Journal of Business and Psychology (2021) 36:771–792
https://doi.org/10.1007/s10869-020-09702-7

ORIGINAL PAPER

Social Job Stressors can Foster Employee Well-Being: Introducing the Concept of Social Challenge Stressors

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Published online: 5 August 2020

Abstract

Existing social stressor concepts disregard the variety of task-related situations at work that require skillful social behavior to maintain good social relationships while achieving certain task goals. In this article, we challenge the view that social stressors at work are solely dysfunctional aspects evoking employee ill health. Drawing from the challenge-hindrance stressor framework, we introduce the concept of social challenge stressors as a job characteristic and examine their relationships with individual well- and ill-being. In study 1, we developed a new scale for the measurement of social challenge stressors and tested the validity of the scale. Results from two independent samples indicated support for a single-factor structure and showed that social challenge stressors are distinct from related stressor concepts. Using two samples, one of which was already used to test the factor structure, we analyzed the unique contribution of social challenge stressors in predicting employee well- and ill-being. As expected, social challenge stressors were simultaneously related to psychological strain and well-being. Using time-lagged data, study 2 investigated mechanisms that may explain how social challenge stressors are linked to well-being and strain. In line with the stress-as-offense-to-self approach, we expected indirect relationships via self-esteem. Additionally, social support was expected to moderate the relationships between social stressors and self-esteem. Whereas the indirect relationships were mostly confirmed, we found no support for the buffering role of social support in the social hindrance stressors-self-esteem link. Although we found a moderation effect for social challenge stressors, results indicated a compensation model that conflicted with expectations.

Keywords Challenge and hindrance stressors · Social stressors · Conflicts · Organizational injustice · Employee well-being · Self-esteem · Social support

Negative effects of job stressors have been the focus of organizational stress research for a long time. Recent research, however, has shown detrimental as well as beneficial effects of some stressors on individual well- and ill-being. This has resulted in the introduction of the challenge-hindrance stressor framework (Cavanaugh, Boswell, Roehling, & Boudreau, 2000; LePine, Podsakoff, & LePine, 2005) distinguishing stressors based on their characteristics and impacts. Stressors that are consistently associated with employee strain have been called hindrance stressors and reflect the classical view of job stressors. Administrative barriers and role conflicts at work are classic examples. For so-called challenge stressors, such as workload or job complexity, positive and negative effects have been found simultaneously. Since this approach has many implications for work design, more and more studies take both hindrance and challenge stressors into consideration (Crawford, LePine, & Rich, 2010; N. P. Podsakoff, LePine, & LePine, 2007).

However, it is not yet clear which specific job stressors can be classified as challenge stressors, since they are typically measured using a higher order scale that subsumes qualitatively different job characteristics such as time pressure, number of projects, workload, complexity, and task responsibilities (Cavanaugh et al., 2000; Rodell & Judge, 2009). While time pressure (e.g., Widmer, Semmer, Kälin, Jacobshagen, &

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Meier, 2012) or learning demands (Prem, Ohly, Kubicek, & Korunka, 2017) have already been confirmed to be challenge stressors by research using specific measures, this is still unclear for the other stressor types that have been used in the original challenge-hindrance scales introduced by Cavanaugh et al. (2000). Moreover, to the best of our knowledge, social stressors have not yet been integrated into the framework, although they are the subject of an important research stream in occupational health psychology (e.g., Pereira & Elfering, 2014; Pereira, Meier, & Elfering, 2013). This is particularly surprising as some social stressors have already been considered in the original scales. While red tape and politics were considered hindrance stressors, social aspects of work such as the time spent in meetings and the number of phone calls/office visits could not be classified to be either a challenge or a hindrance stressor. However, the authors did not explicitly mention social stressors, so we do not yet know if there are social stressors at work that may correspond to the concept of challenge stressors. We intend to fill this research gap by applying the framework to social aspects at work.

Previous research has suggested that social stressors, such as conflicts, injustice, incivility, bullying, or a negative atmosphere, may pose a threat to the need to belong, hinder goal accomplishment, and imply organizational disrespect (Dawson, O'Brien, & Beehr, 2016; Kim & Beehr, 2018). It has been found that they are negatively associated with physical and mental health (Pereira & Elfering, 2014; Semmer, Jacobshagen, Meier, & Elfering, 2007). Such social stressors, however, only represent conceptually negative aspects of work and might ignore that social processes often need to be controlled in order to ensure successful task execution. When performing group tasks, people must be coordinated, resources allocated, and misunderstandings cleared up in addition to the work on the objective (cf. McGrath, 1984). These requirements have often been attributed to leadership and of course are part of a leader's role, but also apply equally to all group members and thus constitute a job characteristic in many jobs.

In this paper, we aim to develop a concept that considers social job demands as functional aspects of one's work in relation to important work goals. In contrast to related concepts such as conflict management (De Dreu, Evers, Beersma, Kluwer, & Nauta, 2001), social influence tactics (Kipnis, Schmidt, & Wilkinson, 1980), and team leadership (Zaccaro, Rittman, & Marks, 2001), our social challenge stressor concept focuses on situational characteristics at work that require both task-related and social action at the same time; it does not consider individual abilities (as it applies for emotional intelligence and social influence tactics) or the actual regulation of task-independent social processes. Following a behavior requirement approach that is frequently used for stressor concepts (see, for example, Irmer, Kern, Schermelleh-Engel, Semmer, & Zapf, 2019; Semmer, Zapf, & Dunckel, 1995), we suppose that there are social challenge stressors at work which promote self-esteem by offering the opportunity to show competence and keep a work group together, and which may therefore be positively related to well-being. At the same time, however, dealing with these stressors is also related to strain because it is usually effortful and can involve a risk of failure.

We pursue two research goals in this paper: first, we develop a theoretical concept for social challenge stressors that meets the criteria to be classified as challenge stressors. To consider the variety of situations in which social challenge stressors might occur, we draw on McGrath's (1984) understanding of group tasks and utilize his process and circumplex model for the construction of a new scale. Using three independent cross-sectional samples, we provide evidence for the construct and criterion-related validity of our new measure. Second, we examine an explanatory model that describes the underlying mechanisms by which social challenge and hindrance stressors are linked to strain and well-being in a longitudinal study. Building on the stress-as-offense-to-self model (Semmer et al., 2007) and Lazarus' (1999) appraisal theory, this study places special emphasis on indirect relationships via self-esteem and moderation effects of social support to explain the consequences of social stressors.

The Challenge Stressor-Hindrance Stressor Framework

A recent advancement in the occupational stress literature proposes to differentiate between challenge and hindrance stressors (Cavanaugh et al., 2000; LePine et al., 2005). Both types of stressors are considered effortful and evoke stress appraisals, which in turn may lead to psychological strain (Hockey, 1997; N. P. Podsakoff et al., 2007). In contrast to hindrance stressors, however, challenge stressors additionally evoke positive emotions and, in turn, are expected to be positively associated with well-being and work engagement (Crawford et al., 2010; Rodell & Judge, 2009). Most studies on challenge stressors have focused on aspects such as time pressure, workload, and related constructs (e.g., Ohly & Fritz, 2010; Prem et al., 2017). It has been argued that challenge and hindrance stressors differ especially with regard to whether or not the attainment of goals is affected (Kronenwett & Rigotti, 2019; van den Broeck, de Cuyper, de Witte, & Vansteenkiste, 2010). More precisely, hindrance stressors are expected to require effort in dealing with constraints that keep one from attaining goals. Either they have to be overcome in order to come back to the starting point, or it is necessary to take a detour. By contrast, challenge stressors should arise when goal-oriented behavior itself requires more effort. Hence, employees have to spend more resources, but get closer to goals

by dealing with the stressor on a step-by-step basis (cf. Kronenwett & Rigotti, 2019).

Taken together, challenge stressors should fulfill the following criteria: They (a) require increased effort and exertion (Hockey, 1997), (b) are closely related to the attainment of important personal (work) goals (Kim & Beehr, 2019; van den Broeck et al., 2010), (c) have a fair chance to be coped with successfully (Pearsall, Ellis, & Stein, 2009) (d) offer the opportunity for potential gains and personal growth (Crane & Searle, 2016; Prem et al., 2017), and (e) should be a legitimate aspect of the job that is either inherent in the work task (e.g., time pressure in emergency rooms) or at least difficult to avoid under given boundary conditions (cf. Semmer et al., 2019). By appraising job stressors to be under control and fostering achievement of important goals, challenge stressors can increase performance, engagement, and well-being (Boswell, Olson-Buchanan, & LePine, 2004; Crane & Searle, 2016; Crawford et al., 2010). Hindrance stressors are job stressors that (a) require increased effort and exertion as well, but (b) reflect obstacles to personal or work goals or threaten personal growth and learning (Crane & Searle, 2016; Crawford et al., 2010). Oftentimes, hindrance stressors (c) have to be overcome (e.g., an avoidable machine breakdown) in order to continue working towards goals, however, in some cases they may also be perceived as unmanageable (e.g., some social conflicts). Finally, hindrance stressors (d) do not offer any potential gains (e.g., Webster, Beehr, & Christiansen, 2010), and (e) refer to stressful aspects of one's job that are seen as not necessary or unreasonable (cf. Semmer et al., 2007). As a result, these stressors slow down the work process and lead to psychological strain without any positive consequences (e.g., Widmer et al., 2012).

