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Original Article

Exploring Supervisor-Related Job Resources as Mediators between Supervisor Conflict and Job Attitudes in Hospital Employees

Achim Elfering [1,2,*], Christin Gerhardt [1,2], Simone Grebner [1], Urs Müller [3]

[1] Department of Work and Organisational Psychology, University of Bern, Bern, Switzerland
[2] National Centre of Competence in Research, Affective Sciences, University of Geneva, CISA, Geneva, Switzerland
[3] Health Care Research Institute AG, Zurich, Switzerland

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ABSTRACT

Background: Conservation of resources theory assumes loss of resources as a cause of job strain. In hospital work, conflicts with supervisors are tested to predict lower resources, that is, supervisory social support, participation possibilities, and appreciation. All three resources are expected to predict, in turn, experienced stress (job strain) and lower job satisfaction, lower affective commitment, and a higher resigned attitude towards the job (job attitudes).
Methods: The sample included 1,073 employees from 14 Swiss hospitals ($n = 604$ nurses, $n = 81$ physicians, $n = 135$ medical therapists, and $n = 253$ technical and administrative staff). Of the total sample, 83.1% were female and 38.9% worked full-time. The median tenure was between 7 years and 10 years. Constructs were assessed by online questionnaires. Structural equation modeling was used to test mediation.
Results: Structural equation modeling confirmed the negative association of conflict with supervisors and job resources. Tests of indirect paths to resources as a link between conflicts with supervisors and job attitudes were significant. For nurses, social support, participation and appreciation showed a significant indirect path, while among medical technicians the indirect paths included social support and appreciation, and among physicians only appreciation showed a significant indirect path. In medical therapists no indirect path was significant. Job resources did not mediate the link between conflict with supervisors and stress in any occupational group.
Conclusion: Conflicts with supervisors are likely to reduce job resources and in turn to lower job attitudes. Work design in hospitals should, therefore, address interpersonal working conditions and conflict management in leadership development.

1. Introduction

Economic pressure on healthcare has changed the working conditions of hospital workers. Hospital work is nowadays characterized by a fast throughput of patients accompanied by limited job resources due to an increase in Tayloristic scientific management [1]. Fox described this tendency as “conveyor-belt care” [2], which conflicts with the aim to address each patient’s needs individually and holistically [1]. Hence, many hospital workers are exposed to unfavorable working conditions (e.g., increased job stressors and limited job-related resources) that imply the risk of impaired wellbeing (e.g., experienced stress) and lowered job attitudes like job dissatisfaction.

The aim of our study was to investigate the associations of job stressors, job resources, impaired wellbeing, and job attitudes among hospital workers. We concentrate on interpersonal resources (i.e., supervisory support, possibilities to participate in decision making, and appreciation), interpersonal stressors in terms of conflicts with the supervisor and subordinate wellbeing and job attitudes. We exclusively focused on the perspective and experiences of subordinates.

According to the identity-dependence model [3], supervisors control important job-related resources of subordinates. These resources (e.g., the possibility to participate in decision making, provision of supervisory support, appreciation like social recognition,

* Corresponding author. Department of Psychology, University of Bern, Fabrikstrasse 8, CH-3012 Bern, Switzerland.
E-mail address: achim.elfering@psy.unibe.ch (A. Elfering).

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incentives, and promotion) are highly relevant for employee identity and, therefore, positively influence employee wellbeing.

For instance, supervisors can give or withhold positive feedback, or they can criticise in fair or unfair ways so that subordinates feel more or less valued. Conflicts with supervisors are likely to result in a loss of resources controlled by supervisors because supervisors might be short with conflict partners, might be inattentive with them, or might even avoid or ignore them because of negative emotions elicited by the conflict. In summary, it seems plausible that conflicts make supervisors less willing to grant resources to subordinates with whom they are in conflict, or they may even withdraw resources because of the conflict. Hence, conflicts with supervisors are threatening for subordinates and, therefore, stressful, because they lose important resources or because important resources are at stake [4]. Our first hypothesis proposes, therefore, that conflicts with the supervisor predict lower levels of supervisory support (H1a), fewer possibilities to participate in decision making (H1b), and less appreciation at work in terms of feeling valued and social recognition (H1c). The hypotheses are illustrated in Fig. 1.

Interpersonal job-related resources like supervisory support (e.g., understanding and informational support), possibilities to participate in decision making, and appreciation (e.g., feeling valued and recognition) are positive aspects of worklife that promote optimal human functioning, positive emotions, wellbeing, and health [5,6]. Moreover, job resources can protect from job strain defined as detrimental psychological, physiological and behavioral responses to job stressors [7,8]. Individuals try to obtain, maintain and defend resources because unavailable resources, threat of resource loss, occurred loss of resources, or the absence of resource gain after the investment of other resources are, according to Hobfoll's conservation of resources theory, predictors of strain such as impaired wellbeing [9,10]. Moreover, job resources are considered as important determinants of motivational states such as work engagement [11] that result in goal attainment, job satisfaction, and commitment [12]. Even though evidence for the main effect of resources on wellbeing and job-related attitudes differs between the three resources, we think that our second hypothesis is justified. We propose that perceived supervisory support (H2a), participation possibilities (H2b), and appreciation (H2c) predict lower levels of experienced stress. Moreover, we assume that supervisory support (H3a), participation (H3b), and appreciation (H3c) predict higher levels of satisfaction and affective commitment, and lower levels of resigned attitude toward one's job (third hypothesis).

Arguably, the most powerful type of job stressor is interpersonal conflict [13,14]. In particular, conflicts with supervisors are threatening and, therefore, stressful because subordinates depend on supervisors in many respects. There is ample evidence that conflicts with supervisors predict impaired employee wellbeing and impaired job attitudes like job satisfaction and commitment [4,15–17].

A further aim of this study was to investigate the process through which conflicts with supervisors can impair wellbeing and job attitudes. Therefore, we examined whether job resources, that is, supervisor social support (H4a), participation possibilities (H4b), and appreciation (H4c) mediate the conflict–strain relationship (Hypothesis 4a–c) and the conflict–attitude relationship (Hypothesis 5a–c). Social support has already been conceptualized as a mediator of the stressor–strain relationship [18–20]. However, so far, in meta-analyses, it has not appeared to function as a mediator [20,21]. However, Viswesvaran et al did not consider interpersonal stressors like conflicts with supervisors, but relied exclusively on task-related stressors such as role overload [20]. From our point of view, indirect effects of social support on the stressor–strain relationship are likely to occur, when the stressors are interpersonal in nature and when the source of the stressor and support are the same person, that is, the supervisor. To the best of our knowledge, no study that has explicitly tested these hypothesized mediations.

