenure) and measures of the psychological contract. These authors were emailed and kindly requested to send the correlations, if available.

Correlations of an additional 10 studies were obtained by this search (e.g., De Cuyper & De Witte, 2006). Of the final dataset of 94 studies, 74% were empirical peer-reviewed journal articles, 13% conference papers, 9% dissertations, and a final 4% were working papers. An assumption of meta-analysis is that samples are independent (Hunter & Schmidt, 2004). When multiple articles were published from the same respondent database (e.g., Coyle-Shapiro & Kessler, 2000, 2002a), the most recent publication was used for the analyses.

Variables. The *content of the psychological contract* was operationalized as the employers' obligations and promises towards the employee, as perceived by the employee (e.g., indicate the extent to which you believe your employer is obliged to provide up to date training and development; Coyle-Shapiro & Conway, 2005). Further, correlations were obtained between age and transactional and relational psychological contracts. Only correlations from articles in which the separate factors transactional and relational contracts

were distinguished were taken into account for research question 2b. Other factors, types or contract dimensions have been proposed (Tallman, 2006; Ten Brink, 2004), but these were not part of the meta-analysis. We calculated relations between psychological contracts and the following *age-related variables*: chronological age and organizational tenure (see Cohen, 1991).

Psychological contract breach is defined as ‘the cognition that one’s organization has failed to meet one or more obligations within one’s psychological contract (Morrison & Robinson, 1997). Although a number of researchers have labeled breach as violations of the psychological contract (e.g., Sutton & Griffin, 2004), in this meta-analysis it was considered as breach when cognitions were measured. Moreover, many researchers have measured fulfillment (i.e., asking employees to which extent organizations have fulfilled their obligations). Correlations of fulfillment with outcomes were reversed to indicate psychological contract breach. Studies in which a number of obligations were reported in stead of a single measure of obligations (e.g. Cassar, 2001; Ten Brink, 2004), the correlations were averaged.

Considering affective and behavioral *outcomes* of the psychological contract, organizational commitment was operationalized as affective organizational commitment. Trust was included when trust in the employer or organization was measured, and excluded in the case that trust in co-workers or other forms of trust was measured. Performance could be assessed by the employee or by a manager, supervisor or employer. Turnover intentions are also operationalized as intention to stay, remain, quit or leave (the organization). In the case that intention to stay or remain was measured, the correlation was reversed to indicate turnover intention.

Statistical procedure. The formulas of Hunter and Schmidt (2004) were used for the meta-analysis. The analyses were performed with the statistical software of Schmidt and Le (2004). The random-effects model will be used, since studies are not assumed to obtain similar correlations (Hunter & Schmidt, 2004). Four possible moderators are investigated; research design, measures, publication source, and age and tenure. Whereas the first three moderators are nominal variables, the latter are mostly investigated as a discrete variable (see Appendix A for an overview of the studies). In order to investigate the moderating role of age and tenure, we first calculated the weighted mean of age ($M=37.6$ years) and tenure ($M= 7.57$ years) for the total sample of the meta-analysis (see also Cohen, 1993; McEvoy & Cascio, 1989). Most studies reported mean age and mean organizational tenure. Some studies reported age and/or tenure ranges. These studies were not taken into account in the moderator analysis because mean age and/or tenure could not be calculated. Then, we classified studies into two groups for each moderator, including studies with mean age smaller than 37.6 (*Group Weighted Mean*=32.49) vs. larger than 37.6 ($M=42.03$) and a group with studies with a mean tenure smaller than 7.57 ($M=4.94$) vs. larger than 7.57 ($M=9.58$).

The correlations between the predictors and outcomes were corrected for the ‘artifacts’ of sample size and measurement error. Objective criteria (i.e. chronological age, organizational tenure) were not corrected for measurement error. Not all studies reported reliability statistics. Wherever reliability was not reported, the average of the reliabilities of the other was used (see Hunter & Schmidt, 2004).

Moderators. Two statistical conditions are important in a moderator-analysis in meta-analysis. First, average correlations for the groups created by the moderating variables must

differ largely, and, second, within-group variances of the average correlations must decrease compared to the variance of the average non-moderated correlations (Schmidt & Hunter, 2004). When these conditions are met moderators are likely to be present. In this meta-analysis, moderator-analyses were conducted only when there were sufficient studies and respondents to make relevant interpretations.

Results

Description selected studies.

In appendix A, the descriptive characteristics are presented from the sample of $k=94$ studies. Of the selected studies, 72% was conducted among employees in organizations, 21% among (MBA-) students (questions referring to their jobs), and an additional 7% of the studies was conducted among managers. The mean weighted age of the total sample was 37.6 years old (range of mean age 18 to 47.54 years) and the mean weighted organizational tenure of the total sample was 7.57 years (range of mean tenure 1.20 to 21 years). Of the total sample, 52% was female.

Tables 2-5 show the results of the meta-analyses. In the tables, the following statistics are reported: the number of studies (k), the number of total respondents in the separate meta-analyses (N), the sample size weighted mean observed correlation (r), the true score correlation (ρ), the standard deviation (SD) of ρ , the 80% credibility interval of ρ , and the percentage variance explained by the artifacts (see Hunter & Schmidt, 2004).

Tables 2-5 show that the percentages explained variance differs largely across the investigated outcomes. For some correlations, as much as 100% of the variance is explained by study artifacts (e.g., the relation between age and perceived organizational

support). This is often the consequence of a limited number of studies and respondents included in a meta-analysis (Hunter & Schmidt, 2004). When lower percentages of explained variances are found, it is likely that moderators are present in the relation between two variables, causing the different correlations obtained between studies.

Question 1a: What is the relation between aging and tenure and content of the psychological contract? As can be seen in Table 2, both age ($\rho = -.05$) and organizational tenure ($\rho = .02$) have low true score correlations with content of the psychological contract. Almost 21% of the variance in the age-psychological contract relation was explained by study artifacts, and almost 30% of the variance in the organizational tenure – psychological contract relation was explained by study artifacts. Further, both credibility intervals included zero, meaning that the relations of these studies cannot be generalized to the population. In this meta-analysis no significant relations between age, tenure and the content of the psychological contract were found. Thus, hypothesis 1a was not supported.

Question 1b: What is the relation between aging, tenure and relational and transactional psychological contracts? Table 2 shows the meta-analytic results of the proposed relations between aging and the two main types of psychological contracts, namely transactional and relational contracts. Like the correlations between aging and overall content of the psychological contract, the relations between age and transactional ($\rho = -.03$), relational contracts ($\rho = -.06$), as well as between organizational tenure and transactional ($\rho = .01$) and relational contracts ($\rho = .04$), are close to zero. All credibility intervals included zero. The relation between age and relational contract is worth mentioning, since the credibility interval ranged from $-.27$ to $.14$, indicating possible

moderators in this relation (explained variance: 12.70). In sum, hypothesis 1b was not supported.

<Table 2 here>

Question 2: What is the relation between psychological contract breach and affective and behavioral outcomes? The results are shown in Table 3. Psychological contract breach is related to job satisfaction (true score correlation $\rho = -.52$), affective commitment ($\rho = -.39$), perceived organizational support ($\rho = -.43$), trust ($\rho = -.62$), perceived justice ($\rho = -.48$) feelings of violations ($\rho = .69$), and negative affectivity ($\rho = .24$): supporting hypothesis 2a. Furthermore, psychological contract breach is related to turnover intentions ($\rho = .41$), performance ($\rho = -.22$), and OCB ($\rho = -.19$): supporting hypothesis 2b. Especially job satisfaction, trust in the organization and feelings of violations are highly correlated with contract breach. The correlations between psychological contract breach and affective outcomes (job satisfaction, affective commitment, POS, trust, justice, and feelings of violation) are higher than the relations between contract breach and turnover intentions and behavior (performance, OCB). All true score correlations do not include zero, except for the correlation between contract breach and organizational citizenship behaviors, implying that the correlations are generalizable except for the relation between contract breach and OCB's. In sum, hypotheses 2a and 2b were supported by our results.

<Table 3 here>

Question 3: What is the relation between aging, tenure and affective and behavioral outcomes? Table 4 shows the meta-analytic results. A positive correlation was found between age and affective commitment ($\rho = .13$), and a negative correlation between age and turnover intention ($\rho = -.16$), supporting hypothesis 3. However, the credibility interval of the age – commitment relation included zero, indicating that this true score correlation cannot be generalized. Furthermore, there is a small positive correlation between age and job satisfaction ($\rho = .07$), and a small negative correlation between organizational tenure and job satisfaction ($\rho = -.02$). However, the credibility intervals included zero. Neither for POS, nor for trust, justice or negative affectivity were large correlations found with age or organizational tenure. Nonetheless, some findings are noteworthy: the relations between age and POS ($\rho = -.05$), and between tenure and POS ($\rho = -.09$) were small but consistent negative, and did not include zero in the credibility intervals. This is also true for the relation between age and perceived justice ($\rho = -.07$), indicating that when people age, they may receive relatively less support from the organization, and may perceive being treated less fairly compared to younger employees.

Tenure correlated negatively with turnover intentions ($\rho = -.07$), although the correlation was weak and the credibility interval included zero. There was a positive correlation between age and performance ($\rho = .12$), and a small positive correlation between age and OCB ($\rho = .08$). Tenure correlated positively with job performance ($\rho = .06$) and OCB ($\rho = .06$). In sum hypothesis 3 is partially supported; the relations with commitment and turnover intentions were confirmed for age, and relations were found between age and job

performance. However, only small correlations were found between organizational tenure and affective and behavioral outcomes.

<Table 4 here>

Question 4: Which effect do aging, tenure, research design, psychological contract breach measures, publication source have on the relations between psychological contract breach and affective and behavioral outcomes?

Aging and tenure. Age moderated the relations between psychological contract breach and commitment (age <37.6: $\rho = -.46$; SD = .10; age >37.6: $\rho = -.34$; SD = .10), perceived organizational support (age <37.6: $\rho = -.59$; SD = .19; age >37.6: $\rho = -.40$; SD = .04), and organizational citizenship behaviors (age <37.6: $\rho = -.26$; SD = .17; age >37.6: $\rho = -.19$; SD = .00). There were differences in correlations found between the younger and older samples concerning the relations between contract breach and trust (age <37.6: $\rho = -.68$; SD = .13; age >37.6: $\rho = -.56$; SD = .13) and turnover intentions (age <37.6: $\rho = .42$; SD = .15; age >37.6: $\rho = .27$; SD = .18). However, standard deviations did not decrease compared to the non-moderated correlations. This was also the case for the moderator variable tenure: there were differences between short-tenured samples and long-tenured samples in the relations between contract breach and trust (tenure <7.57: $\rho = -.70$; SD = .13; tenure >7.57: $\rho = -.51$; SD = .16) and turnover intentions (tenure <7.57: $\rho = .42$; SD = .13; tenure >7.57: $\rho = .37$; SD = .21). Job satisfaction was not moderated by age or tenure, and commitment and OCB's were not moderated by tenure. In sum, age acted as a moderator between contract breach and commitment, POS, and OCB. Furthermore, differences in correlations were

found for relations between contract breach and trust and turnover intentions (both aging and tenure) but variances did not decrease.

Research design. No differences in correlations were found between longitudinal versus cross-sectional studies in the relations between contract breach and job satisfaction and commitment. Longitudinal studies on relations between contract breach and trust resulted in smaller correlations than cross-sectional studies did. The true correlations differed largely (cross-sectional: $\rho = -.67$; longitudinal: $\rho = -.48$), and the standard deviations decreased for the longitudinal studies (cross-sectional: $SD = .11$; longitudinal: $SD = .07$). The correlation between contract breach and turnover intentions was somewhat lower in longitudinal studies than in cross-sectional studies (cross-sectional: $\rho = .42$; longitudinal: $\rho = .35$) but variances did not decrease (all SD 's were $.14$). In sum, research design moderated the relation between contract breach and trust, indicating stronger relations for cross-sectional studies than for longitudinal studies.

