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Stress among public middle managers dealing with reforms

Stress among
public middle
managers

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Abstract

Purpose – The purpose of this paper is to identify social and organizational antecedents of stress. This paper also investigates whether attitudes toward organizational changes and reforms might explain stress perception (SP) and mediate the relationships between social and organizational job characteristics and SP.

Design/methodology/approach – A quantitative approach is used to identify the relationships between the research variables. The investigated population is composed of middle managers working in Swiss public hospitals ($n = 720$), which are currently being confronted by major reforms.

Findings – The findings show that perceived social support (work relationships with and support from colleagues), as well as several job characteristics (autonomy in performing tasks, flexibility in the organization of working time, degree of conflict) are significantly related to SP. Moreover, positive attitudes toward change are negatively related to stress, and mediate the relationships between perceived social support as well as job characteristics and SP.

Practical implications – This paper sheds light on several job characteristics which could contribute to mitigating SP among middle managers. The findings could therefore guide HRM specialists in their efforts to create a favorable work environment so as to facilitate middle managers' activities.

Originality/value – The innovation of this paper is grounded in the specific population the author investigate, as the empirical inquiry concerns middle managers working in public hospitals. Moreover, this research highlights the central role of job characteristics and attitudes toward change in explaining SP.

Keywords Stress, Middle management, Public hospitals, Attitudes towards change, Job demand, Job resource

Paper type Research paper

Introduction

Stress is an important topic in contemporary public management and health organization literature (Lee *et al.*, 2011; Schaufeli and Peeters, 2000; Wickramasinghe, 2016). Furthermore, stressful situations are more likely to occur in contexts of public organizations' reforms (Liu *et al.*, 2015). In this vein, it is valuable to investigate which kinds of organizational factors might impact stress perception (SP) in public organizations facing organizational and managerial changes. This paper is dedicated to this very issue. The original contribution of this paper lies also in the investigated population: middle managers in public hospitals. Even if studies with respect to middle managers are not scarce as we will demonstrate beneath in the literature review, this specific population has been understudied thus far, compared, for instance to street-level bureaucrats (Lipsky, 1980). Furthermore, studies dedicated to stress are numerous, but few of them (see for instance: Buchanan *et al.*, 2013) have explicitly tried to identify antecedents of SP among public middle managers dealing with reforms' processes (Kelliher and Parry, 2015). In addition, few or no studies dedicated to this population have



been developed in the Swiss context. Recent literature also demonstrates that organizational change may create stress because of uncertainty (Rafferty and Restubog, 2016; Yu, 2009). Drawing upon the job demands-resources (JD-R) model of stress (Bakker, 2015), the first objective of this paper is to identify several job characteristics which could be understood as resources that employees might use to cope with stressful situations. The second objective of the paper aims to investigate whether perceptions of change among our population of middle managers might mediate the relationships between the job characteristics and SP. Individuals experiencing positive appreciation of reforms would probably be less inclined to express concerns with regard to stress (Morin *et al.*, 2015). The main research questions are therefore:

- RQ1.* Do job characteristics matter when it comes to explaining stress perception among public middle managers?
- RQ2.* Are the relationships between job characteristics and stress perception mediated by individuals' perception of changes?

As mentioned above, the innovation of this paper is grounded in the specific population we investigate, as our empirical inquiry concerns middle managers working in public hospitals in Switzerland. According to the relevant literature, middle managers are key actors in reform processes (Harding *et al.*, 2014). Middle managers under study work in public hospitals, which are currently under immense pressure due to budget cuts and a new legal framework. It is therefore of particular interest to study this specific population given the changing conditions of public hospitals. The findings of this study provide valuable information with regard to job characteristics that could mitigate SP among middle managers working in hospitals and highlight new research avenues as well.

