

J Occup Health 2016; 58: 425-433



Original

The moderating role of overcommitment in the relationship between psychological contract breach and employee mental health

Mareike Reimann¹

¹Faculty of Sociology, Bielefeld University

Abstract: Objectives: This study investigated whether the association between perceived psychological contract breach (PCB) and employee mental health is moderated by the cognitive-motivational pattern of overcommitment (OC). Linking the psychological contract approach to the effort-reward imbalance model, this study examines PCB as an imbalance in employment relationships that acts as a psychosocial stressor in the work environment and is associated with stress reactions that in turn negatively affect mental health. **Methods:** The analyses were based on a sample of 3,667 employees who participated in a longitudinal linked employer-employee survey representative of large organizations (with at least 500 employees who are subject to social security contributions) in Germany. Fixed-effects regression models, including PCB and OC, were estimated for employee mental health, and interaction effects between PCB and OC were assessed. **Results:** The multivariate fixed-effects regression analyses showed a significant negative association between PCB and employee mental health. The results also confirmed that OC does indeed significantly increase the negative effect of PCB on mental health and that OC itself has a significant and negative effect on mental health. **Conclusions:** The results suggest that employees characterized by the cognitive-motivational pattern of OC are at an increased risk of developing poor mental health if they experience PCB compared with employees who are not overly committed to their work. The results of this study support the assumption that psychosocial work stressors play an important role in employee mental health.

(*J Occup Health* 2016; 58: 425-433)

doi: 10.1539/joh.16-0032-OA

Received February 4, 2016; Accepted May 23, 2016

Published online in *J-STAGE* August 4, 2016

Correspondence to: M. Reimann, Faculty of Sociology, Bielefeld University, P.O. Box 10 01 31, D-33501 Bielefeld, Germany (e-mail: mareike.reimann@uni-bielefeld.de)

Key words: Effort-reward imbalance, Mental health, Overcommitment, Psychological contract breach, Psychosocial work stressors, SF-12

Introduction

Studies have shown that psychosocial work stressors have negative implications on employee mental health¹⁾. In this context, the psychological contract^{2,3)}, which arises from an implicit exchange agreement between employees and their organization, has been discussed as a key element of modern employment relationships^{4,6)}. Psychological contracts, based on the assumptions of social exchange⁷⁾, are basically defined as “individual beliefs, shaped by the organization, regarding terms of an exchange agreement between individuals and their organization”³⁾. The central idea behind this definition is that employees expect their organization to fulfill certain obligations because both parties are bound to this reciprocal exchange agreement. However, if employees feel that their organization has failed to fulfill one or more of its obligations, perceived psychological contract breach (PCB)^{3,8)} occurs.

Previous research has recognized PCB as a predictor of employee mental health because such an imbalance in the employment relationship acts as a psychosocial stressor in the work environment⁹⁾. In particular, PCB has been shown to be associated with impaired psychological well-being^{10,12)} and an increased risk of burnout¹³⁾. In this study, PCB is regarded as an imbalance between what the employee expects the employer to be obligated to and what the employee perceives to be actually provided by the employer, which highlights the subjective nature of psychological contracts¹⁴⁾.

The relevance of an imbalance situation at work for employee health is also discussed within the efforts-rewards imbalance (ERI) model, which has its origins in medical sociology^{15,16)}. Like psychological contract theory,

the ERI model builds on the key assumption that a social exchange relationship exists between employees and their employer that is based on reciprocity of “efforts” the employee makes, such as working hours and performance, which are compensated for by appropriate gratifications (rewards), such as pay, career opportunities, job security, and recognition. It has been argued that a lack of reciprocity of efforts and rewards results in an effort-reward imbalance, that is, a state of emotional distress that is associated with stress reactions that in turn cause health problems¹⁵⁾. Studies have shown that this approach is very useful in explaining and predicting employee health^{17,18)}. In these studies, overcommitment (OC) is defined as a “cognitive-motivational pattern of coping with demands characterized by an excessive work-related overcommitment and a high need for approval”¹⁹⁾ and has been assumed to moderate the effects of an effort-reward imbalance on employee health (interaction hypothesis). Individuals characterized by high OC experience more strain from exchange imbalance in the workplace than employees who are not overcommitted to their work. It has been suggested that such employees increase their efforts beyond what is considered normal and necessary and that they are more prone than others to exposing themselves to greater demands at work¹⁹⁾. This individual-specific coping component is itself a health risk because being overly committed to one’s work can be exhausting in the long run¹⁸⁾. However, one of the central aspects of the ERI model is the moderating effect of OC. For this reason, OC has been hypothesized to increase the negative effects of effort-reward imbalances on employee health. Up till now, extensive research has been done on the ERI model more generally; however, fewer studies have been conducted to test the interaction hypothesis¹⁸⁾.