Integrating Social Stressors into the Challenge-Hindrance Framework

In most studies, social stressors at work are viewed as detrimental to well-being (Bruk-Lee, Nixon, & Spector, 2013; Dormann & Zapf, 2002). They are most commonly defined as potential burdens occurring in social interactions or as a form of unfair organizational rules and policies that convey a sense of disrespect (Bruk-Lee et al., 2013). In addition, they are characterized as daily hassles (Kanner, Coyne, Schaefer, & Lazarus, 1981). Social stressors include task and relationship conflicts (de Wit, Greer, & Jehn, 2012), organizational injustice (Robbins, Ford, & Tetrick, 2012), social exclusion (Pereira et al., 2013), verbal or physical aggression (Hershcovis & Barling, 2010), bullying (Einarsen, Hoel, Zapf, & Cooper, 2020), as well as discord among colleagues and supervisors (Holz, Zapf, & Dormann, 2004). Many of these concepts, such as social exclusion, aggression, and bullying, are closely related and all stand for interpersonal mistreatment (Tepper & Henle, 2011). Thus, we only consider task and relationship conflicts, organizational injustice, and social exclusion as representatives of established social stressors in this paper. All of them match with the concept of hindrance stressors because they are unnecessary obstacles that thwart the attainment of central goals and threaten personal growth (Dawson et al., 2016).

We argue that existing social stressor concepts fail to consider frequently occurring group-related work demands that are an inherent part of task execution and require a kind of skillful social action to ensure goal accomplishment. Thus, we searched for a concept of social job stressors calling for increased effort on the one hand, but being crucial to the working process and for achieving important goals on the other hand. For social job requirements, however, we did not find any research that covers these theoretical assumptions. There is research on conflict management (De Dreu et al., 2001), team leadership (Zaccaro et al., 2001), and social influence tactics (Kipnis et al., 1980), but these concepts tend to focus on either individual skills and abilities or on the process of social regulation instead of job characteristics. Applying each of the aforementioned characteristics of challenge stressors, we presume the following ones for the construction of our new concept: Social challenge stressors should (a) match stressor definitions because they require increased effort and be typically evaluated as stressful (cf. Cavanaugh et al., 2000). For this reason, we expect that social challenge stressors are always related to psychological strain. They (b) must refer to social aspects of task-related action execution, which means that coping with them contributes to goal achievement, and (c) should have a fair chance to be successfully overcome. We assume that (d) successfully dealing with social challenge stressors meets the basic human needs for competence and belongingness and is therefore related to personal growth or personal development (cf. Albrecht, 2015) and that (e) social challenge stressors should relate to primary tasks of one's job and therefore be perceived to be legitimate. Another precondition for social challenge stressors was that they have to be related to social interactions at work in order to be distinguished from task-related challenge stressors. These interactions may include one-by-one conversations, group discussions, or virtual communication (e.g., phone calls).

Study 1: Development of the Social Challenge Stressors Scale

The goal of our first study was to theoretically develop the concept of social challenge stressors, to develop an instrument, and to provide evidence for its validity. We assumed that social challenge stressors can arise from various work tasks in which two or more people are involved. Therefore, it was required to draw upon a

theoretical model that provides a clear understanding of such situations. McGrath (1984) proposed a trimodal perspective as a basis for the interaction process in small work groups. First, the interaction between group members is seen as a complex communication process that varies in terms of channels and used modalities. This is in line with our suggestion that social challenge stressors occur in interactive situations at work. Second, each interactive behavior is assumed to have a task and an interpersonal component. Since social challenge stressors should arise when pursuing a goal in interaction with others, they should always relate to task components of a situation (i.e., factual aspects of the group task) as well (cf. Figure 1). At the same time, employees are likely to put effort into the maintenance of good social relations, as group tasks occur in a social context. Third, McGrath discusses the consequences of interactions for each group member, interpersonal relationships, and task outcomes. In other words, a central aspect of all group tasks is their impact not only on group members and their relationships, but also on work goals (cf. von Cranach, Ochsenbein, & Valach, 1986). This matches with the assumption of challenge stressors having a strong relationship to multiple goals.

Taken together, McGrath's (1984) process model of group tasks offers a suitable foundation for the implementation of the challenge stressor criteria. According to McGrath's understanding of group tasks, we defined social challenge stressors as task-inherent and legitimate aspects of one's work that occur in tense social situations and require social behavior to attain important goals and maintain good social relationships. In other words, social challenge stressors are indissolubly linked to shared work tasks accepted by two or more people (task component) and require social behavior to accomplish the task (interpersonal component). Thus, social stressors that are either unrelated to work tasks (e.g., social exclusion, relationship conflicts such as making fun of somebody) or considered illegitimate (e.g., organizational unfairness, negative social behavior such as intentionally withholding important information, some types of task conflicts) should match with the concept of hindrance stressors.

Group Task Circumplex as a Basis for Item Development

In order to generate items that are consistent with McGrath's (1984) understanding of group tasks, we used his classification model because it provides insights into qualitatively different types of group tasks. McGrath assumed that group tasks can be differentiated by two orthogonal dimensions. The first one distinguishes between cognitive/conceptual and behavioral group tasks. The degree to which group tasks pursue competitive vs. cooperative goals constitutes the second dimension. Put together in a two-dimensional space that has the attribute of a circumplex, the following four categories were distinguished and labeled according to the underlying processes: "generate," "choose," "negotiate," and "execute." An overview of the group task circumplex including the task and interpersonal components as well as sample items for each quadrant is shown in Fig. 1.

Research on the validity of this model confirmed the general assumptions; the circumplex structure, however, could not be found (Straus, 1999). Nevertheless, we see this categorization as a suitable framework for the development of items because it covers the entire spectrum of group tasks in which social challenge stressors may occur according to the above definition. For the development of items, we followed Hackman's (1970) behavior requirement approach. We took great care to avoid misleading wording and to ensure that the items were high in face validity and accounted for all the aspects of McGrath's group task circumplex. In total, we developed a pool of twelve items for the measurement of social

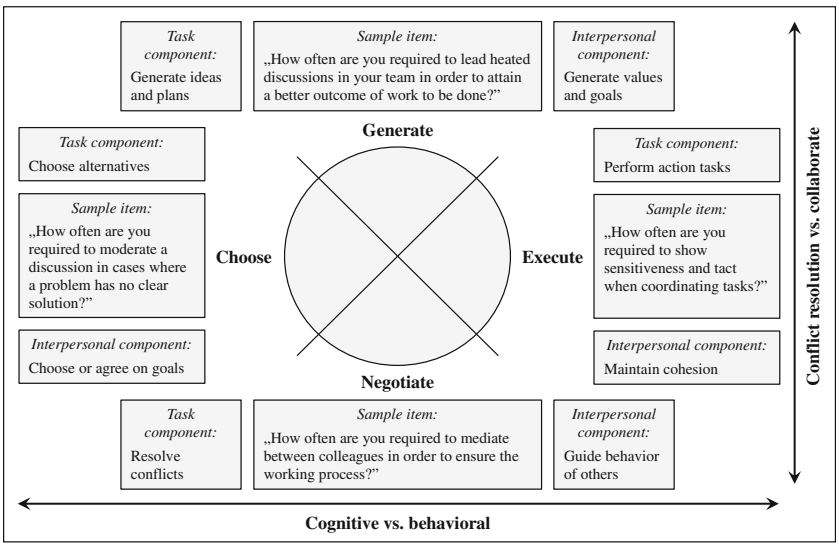

Fig. 1 Group task circumplex adapted from McGrath (1984) with sample items for each quadrant

challenge stressors. The full set of items is presented in Appendix 1.

In order to obtain a short and valid measure that is useful for both organizational stress research and practice, we aimed to reduce the initial pool of items to those that were useful and did not statistically overlap with other items. Following general recommendations for self-report scale development (Hinkin, 1995, 1998), a number of experts in the field of work and organizational psychology (two full professors and four PhD students) reviewed and evaluated the items. As a guide for their assessments, they received the definition and theoretical basis for social challenge stressors as well as a figure that demonstrated the group task circumplex (cf. Figure 1). By doing so, the items were independently assessed in terms of content validity, wording clarity, and compliance with the definition of challenge stressors. After revising the items according to the experts' suggestions, the factorial structure was tested in a first cross-sectional dataset using confirmatory methods. The factorial structure was also re-tested in a new and independent sample to ensure that the results of the first sample were not of a random nature.

Differences Between Social Challenge and Hindrance Stressors

Following the recommendation of Shaffer, DeGeest, and Li (2016) for construct proliferation, we compared social challenge stressors with theoretically related stressors. Although social challenge stressors may co-occur with social hindrance stressors or closely related task-related job demands, they should be a theoretically distinct concept. Social challenge and social hindrance stressors, such as task conflicts, relationship conflicts, social exclusion, and organizational injustice, may be positively correlated, but they should not be identical. We therefore expected the following relationships:

Hypothesis 1: Social challenge stressors, task conflicts (H1a), relationship conflicts (H1b), social exclusion (H1c), and organizational injustice (H1d) are distinct constructs.

We further assumed that social challenge stressors can be distinguished from task-related job demands. First, we postulated that they do not only represent cooperation demands, which refer to the assignment of work tasks in order to accomplish central work goals (von Cranach et al., 1986). Cooperation demands are characterized by shared work goals and a mutual dependence of group members. To successfully meet high cooperation demands, cognitive effort is needed to control and modify action plans. In contrast, social challenge stressors focus on social behavior in tasks where colleagues, supervisors, or clients are involved. Thus, they do not describe cognition-related action regulation in group settings (von Cranach et al., 1986), but rather consider some kind of social action regulation. Although social challenge stressors can only arise in situations requiring task-related collaboration, we presumed that they can be differentiated from cooperation demands.

One might also argue that social challenge stressors encompass social situations with high demands for cognitive exertion and thus should be redundant to concentration demands. However, concentration demands relate to a high intensity of action regulation, especially with regard to the working memory, and not to social processes to be dealt with. Due to humans' sensibility for cues to one's self-esteem (Semmer et al., 2007), social challenge stressors comprise stressful aspects arising from the social nature of situations and do not only represent requirements of the working memory. Taken together, we examined the relationships with concentration and cooperation demands, and predicted the following:

Hypothesis 2: Social challenge stressors, cooperation demands (H2a), and concentration demands (H2b) are distinct constructs.