Measures. Breach measure acted as a moderator in the relation between contract breach and commitment, and POS. The relations between contract breach and affective commitment was stronger when contract breach was measured with a global scale of contract breach (global: $\rho = -.54$; specific: $\rho = -.37$) and the standard deviation decreased (global: $SD = .07$; overall correlation: $SD = .12$). Global measures of POS were stronger related with contract breach than specific measures (global: $\rho = -.62$; $SD = .18$; specific: $\rho = -.40$; $SD = .04$). For turnover intentions, the correlations differed somewhat global: $\rho = .50$; $SD = .16$; specific: $\rho = .38$; $SD = .13$). However, standard deviations did not decrease in relation to the standard deviation of the non-moderated correlations. The relations between contract breach and job satisfaction and job performance were not moderated by the type of breach

measure. Summarizing, breach measure moderated relation between contract breach and commitment and POS, indicating stronger relations for global measures than for specific measures.

Publication source. For performance, the correlations found in publications other than in peer-reviewed journals were smaller than the correlations reported in the peer-reviewed journals (journal: $\rho = -.24$; other source: $\rho = -.16$), and the standard deviation decreased compared to the standard deviations of the overall correlation (journal: $SD = .09$; other source: $SD = .00$). The relations between contract breach and job satisfaction, commitment, perceived organizational support, turnover intentions, and OCB's are not moderated by publication source. In sum publication source moderated the relations between contract breach and performance, indicating higher correlations for journal articles than for other sources.

In sum, mixed results have been found for the moderating role of design, measures, and publication source.

Discussion

The aim of this meta-analysis was to examine the size and nature of the relation between aging, tenure, the psychological contract and behavioral versus affective outcomes. More specifically, four research questions were examined using results of $k=94$ studies examining aging, tenure, psychological contracts and outcomes. We will summarize the main findings of each research question, and will pay attention to the theoretical as well as practical implications of our findings.

Question 1a-b: Aging, tenure, and (types of) psychological contracts. In this meta-analysis it was expected that psychological contracts change with aging and increasing tenure. On the one hand, chronological age may have an impact on perceived obligations of the employer, because of changing needs when people grow older (Schein, 1978). On the other hand, increasing tenure may have an impact on the psychological contract (Farr & Ringseis, 2002; Rousseau, 1989), because employees who have been loyal to an organization, may think they are entitled more than younger employees. Both propositions were not confirmed in this study. Neither chronological age, nor organizational tenure were related to perceived obligations or a specific type of contract (i.e. transactional or relational). An important implication of our findings is that our meta-analysis could not confirm the relations between aging, tenure, and psychological contracts proposed in earlier studies (Farr & Ringseis, 2002; Rousseau, 1989; Rousseau & McLean Parks, 1993).

A number of explanations can be given for the absence of relations between aging and psychological contracts. The strength of obligations does not change with aging and tenure, but older and more tenured workers may perceive *different* obligations from their employers than younger and less tenured workers. Previous research has shown that young employees are more likely to show higher needs of development opportunities and advancement (Thomas & Anderson, 1998), whereas older employees will show higher needs of job security (cf. Smithson & Lewis, 2000). This could also be an explanation of why there no age-related differences were found in having a transactional or relational contract.

Furthermore, the distinction between transactional and relational contracts has been subject to criticism (Coyle-Shapiro & Conway, 2005; Tallman, 2001, 2006). Coyle-Shapiro and

Conway (2005) found that job security belonged neither to transactional contracts nor to relational contracts, but formed a distinct component. It may be that obligations which change with age and tenure do not fall into a transactional or relational category. Taylor and Tekleab (2004) also criticize the relational-transactional distinction. They stated that some elements may cross-over between studies from a transactional factor to a relational factor (e.g., training obligations). Further research should therefore examine whether there are age-related differences in specific dimensions of the psychological contract (e.g., De Vos, Buyens, & Schalk, 2003; Tallman, 2006). However, another more likely explanation of the absence of age-related differences in content of the psychological contract is that the influence of aging and tenure is primarily in the interpretation of psychological contract breach, which is discussed below.

Question 2: Psychological contract breach and outcomes. Our results showed that psychological contract breach was strongly related to affects (i.e. job satisfaction, affective commitment, POS, feelings of violations, trust, and perceived justice), and less strongly related to behavioral intentions and behaviors, which indicates support of the attitudinal model depicted in figure 1 (Ajzen, 1991; Ajzen & Fishbein, 1980). The large correlations between contract breach and trust ($\rho = -.62$), and feelings of violations ($\rho = .69$) may indicate empirical problems in distinguishing cognitions of breach, feelings of anger and frustration, and feelings of trust (*cf.* Harrison, Newman & Roth, 2006). Attitude researchers have already reported that it is hard to empirically distinguish cognitions and affects as different elements of an attitude that is formed (Ajzen, 2001; Eagly & Chaiken, 1993). Cognitions and affects following evaluations of the psychological contract may overlap.

Harrison et al. (2006) even found evidence for a model in which a single general job attitude, consisting of both job satisfaction and organizational commitment, was related to general ratings of performance. Since the psychological contract relates to a general perception of the employment relationship, it makes sense to treat relations between psychological contract evaluations and affects as general constructs. However, when specific dimensions of the psychological contracts are measured (e.g. developmental obligations), relations with specific attitudes and behaviors should be investigated.

Question 3: Relations between aging, tenure, and outcomes. Our results showed that aging and tenure are related to a number of affects and behaviors. The meta-analysis largely confirmed previous studies and meta-analyses concerning these relations. There was a positive relation between aging and commitment ($\rho = .13$). According to Allen and Meyer (1993), when people grow older their organizational commitment increases, as older people are more likely to have had more positive work-related experiences. However, in this meta-analysis there was no relation between organizational tenure and commitment. These findings underline the distinction between chronological age (positive effect on commitment) and organizational tenure (no relation on commitment).

Furthermore, small correlations were found between age-related variables and job satisfaction, POS, trust in the organization, perceived justice, negative affectivity, and OCB's. Further, turnover intentions were negatively related to age, and performance was positively related to age. These results are in line with previous research findings indicating that when people age their intentions to leave the organization decreases (Hedge et al., 2006). Possible explanations for these results are the increased commitment to the

organization of older workers or possible difficulties finding a job elsewhere (Hedge et al., 2006).

Question 4: Moderators. Our results revealed that chronological age moderated the relation between psychological contract breach and commitment, POS, and OCB's. The relations between contract breach and these outcomes were stronger for younger samples than for older samples. This means that young employees evaluate psychological contract breach differently compared to older workers, whose reactions on contract breach are less strongly related to commitment, POS, and OCB's. This indicates that age is not as much related to the content of the psychological contract, but more related to interpretations of contract evaluations. Together with the findings that there were differences in the contract breach – turnover relations, it can be stated that younger employees show stronger affective reactions to contract breach, leading to an increased intention to turnover, and a decline in organizational citizenship behaviors. Older workers may experience the same events as younger workers at the workplace, but they may evaluate them differently. Young employees may make more comparisons between what they think their employer is obligated to do, and what they have received in practice, leading to more intense behavioral reactions after contract breach (Clark, Oswald and Warr; 1996).

Moderator analyses revealed that for commitment and POS stronger relations were found between psychological contract breach and outcomes when breach was measured with a global breach scale compared to a composite scale of specific items. Measuring psychological contract breach with a global scale might result in higher correlations with outcomes.

Study design moderated the relations between contract breach and trust. This was not the case for job satisfaction, commitment or turnover intentions. It may be that contract breach has a strong direct impact on trust in the organization but that this decreases across time, whereas the effect of contract breach on satisfaction, commitment and turnover intentions perseveres in time. Finally, the relations between contract breach and performance were stronger in peer-reviewed journals than in other publications. This difference could be attributed to publication bias, since studies in which stronger relations between contract breach and job performance are found may be easier to publish in peer-reviewed journals. However these differences were not found for the relations between contract breach and job satisfaction, commitment, POS, turnover intentions, and OCB's. In sum, relations between psychological contract breach and outcomes are moderated by a number of factors, such as breach measure and research design. This meta-analysis shows that factors like research design, breach measure, and publication source may have an influence on the reported correlation. Researchers must be aware that correlations as reported in studies may be influenced by the type of breach measures they use.

Limitations of this study.

Before discussing the implications of our findings, we address the most important limitations of our study. First, because older workers are consistently missing in many studies because of early retirement options (Griffiths, 1999) and healthy worker effects (Zapf, Dormann & Frese, 1996), we could not estimate how healthy worker effects and early retirement options (Griffiths, 1999) have influenced the outcomes of previous studies. With regard to the number of studies that investigated psychological contracts of young

employees (e.g., MBA-students; Lo & Aryee, 2003), the mean age of the total sample of this meta-analysis was approximately 38 years. Older workers and longer tenured workers are still missing in many studies (see e.g., Wright & Bonett, 2002). When age ranges of study samples are smaller due to healthy workers effects and retirement options, observed correlations will be lower than true score correlations are. This could be the reason why such small correlations were found between age, tenure and psychological contracts.

Furthermore, although age and organizational tenure are possible indicators for career stage (Cohen, 1991; Conway, 2004), there are other conceptualizations of age (De Lange et al., 2006), which could not be analyzed in relation to psychological contracts (e.g., functional age, psychosocial age). For instance, job tenure may have an impact on the experience of psychological contracts. When people work longer in their jobs, their expectations about for example receiving development may decrease. Therefore, it is important that other conceptualizations of aging (De Lange et al., 2006; Sterns & Doverspike, 1989) are empirically linked to the psychological contract.

Finally, most correlations in this meta-analysis are based on cross-sectional data. We could, therefore, draw no conclusions regarding causality. For instance, the relation between psychological contract breach and POS can be bidirectional. When the employer does not fulfill its promises, the employee may feel that as a consequence, he/she may receive less support from their employers, whereas when an employee feels that the organization offers less support, he/she may experience the psychological contract as breached by the employer.

Theoretical and practical implications.

Suggestions future research

Based on the results of this study we have several suggestions for further research. First, older workers (age >50) are still lacking in psychological contract research. There is a need of more research including employees of a wide age/tenure range in order to investigate more specifically how older workers perceive their psychological contracts compared to younger workers, and how the relations between psychological contracts and attitudes and behaviors differ for younger and older workers. Further research is also needed to investigate why older workers react differently to contract breach compared to young workers. These kinds of questions can best be investigated through longitudinal study designs, to determine causal relationships. Through the use of curvilinear models and regression (Sturman, 2003), non-linear relationships can be investigated between age, tenure, and psychological contracts (Clark et al., 1996).

In this meta-analysis, only chronological age and organizational age were taken into account. According to De Lange et al. (2006) chronological age functions as a proxy of other age-related variables, which may have substantial impacts on attitudes and behaviors at work. Therefore, further studies should investigate other age-related variables, such as functional age and job tenure, in relation to psychological contracts.

Practical implications.

The important implication of this study for managers is that the content of the psychological contract employees experience do not decrease or increase with age and tenure, and types of psychological contract (i.e. whether the relation is based on economic versus socio-emotional exchange) are not dependent on age or tenure. However, managers must bear in mind that the effects of the extent of fulfilled obligations are differently

interpreted by younger employees versus older employees. Younger workers may react more strongly to unfulfilled promises (Rousseau, 1995) by lowering their commitment, and organizational citizenship behaviors. This does not mean that older workers' reactions to contract breach does not include lower commitment, POS and OCB's but their reactions are less severe than those of younger workers. Therefore, it may be attractive for organizations to retain and employ older workers, since older workers are more committed to the organization, show less intention to turnover, and show less severe reactions to psychological contract breach than younger employees.

Summarizing, this unique meta-analysis on the relations between aging, tenure, psychological contracts and work-related outcomes revealed that aging and tenure have an important role as moderators in the relations between psychological contracts and attitudes and behaviors. Although many studies have focused on age-related differences in attitudes and behaviors at work (Hedge et al., 2006), age and tenure may function as moderators in relations between contract breach and attitudes and behaviors. We hope that this will initiate sophisticated new research on the influence of aging, tenure, and work experience on psychological contracts as more research is needed in order to investigate why and how older employees evaluate psychological contract breach differently compared to their younger coworkers.

References

References marked with an asterisk (*) indicate studies included in the meta-analysis.

*Agee, J.E. (2000). *Understanding Psychological Contract Breach: An Examination of its Direct, Indirect, and Moderated Effects*. The University at Albany: Doctoral Dissertation.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179-211.

Ajzen, I. (2001). Nature and operation of attitudes. *Annual Review of Psychology*, 52, 27-58.

Ajzen, I. & Fishbein, M. (1980). *Understanding Attitudes and Predicting Social Behavior*. Englewood Cliffs: Prentice Hall.