Regarding the ERI theory, it can be argued that PCB is a perceived imbalance in the employment relationship and acts as a psychosocial work stressor that induces negative stress reactions, which in turn leads to impaired employee mental health. Thus, it seems reasonable to assume that OC, in its role as a coping strategy, also plays an important role in the moderation of the effects of PCB on mental health. Employees who are overly committed to their work are likely to be more strongly affected by PCB than less committed employees because they are less able than others to detach themselves from their work. Overcommitted employees also underestimate the demands at work and overestimate their own capacities, with the result that they have fewer resources left to cope with the imbalance they experience in their employment relationship. A high degree of OC is, therefore, likely to increase the negative effects of PCB on employee mental health.

Previous research on mental health outcomes including a measurement of OC has been inconclusive. Some studies have found that OC impairs employee health directly

and increases the negative effects of ERI on mental health. This has been shown to be the case for emotional exhaustion^{20,21)}, depression²²⁾, poor mental functioning²³⁾, and poor well-being²¹⁾. However, other studies have not found any such interaction effects²⁴⁻²⁶⁾. It should be noted that, to date, no systematic research has been conducted on whether OC may moderate the effects of PCB on mental health. To fill this research gap, the present study used a large sample of employees in Germany to examine whether OC moderates the relationship between psychological contract breach and employee mental health, the assumption being that a high degree of OC increases the (negative) effects of PCB on mental health.

Compared to the wide range of other possible work stressors that affect employee mental health negatively, PCB has played a minor role in empirical studies so far. However, this study argues that PCB is a crucial psychosocial work stressor because of its all-embracing relevance for the employment relationship. Thus, selecting PCB as a work stressor sheds light on how overall imbalances in the implicit exchange agreement between employee and employer may threaten mental health instead of looking at single psychosocial work stressors. OC has been selected as a coping strategy that has to be particularly considered in the relationship of PCB and mental health as it particularly links work and private life. Moreover, as it is associated with high employee commitment and motivation for performance employees might even intentionally choose high OC as a motivational pattern to show their commitment to the organization. If, in line with ERI, PCB represents an imbalance in the employment relationship that involves the employment relationship as a whole, the negative consequences for mental health might be far more crucial than work stressors that are related to only specific aspects of the work. Thus, also the moderating role of OC seems to be especially important for PCB in comparison with other work stressors as withdrawing from a breached psychological contract and dealing with an overall unfavorable employment relationship is likely to particularly overstrain employees with a high level of OC.

With the above considerations in mind, three hypotheses were formulated and tested. The first was that psychological contract breach acts as a psychosocial work stressor that affects mental health; the second hypothesis was that a high degree of overcommitment has an individual effect on employee mental health; and the third hypothesis was that the association of PCB with mental health is moderated by OC:

Hypothesis 1. PCB is negatively associated with mental health.

Hypothesis 2. OC is negatively associated with mental health.

Hypothesis 3. The effect of PCB on mental health is moderated by OC. The negative effects of PCB on mental

health are more severe among employees who are characterized by high overcommitment.

Subjects and Methods

Subjects

The analysis was based on a set of longitudinal linked employer-employee data that were collected as part of the study “Interactions Between Capabilities in Work and Private Life” (LEEP-B 3; for further information, see Diewald et al.²⁷). The study design is composed of an employer survey (at least 500 employees who are subject to social security contributions) with work organizations from various segments of the economy, and an employee survey among employees of these organizations. Areas covered by the employer survey include employee structure, employment policy measures, equal opportunity, work-life balance, and health. Areas covered by the employee survey included occupation, personal life, work-life balance, health, preferences, and satisfaction. The employees who participated in the survey were representative of the employees of large work organizations in Germany, in which about 40% of all workers are employed²⁸. Interviews were conducted using computer assisted telephone interviews (CATI). To date, two waves of data collection have been completed (April 2012 to July 2013; February 2014 to April 2015). American Association for Public Opinion Research (AAPOR) response rates were about 30% for each individual wave. The analyses presented in this study were based on data on 4,000 respondents who participated in both waves (response rate was 73.3% for panel participation). Due to missing value reduction, the final sample for the descriptive analyses and the multivariate panel analyses consisted of 3,667 cases.