We think that the hypothesized associations between conflicts with the supervisor, job resources that are controlled by supervisors, and subordinate wellbeing and attitudes are particularly detrimental to wellbeing and job attitudes when employees have limited job resources. Therefore, we decided to test our hypotheses within the context of hospital work.

2. Materials and methods

2.1. Study sample

The data analyses were based on online self-reports by 1,073 hospital employees of 14 Swiss hospitals within the German-speaking part of Switzerland, including general and private hospitals with narrow and broad areas of expertise such as surgery, internal medicine, cardiology, venous diseases, orthopedics, radiology, gynecology, urology, rehabilitation, psychosomatics, sleep medicine, and nursing for outpatients. The data were collected in 2012. Informed consent was obtained from all participants. Of the total sample, 83.1% were female and 38.9% worked full time. The hospitals requested that age be measured in categories to protect the privacy of the respondents. Twenty-six participants were younger than 20 years of age (2.4%), 208 between 20 and 29 years (19.4%), 270 between 30 and 39 years (25.2%), 285

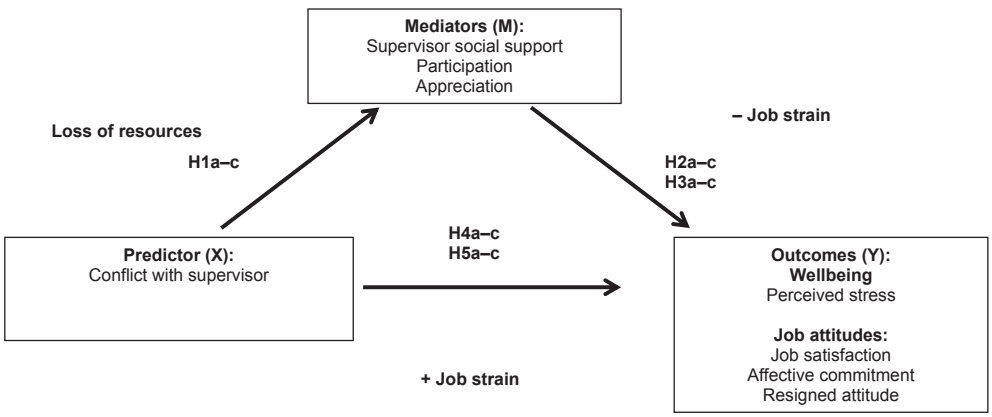

Fig. 1. Hypothesized mediation model of the link between conflict with supervisor, stress, and job attitudes.

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between 40 and 49 years (26.6%), 236 between 50 and 59 years (22.0%), and 48 between 60 and 65 years (4.4%). The median tenure was the response category "between 7 and less than 10 years". The other eight tenure categories ranged from less than 1 year up to 20–50 years (0 to < 1, 1 to < 2, 2 to < −3, 3 to < 5, 5 to < 7, 7 to < 10, 10 to < 15, 15 to < 20, 20–50 years). The largest occupational group was nurses (n = 604, 56.3%). The other occupational groups were physicians (n = 81, 7.5%), medical therapists (n = 135, 12.6%, e.g., physiotherapists, psychotherapists, and occupational therapists), and technical and administrative staff (n = 253, 23.6%, e.g., information technology professionals, secretaries, controllers, and quality managers). The response rates varied between 30% and 97% in the 14 organizations (mean = 56.5%, standard deviation = 20.2%). The study was carried out in accordance with the Code of Ethics of the World Medical Association (Declaration of Helsinki) and the Swiss Society of Psychology.

2.2. Measures

Self-report measures are based on the single items approach in organizational research [22] using validated single items. Cronbach α as an estimator of reliability is not applicable in single items. However, when there is another scale available that measures the same construct, Wanous et al [23] propose to calculate the correlation between the single item and the scale to estimate the minimal reliability of the single item by applying the attenuation formula of Nunnally [24]. The resulting value represents the lower bound (i.e., a conservative estimate) of the internal reliability coefficient (minimal internal reliability). The raw correlation, however, represents an estimate of convergent validity. In a previous study [25], we asked 200 employees who worked in a large university hospital to respond to the single items of the current study and to corresponding psychometrically validated scales that could serve as a gold standard in assessment of the same construct. Reliability estimates that were reported for the single items in the current study were estimates from this previous validation study (Table 1).

2.2.1. Job stressors: conflicts with supervisors

Perceived conflicts with supervisors were assessed using a single item: "Do you have conflicts with your supervisor?" adapted from a questionnaire by van Veldhoven et al [26]. The single-item was scored on a 5-point Likert scale, ranging from 1 (very rarely) to 5 (very often).

2.2.2. Job resources: supervisor social support

Social support was assessed using an item of the scales by Caplan et al ([27] – German translation by Frese [28]). The question asked how much the supervisor could be relied upon when things become tough at work. The answering format was a 5-point Likert scale ranging from "not at all" (1) to "absolutely" (5).

2.2.3. Participation

Participation in decision making concerning own working situation as an employee was assessed using the Instrument for Stress-Related Task Analysis (ISTA) [29,30]. The single item used a 5-point Likert scale and asked how much influence people have on decisions that concern their situation as employees, with the possible answers being "I have no influence" (1), "I just get informed" (2), "I can make suggestions" (3), "I take part in these decisions" (4), and "I have large influence on these decisions" (5).

2.2.4. Appreciation at work: feeling valued

We used a single item from an organization-based self-esteem scale to measure feeling valued, which we consider as one important aspect of social appreciation at work: "I am valuable around here" [31]. The item had 5-point Likert options for answering: "completely disagree" (1) to "completely agree" (5).

2.2.5. Appreciation at work: social recognition

A further single item addressed generally experienced social recognition at work and was adapted from the second version of the Copenhagen Psychosocial Questionnaire (COPSOQ II) [32]: "Do you receive adequate recognition at work?" with a 5-point Likert scale ranging from "not at all" (1) to "yes, absolutely" (5).