Allen, N.J., & Meyer, J.P. (1993). Organizational commitment: evidence of career stage effects? *Journal of Business Research*, 26, 49-61.

Anderson, N. & Schalk, R. (1998). The psychological contract in retrospect and prospect. *Journal of Organizational Behavior*, 19, 637-647.

Argyris, C. (1960). *Understanding Organizational Behavior*. London: Tavistock.

Ashworth, M.J. (2006). Preserving knowledge legacies: workforce aging, turnover and human resource issues in the US electric power industry. *International Journal of Human Resource Management*, 17, 1659-1688.

Baker, H.G. (1985). The unwritten contract: job perceptions. *Personnel Journal*, 64, 36-41.

*Barnett, R.C., Gordon, J.R., Gareis, K.C. & Morgan, C. (2004). Unintended consequences of job redesign. Psychological contract violations and turnover intentions among full-time and reduced hours MDs and LPNs. *Community, Work and Family*, 7, 227-246.

*Bingham, J.B. (2005). Exploring the role of ideology in the multidimensional contract. *Paper presented at Annual Meeting of the Academy of Management, 2005, Honolulu..*

Breckler, S.J. (1984). Empirical validation of affect, behavior, and cognition as distinct components of attitude. *Journal of Personality and Social Psychology*, 47, 1191-1205.

*Bordia, P., Restubog, S.L.D., & Tang, R.L. (2006). When employees strike back: the role of feelings of violation, revenge, and self-control in the psychological contract breach – workplace deviance relationship. *Paper presented at the Annual Meeting of the Academy of Management, 2006, Atlanta.*

Brooke, L. & Taylor, P. (2005). Older workers and employment: managing age relations. *Ageing and Society*, 25, 415-429.

*Bunderson, J.S. (2001). How work ideologies shape the psychological contracts of professional employees: doctors' responses perceived breach. *Journal of Organizational Behavior*, 22, 717-741.

*Carbery, R., Garavan, T.N., O'Brien, F., & McDonnell, J. (2003). Predicting hotel managers' turnover cognitions. *Journal of Managerial Psychology*, 18, 649-679.

*Cassar, V. (2001). Violating psychological contract terms among Maltese public service employees: occurrence and relationships. *Journal of Managerial Psychology, 16*, 194-208.

*Castaing, S. (2005). Psychological contract and multiple work commitments in the French civil service. *Paper presented at the EGPA Conference 2005, Bern Switzerland.*

*Cavanough, M.A. & Noe, R.A. (1999). Antecedents and consequences of relational components of the new psychological contract. *Journal of Organizational Behavior, 20*, 323-340.

*Chambel, M.J. & Castanheira, F. (2006). Different temporary work status, different behaviors in organizations. *Journal of Business and Psychology, 20*, 351-367.

*Cheung, M.F.Y. (2005). The impacts of voluntary work status on psychological contract violations and work outcomes among part-time employees. Hong Kong Polytechnic University: Working Paper.

*Cheung, M.F.Y. & Chiu, W.C.K. (2005). Effects of psychological contract fulfillment, perceived organizational support, leader-member exchange, and work outcomes: a test of a mediating model. Hong Kong Polytechnic University: Working Paper.

*Chrobot-Mason, D.L. (2003). Keeping the promise. Psychological contract violations for minority employees. *Journal of Managerial Psychology, 18*, 22-45.

*Claes, R., De Witte, H., Schalk, R., Guest, D., Isaksson, K., Krausz, M., Mohr, G., & Peiro, J. (2002). Het psychologisch contract van vaste en tijdelijke werknemers. [The Psychological Contract of Permanent and Temporary Workers]. *Gedrag en Organisatie, 15*, 436-455.

- Clark, A., Oswald, A., & Warr, P. (1996). Is job satisfaction U-shaped in age? *Journal of Occupational and Organizational Psychology*, 69, 57-81.
- Cleveland, J.M. & Shore, L.M. (1992). Self- and supervisory perspectives on age and work attitudes and performance. *Journal of Applied Psychology*, 77, 469-484.
- Cohen, A. (1991). Career stage as a moderator of the relationships between organizational commitment and its outcomes: a meta-analysis. *Journal of Occupational Psychology*, 64, 253-268.
- Cohen, A. (1993). Age and tenure in relation to organizational commitment: a meta-analysis. *Basic and Applied Social Psychology*, 14, 143-159.
- Cohen-Charash, Y. & Spector, P.E. (2001). The role of justice in organizations: a meta-analysis. *Organizational Behavior and Human Decision Processes*, 86, 278-321.
- Collins, G.A. (2003). Rethinking retirement in the context of an aging workforce. *Journal of Career Development*, 30, 145-157.
- Conway, E. (2004). Relating career stages to attitudes towards HR practices and commitment: evidence of interaction effects? *European Journal of Work and Organizational Psychology*, 13, 417-446.
- *Conway, N. & Briner, R.B. (2002). Full-time versus part-time employees: understanding the links between work status, the psychological contract, and attitudes. *Journal of Vocational Behavior*, 61, 279-301.
- Conway, N. & Briner, R.B. (2005). *Understanding Psychological Contracts at Work. A Critical Evaluation of Theory and Research*. Oxford: Oxford University Press.
- *Coyle-Shapiro, J.A.M. (2002). A psychological contract perspective on organizational citizenship behaviors. *Journal of Organizational Behavior*, 23, 927-946.

*Coyle-Shapiro, J.A.M. & Conway, N. (2005). Exchange relationships: examining psychological contracts and perceived organizational support. *Journal of Applied Psychology, 90*, 774-781.

*Coyle-Shapiro, J.A.M. & Kessler, I. (2000). Consequences of the psychological contract for the employment relationship: a large scale survey. *Journal of Management Studies, 37*, 903-930.

*Coyle-Shapiro, J.A.M. & Kessler, I. (2002a). Contingent and non-contingent working in local government. Contrasting psychological contracts. *Public Administration, 80*, 77-101.

*Coyle-Shapiro, J.A.M. & Kessler, I. (2002b). Exploring reciprocity through the lens of the psychological contract: employee and employer perspectives. *European Journal of Work and Organizational Psychology, 11*, 69-86.

*Coyle-Shapiro, J.A.M. & Morrow, P.C. (2006). Organizational and client commitment among contracted employees. *Journal of Vocational Behavior, 68*, 416-431.

*Coyle-Shapiro, J.A.M. & Neuman, J.H. (2004). The psychological contract and individual differences: the role of exchange and creditor ideologies. *Journal of Vocational Behavior, 64*, 150-164.

Cullinane, N. & Dundon, T. (2006). The psychological contract: a critical review. *International Journal of Management Reviews, 8*, 113-129.

*Dabos, G.E. & Rousseau, D.M. (2004). Mutuality and reciprocity in the psychological contracts of employees and employers. *Journal of Applied Psychology, 89*, 52-72.

*De Cuyper, N. & De Witte, H. (2006). The impact of job insecurity and contract type on attitudes, well-being, and behavioural reports: A psychological contract perspective. *Journal of Occupational and Organizational Psychology*, 79, 395-409.

De Lange, A., Taris, T., Jansen, P., Smulder, P., Houtman, I., & Kompier, M. (2006). Age as a factor in the relation between work and mental health: results from the longitudinal TAS survey. In: J. Houdmont, & S. McIntyre (Eds.). *Occupational Health Psychology: European Perspectives on Research, Education and Practice* (Vol. 1), Maia, Portugal: ISMAI Publications.

*De Schamphelaere, V., De Vos, A., & Buyens, D. (2004). *The Role of Career-Self-Management in Determining Employees' Perceptions and Evaluations of their Psychological Contract and their Esteemed Value of Career Activities Offered by the Organization*. Vlerick Leuven Gent Working Paper.

De Vos, A., Buyens, D., & Schalk, R. (2003). Psychological contract development during organizational socialization: adaptation to reality and the role of reciprocity. *Journal of Organizational Behavior*, 24, 537-559.

*De Witte, H. & Van Hecke, M. (2002). Schending van het psychologisch contract, job onzekerheid en arbeidstevredenheid. [Violation of the psychological contract, job insecurity, and job satisfaction]. *Gedrag en Organisatie*, 15, 484-501.

*Deery, S.J., Iverson, R.D. & Walsh, J.T. (2006). Toward a better understanding of psychological contract breach: a study of costumer service employees. *Journal of Applied Psychology*, 91, 166-175.

Dirks, K.T. & Ferrin, D.L. (2002). Trust in leadership: meta-analytic findings and implications for research and practice. *Journal of Applied Psychology*, 87, 611-628.

*Dulac, T., Coyle-Shapiro, J. A.-M., Henderson, D. J., & Wayne, S. J. (2006). *The development of psychological contract breach and violation: A social exchange approach*.

Paper presented at the Academy of Management, Atlanta, GA.

Dunahee, M.H. & Wangler, L.A. (1974). The psychological contract. A conceptual structure for management/employee relations. *Personnel Journal*, 53, 517-526.

Eagly, A.H. & Chaiken, S. (1993). *The Psychology of Attitudes*. London: Harcourt Brace Jovanovich.

Eagly, A.H. & Chaiken, S. (1998). Attitude structure and function. In: D.T. Gilbert, S.T. Fiske, & G. Lindzey (eds). *The Handbook of Social Psychology, Vol. 2, 4th Ed.* (pp. 269-322). New York: McGraw-Hill.

Edwards, J.C., Rust, K.G., McKinley, W., & Moon, G. (2003). Business ideologies and perceived breach of contract during downsizing: the role of the ideology and employee self-reliance. *Journal of Organizational Behavior*, 24, 1-23.

European Commission (2005). *Communication from the Commission. Green paper "Confronting demographic change: a new solidarity between the generations"*. Brussels: Commission of the European Communities.

Farr, J.L. & Ringseis, E.L. (2002). The older worker in organizational context: beyond the individual. In: C.L. Cooper & I.T. Robertson (eds.). *International Review of Industrial and Organizational Psychology, Vol.17* (pp.) New York: Wiley.

*Freese, C., Heinen, J., & Schalk, R. (1999). Organisatieverandering en het psychologisch contract, betrokkenheid en intentie tot verloop bij werknemers in de thuiszorg. *Tijdschrift voor Arbeidsvraagstukken*, 15, 208-218.

*Gakovic, A., & Tetrick, L.E. (2003a). Perceived organizational support and work status: a comparison of the employment relationships of part-time and full-time employees attending university classes. *Journal of Organizational Behavior*, 24, 649-666.

*Gakovic, A., & Tetrick, L.E. (2003b). Psychological contract breach as a source of strain for employees. *Journal of Business and Psychology*, 18, 235-246.

*George, E. (2003). External solutions and internal problems. The effects of employment externalization on internal workers' attitudes. *Organization Science*, 14, 386-402.

Glasman, L.R. & Albarracín, D. (2006). Forming attitudes that predict future behavior: a meta-analysis of the attitude-behavior relation. *Psychological Bulletin*, 132, 778-822.

*Granrose, C.S. & Baccili, P.A. (2006). Do psychological contracts include boundaryless or protean careers? *Career Development International*, 11, 163-182.

Griffiths, A. (1997). Ageing, health and productivity: a challenge for a new millennium. *Work & Stress*, 11, 197-214.

Griffiths, A. (1999). Work design and management – the older worker. *Experimental Aging Research*, 25, 411-420.

Guest, D.E. (1998a). Is the psychological contract worth taking seriously? *Journal of Organizational Behavior*, 19, 649-664.

Guest, D.E. (1998b). On meaning, metaphor and the psychological contract: a response to Rousseau (1998). *Journal of Organizational Behavior*, 19, 673-677.

Guest, D.E. (2004). The psychology of the employment relationship: an analysis based on the psychological contract. *Applied Psychology: An International Review*, 53, 541-555.

*Guest, D. & Clinton, M. (2006). *Temporary Employment Contracts, Workers' Well-Being and Behaviour: Evidence from the UK*. King's College London: Working Paper.

Guest, D.E. & Conway, N. (2002). Communicating the psychological contract: an employer perspective. *Human Resource Management Journal*, 12, 22-38.

Guest, D.E. & Conway, N. (2003). The psychological contract, health and well-being. In: M.J. Schabracq, J.A.M. Winnubst, & C.L. Cooper (Eds.). *The Handbook of Work and Health Psychology*, John Wiley and Sons, Ltd.