Ethical considerations

Participants of both the employer and the employee surveys were informed about the purpose of the study and the use of the data (anonymity, voluntariness of participation). At the end of the interview participants were again asked for permission of the use of their answers in the context of the study. As the study was conducted in cooperation with the federal Institut of Employment Research (Institut für Arbeitsmarkt und Berufsforschung, IAB), the study and all procedures were approved by the data security officer of the IAB and the Federal Ministry of Labor and Social Affairs (Bundesministerium für Arbeit und Soziales, BAMS) in Germany²⁷.

Measures

Mental health

The outcome variable “mental health” was measured using the SF-12 Health Survey (German Socioeconomic Panel version, see Andersen et al.²⁹), a short questionnaire for the measurement of health-related quality of life that

consists of twelve items. In this questionnaire, the two superordinate dimensions-mental health and physical health-are each represented by six items. The mental component summary (MCS) score was generated by conducting a confirmatory factor analysis (MCS2014: $\chi^2(45) = 906.92$, $p < 0.001$, RMSEA = 0.069, CFI = 0.952, TLI = 0.930). In contrast to the conventional method used to compute the MCS/PCS scales, this analysis allowed the factors to correlate in order to reflect the more realistic notion that the two dimensions of health may influence each other^{30,31}. In accordance with the original approach, both scores were standardized to a sample mean of 50 and a standard deviation of 10, with higher values indicating better health.

Psychological contract breach

In this study, PCB was measured as a reciprocal imbalance in the psychological contract between employee and employer. Reciprocal imbalance refers to the situation that the employee perceives that he gives more than the employer honors in return³². The measurement of PCB was inspired by Robinson & Morrison's³³ global measure of PCB and the PCB component of “reciprocal imbalance” by Cassar and Briner³² using a 1-item measure designed for the questionnaire. Respondents were asked to evaluate the overall (im)balance in their psychological contract: “All in all: Is there a balance between what you achieve/perform at your workplace and what you usually receive for it? Please answer again according to a 5-point scale. 1 means that it is “absolutely balanced” and the 5 means that it is “absolutely unbalanced”, to your disadvantage.” PCB was then used as a dichotomized variable whereas a reciprocal imbalance was considered to have occurred if respondents indicated 3, 4 or 5 on the 5-point scale (“imbalance”) or not if respondents indicated 1 or 2 (“balance”).

Overcommitment

OC was assessed using the original “inability to withdraw from work obligations” subscale¹⁹, which consists of the following five items: “As soon as I get up in the morning, I start to think about work problems”; “When I get home, I can easily relax and ‘switch off’ work”; “People close to me say that I sacrifice too much for my job”; “Work rarely lets me go, it is still on my mind when I go to bed”; and “If I postpone something I was supposed to do today, I'll have trouble sleeping at night.” These items were measured using a 5-point scale (“Always”; “Often”; “Sometimes”; “Rarely”; “Never”). According to the original scale, some items were oppositely assessed and reversed to get the same direction of all items. Following Siegrist et al.¹⁹, all five items were computed to a total score varying from 5 to 25 (the higher the score, the higher the degree of OC). A dichotomous variable was then used to divide the study population into an upper tertile (1 = “High degree of OC”) and two lower tertiles (0 = “Low degree of OC”).

Work-related and sociodemographic variables

To cover other work-related factors, actual working hours (metric) and the log monthly net income (metric) were considered. In addition, the respondents were asked whether they experienced physical strain at work on a regular basis (1=yes); whether they used flexible working hours (1=yes); whether they had supervising responsibilities (1=yes); and whether they had a second job (1=yes). Several socioeconomic and demographic variables were controlled for, including age (metric), years of education (metric) and number of children in the household (metric).

Method

A longitudinal multivariate analysis was performed using fixed-effect regression models and data from the two waves of the survey. Fixed-effects modeling is used to control for unobserved heterogeneity in time-invariant characteristics³⁴. For this reason, time-stable variables such as gender and history of migration were excluded from the regression. Regression models were estimated in two steps. The first model included PCB and OC as individual predictors, as well as all other work-related and sociodemographic variables. The second model adds the interaction effect of PCB#OC to the model. In addition, predictive margins of the interaction effect were estimated based on the interaction model in order to contrast all possible combinations of PCB and OC in consideration of the estimated fixed-effects model. Given that the dependent variable MCS was already standardized, unstandardized coefficients were used to improve interpretation of the results. The analyses were performed using Stata 13.1.