2.2.6. Impaired wellbeing: perceived stress

We used a validated single item stress self-report measure [33] referring to stress experiences at present. The question was "Stress means a situation in which a person feels tense, restless, nervous or anxious, or is unable to sleep at night because his/her mind is troubled all the time. Do you feel this kind of stress these days?" The response format was a 5-point Likert scale varying from "not at all" (1) to "very much" (5).

2.2.7. Job-related attitudes: job satisfaction

The Kunin faces scale [34] we used asked "How satisfied do you currently feel with your work?" with 11 faces as response options as

Table 1
Description of study variables by health occupation

Variable (scale)	Rel* (Val)†	Nurses (n = 604)		Physicians (n = 81)		Med Thera (n = 135)		Med Tech (n = 253)		Total (n = 1,073)	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Conflict with supervisor (1–5)	0.68 (0.63)	1.93	1.11	1.83	1.18	1.54	0.78	2.04	1.14	1.90	1.10
Social support from supervisor (1–5)	0.72 (0.69)	3.99	1.02	4.09	1.09	4.23	0.94	3.96	1.09	4.02	1.03
Participation (1–5)	0.67 (0.61)	3.06	0.93	3.22	1.04	3.26	0.95	3.17	0.94	3.12	0.94
Feeling valued (1–5)	0.64 (0.59)	3.73	0.93	3.77	0.91	3.87	0.80	3.79	0.84	3.77	0.89
Social recognition (1–7)	–*	4.86	1.45	5.19	1.35	5.24	1.22	5.10	1.44	4.99	1.42
Experienced stress (1–5)	0.66 (> 0.60‡)	3.01	1.00	3.27	0.91	2.76	0.96	2.79	1.10	2.95	1.02
Job satisfaction (0–10)	0.81 (0.71)	7.16	2.10	7.19	2.16	7.62	1.61	7.72	1.80	7.35	2.00
Affective commitment (1–5)	0.82 (0.72)	3.69	1.00	3.51	1.16	3.77	0.96	3.92	0.85	3.74	0.98
Resigned attitude (1–7)	0.85 (0.71)	2.98	1.57	3.10	1.71	2.64	1.50	2.48	1.49	2.83	1.57
Age (7 categories)	n.a.	40.86	12.31	39.96	12.69	39.92	11.84	42.55	10.93	41.07	11.99

* Reliability estimate from pilot study with 200 employees who worked in a large university hospital (item on social recognition was not included).
† Val, Estimate of convergent validity from the pilot study.
‡ Estimate of convergent validity to various scales that assess physical and mental indicators of stress as reported by Elo et al [33].
Med Tech, medical technicians and administrative staff including IT professionals, secretaries, controllers, and quality managers; Med Thera, medical therapists including physiotherapists, psychotherapists and occupational therapists.

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developed and validated by Elfering and Grebner [35] and verbal labels placed under the faces ["very unsatisfied" (0) to "very satisfied" (10)]. The reliability and validity of the Kunin faces scale was demonstrated by Wanous et al [23].

2.2.8. Affective commitment

Our item of affective commitment was the first of a validated 8-item scale on affective commitment [36]. The item "I would like to spend many further years in this organization" had a 5-point Likert format. Response options ranged from "completely disagree" (1) to "completely agree" (5) [36].

2.2.9. Resigned attitude towards one's job

Our measure of resigned attitude towards one's job was based on the concept of resigned job satisfaction [37]; for an English description, see Büssing [38]. The item that we used was the most general item "My job situation is not perfect but it could be worse" out of a 4-item original version of scale [39] [7-point Likert-scale (1 = almost never to 7 = virtually all the time)].

2.3. Data analyses

AMOS 22.0 was used (1) to test a measurement model of all of the constructs involved, and (2) to model the indirect effects of supervisor social support, participation, and appreciation on the conflict–strain and conflict–attitude relationships. Amos' diagnostics did not indicate that the sample values came from a multivariate normal population. Thus, we used the "asymptotically distribution free" estimation method as proposed by Browne [40] rather than the maximum likelihood method. Sex was included in the structural equation models as a control variable, because women report higher job satisfaction than men; this is known as the "satisfaction paradox" [41,42]. Higher levels of job satisfaction in women did contrast with self-reports of working conditions that were less favorable than in men [42]. For testing the indirect effects, the procedure developed by Baron and Kenny [43] was followed, and the indirect effect was calculated using the Sobel test [44] with a software program devised by Preacher and Leonardelli [45]. Alpha level was 5% and tests were two-tailed.

3. Results

3.1. Exploratory description of mean levels

Means and standard deviations of the total sample, and separately, for the four occupational groups, are shown in Table 1. Differences in means between the occupational groups were exploratory tested using *post hoc* comparisons in unifactorial analyses of variance.

3.1.1. Conflicts with supervisor

Participants reported moderate levels of conflicts with supervisors, with the means being lower in medical therapists (1.54) compared to nurses (1.93, $p = 0.003$) and compared to medical technicians (2.04, $p < 0.001$), while a *post hoc* comparison with physicians (mean = 1.83) showed no significant difference in the level of conflict among nurses, physicians, and medical technicians ($p = 0.321$).

3.1.2. Job resources

Study participants reported medium to high levels of job resources. No significant occupational differences were observed in supervisory social support, participation, and feeling valued. Nurses (mean = 4.86) reported less social recognition than medical therapists (mean = 5.24, $p = 0.045$). No further significant differences were found.

3.1.3. Wellbeing and attitudes

Participants indicated medium to higher levels of experienced stress. Stress was highest in physicians (mean = 3.27) and differed significantly from stress levels reported by medical therapists (mean = 2.76, $p = 0.005$) and medical technicians (mean = 2.79, $p = 0.003$), but not from stress levels in nurses (mean = 3.01, $p = 0.181$). Nurses had the second highest stress levels (mean = 3.01), which differed significantly from medical technicians (mean = 2.79, $p = 0.044$). No further differences in stress levels among occupational groups were observed. Study participants reported medium levels of job-related attitudes. Differences in attitudes showed a similar pattern for job satisfaction, affective commitment, and resigned attitude towards the job. Medical technicians showed in all three variables the most positive levels, which differed significantly from nurses in job satisfaction (mean = 7.72 vs. 7.16), affective commitment (mean = 3.92 vs. 3.69), and resigned attitude towards the job (mean = 2.48 vs. 2.98, p between < 0.001 and 0.015). Medical technicians also showed more favorable attitudes towards their jobs than physicians (affective commitment mean = 3.92 vs. 3.51, $p = 0.010$ and resigned attitudes towards the job mean = 2.48 vs. 3.10, $p = 0.022$), but did not differ from medical therapists (affective commitment mean = 3.77 and resigned attitude mean = 2.64). Medical therapists, nurses, and physicians showed no significant differences in their average levels of job satisfaction, affective commitment, and resigned attitude towards the job.