Unique Relationships of Social Challenge and Hindrance Stressors with Strain and Well-Being

In line with the definition of challenge stressors, we expected that social challenge stressors are positively linked to strain and employee well-being at the same time (cf. LePine et al., 2005). To rule out that these relationships are caused by their link to other social stressor concepts, we investigated the unique contribution of social challenge stressors in predicting these outcomes by including task conflicts, relationship conflicts, and organizational injustice as statistical control variables in the analysis.

The decision to control for task conflicts is based on the argument that they might be another candidate for a social challenge stressor. One might argue that the challenge character of social challenge stressors is only covered by disagreements in factual issues. Task conflicts might be seen as a functional part of shared group tasks, which is why they are occasionally positively linked to group performance (Jehn, 1995). Thus, the positive link between social challenge stressors and well-being might be explained by their associations with task conflicts. However, the meta-analysis by De Dreu and Weingart (2003) clearly shows that task conflicts are associated with lowered team member satisfaction and decreased well-being. Frequent task conflicts are probably not limited to mere disagreements in factual issues, but can become emotional and therefore constitute impediments to goal progress that are seen as unnecessary and threaten one's self-esteem (De Dreu & van Knippenberg, 2005; Meier, Gross, Spector, & Semmer, 2013).

In contrast, social challenge stressors emphasize the opportunity to show competence by maintaining a high level of cohesion and achieving important goals. For this reason, we expect that social challenge stressors are uniquely and positively linked to well-being.

Nevertheless, social challenge stressors always involve a risk of failure and require a lot of effort to overcome them. Thus, social challenge stressors should still correspond to stressor definitions (i.e., they are inevitably associated with strain). In order to meet such a stressor definition, they should therefore still be associated with strain, even when task conflicts are statistically controlled.

Hypothesis 3: Social challenge stressors are positively related to psychosomatic complaints and emotional exhaustion over and above task conflicts.

Hypothesis 4: Social challenge stressors are positively related to professional efficacy, job satisfaction, and work engagement over and above task conflicts.

Next, we wanted to show that social challenge stressors are positively related to strain and well-being, despite the control for social hindrance stressors. This should result in stronger positive relationships with employee well-being due to statistical suppression (cf. Boswell et al., 2004). The rationale behind this suppressor effect is that social challenge and hindrance stressors often coexist and are therefore positively correlated. However, as argued above, they should have opposite relationships with well-being. By controlling for social hindrance stressors, the predictive value of social challenge stressors should increase. This form of suppression has already been supported in challenge-hindrance stressor research (e.g., LePine et al., 2005; Widmer et al., 2012) and should therefore also apply to our context. Regarding the link between social challenge stressors and strain, a control for social hindrance stressors should not remove the positive association because it would indicate that they are not stressors at all and merely represent positive social experiences at work. A similar approach was taken by Yao, Jamal, and Demerouti (2015) who investigated the relationships of challenge and hindrance stressors with burnout and who found that challenge stressors are uniquely and positively related to both emotional exhaustion and professional efficacy. Accordingly, we also considered both stressor types and expected that social challenge stressors uniquely predict both psychological strain and well-being. With respect to their high significance for individual well-being, we considered interpersonal conflicts (Zhou, Yan, Che, & Meier, 2015) and organizational injustice (Robbins et al., 2012) as control variables.

Hypothesis 5: Social challenge stressors are positively related to emotional exhaustion over and above relationship conflicts and organizational injustice.

Hypothesis 6: Social challenge stressors are positively related to professional efficacy, job satisfaction, and affective commitment over and above relationship conflicts and organizational injustice.

Methods Study 1

We tested the validity of the new scale in three cross-sectional samples. In sample 1a, the factorial and discriminant validity were investigated. In sample 1b, the factorial structure was retested. Moreover, the criterion-related validity was examined by analyzing the relationships of social challenge stressors with strain and well-being, while statistically controlling for task conflicts. In sample 1c, the criterion-related validity was tested by simultaneously taking into account social challenge stressors, relationship conflicts, and organizational injustice. The details for each sample are presented next. Descriptive statistics, internal consistencies, and zero-order correlations among the study variables for each sample are located in Tables 1, 2 and 3.

Participants and Procedure

Sample 1a About 17.500 surgeons were contacted via the Professional Association of German Surgeons. They were advised that participation was voluntary and that a withdrawal was allowed at any time. A total of 643 individuals agreed to continue with the study and completed the survey. To ensure anonymity, age was measured using age categories. Mean age was located in the group of 51 to 55 years old people. About 35% of the sample were female. On average, participants worked 55.5 h per week ($SD = 12.1$). The sample included various surgical disciplines and hierarchical positions ranging from surgeons in training (10%) to chief medical officers (13.1%). Overall, 72.6% of them had a leadership role. There were hardly any missing values in the data, but we employed a full-information maximum likelihood (FIML; Enders, 2001) estimation to include all cases. Note that this sample has already been used for another publication; however, there was almost no overlap of variables (Table 6 in Appendix 2).

Sample 1b Using convenience sampling, participants were recruited through social and professional networks. They were requested to fill out an online survey and received a feedback on their burnout-value for motivational reasons. In total, 242 participants completed the questionnaire. One person was excluded from further analysis, as all items were rated with the lowest response alternative. In the final sample of 241 people, mean age was 34.0 years ($SD = 11.7$), ranging from 17 to 60 years. About 59% of the sample ($n = 143$) were female and nobody held a leadership position. With regard to the education level, nearly half of all respondents had a university or polytechnic degree (46%), and 32% had a higher education entrance qualification. The majority of participants worked in the service sector (61%), followed by 23% in industry-related occupations. More than three fourths of the sample were working fulltime. Average working hours were 36.2 ($SD =$

Table 1 Means, standard deviations, internal consistencies, and zero-order correlations among sample 1a variables

		M	*SD*	ω	1	2	3	4	5	6	7	8	9
1	Age[a]	5.22	1.85	–									
2	Gender[b]	1.65	0.48	–	.36**								
3	Leadership position[c]	1.74	0.44	–	.60**	.37**							
4	Social challenge stressors	3.28	0.84	.89	− .08*	− .01	.05						
5	Task conflicts	2.48	0.77	.81	− .21**	− 12**	− .19**	.42**					
6	Relationship conflicts	2.04	0.86	.89	− .20**	− .17**	− .26**	.28**	.69**				
7	Social exclusion	1.23	0.52	.80	.01	− .08*	− .08*	.10*	.29**	.48**			
8	Organizational injustice	2.52	0.83	.89	− .25**	− .24**	− .36**	.31**	.65**	.75**	.44**		
9	Concentration demands	3.48	0.60	.71	− .17**	− .04	− .12**	.42**	.29**	.23**	.08	.25**	
0	Cooperation demands	3.67	0.77	.71	− .21**	− .01	− .07	.40**	.30**	.17**	− .07	.16**	.36**

[a] To ensure anonymity, nine age categories were used (< 30, 31–35. .. 61–65; > 65). [b] Gender: 1 = female; 2 = male. [c] Leadership position: 1 = no; 2 = yes. $N = 643$

*$p < .05$, **$p < .01$ (two-tailed)

11.7) with a mean tenure of 5.4 years. There were no missing values in the dataset.

Sample 1c Respondents were acquired from a pool of 993 employees working as dispatchers at a German transportation company. During work, dispatchers are required to communicate a lot by telephone to ensure that the trains, train drivers, and conductors are in the right place on time. The online survey was started by 594 and completed by 479 participants (400 males, 57 females, and 22 unidentified), yielding a response rate of 48.2%. The average age can only be specified approximately because we could only ask for age classes due to organizational reasons. Mean age lay in the class of 41–45 years of age. The mean tenure was in the range between 15 and 20 years. There were no leaders in the sample. For the treatment of missing values, we used a FIML estimation (Enders, 2001). This procedure should only be applied up to a certain extent of missing values. We excluded cases with more than 50% missing values, thus reducing the sample size to 471.

Measures

Reliability was analyzed using McDonald's (1999) omega. Dunn, Baguley, and Brunsden (2014) suggested to use coefficient omega instead of Cronbach's alpha because it does not assume tau-equivalence (i.e., the same true score contributions of each item) or the same amount of variance of each item. Like alpha, coefficient omega can be interpreted based on conventional cutoff-values.

Social challenge stressors To examine social challenge stressors, we created a new scale using the circumplex model of group tasks (McGrath, 1984). We initially developed twelve items in order to cover all aspects of the circumplex model (see Appendix 1). The items were developed and used

Table 2 Means, Standard Deviations, Internal Consistencies, and Zero-Order Correlations among Sample 1b Variables

		M	*SD*	ω	1	2	3	4	5	6	7	8
1	Age	33.97	11.71	–								
2	Gender[a]	1.41	0.49	–	.06							
3	Social challenge stressors	2.26	0.83	.86	.07	.15*						
4	Task conflicts	2.54	0.72	.77	.02	.12	.47**					
5	Psychosomatic complaints	2.25	0.71	.91	.04	− .23**	.14*	18**				
6	Emotional exhaustion	2.86	1.26	.89	− .02	− .09	.24**	.28**	.62**			
7	Professional efficacy	4.51	0.83	.79	.08	.05	.13*	− .13*	− .13*	− .20**		
8	Job satisfaction	2.91	0.54	.84	− .04	.09	− .12	− .42**	− .37**	− .47**	.42**	
9	Work engagement	4.20	1.26	.90	.02	.09	.00	− .23**	− .28**	− .48**	.61**	.61**

[a] Gender: 1 = female; 2 = male. $N = 241$

*$p < .05$. **$p < .01$. (two-tailed)

Table 3 Means, standard deviations, internal consistencies, and zero-order correlations among sample 1c variables