Literature review and theoretical framework

Job stress and middle managers

Stress is mainly defined "as an employee's feeling of job-related hardness, tension, anxiety, frustration, worry, emotional exhaustion, and distress" (Wickramasinghe, 2016, p. 409). Work-related variables (job stressors) may lead to SP. With respect to stress issue, for instance, middle managers have clearly been understudied in the social science literature thus far: "Middle managers maintain a central position in organizational hierarchies, are responsible for implementing senior management strategies, and exercise control over junior staff" (Harding *et al.*, 2014, p. 2). They are critical mediators between the upper echelons and the operational levels in organizations. They also contribute to the shaping of organizational strategies. Furthermore, their actions may contribute to unexpected consequences and outcomes because they continually have to interpret and adapt formal rules and strategies to the day-to-day reality of work (Thomas and Linstead, 2002). Moreover, the identity of middle managers is very complex, specifically in hospitals (Spehar *et al.*, 2015). They possess a hybrid identity that is both professional and managerial in nature (Noordegraaf and de Wit, 2012). As professionals, they resist formal rules and strategies that they consider not applicable, but as managers they are also themselves confronted by staff resistance (Harding *et al.*, 2014). And, specifically in hospitals, their job could be characterized as "extreme" with regard to hospital management distinctive features (making life or death decisions, conflicting priorities, doing more with fewer resources, responding to regulatory bodies, the need to include many people before introducing improvements, fighting a negative climate) (Buchanan *et al.*, 2013).

Reforms and stress among middle managers

Recent changes, mainly inspired by New Public Management principles and tools, have contributed to create new pressures on public hospitals' employees (Kelliher and Parry, 2015). Previous research has consistently found correlations between public hospitals' reforms and increasing SP, work overload, and health problems (Biaggi *et al.*, 2003; Spirig *et al.*, 2014). Therefore, contemporaneous reforms in public hospitals may produce negative impact on job satisfaction and professional identities of staff (Janssen *et al.*, 1999; Kirpal, 2004). Changes and reforms in public organizations, such as breaking up hierarchies, or creating internal market-like competition, or even putting political and financial pressure on employees so as to increase productivity may lead to negative work outcomes (Steane *et al.*, 2015; Teo *et al.*, 2016). And stress is clearly related to those organizational changes and reforms (Hsieh, 2012; Kelliher and Parry, 2015; Rayner and Espinoza, 2015). A series of publications pointed out that middle managers are currently confronted with increased work pressures and competition (Berg, 2014). Their specific managerial activities require from them that they engage in emotional labor (Rayner and Espinoza, 2015). In this vein, they have to deal with their own emotion at work, but have to regulate their subordinates' emotions as well (Hsieh *et al.*, 2011). When faced with organizational restructuring, middle managers are trying to secure legitimacy, and are seeking to make sense of their experiences in a context marked by management discourses promoting less stable and more flexible roles and identities (Thomas and Linstead, 2002). Thus, they are searching for stability and sense, and are engaged in intense identity work, while having to cope with long hours, intensified work regimes, and multiple demands of managerial work. As for antecedents of SP among middle managers working in hospitals, recent research finds that stress is negatively related to positive attitudes toward change (PATC), whereas perceived social support (work relationships with colleagues and supervisors), as well as perceived organizational support (employee voice and participation, information and communication, work-life balance), are positively and significantly related to PATC (Giauque, 2015). Furthermore, when it comes to explaining SP, person-job fit and person-vocation fit matter. In other words, when middle managers experience a "fit" or an alignment between their own expectations and either their job assignment (job) or their particular occupation (vocation), they will be more likely to report less stress (Giauque *et al.*, 2014). Empirical evidence coming from data collected during a study of UK hospitals between 1991 and 1995 shows that physicians who become clinical directors are "bureaucratized" through increased commercial and managerial responsibilities and tasks (Kitchener, 2000). This bureaucratization of professional roles (Ferlie and Geraghty, 2007) may produce person-vocation and person-job misfit and maladjustment, and may lead to stress. In sum, recent research shows that stress is a real concern among middle managers in public organizations in general, and in hospital organizations in particular.