3.2. Correlations

Table 2 shows the Pearson correlation coefficients among the study variables. Frequency of conflicts with the supervisor was, as hypothesized, strongly negatively related to supervisory social support [$r(1{,}073) = -0.57$, $p < 0.001$), participation ($r = -0.34$, $p < 0.001$), feeling valued ($r = -0.37$ and social recognition $r = -0.45$, both $p < 0.001$)].

Supervisory support, participation and appreciation (feeling valued and social recognition) were all against expectations unrelated to perceived stress but as expected strongly positively associated with job satisfaction ($r = 0.45$, 0.36, 0.48 and 0.52, all $p < 0.001$) and affective commitment ($r = 0.36$, 0.29, 0.45 and 0.38, all $p < 0.001$) and strongly negatively related to resigned attitude towards the job ($r = -0.31$, −0.35, −0.39 and −0.39, all $p < 0.001$).

Conflicts with supervisors were moderately positively associated with perceived stress ($r = 0.16$, $p < 0.001$), strongly negatively associated with job satisfaction ($r = -0.36$, $p < 0.001$), moderately negatively associated with affective commitment ($r = -0.25$, $p < 0.001$) and strongly positively related to a resigned attitude towards the job ($r = 0.47$, $p < 0.001$).

Inter-relations among job resources (social support from supervisor, participation, feeling valued and social recognition) were all strong and positive ranging from 0.43 to 0.69 (all $p < 0.001$).

Men reported slightly higher levels of participation. Women reported a greater resigned attitude towards their job. Moreover, age was weakly positively related to participation, feeling valued and job satisfaction, and moderately with affective commitment.

3.3. Structural equation models

Table 3 shows the results of the tests of the structural equation model, including several indicators of model fit. A model assuming independence of the included variables had a poor fit (independence model, Model 1 in Table 3), and thus, did not represent the

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Table 2
Correlations among study variables ($N = 1{,}073$)

	Conflict with supervisor	Social support from supervisor	Participation	Feeling valued	Social recognition	Experienced stress	Job satisfaction	Affective commitment	Resigned attitude
Conflict with supervisor	1								
Social support from supervisor	−0.57‡	1							
Participation	−0.34‡	0.43‡	1						
Feeling valued	−0.37‡	0.43‡	0.45‡	1					
Social recognition	−0.45‡	0.51‡	0.44‡	0.69‡	1				
Experienced stress	0.16‡	−0.05	−0.05	−0.06	−0.04	1			
Job satisfaction	−0.36‡	0.45‡	0.36‡	0.48‡	0.52‡	−0.08†	1		
Affective commitment	−0.25‡	0.36‡	0.29‡	0.45‡	0.38‡	−0.05	0.43‡	1	
Resigned attitude	0.47‡	−0.31‡	−0.35‡	−0.39‡	−0.39‡	0.19‡	−0.40‡	−0.36‡	1
Sex (0 = f, 1 = m)	−0.03	−0.01	0.09†	0.03	0.03	−0.05	0.01	0.05	−0.07*
Age (7 categories)	0.04	0.02	0.06*	0.09†	0.03	0.03	0.09†	0.29‡	−0.01

* $p < 0.05$.
† $p < 0.01$.
‡ $p < 0.001$, two-tailed.

data at all. In contrast, a saturated model (Model 2 in Table 3) that estimated all of the relationships between the variables reached a maximal fit, and both the independence model and the saturated model provide a reference framework for specific model tests. The hypothesis testing started with a test of the measurement model. The measurement model included supervisory social support as manifest variable and appreciation and job attitudes as latent variables, with manifest variables as the indicators of latent variables. Thus, each latent variable represented a confirmatory factor analysis, and assumed associations between the latent variables were nondirectional. The measurement model (Model 3 in Table 3) represented the empirical data well [comparative fit index (CFI) = 0.913]. Thus, the confirmatory factor analyses within the measurement model supported the hypothetical factor structure; for example, the three indicators of job attitudes (job satisfaction, affective commitment, and resigned attitude towards the job) loaded on the common latent variable job attitude, but not on the latent variables of social support and appreciation.

Table 3
Structural equation models fit to empirical data

	χ^2	df	χ^2/df	p	CFI	RMSEA	AIC
(1) Independence model	876.85	45	19.49	< 0.000	0	0.108	896.85
(2) Saturated model	0	0	0	–	1.0	–	110.00
(3) Measurement model	106.93	19	5.63	< 0.000	0.913	0.054	178.93
(4) Hypothesized model	84.16	18	4.68	< 0.000	0.920	0.048	158.16

All models included age and sex as control variables. The models were as follows: (1) Independence model = no associations between study variables were assumed; (2) Saturated model = assumes all variables were interrelated – estimates best possible fit of model variables and empirical data; (3) Measurement model = all latent variables were specified and assumed to be nondirectionally interrelated; (4) Hypothesized mediation model = mediation model as shown in Fig. 1.
A non-significant χ^2, and CFI > 0.90 reflect an acceptable fit between the model and the data [46]. Also, RMSEA value < 0.05 reflects a good fit of the model [46]. The comparably low AIC attests to the parsimonious informative modeling in the hypothesized mediation model.
AIC, Aikaike information criterion, which should be as low as possible; χ^2 value, indicates the minimum discrepancy between empirical covariance structures and those implied by the model; χ^2/df, minimum discrepancy divided by its degrees of freedom, as an indicator of fit; CFI, comparative fit index; df, degrees of freedom; p, p value of minimum discrepancy divided by its degrees of freedom; RMSEA, root mean square error of approximation; a measure of fit that takes into account the population moments rather than sample moments.