Results

Table 1 shows the distribution of the study variables, as well as the means of the mental health scores among the predictors. Among the total population of the sample analyzed, 45% were female and 55% were male. The mean age was 42.9 years, with ages of range 21-53 years. Among the total, 62% of the employees had children, and mean years of education was 14.2 years. In addition, 41% of the employees stated that they experienced PCB, and 36% reported a high degree of OC. As for work-related factors, mean actual working hours per week was 39.7 hours; 39% of the respondents had supervising responsibilities; 61% used flexible working hours; and 14% had a second job. The mean MCS of employees reporting PCB was 47.8 (SD, Standard Deviation=10.4), whereas that of employees who did not report PCB was 51.8 (SD=9.1). The average values for mental health were also lower among employees characterized by high OC [46.7 (SD=11.0)] than among those with low OC [52.2 (SD=8.5)].

Table 2 shows the means and standard deviations of and the correlations between all study variables. MCS is

significantly and negatively correlated with both PCB (-0.20) and OC (-0.27). Regarding the other predictor variables, high physical strain at work is also negatively correlated with MCS (-0.22). The correlation between PCB and OC is significant but low (0.16). This supports the assumption that PCB and OC are not only different concepts by definition but that they are also empirically distinctive. All other correlations are low as well.

Table 3 shows the results of the multiple regression analyses on mental health. Model 1 includes the direct effects of PCB and OC, as well as all work-related and sociodemographic variables. The results show a statistically significant negative effect of PCB on mental health ($\beta = -2.463$, $p < 0.001$), which indicates that perceiving a psychological contract breach impairs mental health, thereby supporting Hypothesis H1. Moreover, OC predicts mental health: a high degree of overcommitment had a negative effect on mental health ($\beta = -4.829$, $p < 0.001$), a finding that supports Hypothesis H2. Model 1 was extended to include the effect of the interaction between PCB and OC to the prediction. Results indicate that a high degree of OC leads to a statistically significant increase in the negative effects of PCB, thereby confirming Hypothesis H3. Both main effects of PCB and OC are still highly significant under the condition of the interaction effect.

Table 4 shows the predictive margins for the interaction of PCB with OC on mental health, contrasting all possible combinations (computed means broken down by PCB and OC). The average mental health is lowest if an employee experiences PCB and is also characterized by a high OC [45.3 (95% CI, 44.6-46.0)]. In contrast, mental health on an average is highest for the combination of no PCB and a low OC [52.8 (95% CI, 52.3-53.2)]. In other words, the effect of PCB for those who are highly overcommitted is significantly different from the effect of PCB for those who are not overcommitted. A comparison of the imbalance/high-OC situation with a balance/low-OC situation shows that the difference in the mental health scores is 7.5 points, which is fairly high considering that the MCS scores had a range of approximately 4-63. Moreover, considering that mental health is influenced by many factors, such as physical conditions, other work-related variables, and personal stress, the predictors analyzed in this study explain a large portion of the variance of employee mental health.

Discussion

The results of this study support the assumption that work-related stress factors play a major role in employee mental health. In particular, the analyses showed that there is a strong association between psychosocial work stressors (in this case, PCB) and employee mental health and that overcommitment is a cognitive-motivational and

Table 1. Distribution of study variables, means, and standard deviations of MCS among predictor variables

Variables	N	%	MCS	
			Mean	SD
PCB				
Balanced	2,169	59.2	51.83	9.08
Imbalanced	1,498	40.9	47.81	10.43
OC				
Low	2,342	63.9	52.18	8.53
High	1,325	36.1	46.68	11.00
<i>Work-related factors</i>				
Actual working hours				
≤20	205	5.6	49.71	10.29
20-35	668	18.2	49.02	9.71
>35	2,794	76.2	50.51	9.83
Physical strain				
No	1,933	52.7	52.29	8.43
Yes	1,734	47.3	47.85	10.76
Use of flexible working hours				
No	1,423	38.8	49.62	9.94
Yes	2,244	61.2	50.55	9.78
Supervising responsibilities				
No	2,238	61.0	49.59	10.08
Yes	1,429	39.0	51.13	9.42
Second Job				
No	3,151	85.9	50.26	9.86
Yes	516	14.1	49.74	9.77
<i>Sociodemographics</i>				
Gender				
Female	1,663	45.4	48.91	10.39
Male	2,004	54.7	51.26	9.25
Age				
21-30	403	11.0	50.99	8.89
31-40	812	22.1	50.27	9.73
41-50	1,798	49.0	49.98	10.04
+51	654	17.8	50.18	10.04
Years of education				
≤10	56	1.5	47.29	9.84
10.5-13	1,799	49.1	49.73	10.28
13.5-18	1,752	47.8	50.81	9.32
Children in household				
0	1,402	38.2	49.66	10.14
1	874	23.8	49.94	10.39
2	1,098	29.9	51.14	8.93
+3	293	8.0	49.94	9.92

MCS, mental health; PCB, psychological contract breach; OC, overcommitment; continuous variables were categorized to allow for a better interpretation of MCS means; SD, standard deviation

personal coping strategy that plays an important stress-emphasizing role in the relationship between PCB and

employee mental health.