*Guzzo, R.A., Noonan, K.A., & Elron, E. (1994). Expatriate managers and the psychological contract. *Journal of Applied Psychology*, 79, 617-626.

Hall, D.T., & Mirvis, P.H. (1995). The new career contract: developing the whole person at midlife and beyond. *Journal of Vocational Behavior*, 47, 269-289.

Hansson, R.O., DeKoekoek, P.D., Neece, W.M., & Patterson, D.W. (1997). Successful Aging at Work: Annual Review, 1992-1996: The older worker and transitions to retirement. *Journal of Vocational Behavior*, 51, 202-233.

Harrison, D.A., Newman, D.A., & Roth P.L. (2006). How important are job attitudes? Meta-analytical comparisons of integrative behavioral outcomes and time sequences. *Academy of Management Journal*, 49, 305-325.

Hedge, J.W., Borman, W.C., & Lammlein, S.E. (2006). *The Aging Workforce: Realities, Myths, and Implications for Organizations*. Washington, DC: American Psychological Association.

Henderson, K.V., Goldsmith, R.E. & Flynn, L.R. (1995). Demographic characteristics of subjective age. *The Journal of Social Psychology, 135*, 447-457.

Herriot, P., Manning, W.E.G. & Kidd, J.M. (1997). The content of the psychological contract. *British Journal of Management, 8*, 151-162.

Herriot, P. & Pemberton, C. (1996). Contracting careers. *Human Relations, 49*, 757-790.

Herriot, P. & Pemberton, C. (1997). Facilitating new deals. *Human Resource Management Journal, 7*, 45-56.

*Ho, V.T., Rousseau, D.M., & Levesque, L.L. (2006). Social networks and the psychological contract: structural holes, cohesive ties, and beliefs regarding employer obligations. *Human Relations, 59*, 459-481.

*Hoobler, J.M. (2002). *Abusive Supervision in the Workplace: a Restorative Justice Perspective*. Unpublished doctoral dissertation.

*Huiskamp, R. & Schalk, R. (2002). Psychologische contracten in arbeidsrelaties: de stand van zaken in Nederland. [Psychological contracts in employment relationships in the Netherlands]. *Gedrag en Organisatie, 15*, 370-385.

Hunter, J.E., & Schmidt F.L. (2004). *Methods of Meta-Analysis. Correcting Error and Bias in Research Findings*. Thousand Oaks: Sage Publications.

*Johnson, J.L. & O'Leary-Kelly, A.M. (2003). The effects of psychological contract breach and organizational cynicism: not all social exchange violations are created equal. *Journal of Organizational Behavior*, 24, 627-647.

Kaliterna, L., Larsen, Z.P., & Brkljacic, T. (2002). Chronological and subjective age in relation to work demands: survey of Croatian workers. *Experimental Aging Research*, 28, 39-49.

Kanfer, R., & Ackerman, P.L. (2004). Aging, adult development, and work motivation. *Academy of Management Review*, 29, 440-458.

*Kickul, J. (2001a). When organizations break their promises: employee reactions to unfair processes and treatment. *Journal of Business Ethics*, 29, 289-307.

*Kickul, J. (2001b). Promises made, promises broken: an exploration of employee attractions and retention practices in small businesses. *Journal of Small Business Management*, 39, 320-335.

*Kickul, J. & Lester, S.W. (2001). Broken promises: equity sensitivity as a moderator between psychological contract breach and employee attitudes and behavior. *Journal of Business and Psychology*, 16, 191-217.

* Kickul, J. Lester, S.W., & Belgio, E. (2004). Attitudinal and behavioral outcomes of psychological contract breach. A cross cultural comparison of the United States and Hong Kong Chinese. *International Journal of Cross Cultural Management*, 4, 229-252.

*Kickul, J. Lester, S.W., & Finkl, J. (2002). Promise breaking during radical organizational change: do justice interventions make a difference? *Journal of Organizational Behavior*, 23, 469-488.

*Kickul, J. & Liao-Troth, M.A. (2003). The meaning behind the message: climate perceptions and the psychological contract. *Mid-American Journal of Business*, 18, 23-32.

*Kickul, J.R., Neuman, G., Parker, C., & Finkl, J. (2001). Settling the score: the role of organizational justice in the relation between psychological contract breach and anticitizenship behaviors. *Employee Responsibilities and Rights Journal*, 13, 77-93.

*Kickul, J. & Zaper, J.A. (2000). Untying the knot: do personal and organizational determinants influence entrepreneurial intentions? *Journal of Small Business and Entrepreneurship*, 15, 57-77.

*Kim, M. (2002). *Changes in a psychological contract after a lay-off: effects of lay-offs on future employment in Korea*. Unpublished doctoral dissertation.

*King, R.C., & Bu, N. (2005). Perceptions of mutual obligations between employees and employers: a comparative study of new generation IT professionals in China and the United States. *International Journal of Human Resource Management*, 16, 46-64.

*Knights, J.A. & Kennedy, B.J. (2005). Psychological contract violation: impacts on job satisfaction and organizational commitment among Australian senior public servants. *Applied H.R.M. Research*, 10, 57-72.

Koh, C., Ang, S., & Straub, D.W. (2004). IT outsourcing success: a psychological contract perspective. *Information Systems Research*, 15, 356-373.

*Korsgaard, M.A., Sapienza, H.J., & Schweiger, D.M. (2002). Beaten before begun: the role of procedural justice in planning change. *Journal of Management*, 28, 497-516.

Kotter, J.P. (1973). The psychological contract: managing the joining-up process. *California Management Review*, 15, 91-99.

*Kreiner, G.E. & Ashforth, B.E. (2004). Evidence toward an expanded model of organizational identification. *Journal of Organizational Behavior*, 25, 1-27.

*Lambert, L.S., Edwards, J.R., & Cable, D.M. (2003). Breach and fulfillment of the psychological contract: a comparison of traditional and expanded views. *Personnel Psychology*, 56, 895-934.

*Larwood, L., Wright, T.A., Desrochers, S., & Dahir, V. (1998). Extending latent role and psychological contract theories to predict intent to turnover and politics in business organizations. *Group & Organization Management*, 23, 100-123.

*Lee, C.H. (2005). A study of underemployment among self-initiated expatriates. *Journal of World Business*, 40, 172-185.

*Lemire, L. & Rouillard, C. (2005). An empirical exploration of psychological contract violation and individual behavior. *Journal of Managerial Psychology*, 20, 150-163.

*Lester, S.W. & Kickul, J. (2001). Psychological contracts in the 21st century: what employees value most and how well organizations are responding to these expectations. *HR. Human Resource Planning*, 24, 10-21.

Lester, S.W., Kickul, J.R., & Bergmann, T.J. (2006). Managing employee perceptions of the psychological contract over time: the role of employer social accounts and contract fulfillment. *Journal of Organizational Behavior*, in press.

*Lester, S.W., Turnley, W.H., Bloodgood, J.M. & Bolino, M.C. (2002). Not seeing eye to eye: differences in supervisor and subordinate perceptions of and attributions for psychological contract breach. *Journal of Organizational Behavior*, 23, 39-56.

Levinson, H., Price, C.R., Munden, K.J., Mandl, H.J., & Solley, C.M. (1962). *Men, Management, and Mental Health*. Cambridge, Massachusetts: Harvard University Press.

*Lo, S. & Aryee, S. (2003). Psychological contract breach in a Chinese context: an integrative approach. *Journal of Management Studies*, 40, 1005-1020.

McEvoy, G.M., & Cascio, W.F. (1989). Cumulative evidence of the relationship between employee age and job performance. *Journal of Applied Psychology*, 74, 11-17.

McLean Parks, J., Kidder, D.L., & Gallagher, D.G. (1998). Fitting square pegs into round holes: mapping the domain of contingent work arrangements onto the psychological contract. *Journal of Organizational Behavior*, 19, 697-730.

Meckler, M., Drake, B.H. & Levinson, H. (2003). Putting psychology back into psychological contracts. *Journal of Management Inquiry*, 12, 217-228.

Meyer, J.P., Allen, N.J., & Smith, C.A. (1993). Commitment to organizations and occupations: extension and a test of a three-component conceptualization. *Journal of Applied Psychology*, 78, 538-551.

*Montes, S.D. & Irving, P.G. (2005). *Psychological Contract Breach: Assessing Underlying Assumptions*. Paper presented at Annual Meeting of the Academy of Management.

Morrison, E.W. & Robinson, S.L. (1997). When employees feel betrayed: a model of how psychological contract violation develops. *Academy of Management Review*, 22, 226-256.

*Moye, N.A. (2001). *The Role of the Psychological Contract in Individual Motivation to Generate Ideas: A Social Exchange Perspective*. Unpublished doctoral dissertation.

Pavlou, P.A., Gefen, D. (2005). Psychological contract violation in online marketplaces: antecedents, consequences, and moderating role. *Information Systems Research, 16*, 372-399.

Podsakoff, P.M., MacKenzie, S.B., Lee, J.Y., & Podsakoff, N.P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*, 879-903.

Pratkanis, A.R. & Greenwald, A.G. (1989). A sociocognitive model of attitude structure and function. In: L. Berkowitz (ed.). *Advances in Experimental Social Psychology, Vol. 22* (pp.245-285). San Diego: Academic Press.

*Purvis, L.J., & Cropley, M. (2003). The psychological contracts of National Health Service nurses. *Journal of Nursing Management, 11*, 107-120.

*Raja, U., Johns, G. & Ntalianis, F. (2004). The impact of personality on psychological contracts. *Academy of Management Journal, 47*, 350-367.

*Restubog, S.L.D. & Bordia, P. (2006). Workplace familism and psychological contract breach in the Philippines. *Applied Psychology: an International Review, 55*, 563-585.

*Restubog, S.L.D., Bordia, P., & Tang, R.L. (2006). Effects of psychological contract breach on performance of IT employees: the mediating role of affective commitment. *Journal of Occupational and Organizational Psychology, 79*, 299-306.

Rhoades, L. & Eisenberger, R. (2002). Perceived organizational support: a review of the literature. *Journal of Applied Psychology, 87*, 698-714.

*Robinson, S.L. (1995). Violations of psychological contracts: impacts on employee attitudes. In: L.E. Tetrick, J. Barling (Eds.), *Changing Employee Relations*.

Behavioral and Social Perspectives. (pp. 91-108). Washington, DC: American Psychological Association.

*Robinson, S.L. (1996). Trust and breach of the psychological contract. *Administrative Science Quarterly, 41*, 574-599.

Robinson, S.L., Kraatz, M.S., & Rousseau, D.M. (1994). Changing obligations and the psychological contract: a longitudinal study. *Academy of Management Journal, 37*, 137-152.

*Robinson, S.L., & Morrison, E.W. (1995). Psychological contracts and OCB: the effect of unfulfilled obligations on civic virtue behavior. *Journal of Organizational Behavior, 16*, 289-298.

*Robinson, S.L., & Morrison, E.W. (2000). The development of psychological contract breach and violation: a longitudinal study. *Journal of Organizational Behavior, 21*, 525-546.

*Robinson, S.L. & Rousseau, D.M. (1994). Violating the psychological contract: not the exception but the norm. *Journal of Organizational Behavior, 15*, 245-259.

Roehling, M.V. (1997). The origins and early development of the psychological contract construct. *Journal of Management History, 3*, 204-217.

*Rosen, C.C., Chang, C., Johnson, R.E., & Levy, P.E. (2005). Politics, justice, and the psychological contract: test of a mediated model? *Paper presented at the Annual Meeting of Academy of Management, 2005, Honolulu.*

Rousseau, D.M. (1989). Psychological and implied contracts in organizations. *Employee Responsibilities and Rights Journal, 2*, 121-139.

*Rousseau, D.M. (1990). New hire perceptions of their own and their employer's obligations: a study of psychological contracts. *Journal of Organizational Behavior*, 11, 389-400.

Rousseau, D.M. (1995). *Psychological Contracts in Organizations. Understanding Written and Unwritten Agreements*. Thousand Oaks, CA: Sage.

Rousseau, D.M. (1998). The 'problem' of the psychological contract considered. *Journal of Organizational Behavior*, 19, 665-671.

*Rousseau, D.M. (2000). *Psychological Contract Inventory: Technical Report*. Pittsburgh: The Heinz School of Public Policy and Management, Carnegie Mellon University.