3.3.1. Test of direct paths

The hypothesized mediation model (Model 4 in Table 3) represented the empirical data well (CFI = 0.920). Indeed, the difference in the deviation of the individual values as predicted by the model and the empirical values expressed in χ^2 values between the measurement model and the mediation model showed the latter fit even better [$\Delta\ \chi^2(1) = 22.77$, $p < 0.001$]. Fig. 2 shows the structural equation model and standardized path coefficients. In accordance with the first hypothesis, conflicts with the supervisor predicted strongly lower social support (H1a, $\gamma = -0.60$, $p < 0.001$), participation possibilities (H1b, $\gamma = -0.35$, $p < 0.001$), and appreciation (H1c, $\gamma = -0.54$, $p < 0.001$). Higher job resources did not predict lower stress levels as expected in the second hypothesis (H2a social support, $\beta = -0.02$, $p = 0.497$; H2b participation, $\beta = -0.01$, $p = 0.887$; H2c appreciation, $\beta = -0.02$, $p = 0.711$) but strongly more positive job attitudes (H3a social support, $\beta = 0.11$, $p = 0.004$; H3b participation $\beta = 0.10$, $p = 0.001$; H3c appreciation, $\beta = 0.56$, $p < 0.001$).

3.3.2. Test of indirect paths

Table 4 shows the β values and the results of Sobel tests for the indirect effects on experienced stress (H4a–c). Looking separately at occupational groups confirmed the findings of the total sample. None of the tested indirect paths via social support, participation and appreciation was significant.

Table 5 shows the β values and the results of Sobel tests for the indirect effects on job attitudes. In the total sample, the indirect path via social support was significant (H5a, $z = 2.82$, $p = 0.004$). Moreover, the indirect path turned out to be significant in nurses ($z = 2.04$, $p = 0.041$) and medical technicians ($z = 2.07$, $p = 0.038$), while it was not significant in the two other occupational groups (Table 5). Participation possibility, as the link between conflicts with supervisors and job attitudes (social conflict with supervisor → participation → job attitudes), was confirmed in the total sample (H5b, $z = 3.16$, $p = 0.002$) and in nurses ($z = 2.66$, $p = 0.008$). It was not significant in the other three occupational groups. The indirect path, including appreciation (social conflict with supervisor → appreciation → job attitudes), turned out to be significant for the total sample (H5c, $z = 8.60$, $p < 0.001$) and three of the four occupational subgroups: nurses ($z = 6.41$, $p < 0.000$), physicians ($z = 3.63$, $p < 0.000$), and medical technicians ($z = 4.11$, $p < 0.000$, Table 5). In summary, Hypothesis 4 was rejected, and Hypothesis 5 was confirmed for all three hypothesized mediators, that is, support, participation, and appreciation (H5a–c).

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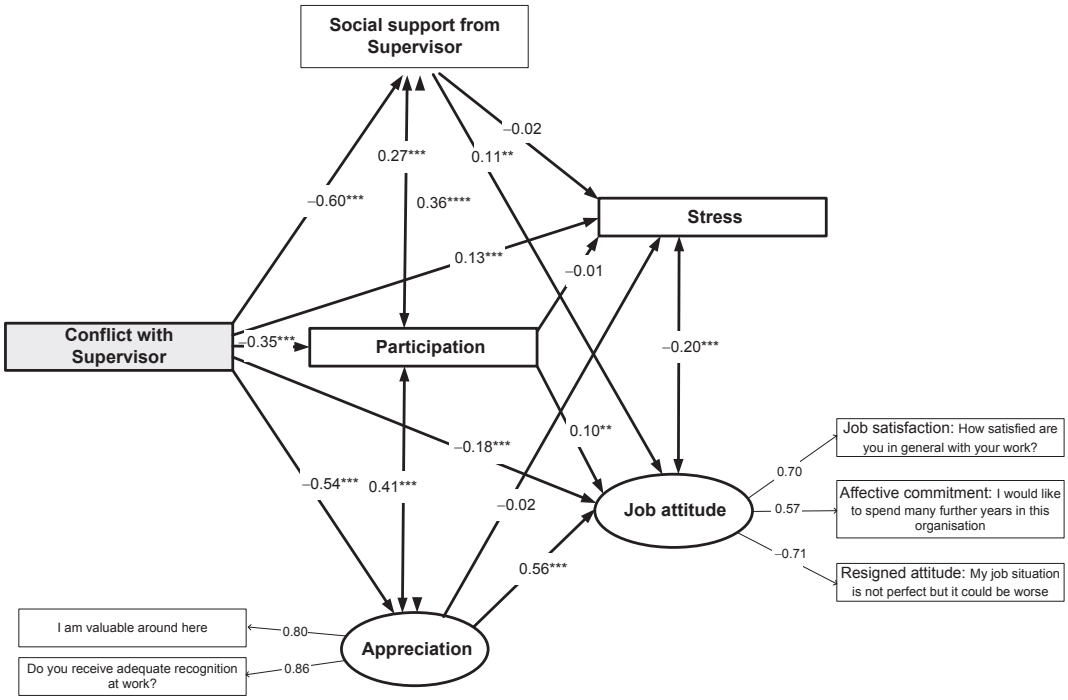

Fig. 2. Standardized path coefficients of a structural equation model with of job resources as mediators of the effects of conflicts with supervisors on stress and job attitudes.

3.3.3. *Alternative model testing*

The structural equation model that was tested included conflicts with supervisors as a social stressor that induced loss of job resources and strain. Thus, the model follows a stress model perspective on supervisor conflict [47]. Meanwhile, Spector and Bruk-Lee [47] suggested that "the stress process is not entirely unidirectional as causal processes can occur in both directions". Indeed, Liu et al reported qualitative data showing that 54% versus 42% of supervisor conflicts were attributable to low job control in the US and China, respectively [48]. Thus, (lack of) job resources might also function as an antecedent of supervisor conflict. Fig. 3 shows a structural equation model with social support, participation possibilities, and appreciation as antecedents of supervisor conflict. The alternative model shown in Fig. 3 has the same model fit as the hypothesized model shown in Fig. 2. It is noteworthy that, only lower social support but not participation and social recognition predicted supervisor conflict, and supervisor conflict predicted stress and job attitudes. Two out of six indirect paths of the alternative model were significant (social support → supervisor conflict →stress, $z = 3.65$, $p < 0.001$; social support → supervisor conflict → job attitudes, $z = 4.57$, $p < 0.001$).