		M	*SD*	ω	1	2	3	4	5	6	7	8
1	Age[a]	6.20	1.84	–								
2	Gender[b]	1.88	0.33	–	.14**							
3	Social challenge stressors	3.44	0.97	.89	− .07	.09						
4	Relationship conflicts	2.21	0.84	.87	− .16**	− .09*	.31**					
5	Organizational injustice	2.85	0.73	.87	− .15**	− .03	.35**	.65**				
6	Emotional exhaustion	3.14	1.25	.89	− .08	.01	.24**	.35**	.39**			
7	Professional efficacy	4.73	0.89	.78	.05	.17**	.16**	− .14**	− .18**	− .14**		
8	Job satisfaction	4.55	1.14	.83	.08	.05	− .21**	− .44**	− .56**	− .62**	.32**	
9	Affective commitment	4.78	1.07	.80	.03	.07	.03	− .23**	− .30**	− .31**	.31**	.49**

[a] To ensure anonymity, nine age categories were used (< 20, 21–25. .. 51–55; > 55). [b] Gender: 1 = female; 2 = male. $N = 471$

*$p < .05$, **$p < .01$ (two-tailed)

in German. For this article, all items have been translated into English and carefully checked by one native speaker. The new scale measures situations which are perceived as being difficult or unclear and which require some kind of social behavior to ensure the working process. Participants were requested to rate the frequency of occurrence on a 5-point scale. We decided to use frequency ratings because they oftentimes provide a less biased and more objective assessment of one's work environment (see Spector, 1992). Moreover, frequency ratings are used in many established stressor instruments (e.g., Semmer et al., 1995; Spector & Jex, 1998) and meta-analytical results provided evidence for the validity of such stressor scales (Spector & Jex, 1998). Response choices were: 1 = *very rarely/ never*, 2 = *approximately once a month*, 3 = *approximately once a week*, 4 = *several times a week*, 5 = *almost daily / daily*. The 12-item measure was reduced to a final set of eight items (the process for scale reduction is described in the results section) which was used in sample 1c. Internal consistency of the eight items scale was satisfactory in all three samples (see Tables 1, 2, and 3).

Task conflicts Task conflicts were measured in samples 1a and 1b using the corresponding scale from the questionnaire Social Stressors in Organizations 2.0 (SSO2; Holz, 2003), which is a further development and adaption of Frese and Zapf's (1987) scale. It consisted of five items and required responses on a 5-point scale ranging from 1 = *does not apply at all* to 5 = *fully applies*. Sample items include: "There are conflicts in your team on a purely factual level." and "There are conflicts because of different opinions regarding the work to be done." The internal consistencies were acceptable in both samples ($.77 < \omega < .81$).

Relationship conflicts In samples 1a and 1c, relationship conflicts were measured using five items from the SSO2 (Holz, 2003). The items required responses on a 5-point scale that ranged from 1 = *does not apply at all* to 5 = *fully applies*. Relationship conflicts encompass assaults, as well as coping with arduous colleagues. Example items are: "You have to deal with the arrogant behavior of your colleagues." and "Due to personal conflicts, you cannot build rapport with some colleagues." McDonald's Omega was .89 in sample 1a and .87 in sample 1c.

Social exclusion Social exclusion in sample 1a was measured by four items taken from the SSO2 (Holz, 2003). Items required a response on a 5-point scale ranging from 1 = *does not apply at all* to 5 = *fully applies*. Two sample items are: "Your colleagues refuse to work with you." or "There are people in your workplace who are not talking to you." The scale had an internal consistency of .80.

Organizational injustice Organizational injustice was assessed with ten items measuring to what extent an employee feels overlooked, is disadvantaged, or gets scrupulously precise instructions (i.e., micromanagement). The scale taken from the SSO2 (Holz, 2003) was used in samples 1a and 1c. Responses were given on a 5-point scale ranging between 1 = *does not apply at all* and 5 = *fully applies*. Example items are: "Some of your colleagues are treated with preference." or "All tasks and responsibilities are assigned fairly." (inverted item). The internal consistency was .83 in sample 1a and .87 in sample 1c.

Cooperation demands High cooperation demands reflect a high dependency of colleagues on someone's own work and vice versa. The 5-item scale used in sample 1a was taken from the Instrument for Stress-Oriented Task Analysis (Irmer et al., 2019; Semmer et al., 1995). A sample item is: "To what degree do you depend on how fast or slow your colleagues work?". Items required responses on a 5-point scale that ranged from 1 = *not at all* to 5 = *very much*. The response format varied to some extent: one item used an "A versus

B" format, asking for the similarity of a fictional workplace to someone's actual one. The internal consistency was .71.

Concentration demands Concentration demands are defined as high demands of the working memory during action execution. The 5-item scale used in sample 1a was taken from ISTA (Irmer et al., 2019; Semmer et al., 1995). Response options ranged from 1 = *very rarely/ never* to 5 = *almost daily/ daily*. An example is: "Do you have to remember information for short periods of time that is hard to keep in mind?" Omega was .71.

Psychosomatic complaints Mohr's (1986) psychosomatic complaint list was used in sample 1b to assess complaints, such as headaches, stomach pain, and so forth. The 20 items were rated on a 5-point frequency scale that ranged between 1 = *never* and 5 = *almost every day*. A sample item is: "Do you have headaches?". Internal consistency was .91.

Emotional exhaustion We used the corresponding scale from the Maslach Burnout Inventory – General Survey (Schaufeli, Leiter, Maslach, & Jackson, 1996) in the German validated version (MBI-GS-D, Büssing & Glaser, 1998). The scale used in samples 1b and 1c consisted of five items and required responses on a 6-point scale (1 = *never* to 6 = *every day*). One example is: "I feel emotionally drained from my work." McDonald's omega was .89 in sample 1b and .78 in sample 1c.

Professional efficacy Professional efficacy was measured in samples 1b and 1c using the MBI-GS-D (Büssing & Glaser, 1998; Schaufeli et al., 1996) The six items were answered on a 6-point scale that ranged from 1 = *never* to 6 = *every day*. An example is: "I can effectively solve the problems that arise in my work." In both samples, internal consistency was satisfactory ($.78 < \omega < .79$).

Job satisfaction In sample 1b, job satisfaction was measured using a 7-item scale taken from the Copenhagen Psychosocial Questionnaire (Kristensen, Hannerz, Høgh, & Borg, 2005) in the German version by Nuebling and Hasselhorn (2010). Items were rated on a 4-point scale that ranged between 1 = *very dissatisfied* and 4 = *very satisfied.* A sample item is: "Regarding your work in general, how pleased are you with your job as a whole, everything taken into consideration." McDonald's omega for this scale was .84. In sample 1c, an 8-item scale developed by Semmer and Baillod (Semmer & Baillod, 1991; Baillod & Semmer, 1994) was used. Items were rated on a 7-point scale that ranged from 1 = *never* to 7 = *always*. One example is: "I hope my work situation always stays as good as it is now." The first item "How satisfied are you with your work in general?" was measured using seven smileys as response format (cf. Kunin, 1955). The internal consistency of the whole scale was .83.

Work engagement We used the 9-item Utrecht Work Engagement Scale developed by Schaufeli, Bakker, and Salanova (2006). Responses were given on a 7-point scale that ranged from 1 = *never* to 7 = *always*. One example is: "At my work, I feel bursting with energy." McDonald's omega for work engagement was .90.

Affective commitment For the measurement of affective commitment, we used eight items from Allen and Meyer's (1990) scale in the German validated version by Schmidt, Hollmann, and Sodenkamp (1998). Items required responses on a 7-point scale ranging between 1 = *strongly disagree* and 7 = *strongly agree*. A sample item is: "This organization has a great deal of personal meaning for me." Internal consistency was .80.

Statistical Analysis

All analyses were performed using Mplus 8.3 (Muthén & Muthén, Muthén & Muthén, 1998–2017). First, we tested the factorial structure of the new scale in samples 1a and 1b using confirmatory factor analysis (CFA). To provide evidence for discriminant validity (H1 and H2, both tested in sample 1a), we followed the two-step approach proposed by Anderson and Gerbing (1988). The estimated correlation between the latent factors for social challenge stressors and another variable (e.g., task conflicts) was constrained to unity. After analyzing a corresponding model in which the correlation parameter was set free, a chi-square difference test was carried out on the results of these two competing models (constrained vs. unconstrained).

We employed structural equation modeling (SEM) to test the hypothesized unique relationships of social challenge and hindrance stressors with employee well- and ill-being predicted in H3 and H4. Here, we analyzed two models. In Model 1, which was tested in sample 1b, we simultaneously included social challenge stressors, task conflicts, and five outcome variables in one model. In Model 2, which was tested in sample 1c, we used social challenge stressors, relationship conflicts, organizational injustice, and four outcome variables together in one model. This approach is superior to linear hierarchical regression because all relationships can be tested simultaneously, reducing family-wise error rate.

Starting with hypothesis 3, all variables, except psychosomatic complaints, were treated as latent variables with item parcels as indicators. Psychosomatic complaints can be considered a formative measurement model (cf. MacKenzie, Podsakoff, & Jarvis, 2005), we therefore used scale mean values in the analysis. All other variables were parceled according to the following strategy. We performed CFA modeling single factors and combined items with the highest to

items with the lowest factor loadings (Landis, Beal, & Tesluk, 2000). For scales consisting of up to five items, two parcels were constructed. For all other scales, three parcels were built. Item parceling is not without controversy. For this reason, we first tested our models using exploratory structural equation modeling (ESEM; Marsh, Ludtke, Nagengast, Morin, & von Davier, 2013) and compared the results to models using the item parcels approach (Little, Rhemtulla, Gibson, & Schoemann, 2013).