The JD-R model of stress

This study is rooted in the JD-R model of stress. We use the JD-R model to examine how job characteristics contribute to explaining variance in SP. This model has been tested in various work settings and has been found to be empirically sound (for a comprehensive presentation of its empirical use, see Bakker and Demerouti, 2007), and is now a well-used theory for understanding stress in the workplace (Boxall *et al.*, 2016). The model is based on previous theoretical and empirical developments (Maslach *et al.*, 1996;

Karasek, 1979; Schaufeli and Bakker, 2004) which have shown that stress or work tension result from two interrelated phenomena: the organizational and job constraints with which employees are confronted, and the degree of job control that employees may use to deal with their job requirements and work challenges.

On the one hand, "job demands are defined as those aspects of the work context that tax employees' personal capacities and are, therefore, associated with certain psychological and/or physiological costs" (Van den Broeck *et al.*, 2008, p. 278). Work overload, organizational constraints, emotional demands, work-home conflict, and interpersonal conflict are job demand factors proven to be positively related to stress if they exceed employees' adaptive capacities (Bakker *et al.*, 2008; Noblet *et al.*, 2006). On the other hand, "the category of job resources is defined as those physical, psychological, social, or organizational aspects of the work context that (1) can reduce the health impairing impact of job demands, (2) are functional in achieving work goals, and (3) stimulate personal growth, development, and learning" (Van den Broeck *et al.*, 2008, p. 278). Opportunities for skill utilization, supervisor support, colleague support, financial rewards, career opportunities, team cohesion, harmony, autonomy, and coaching are the main factors identified as resources that enable employees to work in a healthy atmosphere (Demerouti *et al.*, 2001; Johnson and Hall, 1988; Schaufeli and Bakker, 2004).

In a nutshell, the JD-R model allows for integration and assessment of a broad range of factors that affect, either negatively (job demands) or positively (job resources), employees' well-being.

Toward detailed research hypotheses

Job resources

Confronted with changes, individuals may have highly variable reactions. Some individuals are re-energized by complex and changing situations, while others are profoundly disturbed, embarrassed, and hampered by organizational and managerial transformations. Certainly, individual characteristics and subjective feelings are very important for explaining why SP appears, and how it works within a specific population. That said, this paper argues that job characteristics better explain perceived stress than individual characteristics. Furthermore, finding out which kinds of job characteristics are related to SP is a project of greater interest for practitioners because it yields information useful for developing managerial practices and tools so as to overcome stress.

Hackman and Oldham's (1976) job characteristics model is of great importance to identify factors which could favor positive attitudes toward jobs and therefore mitigate stress. Their model shows that five main job characteristics are related to positive psychological states which are, in turn, related to positive work outcomes (high motivation, high satisfaction, high quality of work, and low turnover intention). Those five characteristics are: skill variety, task identity, task significance, autonomy, and feedback.

These first results have been confirmed by numerous subsequent research (Bakker *et al.*, 2010; Van den Broeck *et al.*, 2008). Demanding work requirements are less harmful when employees benefit from a substantial degree of job flexibility, have the opportunity to participate in defining the rules relating to their tasks and job, and can make extensive use of their vocational and social skills. These variables have also been identified in the literature related to stress among middle managers in public hospitals

(Berg, 2014; Thomas and Linstead, 2002). Therefore, according to the above results we propose the following hypotheses:

- H1.* The more room for maneuver middle managers have with respect to the way they have to tackle their tasks, the less they will perceive stress.
- H2.* The more middle managers benefit from flexibility in the organization of their working time, the less they will perceive stress.
- H3.* The more middle managers have access to strategic information and decision making, the less they will perceive stress.

Subsequently, a new dimension enriched the JD-R model: social support (Johnson and Hall, 1988). This additional dimension comprises three facets: support of management (director, supervisor), support of colleagues (peer support), and support of family and friends (non-professional support). Social support reduces the negative impact of a heavy workload. Our literature review has also demonstrated that social and organizational support systems are important resources in order to deal with stressful situations. In line with these previous considerations we propose two more hypotheses:

- H4.* The more middle managers benefit from positive relationships with and support from superiors, the less they will perceive stress.
- H5.* The more middle managers benefit from positive relationships with and support from colleagues, the less they will perceive stress.