4. Discussion

With progressively adverse working conditions in hospital work due to tayloristic scientific management [1] and consequential

Table 4
Indirect paths from conflicts with supervisors via job resources to stress

	Nurses		Physicians		Med Thera		Med Tech		Total	
	β	*z*	*β*	*z*	*β*	*z*	*β*	*z*	*β*	*z*
Conflict supervisor										
↓	−0.67***		−0.72***		−0.65***		−0.62***		−0.60***	
Social Support										
↓	−0.02	0.28	0.11	0.57	0.17	1.53	0.05	0.59	−0.02	0.68
Stress		$p = 0.780$		$p = 0.570$		$p = 0.126$		$p = 0.556$		$p = 0.497$
Conflict supervisor										
↓	−0.36***		−0.34**		−0.45***		−0.42***		−0.35***	
Participation										
↓	0.06	1.19	−0.10	0.73	−0.11	1.11	0.01	0.12	−0.01	0.14
Stress		$p = 0.234$		$p = 0.466$		$p = 0.267$		$p = 0.904$		$p = 0.889$
Conflict supervisor										
↓	−0.59***		−0.62***		−0.59***		−0.55***		−0.54***	
Appreciation										
↓	0.10	1.53	−0.25	1.37	0.11	0.82	−0.12	1.35	−0.02	0.37
Stress		$p = 0.126$		$p = 0.170$		$p = 0.412$		$p = 0.177$		$p = 0.711$

β, standardized indirect path coefficient; *z*, *z*-standardized test value of Sobel's test of indirect path significance [44]; $p = p$ value of z; Med Tech, medical technicians and administrative staff including IT professionals, secretaries, controllers, and quality managers; Med Thera, medical therapists including physiotherapists, psychotherapists and occupational therapists.

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Table 5
Indirect paths from conflicts with supervisors via job resources to job attitudes

	Nurses		Physicians		Med Thera		Med Tech		Total	
	β	*z*	*β*	*z*	*β*	*z*	*β*	*z*	*B*	*z*
Conflict supervisor										
↓	−0.67***		−0.72***		−0.65***		−0.62***		−0.60***	
Social Support										
↓	0.12*	2.04	0.29	1.85	0.011	0.06	0.20*	2.07	0.11**	2.82
Attitude		$p = 0.041$		$p = 0.065$		$p = 0.952$		$p = 0.038$		$p = 0.004$
Conflict supervisor										
↓	−0.36***		−0.34***		−0.45***		−0.42***		−0.35***	
Participation										
↓	0.12**	2.66	−0.06	0.46	−0.02	0.17	−0.04	0.58	0.10**	3.16
Attitude		$p = 0.008$		$p = 0.642$		$p = 0.865$		$p = 0.563$		$p = 0.002$
Conflict supervisor										
↓	−0.59***		−0.62***		−0.59***		−0.55***		−0.54***	
Appreciation										
↓	0.63***	6.41	0.58***	3.63	0.32	1.75	0.62***	4.11	0.56***	8.60
Attitude		$p = 0.000$		$p = 0.000$		$p = 0.075$		$p = 0.000$		$p = 0.000$

β, standardized indirect path coefficient; Med Tech, medical technicians and administrative staff including IT professionals, secretaries, controllers, and quality managers; Med Thera, medical therapists including physiotherapists, psychotherapists and occupational therapists; *p*, *p* value of *z*; *z*, *z*-standardized test value of Sobel's test of indirect path significance [44].

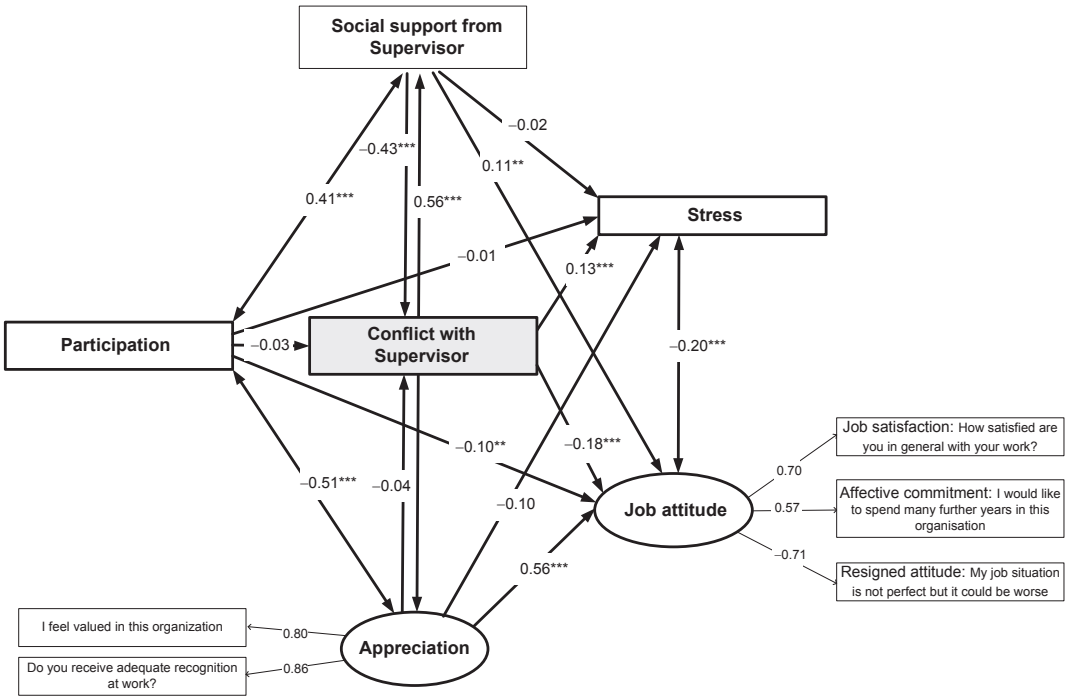

Fig. 3. Standardized path coefficients of an alternative structural equation model with job resources as antecedents of conflicts with supervisors.

conveyor-belt care [2], it is important to study the effects of working conditions on wellbeing and job attitudes in this industry. We focused our study on interpersonal aspects of working conditions. We investigated associations between conflicts with supervisors; three types of interpersonal resources provided by supervisors (support, participation, and appreciation); and various outcomes that include an indicator of impaired wellbeing and three types of job attitudes.

Supervisors may reduce interpersonal resources toward subordinates in conflicts because of negative emotions and attributions triggered by the conflict. The goals of the present study were to examine the main effects of conflicts with supervisors on job resources of subordinates and to test whether (lowered) job resources are part of the link between conflicts and stress, and conflicts and job attitudes, as can be expected from the conservation of resources theory [9,10]. Hence, we hypothesized interpersonal resources to mediate the relationships between conflicts and job strain, and conflicts and job attitudes. We investigated employees of 14 hospitals and four occupational groups.