For two reasons, we decided to report all results with the item parcels approach. First, the relationships between social stressors and outcomes differed only slightly between the ESEM and classical SEM with parcels. Second, item parceling helps in coping with estimation problems caused by correlated residual variances when too many variables are used, which was the case in our data (Little et al., 2013). We also decided to parcel the items of the new social challenge stressors scale, as the results in samples 1a and 1b indicated that a one-factor solution fits best. Model fit was assessed using the chi-square goodness-of-fit test. Additionally, we report descriptive measures like the Root Mean Square Error of Approximation (RMSEA) and the Comparative Fit Index (CFI). Schermelleh-Engel, Moosbrugger, and Müller (2003) recommended values less than .05 for RMSEA and values close to .97 for CFI to indicate a good model fit. In the results section, we report fully standardized coefficients.

Results of Study 1

Confirmatory Factor Analysis

First, the items developed to measure social challenge stressors were factor analyzed in sample 1a with competing CFAs. These CFAs were performed on the basis of all twelve items initially developed (i.e., no item parcels were used here). A four-factor model according to the group task circumplex that was used for item development revealed a poor fit ($\chi^2[48] = 301.71$, $\chi^2/df = 6.29$, RMSEA = .091, CFI = .931). Interestingly, the intercorrelations between the latent factors were extremely high ($r > .83$), indicating a redundancy of latent factors. A correlated two-factor model that represented the two diagonal axes, however, resulted in a poor fit as well ($\chi^2[50] = 350.30$, $\chi^2/df = 7.01$, RMSEA = .097, CFI = .918). Again, the correlation of the two latent factors was extremely high ($r = .82$). A single-factor model ($\chi^2[54] = 421.92$, $\chi^2/df = 9.67$, RMSEA = .103, CFI = .899) also failed to fit well. Since we did not find a sufficient model fit at all, we inspected the modification indices of all three models to determine the nature of the misfit. Any unrestricted residual covariance that reduced the chi-square value by 10.83 (i.e., a highly significant model fit improvement) was considered for the reduction of the initial item pool. The results revealed high residual covariances among Item 2 and Items 3, 5, and 6; Item 3 and Item 5; Item 7 and Item 8. Indeed, the conspicuous items (e.g., Items 2, 3, 5, and 6) seem to require evaluations of closely related behaviors and are worded very similarly, suggesting that they may be omitted except for one without negatively influencing the content validity of the scale (see Appendix 1). We decided to retain Item 2 and Item 8 because they had the highest factor loadings.

After reducing the item pool by four items, each quadrant included at least one item, however, the two quadrants "execute" and "negotiate" each included only one item. Thus, a multifactorial solution became obsolete. The remaining eight items were re-tested in a single-factor CFA. Results indicated an acceptable fit: ($\chi^2[20] = 71.78$, $\chi^2/df = 3.59$, RMSEA = .064, CFI = .971). Taken together, the results suggested that social challenge stressors comprise a unidimensional construct. However, it should be noted that these results come from one single sample and have to be confirmed with a new sample. For this reason, the factorial structure was re-tested in sample 1b. The results of a single-factor CFA confirmed the unidimensional nature of the scale by showing an acceptable fit ($\chi^2[20] = 43.92$, $\chi^2/df = 2.20$, RMSEA = .070, CFI = .953). Therefore, we considered social challenge stressors to be unidimensional.

Evidence for Discriminant Validity

Correlations between the eight-item social challenge stressors scale, several social hindrance stressors, and task-related stressors for sample 1a are shown in Table 1. Social challenge stressors were positively related to task conflicts, relationship conflicts, social exclusion, and organizational injustice. Unsurprisingly, the highest correlation was with task conflicts ($r = .41$). In confirmation of hypothesis 1, chi-square difference tests revealed that social challenge stressors are not identical with task conflicts ($\Delta\chi^2[1] = 609.59$, $p < .001$), relationship conflicts ($\Delta\chi^2[1] = 1241.68$, $p < .001$), social exclusion ($\Delta\chi^2[1] = 445.41$, $p < .001$), and organizational injustice ($\Delta\chi^2[1] = 1547.86$, $p < .001$). Social challenge stressors were also positively associated with cooperation demands and concentration demands ($.40 < r < .41$). Supporting hypothesis 2, chi-square difference tests confirmed that social challenge stressors can be distinguished from cooperation demands ($\Delta\chi^2[1] = 802.42$, $p < .001$) and from concentration demands ($\Delta\chi^2[1] = 270.37$, $p < .001$).

Criterion-Related Evidence: Relationships with Employee Well- and Ill-Being

To determine the unique contribution of social challenge stressors in predicting strain and well-being, we tested two models, one including task conflicts (model 1, see Table 4), and one including relationship conflicts and organizational

injustice as predictors of well-being (Model 2, see Table 4). The results of these two models are presented in Table 4. In support of hypothesis 3, social challenge stressors were uniquely related to emotional exhaustion. The relationship between social challenge stressors and somatic complaints was not significant, but was in the expected direction. Thus, hypothesis 3 found partial support. Consistent with hypothesis 4, social challenge stressors were uniquely and positively related to professional efficacy, job satisfaction, and work engagement. Goodness-of-fit statistics revealed a good model fit ($\chi^2[109] = 176.68$, $\chi^2/df = 1.62$, RMSEA = .051, CFI = .970).

In sample 1c, we simultaneously considered relationships conflicts, organizational injustice, and social challenge stressors as predictors. According to hypothesis 5, it was expected that social challenge stressors would be positively related to emotional exhaustion over and above relationship conflicts and organizational injustice. The results shown in Table 4 supported our expectations. In line with hypothesis 6, social challenge stressors were positively linked to professional efficacy and affective commitment. Unexpectedly, they were unrelated to job satisfaction. Overall, hypothesis 6 was partially supported. The model provided a good fit to the data ($\chi^2[141] = 272.54$, $\chi^2/df = 1.93$, RMSEA = .046, CFI = .969).

Brief Discussion of Study 1

Based on McGrath's (1984) understanding of group tasks, we introduced the concept of social challenge stressors, developed a new scale, and examined its validity. Contrary to expectations, CFA revealed a unidimensional structure. A further analysis showed that four items did not provide a unique contribution and were therefore deleted. The best fitting single-factor solution was confirmed in a second sample. The finding that social challenge stressors were unidimensional did not contradict our further hypotheses, as we had no assumptions for differential relationships with other stressors, strain, or well-being. Concerning discriminant validity, social challenge stressors showed positive relationships with both social hindrance stressors and task-related stressors but were not identical with these variables. In line with the criteria for challenge stressors (van den Broeck et al., 2010), social challenge stressors were positively linked to strain and well-being at the same time. In this context, we wanted to particularly ensure that social challenge stressors provide a unique contribution in predicting psychological strain and well-being. Our results demonstrated that social challenge stressors are positively related to emotional exhaustion even when controlling for task conflicts or for relationship conflicts and organizational injustice. This finding illustrates that social challenge stressors are linked to psychological costs because of the high regulatory effort needed to meet the stressors. At the same time, we found that social challenge stressors are uniquely and positively related to employee well-being. Overall, our findings offer initial evidence that social challenge stressors fit seamlessly into the nomological network of challenge stressors and are a distinct construct.

Study 2: Mechanisms Explaining the Effects of Social Stressors

A second study was conducted using time-lagged data to provide an explanation as to why social challenge stressors are positively linked to employee well-being. Given that threats to the attainment of important goals are prerequisites for the occurrence of stress (Lazarus, 1999) and that preserving a positive self-evaluation is a high personal goal for most people (Leary, 1999), it seems plausible to look at self-esteem in the stressor-well-being relationship. The stress-as-offense-to-self (SOS) perspective takes this into account and suggests that job stressors, which are relevant to personal (work) goals,

Table 4 Social challenge and hindrance stressors predicting employee well- and ill-being

	Psychosomatic complaints		Emotional exhaustion		Professional efficacy		Job satisfaction		Work engagement		Affective commitment	
	β	*SE*	*β*	*SE*	*β*	*SE*	*β*	*SE*	*β*	*SE*	*β*	*SE*
Model 1												
Social challenge stressors	.07	.09	.15*	.09	.36**	.10	.18*	.09	.19*	.09		
Task conflicts	.13	.10	.22*	.10	− .35**	.10	− .57**	.10	− .34**	.09		
Model 2												
Social challenge stressors			.10*	.05	.24**	.06	− .03	.05			.10*	.06
Relationship conflicts			.18*	.10	− .12	.10	− .04	.08			− .03	.10
Organizational injustice			.26**	.09	− .24*	.10	− .57**	.08			− .40**	.09

Model 1 was tested in sample 1b ($N = 241$). Model 2 was analyzed in sample 1c ($N = 471$)

*$p < .05$, **$p < .01$ (one-tailed)

affect one's evaluation of the self directly via experiences of success and failure and via the social meaning of stressors (Semmer et al., 2007). Both aspects match with the characteristics of social challenge and hindrance stressors. Social hindrance stressors can be characterized as avoidable or unreasonable obstacles that may interfere with successful task accomplishment. They should be negatively linked to one's self-esteem because they either threaten the need to belong (Baumeister & Leary, 1995) or they transmit messages of low appreciation from the organization (Pierce & Gardner, 2004). Empirical findings have shown that people have lower levels of self-esteem when confronted with relationship conflicts (Kim & Beehr, 2018) or organizational injustice (Schroth & Pradhan Shah, 2000).

Social challenge stressors, however, should be related to important goals and therefore provide the chance to experience meaningful work, increase motivational resources, and foster self-esteem. Evidence comes from Kim and Beehr (2018, 2019) who found that challenge stressors, such as workload or job responsibility, were positively related to self-esteem. Therefore, we propose that social hindrance stressors are negatively related to self-esteem, whereas social challenge stressors are positively linked to self-esteem. Moreover, Kim and Beehr (2018, 2019) identified indirect relationships of challenge stressors with employee ill health and well-being via organization-based self-esteem. Widmer et al. (2012) stated that boosts in self-esteem positively influence one's well-being, implying that self-esteem is a mediator. Following this line of reasoning, we predicted the following:

Hypothesis 7: Social hindrance stressors have a positive indirect relationship with emotional exhaustion (H7a) and a negative indirect relationship with professional efficacy (H7b) via organization-based self-esteem.