Rousseau, D.M. (2001). Schema, promise and mutuality: the building blocks of the psychological contract. *Journal of Occupational and Organizational Psychology*, 74, 511-541.

Rousseau, D.M. & McLean Parks, J. (1993). The contracts of individuals and organizations. In: L.L. Cummings & B.M. Staw (Eds.), *Research in Organizational Behavior*, (Vol. 15, pp. 1-43). Greenwich: Jai Press.

Rousseau, D.M. & Tijoriwala, S.A. (1998). Assessing psychological contracts: issues, alternatives, and measures. *Journal of Organizational Behavior*, 19, 679-695.

*Rybnikova, I. (2006). Transactional psychological contracts of interim managers: their contents and consequences. *Paper presented at the Annual Meeting of Academy of Management, 2006, Atlanta*.

Schein, E.H. (1965). *Organizational Psychology*. Englewood Cliffs: Prentice Hall.

Schein, E.H. (1978). *Career Dynamics: Matching Individual and Organizational Needs*. Reading: Addison-Wesley.

Schein, E.H. (1996). Career anchors revisited: implications for career development in the 21st century. *Academy of Management Executive*, 10, 80-88.

Schmidt, F.L., & Le, H. (2004). *Software for the Hunter-Schmidt meta-analysis methods*. University of Iowa, Department of Management & Organization, Iowa City, IA 42242.

*Shih, C. & Chen, S. (2006). Boundaries of psychological contract fulfillment and organizational citizenship behavior: a motivational perspective. *Paper presented at the Annual Meeting of Academy of Management, 2006, Atlanta*.

Shore, L.M., Tetrick, L.E., Taylor, M.S., Coyle-Shapiro, J.A.M., Liden, R.C., Parks, J.M., Morrison, E.W., Porter, L.W., Robinson, S.L., Roehling, M.V., Rousseau, D.M., Schalk, R., Tsui, A.S. & Van Dyne, L. (2004). The employee-organization relationship: a timely concept in a period of transition. *Research in Personnel and Human Resource Management*, 23, 291-370.

Smithson, J. & Lewis, S. (2000). Is job insecurity changing the psychological contract? *Personnel Review*, 29, 680-702.

Sterns, H. L., & Doverspike, D. (1989). Aging and the retraining and learning process in organizations In I. Goldstein & R. Katznel (Eds), *Training and development in organizations* (p. 299-332). San Francisco, CA: Jossey-Bass.

Sterns, H. L., & Miklos, S. M. (1995). The aging worker in a changing environment: organizational and individual issues. *Journal of Vocational Behaviour*, 47, 248-268.

*Sturges, J., Conway, N., Guest, D., & Liefoghe, A. (2005). Managing the career

deal: the psychological contract as a framework for understanding career management, organizational commitment and work behavior. *Journal of Organizational Behavior*, 26, 821-838.

Sturman, M.C. (2003). Searching for the inverted U-shaped relationship between time and performance: meta-analyses of the experience/performance, tenure/performance, and age/performance relationships. *Journal of Management*, 29, 609-640.

*Suazo, M.M. (2002). *An Examination of Antecedents and Consequences of Psychological Contract Breach*. Unpublished doctoral dissertation.

*Suazo, M.M., Turnley, W.H., & Mai-Dalton, R.R. (2005). The role of perceived violation in determining employees' reactions to psychological contract breach. *Journal of Leadership and Organizational Studies*, 12, 24-36.

*Sutton, G. & Griffin, M.A. (2004). Integrating expectations, experiences, and psychological contract violations: a longitudinal study of new professionals. *Journal of Occupational and Organizational Psychology*, 77, 493-514.

*Tallman, R. (2001). *Needful Employees, Expectant Employers and the Development and Impact of Psychological Contracts in New Employees*. Unpublished doctoral dissertation.

*Tallman, R. (2006). Relating employees' psychological contracts to their personality. *Paper presented at Annual Meeting of Academy of Management, 2006, Atlanta*.

Taylor, M.S., & Tekleab, A.G. (2004). Taking stock of psychological contract research: assessing progress, addressing troublesome issues, and setting research priorities. In: J.A.M. Coyl-Shapiro, L.M. Shore, M.S. Taylor & L.E. Tetrick (Eds.), *The Employment*

Relationship. Examining psychological and contextual perspectives (pp. 253-283). Exford: Oxford University Press.

*Tekleab, A.G. Takeuchi, R., & Taylor, M.S. (2005). Extending the chain of relationships among organizational justice, social exchange, and employee reactions: the role of contract violations. *Academy of Management Journal*, 48, 146-157.

*Tekleab, A.G. & Taylor, M.S. (2003). Aren't there two parties in an employment relationship? Antecedents and consequences of organization-employee agreement on contract obligations and violations. *Journal of Organizational Behavior*, 24, 585-608.

*Ten Brink, B.E.H. (2004). *Psychological Contract. A useful concept?* VU University Amsterdam: Doctoral dissertation.

*Ten Brink, B.E.H., Den Hartog, D.N., Koopman, P.L., & Van Muijen, J.J. (1999). De bindende kracht van inspirerend leiderschap. Een onderzoek naar leiderschap, betrokkenheid, psychologisch contract en vertrouwen. *Gedrag en Organisatie*, 12, 241-254.

*Ten Brink, B.E.H., Den Hartog, D.N., Koopman, P.L., & Van Muijen, J.J. (2002). Psychologisch contract: de impliciete ruilrelatie tussen werkgever en werknemer. *Gedrag en Organisatie*, 15, 415-435.

Thomas, D.C., & Anderson, N. (1998). Changes in newcomers' psychological contracts during organizational socialization: a study of recruits entering the British army. *Journal of Organizational Behavior*, 19, 745-767.

*Thomas, D.C., Ravlin, E.C., & Au, K. (2005). Cultural variation and the psychological contract: the mediating effect of exchange ideology. *Paper presented at Annual Meeting of Academy of Management, 2005, Honolulu.*

*Thompson, M. & Heron, P. (2005). The difference a manager can make: organizational justice and knowledge worker commitment. *International Journal of Human Resource Management*, 16, 383-404.

*Turnley, W.H., Bolino, M.C., Lester, S.W., & Bloodgood, J.M. (2003). The impact of psychological contract fulfillment on the performance of in-role and organizational citizenship behaviors, *Journal of Management*, 29, 187-206.

*Turnley, W.H., & Feldman, D.C. (1999). The impact of psychological contract violations on exit, voice, loyalty, and neglect. *Human Relations*, 52, 895-922.

*Turnley, W.H., & Feldman, D.C. (2000). Re-examining the effects of psychological contract violations: unmet expectations and job dissatisfaction as mediators. *Journal of Organizational Behavior*, 21, 25-42.

*Van Dyne, L. & Ang, S. (1998). Organizational citizenship behaviors of contingent workers in Singapore. *Academy of Management Journal*, 41, 692-703.

Wagner, S.L. & Rush, M.C. (2000). Altruistic organizational citizenship behavior: context, disposition, and age. *The Journal of Social Psychology*, 140, 379-391.

Waldman, D.A., & Avolio, B.J. (1986). A meta-analysis of age differences in job performance. *Journal of Applied Psychology*, 71, 33-38.

Warr, P. (1994). Age and employment. In H.C. Triandis, M.D. Dunnette, & L.M. Hough (Eds) *Handbook of industrial and organizational psychology* (2nd ed., vol. 4, pp. 485-550). Palo Alto, CA: Consulting Psychologists Press.

Warr, P. (2000). Job performance and the ageing workforce. In: N. Chmiel (ed.). *Introduction to Work and Organizational Psychology. A European Perspective* (pp. 407-423). Oxford: Blackwell Publishers.

Warr, P. (2001). Age and work behaviour: Physical attributes, cognitive abilities, knowledge, personality traits, and motives. *International Review of Industrial and Organizational Psychology*, 16, 1-36.

Westwood, R., Sparrow, P., & Leung, A. (2001). Challenges to the psychological contract in Hong Kong. *International Journal of Human Resource Management*, 12, 621-651.

Wright, T.A., & Bonett, D.G. (2002). The moderating effects of employee tenure on the relation between organizational commitment and job performance: a meta-analysis. *Journal of Applied Psychology*, 87, 1183-1190.

*Yeh, Y. (2006). The effect of occupational commitment on contract breach – job stress relations. *Paper presented at the Annual Meeting of Academy of Management, Atlanta.*

*Zagenczyk, T.J. & Gibney, R. (2005). Broken promises and POS: effects on organizational cynicism and disidentification. *Paper presented at the Annual Meeting of Academy of Management, 2005, Honolulu.*

Zapf, D., Dormann, C., & Frese, M. (1996). Longitudinal studies in organizational stress research: a review of the literature with reference to methodological issues. *Journal of Occupational Health Psychology*, 1, 145-169.

*Zottoli, M.A. (2003). *Understanding the process through which breaches of the psychological contract influence feelings of psychological contract violation: an analysis incorporating causal, responsibility, and blame attributions.* Unpublished doctoral dissertation.

Appendix A: Characteristics of the studies included in the meta-analysis

| Authors | Sample | Mean age (SD); Organizational tenure (SD) in years | Component | Measurement design | Dependent Variable |
|--|--|--|---|-------------------------------|---|
| Agee (2000) [dissertation] | N=121, US university employees | Tenure: 14.5 | Specific breach | Cross-sectional | Trust, unmet expectations, justice, attribution, commitment, OCB, intent to donate, intent to leave, participation, development, satisfaction |
| Barnett, Gordon, Gareis & Morgan (2004) [article] | N=178, 100%♀, US physicians and nurses | Between 25-50; 14.8/10.4 tenure | Specific fulfillment | Cross-sectional | Intent to quit |
| Bingham (2005) [conference] | N= 177, 19%♀, range of employees in 4 US companies | 35.38, (11.32); 2.92 (2.8) | Content types, specific fulfillment | Cross-sectional | Performance, OCB-O, OCB-I |
| Bordia, Restubog & Tang (2006) [conference] | S1, N=168, 49.2%♀, sales personnel in Philippines S2. N= 187, 42%♀, bank employees in Philippines | S1: 48.2% 26-30, 82% 1-5 year S2: 80% 21-30; 87% 1-5 year | S1: specific fulfillment S2: global breach | Cross-sectional | Revenge cognitions, workplace deviance, violation |
| Bunderson (2001) [article] | N= 167, 40%♀, US hospital clinicians | 45.5 (8.4) ; 9.0 (8.0) | Specific fulfillment | Longitudinal (2 measurements) | Job satisfaction, affective commitment, intent to quit, turnover, patient satisfaction, productivity |
| Carbery, Garavan, O'Brien & McDonnell (2003) [article] | N=89, 35%♀, Irish hotel managers | 85% 21-39 years old | Global breach | Cross-sectional | Violation, job satisfaction, intent to quit, organizational search |
| Cassar (2000) [article] | N= 132, 39.4%♀, Maltese public service employees | 42 (12.34); 21 (13.33) | Specific breach | Cross-sectional | Trust, organizational commitment, job satisfaction |
| Castaing (2005) [conference] | N=754, 32%♀, French civil service employees | 45 (8.9); 18.9 (10.43) | Content, specific fulfillment | Cross-sectional | Commitment, job involvement |
| Cavanough & Noe (1999) [article] | N= 136, 99%♀, US managers and professionals | M= 36-40 | Global fulfillment | Cross-sectional | Responsibility for career development, commitment, job insecurity, satisfaction, development, intent to remain |
| Chambel & Castanheira (2006) [article] | S1: N=339, 69.3%♀ S2: N=191, 76%♀, Portuguese permanent and temporary workers | S1: 29.83 (2.09); 3 (2.33) S2: 26.89 (5.57); 2.75 (1.35) | Contract types | Cross-sectional | Performance, OCB |
| Cheung (2005) [working paper] | N= 200, 62%♀, Chinese part-time service employees | 45.5% between 31-35; 46.5% work tenure <7 months | Specific fulfillment | Cross-sectional | Commitment, OCB, voluntariness of work status |
| Cheung & Chiu (2005) [working paper] | N= 354, 58.2%♀, Chinese manufacture employees | 18; 1.2 years | Specific fulfillment | Cross-sectional | POS, LMX, commitment, intent to remain, performance |
| Chrobot-Mason (2003) [article] | N= 88, 44%♀, minority employees at | 6-10 year tenure | Specific fulfillment | Cross-sectional | Job satisfaction, organizational |