Psychological contracts have been shown to be a part

Table 2. Means, standard deviations, and correlations of all study variables (N=3,667)

	Mean	SD	1	2	3	4	5	6
1. MCS	50.19	9.85	-					
2. PCB	0.41	0.49	-0.20*	-				
3. OC	0.36	0.48	-0.27*	0.16*	-			
4. Actual working hours	39.68	9.58	0.07*	0.01	0.16*	-		
5. Income (log.)	8.10	0.58	0.15*	-0.18*	0.04*	0.60*	-	
6. Physical strain	0.47	0.50	-0.22*	0.19*	0.21*	0.07*	-0.10*	-
7. Flexible working hours	0.61	0.49	0.05*	-0.14*	-0.01	0.02*	0.19*	-0.16*
8. Supervising responsibilities	0.39	0.49	0.08*	-0.01	0.12*	0.31*	0.31*	0.04*
9. Second Job	0.14	0.35	-0.02*	0.05*	0.01	-0.04*	-0.05*	0.03*
10. Age	42.86	8.07	-0.03*	-0.03*	0.02*	-0.05*	0.20*	0.02*
11. Years of education	14.23	2.82	0.09*	-0.04*	0.02*	0.10*	0.34*	-0.15*
12. Children in household	1.09	1.04	0.04*	-0.04*	-0.02*	-0.14*	0.04*	-0.02*
			7	8	9	10	11	12
			-					
8			0.00	-				
9			-0.05*	0.08*	-			
10			0.06*	0.11*	-0.02*	-		
11			0.23*	0.09*	0.03*	-0.3*	-	
12			0.04*	0.07*	0.01	0.25*	0.01*	-

MCS, mental health (SF-12 mental component summary); PCB, psychological contract breach; OC, overcommitment; Pearson correlation coefficients; SD, standard deviation; * $p < 0.05$

Table 3. Fixed-effects regression models on mental health (N=3,667)

	MCS					
	Model 1			Model 2		
	Coefficient	Standard Error		Coefficient	Standard Error	
PCB (1=yes)	-2.463	***	(0.322)	-1.979	***	(0.404)
OC (1=high)	-4.829	***	(0.329)	-4.259	***	(0.436)
PCB # OC				-1.271	*	(0.639)
Actual working hours	0.048	*	(0.021)	0.049	*	(0.021)
Monthly net income (log.)	1.247	**	(0.381)	1.234	**	(0.381)
Physical strain (1=yes)	-2.858	***	(0.320)	-2.853	***	(0.320)
Use of flexible working hours (1=yes)	-0.351		(0.326)	-0.360		(0.326)
Supervising responsibilities (1=yes)	1.468	***	(0.335)	1.465	***	(0.334)
Second job (1=yes)	-0.250		(0.437)	-0.282		(0.437)
Age (in years)	-0.072	***	(0.020)	-0.071	***	(0.020)
Years of education	0.126	*	(0.059)	0.130	*	(0.059)
Children in household	0.419	**	(0.152)	0.417	**	(0.152)
Constant	42.787	***	(2.449)	42.616	***	(2.450)
R ²			14.6%			14.8%

Fixed-effects regression models on MCS with two time points; MCS, mental health (SF-12 mental component summary); PCB, psychological contract breach; OC, overcommitment; unstandardized coefficients; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

of every modern employment relationship. This is explained by the fact that standard employment contracts are incomplete by nature and cannot possibly cover every

aspect of an employment relationship, which means that aspects not covered by an employment contract must be made the subject of implicit agreements instead³⁾. More-

Table 4. Predictive Margins of mental health, based on Fixed-effects regression model M2 (N=3,667)

	Margin	Standard Error	P>z	[95% Confidence Interval]	
PCB/OC					
Balanced/Low OC	52.77	0.240	0.000	52.301	53.243
Balanced/High OC	48.51	0.362	0.000	47.803	49.222
Imbalanced/Low OC	50.79	0.322	0.000	50.163	51.424
Imbalanced/High OC	45.26	0.362	0.000	44.553	45.973