Even though interprofessional differences in working conditions, wellbeing and attitudes were not the focal point of our study, we started our data analyses by exploring these differences to provide the reader with complete information. However, it is important to note that our exploratory findings are rather tentative. Compared to medical therapists, nurses, physicians and medical technicians tended to report more frequent conflicts with their

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supervisor. A plausible explanation could be that medical therapists who include physiotherapists, psychotherapists and occupational therapists usually work independently. Contact with supervisors is taking place rather in formal meetings and less during therapeutic activities. Hence, in daily work life, compared to other occupational groups, occupational therapists might have fewer interactions with their supervisor. Interestingly, the four occupational groups did not differ in job resources except in social recognition that we consider as an aspect of appreciation. Nurses reported a lower level of social recognition compared to medical therapists. Possibly, time-phased and longer-lasting interactions of medical therapists with patients offer more possibilities to receive recognition by supervisors compared to the more intermittent and short-term interactions of nurses with patients. Physicians and nurses reported higher stress levels than medical technicians, and physicians also higher levels than medical therapists. Possibly, the higher frequency of conflicts reported by nurses and physicians contributes to the higher stress levels of these groups. However, it is also possible that other aspects of working conditions that were not investigated, such as time pressure or (low) job control, contribute to these findings. Moreover, different hierarchical conditions might also play an important role in the stress level experienced by nurses and physicians who usually work in a more top-down organized hierarchy compared to other occupations who maintain more collegiate relationships. Finally, medical technicians reported the highest levels in job satisfaction and affective commitment, and the lowest level in resigned attitude towards the job. Differences occurred in all three investigated types of attitudes compared to nurses and in two of the three indicators (affective commitment and resigned attitude) compared to physicians. Again, differences in job control and differences in hierarchical conditions could explain these findings. Overall, physicians and nurses in our sample were exposed to less favorable working conditions and reported correspondingly higher levels of stress and less favorable attitudes than other occupational groups reported. Because our results are tentative, future studies should investigate these differences in depth.

Before we summarize and interpret the results of testing the hypothesized mediator effects of job resources on the conflict–strain and conflict–attitude relationships, we discuss the results concerning bivariate associations (1) between conflicts with supervisors and interpersonal resources; (2) between interpersonal resources and outcomes; and (3) between conflicts with supervisors and outcomes.

Our first hypothesis, which states that conflicts with supervisors are negatively related to job resources, was fully confirmed for all three resources. Conflicts with supervisors are strongly negatively related to supervisory support (Hypothesis 1a), possibilities to participate in decision making (Hypothesis 1b), and appreciation in terms of feeling valued and receiving social recognition (Hypothesis 1c). Results support our rationale that conflicts, which are especially powerful stressors, can lead to deterioration of communication and interpersonal relationships between supervisors and subordinates. In conflict, supervisors might experience negative emotions like anger and frustration and might, therefore, be less willing to grant informational support (e.g., giving crucial information) and emotional support (e.g., listening and showing understanding in difficult situations). Moreover, supervisors might be less willing to allow the conflict partner to participate in decision making. Furthermore, supervisors might withhold appreciation or they might evaluate work behavior and results less fairly, so that the concerned subordinate feels less valued. Altogether, conflicts with supervisors are related to lowered interpersonal resources that are completely or to a large extent controlled by the supervisor. These mechanisms might explain why interpersonal stressors in general show powerful effects on wellbeing and health.

Our second hypothesis assumes that interpersonal resources are negatively related to perceived stress, which represents a negatively experienced state of tension accompanied by emotions like anger or anxiety. Against expectations, job resources did not predict lower levels of perceived stress. Neither social support by the supervisor (Hypothesis 2a), nor participation possibilities (Hypothesis 2b), nor the two aspects of job-related appreciation (Hypothesis 2c) were negatively associated with perceived stress. Hence, Hypotheses 2a–c are rejected. However, all three job resources predicted all three job attitudes in the hypothesized manner (Hypotheses 3a–c), which represent positive motivational states or lack of positive motivation [11]. Supervisory support (Hypothesis 3a), participation (Hypothesis 3b) and appreciation (Hypothesis 3c) were positively associated with job satisfaction and affective commitment, and negatively associated with resigned attitude towards the job. Therefore, Hypotheses 3a–c are fully confirmed. That Hypothesis 2a–c were rejected and Hypotheses 3a–c fully confirmed can be explained by the demands–resources model of job strain [49], which states that job-related resources predict, in particular, motivational aspects of wellbeing, such as job attitudes, because resources motivate employees.

Our fourth hypothesis assuming that conflicts with the supervisor positively predict perceived stress (Hypothesis 4a) was confirmed. This finding is in line with previous research showing conflicts with supervisors to be powerful risk factors for impaired wellbeing [13,47]. This result is also in accordance with the above mentioned job-demands resources model, which predicates that job stressors are, in particular, predictors of job strain indicators, such as perceived stress, because stressors exhaust mental and physical resources [49].

Moreover, our assumption that conflicts predict negatively job satisfaction and affective commitment, and positively, resigned attitude towards one's job was also supported by our data (Hypothesis 4b). Possibly, conflicts are not only detrimental to wellbeing, but also to motivational aspects of wellbeing because of the implied loss of job resources. In particular, the association between supervisor stressors and reduced job satisfaction is in line with former results [16,17] and suggests that supervisor conflicts might be important antecedents of turnover, because job satisfaction is a good predictor of intentions to quit [50] and employee turnover [51]. The strong association between conflicts with supervisors and a resigned attitude toward one's job indicates that, in particular, supervisor conflicts might contribute to a resentful adaptation to improvable working conditions [52]. Supervisor stressors might particularly have effects on attitudinal processes, because supervisors wield control over various motivating working conditions such as job control and job complexity, which are, in turn, related to attitudinal aspects of wellbeing such as job satisfaction [53]. In addition, supervisors are the most important source of performance-related feedback and social recognition. Hence, conflicts with supervisors are potential threats to the self [54].