Hypothesis 8: Social challenge stressors have a negative indirect relationship with emotional exhaustion (H8a) and a positive indirect relationship with professional efficacy (H8b) via organization-based self-esteem.

Social Support as a Boundary Condition

The concept of challenge and hindrance stressors is theoretically grounded in the primary appraisal of transactional stress theory (Cavanaugh et al., 2000; Lazarus & Folkman, 1984). However, stressor appraisals also depend on one's evaluation of coping resources (secondary appraisal; Lazarus, 1999). When employees feel capable of dealing successfully with a particular situation, they more likely appraise the situation as challenging. Thus, primary and secondary appraisal are considered to be closely interrelated (Lazarus & Folkman, 1984), but this has hardly been captured by occupational stress research. Recently, one study by Ohly (2019) provided evidence for the impact of one's own control beliefs on the assessment of a situation as challenging. We followed Lazarus and Folkman's theorizing and Ohly's findings and included coping resources to better understand the effects of social challenge and hindrance stressors.

Social support is seen as a major job resource (Frese, 1999) that may help employees in coping with stressful situations at work. Many studies have found that social support at work can attenuate the negative impact of stressors on well-being (e.g., Bakker, Demerouti, & Euwema, 2005; Haines, Hurlbert, & Zimmer, 1991). For this reason, we investigated social support from supervisors and colleagues in our study. More precisely, we postulated that the relationships of social challenge and hindrance stressors with self-esteem are moderated by social support. The decision to predict moderation effects only for self-esteem has three reasons. First, the SOS approach places self-esteem in the middle of stress experiences and argues that threats or boosts to self-esteem considerably contribute to stress reactions (Semmer et al., 2007). Second, the availability of social support can be seen as a positive safety signal in coping with social stressors (Cohen & Wills, 1985). When employees have access to social support, social hindrance stressors should be appraised less ego-threatening and social challenge stressors more challenging (primary appraisal). This should directly promote a positive self-evaluation. Third, in a more methodological manner, our assumptions are consistent with de Jonge and Dormann's (2006) triple-match hypothesis that emphasizes a match between predictors, moderators and outcome variables in order to find interaction effects. In line with previous findings (e.g., Dormann & Zapf, 1999; Rousseau & Aube, 2010), we posit that social support acts as a stress-buffering resource that mitigates the negative link between social hindrance stressors and self-esteem.

Hypothesis 9: Social support moderates the relationship of social hindrance stressors and organization-based self-esteem. In particular, the negative relationship between social hindrance stressors and self-esteem is weaker for employees who have high (vs. low) social support.

It is less clear, which role social support plays with regard to the relationships between challenge stressors and self-esteem. Some authors have suggested a boosting effect of resources (Bakker, van Veldhoven, & Xanthopoulou, 2010; Hobfoll, 2002; Tadić, Bakker, & Oerlemans, 2015). This assumption is in line with the concept of active jobs (Karasek & Theorell, 1990). First empirical studies examining the influence of resources on the link between challenge stressors and work-related outcomes found positive effects on work engagement, but only when employees had high job control (Tadić et al., 2015). As social support is supposed to increase one's feelings of controllability, we predicted a boosting effect of social support on the relationship between social challenge stressors and self-esteem.

Hypothesis 10: Social support moderates the relationship between social challenge stressors and organization-based self-esteem. In particular, the positive relationship between

social challenge stressors and self-esteem is stronger for employees who have high (vs. low) social support.

Methods Study 2

Participants and Procedure

In a graduate seminar at a German university, one lecturer, and twelve students contacted 25 to 30 participants each among family and friends or via social and professional networks, offering a link to a first online survey (T1). Participants had to work at least 20 h per week in a regular job (i.e., not an internship). To increase compliance, participants could take part in a draw for one of three vouchers valued at 100 EUR for a German mail-order company. Of 369 people contacted, 216 completed the survey at T1. Mean age was 40.0 years ($SD = 12.1$) and about 61.8% were women. On average, participants worked 37.8 h per week (SD = 9.6) and most of them had a permanent employment contract (84.7%). Occupations widely varied, however, most of the participants were white-collar employees. Unfortunately, we had no information regarding leadership. Six months later, participants were invited to a second survey. Overall, 91 people completed the T2 survey, which corresponds to a response rate of 42.1% of the initial sample.

Respondent attrition is a common problem in longitudinal surveys (Lugtig, 2014). To address any possible bias in our data, a series of independent *t* tests was performed. Regarding demographic or work-related variables, the results revealed no significant differences between responders and non-responders to the T2 survey (age: $p = .362$; gender: $p = .282$; weekly working hours: $p = .630$). In terms of the study variables, no significant differences emerged for relationship conflicts ($p = .426$), organizational injustice ($p = .211$), and organization-based self-esteem ($p = .070$). However, the results were significant for social support ($p = .021$) and for social challenge stressors ($p = .048$). To evaluate how strong the differences were, we also considered the effect sizes. As eta squared was very low in both cases ($\eta^2 = .03$ for social support; $\eta^2 = .02$ for social challenge stressors), these findings suggest a lack of attrition bias in our data. Thus, all cases were used using a FIML estimation (Raykov, 2005).

Measures

For social challenge stressors, relationship conflicts, organizational injustice, emotional exhaustion, and professional efficacy, the same scales were used as in study 1. Additionally, the following measures were used. Means, standard deviations, internal consistencies, and intercorrelations among all study variables are presented in Table 5.

Social support Social support from supervisors and colleagues was assessed using Frese's (1989) scale, which is a German translation and adaptation of the social support scales used in Caplan, Cobb, French, Harrison, and Pinneau (Caplan, Cobb, French, van Harrison, & Pinneau, 1975). It consists of eight items measuring emotional and instrumental support. A sample item is: "How willing to listen to your work-related problems is each of the following people?" Items required a response on a 4-point scale ranging from 1 = *not at all* to 4 = *completely*. Internal consistency was .85.

Organization-based self-esteem defined as one's belief about one's own value and competence as organizational member was measured using a scale developed by Pierce, Gardner, Cummings, and Dunham (1989) in the German version of Kanning and Schnitker (2004). The scale consists of ten items (e.g., "I can make a difference.", "I am valuable." or "There is faith in me."). Responses were given on a 7-point scale that ranged from 1 = *does not apply at all* to 7 = *fully applies*. McDonald's omega for this scale was .95.

Statistical Analysis

The hypotheses were tested using SEM in Mplus 8.3 (Muthén & Muthén, Muthén & Muthén, 1998–2017). As in study 1, all constructs were treated as latent variables using item parcels as indicators. However, there was one exception. Since the latent constructs for relationship conflicts and organizational injustice were strongly correlated ($r = .90$), this pointed to a problematic high degree of collinearity. We therefore decided to build a higher order construct called social hindrance stressors and used the scale mean values of relationship conflicts and organizational injustice as indicators. Indirect relationships and simple slopes were calculated using the model constraint option in Mplus. To increase the certainty of results, we additionally report 90% confidence intervals for the indirect relationships.

For the estimation of latent interaction effects, we used the latent moderated structural equation approach developed by Klein and Moosbrugger (2000). Accordingly, a latent interaction term, which is a product of two exogenous variables, was included in the model. Since fit statistics cannot be obtained for models using such non-linear terms, model fit was approximated following a two-step approach. First, we analyzed a model that contained all variables, measurement models, and regression paths, but excluded the interaction terms. Fit statistics of this model are reported. Second, the two interaction terms were added and all parameter estimates were checked for any significant changes. If there were only minor differences, we assumed that the full model, including the interaction effects, has at least an acceptable fit. Model fit was evaluated as in study 1. Standardized coefficients are reported.

Table 5 Means, standard deviations, internal consistencies, and zero-order correlations among study 2 variables

		M	*SD*	ω	1	2	3	4	5	6	7	8
1	Age	40.04	12.11	–								
2	Gender[a]	1.38	0.49	–	− .02							
3	Social challenge stressors	2.65	0.97	.90	.13	.15*						
4	Relationship conflicts	2.05	0.73	.81	− .09	− .12	.33**					
5	Organizational injustice	2.52	0.73	.82	− .10	− .08	.19**	.67**				
6	Organization-based self-esteem	5.42	1.23	.95	.02	.02	.15*	− .22**	− .44**			
7	Social support	2.98	0.54	.85	− .17*	.11	− .06	− .34**	− .46**	.34**		
8	Emotional exhaustion	3.00	1.22	.92	− .06	− .05	.23*	.18	.34**	− .24*	− .32**	
9	Professional efficacy	4.47	0.91	.85	.10	.01	.18	.12	− .03	.44**	.27*	− .15

[a] Gender: 1 = female; 2 = male. $91 < N < 216$

*$p < .05$, **$p < .01$ (two-tailed)

Results of Study 2

An overview of the moderated mediation model is shown in Fig. 2. Goodness-of-fit statistics of a model that excluded the interaction terms indicated a good fit to the data ($\chi^2[89] = 149.06$, $\chi^2/df = 1.67$, RMSEA = .056, CFI = .965). Since parameter estimates in the moderated mediation model changed only slightly, we assumed at least an acceptable fit.