Predictive margins on MCS, estimated from Fixed-effects regression model M2; MCS, mental health (SF-12 mental component summary); PCB, psychological contract breach; OC, overcommitment

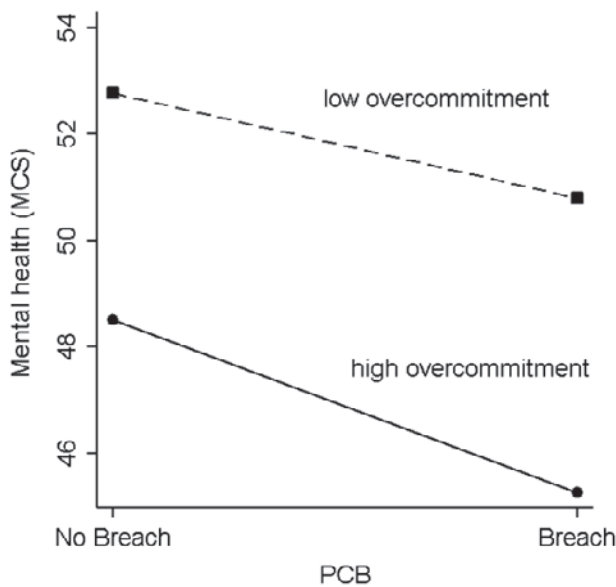


Fig. 1. Interaction between PCB and OC on MCS

over, the psychological contract is useful in understanding the plurality and multidimensionality of employment relations with regard to different needs and preferences of individuals⁵). The implicit aspects of an employment relationship have been suggested to be predictive not only of employment behavior but also of individual health, especially when it comes to breaches of obligations within this contract. This study combined the psychological contract approach with effort-reward imbalance theory to examine whether the cognitive-motivational pattern of OC moderates the relationship between PCB and employee mental health. The results are consistent with those of previous studies that found that PCB acts as a psychosocial work stressor and impairs employee mental health^{9,35}). This study found a negative association between employees expectations about the mutual exchange agreement between them and their employer not being met and employee mental health. OC predicts mental health as well: a high degree of overcommitment is related to impaired

employee mental health, a finding that is in line with ERI theory^{15,16}). However, the primary objective of this study was to test the interaction hypothesis between PCB and OC on employee mental health. To the author’s knowledge, this specific interaction of PCB and OC has not been analyzed before. The results indicate that employees who display a high degree of OC are at an increased risk of developing mental health issues if they experience a psychological contract breach and that the more intrinsic and personal pattern of being overcommitted to one’s work plays an important role in coping with stressful working conditions, especially in coping with psychosocial work stressors. Thus, a high degree of OC makes it even more difficult for employees to deal with negative experiences in the workplace. However, excessive commitment to one’s work is an employee characteristic that is often expected by employers, whether explicitly or implicitly. If OC is a threat to employee mental health—whether in itself or as an additional coping strategy that increases the negative effects of imbalances in an employment relationship—then being expected to be committed to one’s work all the time might make things even worse, both for employees and for employers. The consequences for general individual health and work-related behavior are significant. Not only is poor mental health known to affect physical health in the long run but it can also damage social relationships and affect motivation and performance^{36,37}).

Contributions and limitations

This study contributes to existing research in several ways. By investigating the specific moderating role of OC on the effect of PCB, this study adds the interaction between a psychosocial work stressor and a more intrinsic cognitive-motivational personality pattern to the study of employee mental health. It should also be noted that the empirical research on both ERI and PCB is based in large part on cross-sectional data, which is problematic because it is impossible to consider reversed causality on the basis of such data³⁸). The empirical analyses presented in this

study were based on longitudinal data to address the issue of reversed causality and is, therefore, able to provide a solid foundation for further studies.

Many studies that have specifically addressed psychological contracts have concentrated on very specific occupational groups and have used relatively small sample sizes^{31,39}. To resolve the problems involved in the use of overly specific groups, this study was based on a large representative sample of employees in Germany, which made it possible to cover a wide range of industries, educational groups, and occupational groups. Therefore, it was possible to draw conclusions about a broader group of employees rather than about a number of highly specific occupational groups. In addition, the sample used was representative of large work organizations in Germany in which about 40% of all workers in the country are employed²⁸.