| US university | | | | | commitment, organizational cynicism |
|---|---|---|--------------------------------------|---|--|
| Claes et al. (2002) [article] | N=596, 63%♀, Flemish workers | Permanent: 38.66 (9.83); temporary: 29.41 (8.25) | Content, global fulfillment | Cross-sectional | Commitment, satisfaction, job insecurity, self efficacy, WHI, well-being |
| Conway & Briner (2002) [article] | S1,N= 1608, 84%♀, UK bank employees S2,N= 366, 72%♀, UK supermarket employees | S1: 6 (6.14) tenure S2: 2.42 (2.66) tenure | Specific & global fulfillment | Cross-sectional | Commitment, OCB, intention to quit, affective well-being, satisfaction |
| Coyle-Shapiro (2002) [article] | N= 480, 65%♀, UK public service employees | 42.92(8.69); 10.51 (7.89) | Content, specific fulfillment | Longitudinal (3 measurements) PC: Cross-S. | OCB, trust, justice |
| Coyle-Shapiro & Conway (2005) [article] | N= 347, 69%♀, UK public service employees | 43.5 (8.48); 11.13 (7.59) | Content, specific fulfillment | Longitudinal (4 measurements) | POS, psychological contract fulfillment |
| Coyle-Shapiro & Kessler (2000) [article] | N, managers = 703, 53%♀ N, employees = 6953; 82.5%♀. %♀, UK public service employees | Manager: 46.6; 14.6 Employee: 42.4; 7.6 | Types, specific fulfillment | Cross-sectional | Organizational commitment, POS, OCB |
| Coyle-Shapiro & Kessler (2002a) [article] | N= 6953, 79%♀, UK public service employees | 43.59 (9.90); 8.57 (7.20) | Content, specific fulfillment | Cross-sectional | OCB |
| Coyle-Shapiro & Kessler (2002b) [article] | N, employer = 84, 53.7%♀ N, employee = 1303, 63.5%♀, UK range of public services | Employer: 46.23 (6.98); 9.59 (6.26) Employee: 42.06 (9.34); 6.79 (6.14) | Content, specific fulfillment | Longitudinal (2 measurements) | Perceived obligations, perceived fulfillment of obligations |
| Coyle-Shapiro & Morrow (2006) [article] | N= 99, 36%♀, European contracted employees | 6.38 (7.82) tenure | Global fulfillment | Cross-sectional | Affective commitment |
| Coyle-Shapiro & Neuman (2004) [article] | N≈ 500, 64.4%♀, UK range of occupations | 42.9 (8.60); 6.68 (6.09) | Content, specific fulfillment | Longitudinal (3 measurements) | Employee obligations, employee fulfillment of obligations |
| Dabos & Rousseau (2004) [article] | N, director = 16, 6.25%♀ N, scientists = 80, 55%♀, Research directors and staff scientists at Latin American university | Director: 45.63 (5.98); 17.86 (6.44) Scientist: 38.18 (7.09); 11.26 (6.89) | Content, types | Cross-sectional | Publications, coauthorship, formal career advancement |
| De Cuyper & De Witte (2006) [article] | N= 538, Belgian employees | 37 | Content, types, specific fulfillment | Cross-sectional | Satisfaction, commitment, performance |
| De Schampelaere, De Vos & Buyens (2004) [working paper] | N= 491, 58.2%♀, Belgian organizations | 33.80 (7.79); 9.44 (8.25) | Content | Cross-sectional | Perceived promises (PC) |
| De Witte & Van Hecke (2002) [article] | N= 226, 47.3%♀, range of Flemish employees | 34 (9.76); 8.14 (8.55) | Specific breach | Cross-sectional | Job satisfaction |
| Deery, Iverson & Walsh (2006) [article] | N= 480, 69%♀, Australian service employees | 35.45 (10.33); 7.42 (6.62) | Specific fulfillment | Cross-sectional | Absenteeism, cooperative relations, trust, market pressures |

| | | | | | |
|---|--|--|----------------------|-------------------------------|--|
| Dulac, Coyle-Shapiro, Henderson & Wayne (2006) [conference] | N= 159, 47%♀, large Belgian organizations | 28; 9 | Global breach | Longitudinal (2) | POS, LMX, trust, violation, commitment, intent to leave |
| Freese, Heinen & Schalk (1999) [article] | N= 119, 98%♀, Dutch home care organization | 39.6; 8.3 | Specific fulfillment | Longitudinal (2 measurements) | Relation with organization, commitment, intention to quit |
| Gakovic & Tetrick (2003a) [article] | N= 601, 58%♀, US university students working in organizations | 57% between 18 and 24, 28% between 25 and 30, 15% over 30. | Global fulfillment | Cross-sectional | Organizational Commitment |
| Gakovic & Tetrick (2003b) [article] | N= 161, 90%♀, US employees from financial corporation | n.a. | Global fulfillment | Cross-sectional | Emotional exhaustion, job satisfaction |
| George (2003) [article] | N= 256, 38%♀, US research laboratory, computer manufacturer, consumer product retailer | 36.20 (9.73); 5.69 (7.18) | Specific fulfillment | Cross-sectional | Trust, Psychological contract, commitment |
| Granrose & Baccili (2006) [article] | N= 145, 41.2%♀, US aerospace employees | 43.35 (8.10); 13.5 | Specific fulfillment | Cross-sectional | Commitment, intent to leave |
| Guest & Clinton (2006) [working paper] | N= 642, 62%♀, UK range of occupations | 37; 5 | Content | Cross-sectional | Violation, satisfaction, commitment, intent to quit, absence, performance, |
| Guzzo, Noonan & Elron (1994) [article] | N= 148, 7%♀, US expatriate managers | 42.76 (7.52); 12.63 (7.08) | Specific fulfillment | Cross-sectional | POS, commitment, intent to quit, intent to return early |
| Ho, Rousseau & Levesque (2006) [article] | N=46, 15%♀, US start-up unit of large firm | 39; 67% less than 6 months tenure | Content, types | Cross-sectional | Obligations |
| Hoobler (2002) [dissertation] | N= 210, 40%♀, US three-way matches with MBA-students, supervisor, family member | Age MBA-student: 25-34 | Global breach | Cross-sectional | Abusive supervision, family undermining, violation, NA, justice, performance |
| Huiskamp & Schalk (2002) [article] | N= 1331, 34.9%♀, range of Dutch occupations | 38; 9.6 | Specific fulfillment | Cross-sectional | Fulfillment, commitment, intent to quit |
| Johnson & O'Leary-Kelly (2003) [article] | N= 103, 64%♀, US bank employees | 35.8; 4.37(4.17) | Global breach | Cross-sectional | Job satisfaction, organizational commitment, emotional exhaustion, absenteeism, in-role performance, OCB |
| Kickul (2001a) [article] | N= 322, 49.7%♀, US MBA students | 31.03 (7.89); 4.54 (5.44) | Specific fulfillment | Cross-sectional | NA, deviant work behavior (PF) |
| Kickul (2001b) [article] | N=151, 56%♀, US MBA-students | 29.41 (7.73); 3.86 (4.91) | Specific fulfillment | Cross-sectional | NA, commitment, intent to leave |
| Kickul & Lester (2001) [article] | N= 183, 45.9%♀, US MBA students | 31.73 (6.44); 3.29 (2.06) | Specific fulfillment | Cross-sectional | NA, job satisfaction, OCB |
| Kickul, Lester & Belgio (2004) [article] | N, Hong Kong= 76, 47%♀, bank employees N, U.S.= 60, 54%♀, | HK: 34.55; 5.23 US: 31.8; 4.33 | Specific fulfillment | Cross-sectional | Satisfaction, intent to quit, commitment, performance, OCB |

| | MBA-students | | | | | |
|--|---|---|----------------------|-------------------------------|--|--|
| Kickul, Lester & Finkl (2002) [article] | N=246, 51%♀, US MBA students, working in changing organizations | 33.43; 4.22 | Specific fulfillment | Cross-sectional | Satisfaction, intent to leave, justice, performance, OCB-I, OCB-O | |
| Kickul & Liao-Troth (2003) [article] | N= 370, 51%♀, US MBA students | 32.36 (10.44); 6.40 (6.80) | Content | Cross-sectional | Psychological contract | |
| Kickul, Neuman, Parker & Finkl (2001) [article] | N= 165, 49.7%♀, US MBA-students | 33.15 (7.90); 4.94 (5.61) | Specific fulfillment | Cross-sectional | Justice, OCB | |
| Kickul & Zaper (2000) [article] | N=260, 46.9%♀, US MBA-students | 32.05; 5.14 | Specific fulfillment | Cross-sectional | Justice, commitment, Entrepreneurial intention | |
| Kim (2002) [dissertation] | N,T1=988, 44%♀, Korean laid-off employees, N,T2= 292 employees | 34.31 (8.94); 4.43 (6.00) | Content | Longitudinal (2 measurements) | Psychological contract | |
| King & Bu (2005) [article] | N= 395, 34.4%♀, Chinese and American students working as IT professionals | 22.3 | Content, types | Cross-sectional | Obligations | |
| Knights & Kennedy (2005) [article] | N=251, Australian government employees | 47.54 (6.23); 15.44 (10.47) | Specific fulfillment | Cross-sectional | Satisfaction, commitment | |
| Korsgaard, Sapienza & Schweiger (2002) [article] | N= 104, 29%♀, employees from US electric plants | 38; 11.31 (6.34) | Content | Longitudinal | Psychological contract, trust, intent to remain | |
| Kreiner & Ashforth (2004) [article] | N= 330, 56%♀, US university alumni | 43.6 (7.8); 8.8 (7.3) | Global fulfillment | Cross-sectional | Organizational identification, NA, PA, cynicism | |
| Lambert, Edwards & Cable (2003) [article] | N= 213, 79%♀, student employees | Range 17-24 years; 93% had previous work experience | Specific fulfillment | Longitudinal (2 measurements) | Job satisfaction | |
| Larwood, Wright, Desrochers & Dahir (1998) [article] | N= 259, 50%♀, US range of occupations | 36.2 (8.17); | Global fulfillment | Cross-sectional | Underemployment, satisfaction, organizational politics, intent to turnover | |
| Lee (2005) [article] | N= 302, 14.6%♀, IT Singapore expatriates | 36.3 | Global fulfillment | Cross-sectional | Job satisfaction, work alienation, career satisfaction | |
| Lemire & Rouillard (2005) [article] | N= 132, 74.4%♀, Canadian civil servants | 44.23 (8.65); 12.45 (10.36) | Global fulfillment | Cross-sectional | Commitment, exit, neglect | |
| Lester & Kickul (2001) [article] | N= 268, 48.3%♀, US MBA students | 27.6; 3.4 | Specific fulfillment | Cross-sectional | Intent to leave, satisfaction, performance, OCB-O | |
| Lester, Turnley, Bloodgood & Bolino (2002) [article] | N, supervisor= 134, 50%♀ N, subordinate= 134, 58%♀ US MBA students | Supervisor: 40.81 (8.55); 14.22 (8.91) Subordinate: 32.27(7.52); 4.34 (4.07) | Specific fulfillment | Cross-sectional | Organizational commitment, employee performance | |
| Lo & Aryee (2003) [article] | N= 152, 53.9%♀, Chinese MBA-students | 27.6% under 30, 48.7% 30-40, 23.7% 41-50; 6.56 (3.35) | Specific breach | Cross-sectional | Turnover, psychological withdrawal, civic virtue (OCB) | |
| Montes & Irving (2005) [conference] | N= 293, 51%♀, US students in work team | 19-22 years old | Specific fulfillment | Longitudinal (3 measurements) | Satisfaction, violation, change in intent to quit | |
| Moye (2001) | N= 223, 31%♀, US | 39 | Content | Cross-sectional | Org. identification, idea | |