In hypothesis 7, it was expected that organization-based self-esteem mediates the relationships between social hindrance stressors and employee well-being. As expected, social hindrance stressors were negatively related to organization-based self-esteem ($\beta = -.29$, $SE = .13$, $p = .012$). Self-esteem, in turn, was negatively linked to emotional exhaustion ($\beta = -.31$, $SE = .13$, $p = .009$) and positively linked to professional efficacy ($\beta = .58$, $SE = .12$, $p < .001$). As expected, the indirect relationship with emotional exhaustion was positive ($\beta_{ind} = .09$, $SE = .06$, $p = .054$), but just failed to reach the conventional level of significance. Moreover, a 90% confidence interval included zero (LLCI = − .00, ULCI = .18). The indirect relationship between social hindrance stressors and professional efficacy, however, was significantly negative and the confidence interval excluded zero ($\beta_{ind} = -.17$, $SE = .08$, $p = .024$, LLCI = − .31, ULCI = − .03). Thus, hypothesis 7 was partially supported.

Hypothesis 8 predicted a negative indirect relationship of social challenge stressors with emotional exhaustion and a positive one with professional efficacy via self-esteem. As predicted, social challenge stressors were positively related to organization-based self-esteem ($\beta = .27$, $SE = .07$, $p < .001$). The indirect association with emotional exhaustion was significantly negative and a confidence interval excluded zero ($\beta_{ind} = -.08$, $SE = .04$, $p = .025$, LLCI = − .15, ULCI = − .01). Regarding professional efficacy, we also found the

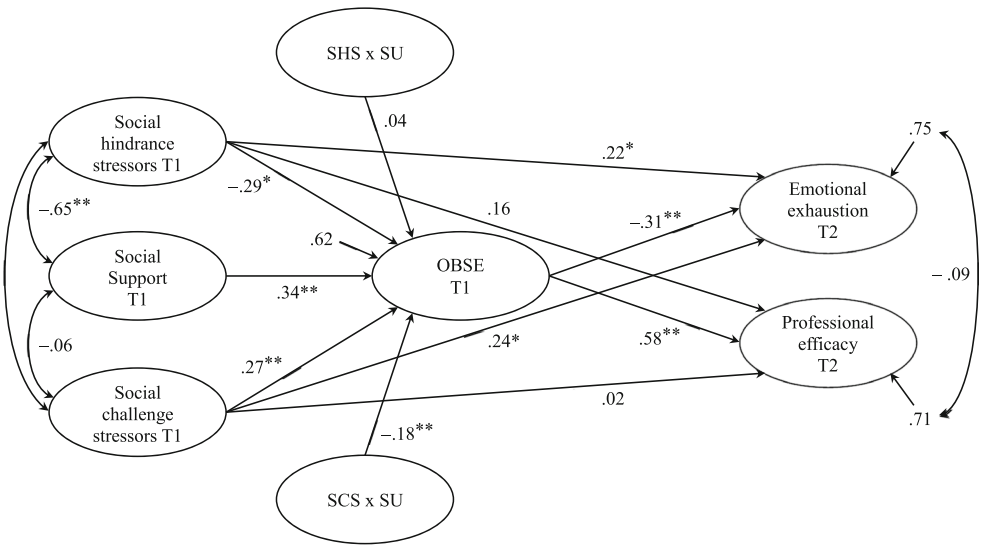

Fig. 2 Structural equation model showing the moderated mediation model analyzed in study 2. The measurement models are not displayed. SCS = social challenge stressors. SHS = social hindrance stressors. SU = social support. OBSE = organization-based self-esteem. * $p < .05$. ** $p < .01$ (one-tailed)

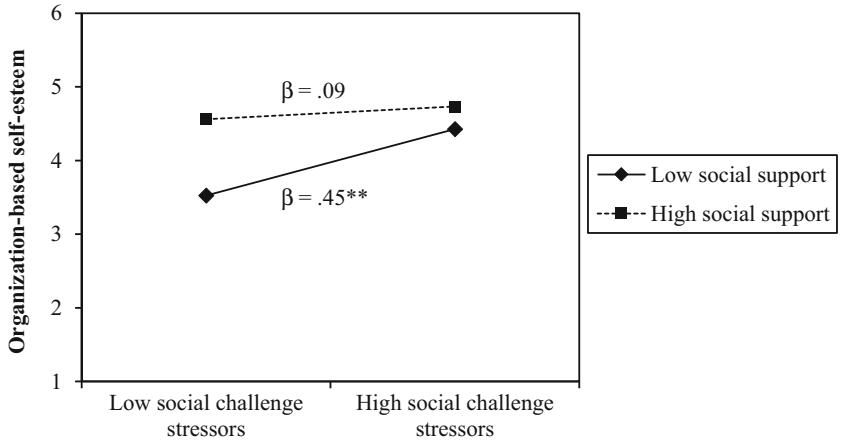

Fig. 3 Illustration of simple slopes with values ± 1 *SD*. ** $p < .01$ (one-tailed)

predicted positive indirect relationship ($\beta_{ind} = .16$, $SE = .05$, $p = .002$, LLCI = .07, ULCI = .25). Taken together, hypothesis 8 found support by the data.

In hypothesis 9, we posited that the negative relationship between social hindrance stressors and self-esteem is lower for employees with high social support. In contrast to our expectations, the interaction term was not significant ($\beta = .04$, $SE = .06$, $p = .247$). Thus, hypothesis 9 was rejected. Concerning social challenge stressors, hypothesis 10 proposed a boosting effect of social support on the relationship with self-esteem. Although, the interaction term was significant ($\beta = -.18$, $SE = .07$, $p = .007$), the moderation pattern was conflicting with expectations. Simple slopes showed that social support had no boosting effect (see Fig. 3). Rather than boosting, social support seemed to compensate for a lack of social challenge stressors. However, when an employee had no support, there was a moderate to strong positive link to self-esteem. Hypothesis 10 was therefore not supported by the data.

Brief Discussion of Study 2

The purpose of study 2 was to identify mechanisms through which social challenge and social hindrance stressors are linked to employee well- and ill-being. Following the SOS approach, we considered self-esteem as a mediator of the relationships between social stressors and well-being. Overall, the indirect relationships were mostly confirmed by the data. Most intriguing, we found a full mediation regarding professional efficacy and a partial mediation regarding emotional exhaustion. Our results may therefore indicate that social challenge and social hindrance stressors unfold their negative effects through two different paths. On the one hand, social challenge stressors were positively linked and social hindrance stressors negatively linked to self-esteem. This is in line with Lazarus' (1999) assumption that challenge and threat appraisals are differently related to one's self evaluations. Boosts and threats to self-esteem are considered to be directly linked to well-being (Kim & Beehr, 2018, 2019). On the other hand, we found that both types of social stressors were simultaneously and directly associated with strain. One reason could be that they have regulatory costs and are therefore linked to strain beyond their cognitive evaluation. Taken together, our results confirm the basic tenet of the SOS model by emphasizing the mediating role of self-esteem.

We further proposed that social support is a boundary condition that determines how social challenge and social hindrance stressors are related to self-esteem. In line with numerous findings on the stress-buffering role of social support, we predicted that social support mitigates the negative relationship between social hindrance stressors and self-esteem. However, our results provided no support here. There are various explanations for the lacking moderator effect. In the case of organizational injustice, social support may not lead to a better cognitive appraisal and may not directly help in dealing with injustice, since it relates to the macro level of an organization over which individuals have insufficient influence. Furthermore, social support and relationship conflicts can be mutually exclusive when the same people who normally provide support are involved in a conflict. Conversely, social support may also exacerbate a conflict if the other conflict party does not want a third party to directly or indirectly participate in conflict resolution.

With regard to social challenge stressors, we expected that social support boosts the positive relationship with self-esteem. Although the interaction term was significant, simple slopes showed an interaction effect conflicting with expectations. When social support was low and social challenge stressors were high, employees perceived their self-esteem as high as in both conditions with high social support. Lower self-esteem was reported when neither social challenge stressors nor social support were high. Thus, coping with social challenges stressors seems to be only beneficial when employees have low social support. This can be explained as a ceiling effect related to the crucial role of social support for

well-being, as suggested by Bowling, Eschleman, Wang, Kirkendall, and Alarcon (2010). An additional positive effect by adding social challenge stressors to a situation with high social support may thus not lead to higher self-esteem. Moreover, employees can attribute success less to their own effort and competence if they are greatly assisted in managing a challenging social situation. Therefore, no enforcement of self-esteem can be expected if social support is high. If employees have less support, however, they can enforce their self-esteem by internally attributing successful coping with social challenge stressors. To sum up, results indicated a compensation model in which social support masked the positive relationships of social challenge stressors.

General Discussion

There is a lot of evidence suggesting that social stressors, such as conflicts, unfairness, or negative social behavior, represent dysfunctional aspects of one's own work. According to the challenge-hindrance stressor framework, they match with hindrance stressor concepts and are therefore linked to harmful consequences (Dawson et al., 2016). Social job stressors that can be classified as challenge stressors, however, have been missing thus far. Since social interactions are frequent and of high importance for the achievement of group tasks (Pereira & Elfering, 2014; Semmer et al., 2019), it was the main aim of the present studies to develop a more fine-grained differentiation of social stressors by introducing the concept of social challenge stressors. For the development of a suitable measure, we followed McGrath's (1984) model of group tasks and defined social challenge stressors as a broad construct consisting of socially tense situations that require a lot of effort but are also closely linked to task-related goals. Results from two samples in study 1 supported the construct validation of an 8-item scale. Consistent with our expectations, social challenge stressors showed moderate correlations with well-established social hindrance stressor concepts and task-related stressors, and therefore fit into the nomological network of work stressors. In terms of criterion-related validity, we proposed that social challenge stressors are simultaneously related to strain and well-being. In line with the concept of challenge stressors (Cavanaugh et al., 2000; LePine et al., 2005), results showed that social challenge stressors are positively linked to both strain and well-being. Accordingly, we were able to provide initial evidence for the appropriateness and validity of the concept.