Finally, we tested the hypothesized mediator effects of social resources on the conflict–strain and conflict–attitude relationships. Social support has been conceptualized before as a mediator of the stressor–strain relationship [18,19]. However, mediator effects have rarely been tested, and so far, the available evidence hardly supports the assumption [20,21]. To date, only task-related stressors such as role overload have been investigated as predictors, and general social support at work has been used as a mediator variable. We concentrated on interpersonal stressors in terms of conflicts with supervisors as a predictor and on interpersonal resources, which are controlled by the supervisor, including supervisory support, and two further resources because we think the type of stressor and the type of resource should both be interpersonal. Moreover, the source of the stressor (predictor) and

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the resource (mediator) should be the same person (supervisor). Hence, our fifth hypothesis stated that supervisory social support (Hypothesis 5a), participation (Hypothesis 5b), and appreciation (Hypothesis 5c) show an indirect (mediator) effect on the conflict–strain relationship. However, none of the three resources mediated the conflict–strain relationship when perceived stress was the outcome. Hence, Hypotheses 5a–c are rejected. This is not surprising, because, as we report above, job resources were unrelated to perceived stress. Because job resources might function instead as moderators as proposed in the job demands–control model [8] or the buffering model of social support [18], we additionally examined a potential moderation effect of job resources. However, additional analyses did not confirm a moderation of job resources and, therefore, did not confirm that job resources functioned as a stress buffer in our data [18].

Finally, we examined whether supervisor support (Hypothesis 6a), participation possibilities (Hypothesis 6b), and appreciation (Hypothesis 6c) mediate the conflict–attitude relationships. All three resources showed the expected indirect effect on all three types of attitudes (i.e., job satisfaction, affective commitment, and resigned attitude towards the job). Therefore, Hypotheses 6a–c were fully confirmed. In addition, when indirect effects were tested separately within the four occupational groups mediation occurs in nurses (confirming Hypotheses 6a–c), in physicians (confirming Hypothesis 6c), and in medical technicians (confirming Hypotheses 6a and 6c).

In summary, our assumption that conflicts with supervisors might lead to decreased perceived job resources, which, in turn, contributes to the negative relationship of conflicts with supervisors with job attitudes, was confirmed regarding social support, participation, and appreciation but not with perceived stress as an outcome. Ongoing conflicts with supervisors are often frustrating. Hence, conflict-related frustration might even be increased by a loss of perceived social support, lowered participation possibilities, and appreciation.

Our study had several strengths. The most important strength was certainly that our study was, as far as we know, the first one to investigate a possible mediator effect of supervisory support and other interpersonal resources in the relationship between interpersonal stressors and wellbeing and job attitudes. Therefore, our study sheds light on the mechanisms behind the strong main effect of conflicts on wellbeing and job attitudes. Until now, only a mediator effect of general social support at work on the task stressor–strain relationship has been examined [20]. We used interpersonal stressors and resources to test the mediation. Hence, the source of stressors and resources matched. From our point of view, this makes the occurrence of mediation more plausible. Moreover, we investigated the mediator effects not only of social support, but also of further interpersonal resources, which is completely new in the literature.

A second strength of our study was that we used a broad variety of outcomes. We did not limit our design to job strain, but also included different indicators of job attitudes, which are, in particular, influenced by job resources [49].

A third strength of our study was the large sample size. We investigated more than 1,000 hospital workers from various general and private hospitals and four different occupational groups, which allows generalization of our results to hospital work at large.

Finally, we used structural equation modeling to analyze our data. This allowed us to test the assumed relationships simultaneously.

This work had several limitations. A major limitation was that we did not have longitudinal data that allowed us to test causation, and reverse and reciprocal causation, which cannot be excluded as the alternative model showed for social support [55]. Hence, plausible alternative explanations of the results cannot be ruled out. On theoretical grounds, it seems plausible that reciprocal causation exists [47]. Social support can have an effect on conflicts with supervisors, for instance, when lack of support triggers conflicts. Moreover, people might be stressed because of a lack of social support – which might in turn trigger conflicts and consequentially further loss of resources. In addition, wellbeing can have an effect on support when less healthy people receive less support from supervisors because of lower performance or higher sickness absence [55–57]. Finally, wellbeing can influence social support, for instance, if more satisfied or less healthy people receive more support. Future studies should, therefore, use longitudinal full-panel designs to simultaneously test causation, and reverse and reciprocal causation.

Second, we exclusively used self-reports to measure independent, dependent and mediator variables. This can lead to inflated stressor–strain associations through correlated measurement errors (common method variance [58]). Self-reports of working conditions did not allow us to differentiate between individual perceptions and appraisals of real conditions [59]. Hence, perceptions and appraisals of working conditions and reports of subjective strain could have been influenced by person-related third variables, such as stable personality traits that influenced perceptions and appraisal. In particular, negative affectivity is believed to lead to spuriously inflated stressor–strain correlations [60] because people high in negative affectivity tend to complain about both working conditions and wellbeing.

Third, relying on single item measures can be criticized for a lack of reliability in measurement. Meanwhile, as Wanous and colleagues [23] showed, for job satisfaction, single items can be appropriate when measuring mid-range constructs that might be one-dimensional and they can ask for an overall judgment, such as overall job satisfaction or overall conflicts with supervisors. For instance, the Whitehall II study successfully used a single item of (overall) unfairness [61].

Fourth, we investigated only hospital workers. This possibly limits the generalization of our results to other industries. Even though investigating hospital workers is important, future research should also test the hypotheses by using samples from other industries.

Finally, our research concentrated on the perspective of subordinates. It would be desirable in future research to study supervisor–subordinate dyads or work teams to obtain more in-depth information about conflicts and job resources at work.

5. Conclusions

Hospital employees who experience conflicts with their supervisors are at risk of reduced interpersonal resources, impaired wellbeing, and less-positive job attitudes. These findings have some practical implications. To prevent stress and lowered job attitudes elicited by conflicts with supervisors, supervisors should be provided with training or coaching in conflict management. Supervisors should be educated in de-escalation strategies such as problem solving and limiting a conflict to its core. Moreover, supervisors should be instructed in intentionally providing adequate support, allowing participating in decision making and appreciating good performance, even when they are in conflict with a subordinate. In addition, supervisors should be educated in handling negative emotions (e.g., anger, frustration and anxiety) and thoughts related to conflicts using cognitive–behavioral stress-management [62]. Finally, an intervention that addresses communication and cooperation on the team level may be fruitful to prevent conflicts with supervisors and to increase patient safety [25].

Conflicts of interest

The authors declare that they have no conflict of interest.

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