However, this study also has its limitations. One limitation was that the sample consisted mainly of permanent employees, who still are the type of employees most commonly found at large companies in Germany⁴⁰. Research has shown that there are differences in the psychological contracts between permanent and temporary employees⁴¹. Another limitation is that the linked employer-employee study collects only data on the employees of large companies. The psychological contracts of employees of smaller companies may be very different in structure from those of employees of large companies, given that in the case of the former, the employer-employee relationship is much more direct. On the other hand, an appropriately detailed analysis of the impact of psychological contract breach on employee mental health would have to be based on a sample that reflects the structure of a broad workforce that consists of a variety of occupational, educational, and income groups—drawing such a sample from among the workforce of smaller companies is very difficult, if not altogether impossible.

Conclusions

In conclusion, this study suggests that PCB is an important predictor of employee mental health. However, employees characterized by the cognitive-motivational pattern of overcommitment are at a higher risk of developing poor mental health if they experience psychological contract breach than those who are not overly committed to their work. The results of this study confirm the important role of psychosocial work stressors in employee mental health.

Acknowledgments: This research was supported by the Collaborative Research Center 882 (SFB 882) “From Heterogeneities to Inequalities” at Bielefeld University, which is funded by the German Research Foundation (DFG).

References

- 1) Stansfeld S, Candy B. Psychosocial work environment and mental health: A meta-analytic review. *Scand J Work Environ Health* 2006; 32: 443-462.
- 2) Rousseau DM. Psychological and implied contracts in organizations. *Employ Respons Rights J* 1989; 2: 121-139.
- 3) Rousseau DM. Psychological contracts in organizations: Understanding written and unwritten agreements. Sage: Thousand Oaks; 1995.
- 4) Conway N, Briner RB. Fifty years of psychological contract research: What do we know and what are the main challenges? *Int Rev Ind Org Psychol* 2009; 24: 71-130.
- 5) Coyle-Shapiro J, Kessler I. Consequences of the psychological contract for the employment relationship: A large scale survey. *J Management Stud* 2000; 37: 903-930.
- 6) Cropanzano R, Mitchell MS. Social exchange theory: an interdisciplinary review. *J Manag* 2005; 31: 874-900.
- 7) Blau PM. Exchange and power in social life. New York: J Wiley; 1964.
- 8) Robinson SL, Rousseau DM. Violating the psychological contract: Not the exception but the norm. *J Organ Behav* 1994; 15: 245-259.
- 9) Robbins JM, Ford MT, Tetrick LE. Perceived unfairness and employee health: A meta-analytic integration. *J Appl Psychol* 2012; 97: 235-272.
- 10) Chambel MJ, Oliveira-Cruz F. Breach of psychological contract and the development of burnout and engagement: A longitudinal study among soldiers on a peacekeeping mission. *Mil Psychol* 2010; 22: 110-127.
- 11) Cantisano GT, Domínguez JF, García JL. Social comparison and perceived breach of psychological contract: Their effects on burnout in a multigroup analysis. *Span J Psychol* 2007; 10: 122-130.
- 12) Schaufeli W, Enzmann D. The burnout companion to study and practice: A critical analysis. London: Taylor & Francis; 1998.
- 13) Conway N, Briner RB. A daily diary study of affective responses to psychological contract breach and exceeded promises. *J Organ Behav* 2002; 23: 287-302.
- 14) Morrison EW, Robinson SL. When employees feel betrayed: A model of how psychological contract violation develops. *Acad Manage Rev* 1997; 22: 226-256.
- 15) Siegrist J. Adverse health effects on high-effort/low-reward conditions. *J Occup Health Psychol* 1996; 1: 27-41.
- 16) Siegrist J, Siegrist K, Weber I. Sociological concepts in the etiology of chronic disease: the case of ischemic heart disease. *Soc Sci Med* 1986; 22: 247-253.
- 17) Tsutsumi A, Kawakami N. A review of empirical studies on the model of effort-reward imbalance at work: reducing occupational stress by implementing a new theory. *Soc Sci Med* 2004; 59: 2335-2359.
- 18) Van Vegchel N, De Jonge J, Bosma H, Schaufeli W. Reviewing the effort-reward imbalance model: Drawing up the balance of 45 empirical studies. *Soc Sci Med* 2005; 60: 1117-