A second major research objective was to identify mechanisms that can explain the divergent effects of social challenge and hindrance stressors and to look at existing boundary conditions. Based on the SOS approach (Semmer et al., 2007), we posited that self-esteem is a mediator in stressor-well-being relationships. With respect to potential boundary conditions, we integrated social support in our model and assumed that it buffers the negative relationship of social hindrance stressors and boosts the positive relationship of social challenge stressors with self-esteem. We were able to support the indirect relationships via organization-based self-esteem, however found no support for the moderation hypotheses.

Regarding the indirect relationships, our results mirror existing findings of Kim and Beehr (2018, 2019) and Widmer et al. (2012), who also identified indirect relationships between challenge and hindrance stressors and well-being via self-esteem. Thus, being confronted with (social) challenge stressors – contrary to (social) hindrance stressors – can be interpreted as a positive social signal. Consequently, individuals reported a higher self-evaluation when confronted with social challenge stressors. More generally, these findings emphasize that "the experiences of work will be strongly influenced by its implications for one's self" (Semmer et al., 2007, p. 54). By contrast, some authors have argued that people with higher self-esteem tend to appraise their social relationships to others more positively than individuals with low self-esteem (Baumeister, Campbell, Krueger, & Vohs, 2003). In line with this notion, Kuster, Orth, and Meier (2013) found that higher self-esteem predicted lower levels of social hindrance stressors, while there was no lagged effect of social hindrance stressors on self-esteem. Given this finding, a reverse effect of self-esteem on social challenge and hindrance stressors might be as likely as the causal direction proposed in our study. It might be that individuals with higher self-esteem appraise social challenge stressors as more challenging or actively seek for them. Because the direction of effects remains unclear, future research is needed to better understand the time-related interplay.

With regard to social support from supervisors and colleagues as a possible boundary condition, our results did not agree with our theoretical reasoning. We believe there are two explanations for this. First, concerning social hindrance stressors, social support might not be a helpful resource in every social situation. Future research should therefore examine who is involved in conflicts and where the reason for high injustice lies in order to determine whether social support may be a stress-buffering resource. Second, regarding social challenge stressors, access to high social support could undermine the positive consequences for one's self-esteem because of its predominant role. Only in cases of low support, employees might attribute successful coping with social challenge stressors to their own effort (cf. Semmer et al., 2007, p. 46). Future studies should take more specific types of organizational or social support into consideration to resolve these unexpected findings.

Implications for Future Research

As the present studies are among the first examining social challenge stressors in a conceptual manner, numerous questions might be investigated in the future. A first research objective refers to a further validation of the new scale. We presented a theoretical foundation for the new construct and showed that social challenge stressors are not identical with social hindrance stressors and task-related stressors. Nevertheless, prospective studies should start an in-depth investigation on how social challenge stressors fit into the nomological network of (social) stressors and on how their links to employee well-being can be compared with those of other (social) stressors. To provide further evidence for discriminant validity in line with the recommendations of Shaffer et al. (2016), future studies will need to demonstrate, for example, that social challenge stressors can be distinguished from leadership behavior or conflict management. Another promising pathway is to identify other social challenge stressors, since we examined a broad concept in line with the group task circumplex. Although we found that task conflicts were negatively related to well-being in line with recent research (e.g., Shaw et al., 2011), some mild task conflicts could also match with the concept of challenge stressors under given boundary conditions (cf. Jehn, 1995).

Finally, future studies could benefit from a closer look at other boundary conditions for the effects of challenge stressors. Even though we found no boosting effect of social support, it may be possible that social challenge stressors especially show positive effects on work outcomes when group cohesion and group trust are high. We assume that social job stressors are more likely interpreted as a challenge when employees do not fear exclusion or sanctions by other team members. Furthermore, it was stated that challenge stressors must relate to achieving central work goals (van den Broeck et al., 2010). We applied this assumption to social challenge stressors as well, but we did not test it empirically. Prospective research should determine whether the same stressor is a challenge or a hindrance stressor depending on the relation to one's core or to secondary work tasks. For example, employees performing physical labor (e.g., blue collar workers) may perceive social challenge stressors as an illegitimate part of their job because they are distracted from goal-oriented work behavior.

Implications for Practice

Several important practical implications might be drawn from our work. First, as social challenge stressors were found to be related to feelings of competence and self-esteem, some employees might frequently expose themselves to tense social situations. We see this as a double-edged sword. On the one hand, employees can benefit from coping successfully with social challenge stressors. On the other hand, a frequent exposure to social challenge stressors is also linked to harmful and unintended consequences like emotional exhaustion. Thus, it may not be advisable to promote socially challenging situations. This is in line with a recent review by Mazzola and Disselhorst (2019), which emphasized the negative effects of challenge stressors. It seems therefore pertinent to keep a limit to the frequency and severity of social challenge stressors. However, due to the assumption that they are closely linked to key work tasks, social challenge stressors could be hard to avoid.

We suggest that training and beneficial group norms are particularly important here. Since positive effects are more likely to emerge when employees are better able to cope with challenging situations, coping strategies could be trained. In the literature, the usefulness of adequate coping strategies has been frequently shown (Koeske, Kirk, & Koeske, 1993; van den Brande, Baillien, de Witte, Elst, & Godderis, 2016). For this reason, practitioners could support employees in succeeding by offering trainings that aim at improving communication and negotiation skills (Gist, Stevens, & Bavetta, 1991). In addition, organizations are recommended to implement beneficial group conflict norms, such as tolerating diverse opinions. For example, Jehn (1995) found that discussion norms can help to prevent the negative and foster the positive effects of interpersonal conflicts.

Regarding social hindrance stressors, this study affirmed the strong negative impact of task conflicts, relationship conflicts, and injustice on employee well- and ill-being. For this reason, managers are advised to develop transparent organizational conditions and not to neglect the occurrence of such stressors. Previous studies have found that the implementation of an integrated conflict management system can be a suitable instrument to prevent the long-term negative effects of social hindrance stressors (e.g., Olson-Buchanan & Boswell, 2008).

Strengths and Limitations

The investigation of a more fine-grained distinction of social stressors at work in four different samples, one of which used time-lagged data, can be seen as a major strength. Moreover, since two of these samples consisted of a homogenous group of employees all over Germany (samples 1a and 1c) and the other two samples were characterized by a huge diversity of age, gender, and occupations (sample 1b and study 2), we had access to powerful data for hypothesis testing (cf. MacCallum, Widaman, Preacher, & Hong, 2001).

Nevertheless, our studies have to be confronted with some critical notes. First, all variables were measured using self-reports. As a result, common method bias cannot be eliminated (P. M. Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). However, we followed the recommendations of Conway and Lance (2010) to deal with common method variance in our data: we (a) used well-validated instruments for the most part and thus ensured high construct validity, (b) checked all survey items for potential overlaps among different constructs

and performed factor analyses to test the factor structure of the new scale and of all social stressors tested, and (c) argue that coping with stressors always requires psychological regulation, which makes it difficult to measure these aspects more objectively (Frese & Zapf, 1994). Thus, self-report measures may be appropriate for our study designs.

Furthermore, study 2 used time-lagged data, which is considered to reduce common method variance (P. M. Podsakoff, MacKenzie, & Podsakoff, 2012). However, a consequence of the research design which excluded the measurement of the outcome variables at T1 is that we were not able to provide evidence for causality. This is especially problematic with regard to the test of indirect effects (Maxwell & Cole, 2007). Social stressors and organization-based self-esteem were measured at the same time. Self-esteem, however, could just as likely influence social challenge stressors as vice versa. We argued with the basic tenets of the SOS approach suggesting that especially social stressors are linked to self-esteem, as they oppose or promote one's need to belong and as they interfere with or foster goal accomplishment (Semmer et al., 2007). As stated above, however, there is good reason to assume reverse effects. Therefore, a full panel or diary study design is needed to provide further evidence for the direction of effects.

Conclusion

The main goal of the present studies was to examine whether there are social stressors at work which can be classified as challenge stressors. Up to now, social stressors have only been found to have detrimental effects. To our understanding, this is mainly a result of operational deficiency. Our new concept of social challenge stressors demonstrated that job demands, such as coordination requirements, mediation between colleagues, or enforcing of decisions, encompass the opportunity for positive self-evaluations when overcome successfully. However, as they simultaneously evoke strain, social challenge stressors cannot be seen as a job resource. Taken together, the present studies provide valuable support for the challenge-hindrance stressor framework and extend it by a differentiated view on social stressors. Future research should take these results with the intention to further scope out the conceptual framework of stressors.

Acknowledgements Open Access funding provided by Projekt DEAL.

Appendix 1

Social Challenge Stressors Scale.

How often are you required to …

1 **… make unpleasant decisions essential for continued work?**
2 **… mediate between colleagues in order to ensure the working process?**
3 … establish consensus in your team due to differing opinions?
4 **… coordinate persons in difficult situations, giving clear instructions?**
5 … establish consensus in cases of conflicting interests in your team?
6 … mediate between colleagues with differing preferences regarding the allocation of tasks?
7 … find a peaceful solution to discussions about who is in charge?
8 … **maintain the overall perspective in tense social situations?**
9 **… moderate a discussion in cases where a problem has no clear solution?**
10 **… assume responsibility for your team in situations of uncertainty?**
11 **… lead heated discussions in your team in order to attain a better outcome of work to be done?**
12 **… show sensitiveness and tact when coordinating tasks?**

* Bold items are included in the final revised measure.

Appendix 2

Table 6 Data transparency table for sample 1a

Variables in the complete dataset	MS 1 (published)	MS 2 (current)
Social challenge stressors		X
Task conflicts		X
Relationship conflicts		X
Social exclusion		X
Organizational injustice		X
Cooperation demands		X
Concentration demands	X	X
Performance constraints	X	
Work interruptions	X	
Goal uncertainty	X	
Time pressure	X	
Job complexity	X	
Task control	X	
Psychosomatic complaints	X	
Emotional exhaustion	X	
Job satisfaction	X	

MS 1 refers to a published article. MS 2 refers to the present article. There was only one shared variable in these articles

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