| | | | | | | |
|--|---|--|-------------------------------|-------------------------------|--|---|
| [dissertation] | employees and managers of Computer organization | | | | | volume, idea creativity, self-determination, intrinsic motivation, performance, OCB |
| Purvis & Cropley (2003) [article] | N= 223, 93%♀, UK nurses | 32.3 (8.3); 4.6 (5.1) | Content, types | Cross-sectional | | Intent to leave, absence |
| Raja, Johns & Ntalianis (2004) [article] | N= 197, 6%♀, higher level employees in Pakistan | 38.81 (9.86); 12.25 (9.50) | Content, types, global breach | Cross-sectional | | Violation, intention to quit, affective commitment, job satisfaction |
| Restubog & Bordia (2006) [article] | N= 267, 67%♀, Philippines MBA-students | 80% between 20-30; 4.04 (4.07) | Specific fulfillment | Cross-sectional | | OCB |
| Restubog, Bordia & Tang (2006) [article] | N=137, Philippines IT employees | 54% between 26-34; 67% between 6-10 year tenure | Global breach | Cross-sectional | | Affective commitment, OCB, performance |
| Robinson (1995) [article in book] | N= 126, 34%♀, US MBA Alumni | 30 (2.01); 6.29 (1.78) | Specific fulfillment | Longitudinal (3 measurements) | | Trust, satisfaction, commitment |
| Robinson (1996) [article] | N= 125, 34%♀, US MBA Alumni | 30 (2.01); 6.29 (1.78) | Specific fulfillment | Longitudinal (3 measurements) | | Performance, organizational citizenship behavior, intention to remain, turnover |
| Robinson & Morrison (1995) [article] | N= 126, 34%♀, US MBA Alumni | 30 (2.01); 6.29 (1.78) | Specific fulfillment | Longitudinal (3 measurements) | | Civic virtue |
| Robinson & Morrison (2000) [article] | N= 147, 36.1%♀, US MBA Alumni | 27.67 (1.9); 3.83 (1.56) | Global breach | Longitudinal (2 measurements) | | Violation, performance |
| Robinson & Rousseau (1994) [article] | N= 96, 35%♀, US range of occupations (MBA Alumni) | 28 | Global fulfillment | Longitudinal (2 measurements) | | Intention to remain, turnover |
| Rosen, Chang, Johnson & Levy (2005) [conference] | N= 349, 68%♀, US students at university working parttime | 24 (6.88); 27 months (36.24) | Global breach | Cross-sectional | | Satisfaction, justice commitment, performance |
| Rousseau (1990) [article] | N= 224, 35%♀, US MBA graduates | 28, 97% had prior work experience | Content, types | Cross-sectional | | - |
| Rybnikova (2006) [conference] | N=133, 6.9%♀, German interim managers | 29% 40-49, 67% over 50 | Specific fulfillment | Cross-sectional | | Satisfaction, performance, OCB |
| Shih & Chen (2006) [conference] | N= 485, 49.8%♀, Taiwanese MBA-graduates | 36.6 (8.28); 9.7 (8.42) | Specific fulfillment | Cross-sectional | | OCB, satisfaction, PA |
| Sturges, Conway, Guest & Liefoghe (2005) [article] | N= 151, 51%♀, UK employees from media company | 55% under 30, 40% 30-40, 5% over 40; 2.42 (1.55) | Specific fulfillment | Cross-sectional | | Commitment, performance, absence, career management, turnover |
| Suazo (2002) [dissertation] | N= 237, 60%♀, US minority groups (African, Hispanic-American) | 37.39 (10.44); 4.50 (4.91) | Global breach | Cross-sectional | | PA, NA, POS, LMX, Performance, OCB |
| Suazo, Turnley & Mai-Dalton (2005) [article] | N= 234, 59%♀, US racial groups of employees | 37; 4.50 (4.91) | Global breach | Cross-sectional | | Intent to quit, commitment, performance, OCB, violation |
| Sutton & Griffin (2004) [article] | N= 235, Australian new professionals | T1: 23.2 (3.84) | Specific fulfillment | Longitudinal (2 measurements) | | Job satisfaction, turnover |
| Tallman (2001) | N=63, 57%♀, US new | 40% 31 years or older, | Global | Cross-sectional | | PA, NA, satisfaction, |

| | | | | | |
|--|--|--|-------------------------------------|-----------------|---|
| [dissertation] | hires in organizations | 42% less than 1 year fulltime work experience | fulfillment | | commitment, OCB, intent to remain, trust, performance |
| Tallman (2006) [conference] | N= 163, 60.5%♀, 10 Canadian organizations | 77.8% 31 or older; 43.8% 5 years or more tenure | Content | Cross-sectional | Psychological contract dimensions |
| Tekleab, Takeuchi & Taylor (2005) [article] | N= 191, 75%♀, US university employees | 47; 13.4 | Global breach | Longitudinal | Justice, POS, LMX, Job satisfaction, intention to turnover, turnover |
| Tekleab & Taylor (2003) [article] | N, managers= 130, 49%♀ N, employees= 130, 75%♀ US University | Manager: 92% between 30-60 Employee: 86% between 30-60 | Global fulfillment | Cross-sectional | Perceptions of obligations, job satisfaction, intent to leave, OCB, performance |
| Ten Brink (2004) [dissertation] | N= 1611, 27%♀, 5 Dutch organizations | 40-44 years old; 47% 10 years or more tenure | Content, specific fulfillment | Cross-sectional | Commitment, OCB, development, mobility intentions |
| Ten Brink, Den Hartog, Koopman & Van Muijen (1999) [article] | N= 527, 80%♀, Dutch employees health care | Between 30-39 years; tenure 3-5 years | Specific fulfillment | Cross-sectional | Normative commitment, affective commitment, leadership, trust |
| Ten Brink, Den Hartog, Koopman & Van Muijen (2002) [article] | N, study 1: 762, 20%♀, Dutch rural company N., study 2: 74, 37%♀, Dutch public sector | S1: 39; 5-10 S2: 42; 5-10 | Specific fulfillment | Cross-sectional | Affective commitment, trust |
| Thomas, Ravlin & Au (2005) [conference] | N= 241, 22%♀, Canadian technology company | 76% over 30 years, 56% more than 10 years work exp. | Content, types | Cross-sectional | Creditor ideology, psychological contract |
| Thompson & Heron (2005) [article] | N= 429, 26%♀, UK 6 high-technology firms | 34.26 (7.89) | Specific fulfillment | Cross-sectional | Justice, commitment |
| Turnley, Bolino, Lester & Bloodgood (2003) [article] | N= 134 dyads of supervisors, 45%♀, & subordinates, 56%♀, US MBA students | Supervisor: 41; 13.48 Subordinates: 32; 4.27 (3.66) | Specific fulfillment | Cross-sectional | In-role performance, organizational citizenship behavior |
| Turnley & Feldman (1999) [article] | N= 804, 45%♀, US managers | 35.07 (7.9); 7.41 (7.27) | Specific fulfillment | Cross-sectional | Exit, voice, loyalty, neglect |
| Turnley & Feldman (2000) [article] | N= 804, 45%♀, US managers | 35.07 (7.9); 7.41 (7.27) | Specific fulfillment | Cross-sectional | Intent to quit, neglect, OCB, job satisfaction |
| Van Dyne & Ang (1998) [article] | N= 155, 76%♀ vs. 59%♀, Singapore; contingent and regular workers | Contingent: 27; 1.5 Regular: 31; 5 | Content | Cross-sectional | OCB, commitment |
| Yeh (2006) [conference] | N= 364, 100%♀, Taiwanese hospital nurses | 87% between 20-35; 41.3% between 4-9 years in organization | Global breach | Cross-sectional | Commitment, job stress |
| Zagenczyk & Gibney (2005) [conference] | N= 84, 35%♀, US undergraduate & MBA students | 25.4 (28.6) months tenure | Specific fulfillment | Cross-sectional | POS, identification, cynicism, turnover intentions |
| Zottoli (2003) [dissertation] | N= 358, 37%♀, US employees from insurance, internet company, government | Mean age 31-35; 3-4 years tenure | Specific fulfillment, global breach | Cross-sectional | OCB-I, OCB-O, Work deviant behaviors, violation |

N.B. OCB-I, OCB-O= Organizational Citizenship Behavior towards Individuals/Organization; PC = Psychological

contract; POS= Perceived Organizational Support; PA= Positive Affectivity; NA= Negative Affectivity; LMX= Leader-

Member Exchange, WHI= Work Home Interference

Table 1: Conceptualizations of the Psychological Contract

| | |
|--|--|
| <p>Expectations</p> | <ul style="list-style-type: none"> • “A relationship may be hypothesized to evolve between the employees and the foremen which might be called the ‘psychological work contract’” (Argyris, 1960, p.96). • “A product of mutual expectations. These have two characteristics: (a) They are largely implicit and unspoken, and (b) they frequently antedate the relationship of person and company” (Levinson, Price, Munden, Mandl, & Solley, 1962, p. 22). • “The individual has a variety of expectations of the organization and (...) the organization has a variety of expectations of him” (Schein, 1965, p.11). • “An implicit contract between an individual and his organization which specifies what each expect to give and receive from each other in their relationship” (Kotter, 1973, p.92) • “This contract is concerned with the organization’s expectations of the individual employee and the employees’ attempts to meet those expectations” (Dunahee & Wangler, 1974, p.519-520). • “The sum total of all written and unwritten, spoken and unspoken, expectations, of the employer and the employee” (Baker, 1985, p.37). • “Idiosyncratic set of reciprocal expectations held by employees concerning their obligations (...) and their entitlements” (McLean Parks, Kidder & Gallagher, 1998, p.698). |
| <p>Individual beliefs and perceptions</p> | <ul style="list-style-type: none"> • “Individual’s beliefs regarding the terms and conditions of a reciprocal exchange agreement between that focal person and another party” (Rousseau, 1989, p.123). • “Individual’s beliefs regarding reciprocal obligations” (Rousseau, 1990, p.390). • “Beliefs in reciprocal and promised obligations between employee and employer” (Robinson & Rousseau, 1994, p.245). • “Individual beliefs, shaped by the organization, regarding terms of an exchange agreement between individuals and their organization” (Rousseau, 1995, p.9). • “Employees’ perceptions of what they owe to their employers and what their employers owe to them” (Robinson, 1996, p.574). |
| <p>Agreement between two parties</p> | <ul style="list-style-type: none"> • “Perceptions of mutual obligations to each other held by the two parties in the employment relationship, the organization and the employee” (Herriot, Manning & Kidd, 1997, p.151). • “The perception of two parties, employee and employer, of what their mutual obligations are towards each other” (Herriot, 2001, p.38). • “The perceptions of both parties to the employment relationship – organisation and individual – of the reciprocal promises and obligations implied in that relationship” (Guest & Conway, 2002). • “An exchange agreement of promises and contributions between two parties, an employee and an employer” (Janssens, Sels & Van den Brande, 2003, p.1350). • “An agreement between management and an employee that the employee will be placed in situations where his or her needs for affection, aggression, dependency, and achievement of ego ideals can be adequately met” (Meckler, Drake & Levinson, 2003, p.217-218). |
| <p>Exchange relationship</p> | <ul style="list-style-type: none"> • “Exchange relationship between two parties: employer and employee” (Anderson & Schalk, 1998, p.638). • “It is perhaps time that the psychological contract should be recognized for what it is: a social exchange interaction” (Cullinane & Dundon, 2006, p.119). |

NB. In order to obtain an overview of conceptualizations of the psychological contract, we searched through psychological contract literature (1960-2006) and collected conceptualizations of the psychological contract.