- 1131.
- 19) Siegrist J, Starke D, Chandola T, et al. The measurement of effort-reward imbalance at work: European comparisons. *Soc Sci Med* 2004; 58: 1483-1499.
 - 20) Bakker AB, Killmer CH, Siegrist J, Schaufeli WB. Effort-reward imbalance and burnout among nurses. *J Adv Nurs* 2000; 31: 884-891.
 - 21) De Jonge J, Bosma H, Peter R, Siegrist J. Job strain, effort-reward imbalance and employee well-being: A large-scale cross-sectional study. *Soc Sci Med* 2000; 50: 1317-1327.
 - 22) Tsutsumi A, Kayaba K, Theorell T, Siegrist J. Association between job stress and depression among Japanese employees threatened by job loss in a comparison between two complementary job-stress models. *Scand J Work Environ Health* 2001; 27: 146-153.
 - 23) Kuper H, Singh-Manoux A, Siegrist J, Marmot M. When reciprocity fails: Effort-reward imbalance in relation to coronary heart disease and health functioning within the Whitehall II study. *Occup Environ Med* 2002; 59: 777-784.
 - 24) Calnan M, Wainwright D, Almond S. Job strain, effort-reward imbalance and mental distress: A study of occupations in general medical practice. *Work Stress* 2000; 14: 297-311.
 - 25) Van Vegchel N, De Jonge J, Meijer T, Hamers JP. Different effort constructs and effort-reward imbalance: Effects on employee well-being in ancillary health care workers. *J Adv Nurs* 2001; 34: 128-136.
 - 26) Preckel D, von Känel R, Kudielka BM, Fischer JE. Overcommitment to work is associated with vital exhaustion. *Int Arch Occup Environ Health* 2005; 78: 117-122.
 - 27) Diewald M, Schunck R, Abendroth A, et al. The SFB-B3 Linked Employer-Employee Panel Survey (LEEP-B 3). *Schmollers Jahrb* 2014; 134: 379-389.
 - 28) Destatis. Mehr als 60% der tätigen Personen arbeiten in kleinen und mittleren Unternehmen [Online]. Wiesbaden: Federal Statistical Office; 2014. [cited 2016 Jan. 15]; Available from: URL: https://www.destatis.de/DE/ZahlenFakten/GesamtwirtschaftUmwelt/UnternehmenHandwerk/KleineMittlereUnternehmenMittelstand/Aktuell_.html
 - 29) Andersen HH, Mühlbacher A, Nübling M, Schupp J, Wagner GG. Computation of standard values for physical and mental health scale scores using the SOEP version of SF-12 v2. *Schmollers Jahrb* 2007; 127: 171-182.
 - 30) Schunck R, Sauer C, Valet P. Unfair pay and health: The effects of perceived injustice of earnings on physical health. *Eur Sociol Rev* 2015; 31: 655-666.
 - 31) Tucker G, Adams R, Wilson D. Results from several population studies show that recommended scoring methods of the SF-36 and the SF-12 may lead to incorrect conclusions and subsequent health decisions. *Qual Life Res* 2014; 23: 2195-2203.
 - 32) Cassar V, Briner RB. Psychological contract 'breach': A multiple component perspective to an over-researched construct? *Revista de Psicología Social* 2005; 20: 125-136.
 - 33) Robinson SL, Morrison EW. The development of psychological contract breach and violation: A longitudinal study. *J Vocat Behav* 2000; 21: 525-546.
 - 34) Allison PD. Fixed effects regression methods for longitudinal data using SAS®. Cary: SAS Institute; 2009a.
 - 35) Gracia FJ, Silla I, Peiró JM, Fortes-Ferreira L. The state of the psychological contract and its relation to employees' psychological health. *Psychol Spain* 2007; 11: 33-41.
 - 36) Burke RJ, Greenglass ER, Schwarzer R. Predicting teacher burnout over time: Effects of work stress, social support, and self-doubts on burnout and its consequences. *Anxiety Stress Copin* 1996; 9: 261-275.
 - 37) Peterson U, Demerouti E, Bergström G, Samuelsson M, Åsberg M, Nygren Å. Burnout and physical and mental health among Swedish healthcare workers. *J Adv Nurs* 2008; 62: 84-95.
 - 38) Wooldridge JM. *Econometric analysis of cross section and panel data*. 2nd ed. Cambridge, MA: MIT Press; 2010.
 - 39) Conway N, Briner RB. *Understanding psychological contracts at work: A critical evaluation of theory and research*. Oxford: Oxford University Press; 2005.
 - 40) Eichhorst W, Tobsch V. Not so standard anymore? Employment duality in Germany [Online]. Bonn: Institute for the Study of Labor; 2014. [cited 2016 Jan. 15]; Available from: URL: <http://ssrn.com/abstract=2432439>
 - 41) Conway N, Briner RB. Full-time versus part-time employees: Understanding the links between work status, the psychological contract, and attitudes. *J Vocat Behav* 2002; 61: 279-301.