Table 2: Meta-analytic results of relations between aging, tenure and content and types of psychological contract

| | 80% Cred. Int. | | | | | | | |
|---|----------------|-------|--------|--------|--------------|-------|-------|------------|
| | k | N | mean r | ρ | SD of ρ | Lower | Upper | Var. expl. |
| Age – psychological contract | 22 | 17209 | -.04 | -.05 | .08 | -.14 | .05 | 20.91 |
| Tenure – psychological contract | 22 | 15899 | .02 | .02 | .06 | -.06 | .10 | 29.73 |
| Age – transactional contracts | 6 | 1954 | -.02 | -.03 | .10 | -.16 | .10 | 27.25 |
| Tenure – transactional contracts | 8 | 8637 | .01 | .01 | .04 | -.03 | .06 | 45.38 |
| Age-relational contracts | 6 | 1954 | -.05 | -.06 | .16 | -.27 | .14 | 12.70 |
| Tenure-relational contracts | 8 | 8637 | .04 | .04 | .06 | -.03 | .12 | 27.77 |

k= number of studies; N= population; mean r = mean uncorrected correlation; ρ = true score correlation; SD of ρ = standard deviation of true score correlation; 80% Cred. Int. = 80% credibility interval; Var. expl. = percentage of variance in correlations explained by artifacts

Table 3: Meta-analytic results of relations between psychological contract breach and outcomes

| Outcome | 80% Cred. Int. | | | | | | | |
|--------------------------------------|----------------|-------|--------|--------|--------------|-------|-------|------------|
| | k | N | mean r | ρ | SD of ρ | Lower | Upper | Var. expl. |
| Job satisfaction | 33 | 15839 | -.43 | -.52 | .14 | -.70 | -.35 | 9.87 |
| Commitment | 37 | 17434 | -.32 | -.39 | .12 | -.54 | -.24 | 14.80 |
| Perceived Organizational Support | 10 | 9056 | -.37 | -.43 | .10 | -.56 | -.30 | 9.06 |
| Trust | 15 | 3641 | -.52 | -.62 | .13 | -.79 | -.45 | 14.76 |
| Justice | 13 | 3773 | -.41 | -.48 | .12 | -.63 | -.33 | 18.64 |
| Feelings of violations | 9 | 1903 | .60 | .69 | .22 | .41 | .99 | 5.02 |
| Negative affectivity | 9 | 2740 | .19 | .24 | .13 | .07 | .41 | 19.69 |
| Turnover intentions | 30 | 7330 | .33 | .41 | .14 | .22 | .59 | 19.74 |
| Job performance | 22 | 4872 | -.18 | -.22 | .08 | -.32 | -.11 | 47.73 |
| Organizational citizenship behaviors | 26 | 14269 | -.14 | -.19 | .15 | -.39 | .01 | 11.19 |

k= number of studies; N= population; mean r = mean uncorrected correlation; ρ = true score correlation; SD of ρ = standard deviation of true score correlation; 80% Cred. Int. = 80% credibility interval; Var. expl. = percentage of variance in correlations explained by artifacts

Table 4: Meta-analytic results of relations between aging, tenure and affective and behavioral outcomes

| | 80% Cred. Int. | | | | | | | |
|---|----------------|-------|--------|--------|--------------|-------|-------|------------|
| | k | N | mean r | ρ | SD of ρ | Lower | Upper | Var. expl. |
| Satisfaction | | | | | | | | |
| Age | 14 | 5743 | .06 | .07 | .10 | -.07 | .19 | 21.71 |
| Tenure | 11 | 10769 | -.02 | -.02 | .08 | -.13 | .08 | 14.51 |
| Commitment | | | | | | | | |
| Age | 19 | 10405 | .12 | .13 | .12 | -.02 | .29 | 12.63 |
| Tenure | 23 | 13687 | .05 | .06 | .10 | -.07 | .18 | 17.46 |
| Perceived Organizational Support | | | | | | | | |
| Age | 4 | 4624 | -.05 | -.05 | 0 | -.05 | -.05 | 100.00 |
| Tenure | 5 | 7990 | -.09 | -.09 | .05 | -.15 | -.03 | 23.54 |
| Trust | | | | | | | | |
| Age | 4 | 1368 | .03 | .03 | .02 | .01 | .05 | 93.22 |
| Tenure | 4 | 1368 | -.01 | -.01 | .09 | -.13 | .10 | 30.12 |
| Justice | | | | | | | | |
| Age | 4 | 1271 | -.06 | -.07 | 0 | -.07 | -.07 | 100.00 |
| Tenure | 5 | 1373 | -.02 | -.02 | .09 | -.13 | .10 | 35.79 |
| Negative affectivity | | | | | | | | |
| Age | 4 | 816 | -.03 | -.04 | .01 | -.05 | -.02 | 98.46 |
| Tenure | 6 | 1156 | -.03 | -.03 | .04 | -.09 | .02 | 76.11 |
| Turnover intentions | | | | | | | | |
| Age | 17 | 5401 | -.14 | -.16 | .05 | -.22 | -.09 | 56.93 |
| Tenure | 14 | 4625 | -.06 | -.07 | .09 | -.19 | .05 | 32.16 |
| Performance | | | | | | | | |
| Age | 9 | 2737 | .11 | .12 | .07 | .04 | .21 | 48.35 |
| Tenure | 13 | 2905 | .06 | .06 | 0 | .06 | .06 | 100.00 |
| Organizational citizenship behaviors | | | | | | | | |
| Age | 13 | 9103 | .07 | .08 | .06 | .00 | .16 | 30.38 |
| Tenure | 19 | 12130 | .05 | .06 | .08 | -.05 | .17 | 24.29 |

k= number of studies; N= population; mean r = mean uncorrected correlation; ρ = true score correlation; SD of ρ = standard deviation of true score correlation; 80% Cred. Int. = 80% credibility interval; Var. expl. = percentage of variance in correlations explained by artifacts

Table 5: Meta-analytic results of the moderating role of age and tenure in the relations between psychological contract breach and outcomes

| Outcome | 80% Cred. Int. | | | | | | | |
|---|----------------|-------|--------|--------|--------------|-------|-------|------------|
| | k | N | mean r | ρ | SD of ρ | Lower | Upper | Var. expl. |
| Job satisfaction | 33 | 15839 | -.43 | -.52 | .14 | -.70 | -.35 | 9.87 |
| Age <37.6 | 18 | 5198 | -.40 | -.49 | .17 | -.70 | -.27 | 11.38 |
| Age >37.6 | 7 | 8024 | -.42 | -.51 | .10 | -.63 | -.38 | 8.03 |
| Tenure <7.57 | 10 | 10737 | -.45 | -.54 | .08 | -.65 | -.44 | 11.20 |
| Tenure >7.57 | 9 | 2366 | -.37 | -.44 | .22 | -.72 | -.17 | 8.13 |
| Cross-sectional | 26 | 14518 | -.44 | -.54 | .13 | -.70 | -.36 | 9.02 |
| Longitudinal | 7 | 1321 | -.37 | -.47 | .18 | -.70 | -.24 | 16.49 |
| Global | 9 | 1534 | -.43 | -.54 | .23 | -.83 | -.24 | 10.61 |
| Specific | 24 | 14314 | -.43 | -.52 | .12 | -.68 | -.36 | 9.56 |
| Journal | 28 | 14744 | -.44 | -.53 | .13 | -.70 | -.36 | 9.27 |
| Other source | 5 | 1095 | -.38 | -.45 | .14 | -.63 | -.26 | 18.58 |
| Commitment | 37 | 17434 | -.32 | -.39 | .12 | -.54 | -.24 | 14.80 |
| Age <37.6 | 16 | 4447 | -.38 | -.46 | .10 | -.60 | -.33 | 26.07 |
| Age >37.6 | 12 | 9834 | -.29 | -.34 | .10 | -.48 | -.21 | 11.43 |
| Tenure <7.57 | 14 | 10841 | -.30 | -.36 | .08 | -.46 | -.25 | 19.11 |
| Tenure >7.57 | 13 | 3350 | -.32 | -.38 | .18 | -.61 | -.15 | 12.06 |
| Cross-sectional | 33 | 16863 | -.32 | -.39 | .12 | -.54 | -.24 | 14.33 |
| Longitudinal | 4 | 571 | -.30 | -.36 | .17 | -.58 | -.14 | 21.23 |
| Global | 9 | 1881 | -.45 | -.54 | .07 | -.63 | -.45 | 47.50 |
| Specific | 28 | 15553 | -.31 | -.37 | .11 | -.51 | -.23 | 14.77 |
| Journal | 30 | 15419 | -.33 | -.39 | .12 | -.54 | -.24 | 13.68 |
| Other source | 7 | 2015 | -.31 | -.37 | .11 | -.51 | -.22 | 23.38 |
| Perceived Organizational Support | 10 | 9056 | -.37 | -.43 | .10 | -.56 | -.30 | 9.06 |
| Age <37.6 | 4 | 1351 | -.50 | -.59 | .19 | -.83 | -.35 | 6.06 |
| Age >37.6 | 4 | 7522 | -.35 | -.40 | .04 | -.45 | -.36 | 28.08 |
| Global | 4 | 1096 | -.55 | -.62 | .18 | -.85 | -.38 | 6.15 |
| Specific | 6 | 7960 | -.35 | -.40 | .04 | -.46 | -.35 | 29.91 |
| Journal | 6 | 8222 | -.37 | -.42 | .07 | -.52 | -.32 | 10.64 |
| Other source | 4 | 834 | -.44 | -.53 | .23 | -.82 | -.24 | 7.97 |
| Trust | 15 | 3641 | -.52 | -.62 | .13 | -.79 | -.45 | 14.76 |
| Age <37.6 | 5 | 1117 | -.57 | -.68 | .13 | -.85 | .52 | 14.49 |
| Age >37.6 | 4 | 1448 | -.47 | -.56 | .13 | -.73 | -.40 | 12.26 |
| Tenure <7.57 | 4 | 1014 | -.58 | -.70 | .13 | -.87 | -.54 | 13.38 |
| Tenure >7.57 | 4 | 892 | -.42 | -.51 | .16 | -.71 | -.31 | 15.32 |
| Cross-sectional | 10 | 2655 | -.57 | -.67 | .11 | -.82 | -.53 | 15.59 |
| Longitudinal | 5 | 986 | -.40 | -.48 | .07 | -.57 | -.39 | 50.22 |
| Turnover intentions | 30 | 7330 | .33 | .41 | .14 | .22 | .59 | 19.74 |
| Age <37.6 | 14 | 3449 | .35 | .42 | .15 | .23 | .61 | 16.57 |
| Age >37.6 | 7 | 1099 | .23 | .27 | .18 | .05 | .50 | 20.49 |
| Tenure <7.57 | 12 | 4472 | .33 | .42 | .13 | .26 | .59 | 17.35 |
| Tenure >7.57 | 10 | 1557 | .31 | .37 | .21 | .10 | .64 | 14.08 |

| | | | | | | | | |
|---|----|-------|------|------|-----|------|------|--------|
| <i>Cross-sectional</i> | 22 | 5945 | .33 | .42 | .14 | .24 | .60 | 18.74 |
| <i>Longitudinal</i> | 8 | 1385 | .29 | .35 | .14 | .17 | .54 | 25.51 |
| <i>Global</i> | 9 | 1493 | .41 | .50 | .16 | .29 | .70 | 19.42 |
| <i>Specific</i> | 21 | 5837 | .30 | .38 | .13 | .22 | .54 | 22.12 |
| <i>Journal</i> | 24 | 6256 | .33 | .40 | .14 | .23 | .58 | 20.01 |
| <i>Other source</i> | 6 | 1074 | .32 | .40 | .17 | .18 | .62 | 18.65 |
| Job performance | 22 | 4872 | -.18 | -.22 | .08 | -.32 | -.11 | 47.73 |
| <i>Global</i> | 7 | 1312 | -.19 | -.22 | .11 | -.35 | -.08 | 35.57 |
| <i>Specific</i> | 15 | 3560 | -.18 | -.22 | .07 | -.30 | -.13 | 57.13 |
| <i>Journal</i> | 16 | 3586 | -.19 | -.24 | .09 | -.35 | -.12 | 44.00 |
| <i>Other source</i> | 6 | 1286 | -.14 | -.16 | .00 | -.16 | -.16 | 100.00 |
| Organizational citizenship behaviors | 26 | 14269 | -.14 | -.19 | .15 | -.39 | .01 | 11.19 |
| <i>Age <37.6</i> | 14 | 3636 | -.22 | -.26 | .17 | -.48 | -.04 | 14.52 |
| <i>Age >37.6</i> | 4 | 7913 | -.14 | -.19 | .00 | -.19 | -.19 | 100.00 |
| <i>Tenure <7.57</i> | 18 | 12374 | -.13 | -.18 | .16 | -.39 | .03 | 8.45 |
| <i>Tenure >7.57</i> | 4 | 1433 | -.15 | -.19 | .07 | -.28 | -.10 | 45.73 |
| <i>Journal</i> | 19 | 12783 | -.14 | -.19 | .16 | -.39 | .02 | 8.80 |
| <i>Other source</i> | 7 | 1487 | -.17 | -.20 | .09 | -.32 | -.08 | 43.19 |

k= number of studies; N= population; mean r = mean uncorrected correlation; ρ = true score correlation; SD of ρ = standard deviation of true score correlation; 80% Cred. Int. = 80% credibility interval; Var. expl. = percentage of variance in correlations explained by artifacts

Figure Caption

Figure 1. Research model of the meta-analysis