Job demands

Academic literature references and utilizes many different dimensions of job demands. Sources of stress may be as diverse as “unfair treatment from more senior staff,” “lack of recognition for good work,” “lack of feedback,” or “lack of opportunity to take on more senior roles” (for more information see: Noblet *et al.*, 2006, p. 341). Other studies focus on “work pressure,” “emotional demands,” “physical demands,” and “work-home conflict” as job demand dimensions (Bakker *et al.*, 2008; Van den Broeck *et al.*, 2008). But when looking at the precise context of this study, one must consider that the changing environment may itself constitute an important dimension of job demand. Numerous studies already demonstrated that the degree of organizational conflict increases during period of changes and transformations (Evetts, 2009; Ratner, 2011). In our literature review, we already pointed out that middle managers, when dealing with organizational changes, do face greater work challenges and managerial activities. Furthermore, while managerial responsibilities are always related to conflict management, conflicts have been shown to increase during periods of change, instability, and insecurity. In this study we will also test whether the degree of organizational conflict might be positively related to SP among our population of middle managers. Therefore, we propose another hypothesis:

- H6.* The more middle managers are confronted with organizational conflict, the more they will perceive stress.

A mediation effect between the independent variables and stress through attitudes toward change

In the context of managerial reforms and organizational transformations, middle managers' perception of stress may also depend on their willingness to accept and

endorse those changes. Recent empirical findings suggest that commitment to change among employees is shaped by beliefs concerning the necessity and legitimacy of changes (Morin *et al.*, 2015). According to Vakola and Nikolaou (2005), “attitudes towards change in general consist of a person’s cognitions about change, affective reactions to change, and behavioral tendency toward change. [...] Therefore, change can be received with excitement and happiness or anger and fear while employees’ response to it may range from positive intentions to support the change to negative intentions to oppose it” (p. 162). In our literature review dedicated to stress among middle managers, we saw that person-job and person-vocation fit are important predictors of SP. In other words, if changes lead middle managers to perceive misfit between their own expectations and their job, or vocation, then this maladjustment will lead to increased SP. In contrast, PATC may mitigate perception of stress among middle managers:

H7. Positive attitudes of middle managers toward change will be negatively related to stress perception.

Finally, we can also suppose that middle managers’ attitudes toward change may mediate the relationships between job resources’ and job demands’ dimensions (job characteristics) and SP. In their extended meta-analysis, Kristof-Brown *et al.* (2005) define the concept of P-E fit as “the compatibility between an individual and work environment that occurs when their characteristics are well matched” (p. 281). According to this P-E fit literature (O’Reilly *et al.*, 1991), a perception of fit between individuals’ expectations and the work environment is an important antecedent of numerous work outcomes (Steijn, 2008). In this study, we also investigate whether the compatibility between middle managers and organizational changes may mediate direct relationships between our independent and dependent variables. PATC might influence the direct relationships between job characteristics and SP precisely because middle managers perceive a fit between their characteristics and changes that are taking place in their work environment (Figure 1).

Method

Context of the study

Swiss public hospitals are currently confronted with many reforms inspired by New Public Management principles and practices. First of all, the hospital financial system was reformed and approved in 2007 by the Swiss Parliament. The new financial system aims to encourage public hospitals to better control their expenses. Thus, Swiss public hospitals now have to deal with diagnosis related groups with the result that every service is tethered to a precise price or rate. Thus, the new financial system incentivizes managerial actions within hospitals, and they are currently managed through contracts. These contracts prescribe the services that hospitals have to supply, and they include several indicators which serve to assess whether the hospitals have concretely and efficiently supplied the services. This system leads to some important internal managerial changes. Hospital staff is now supposed to participate in identifying solutions to increase efficiency. Administrative and reporting activities are thus increasing. This situation is of particular concern for middle managers who are supposed to implement the new management practices and, at the same time, to minimize the negative impacts of those very practices on professional activities.

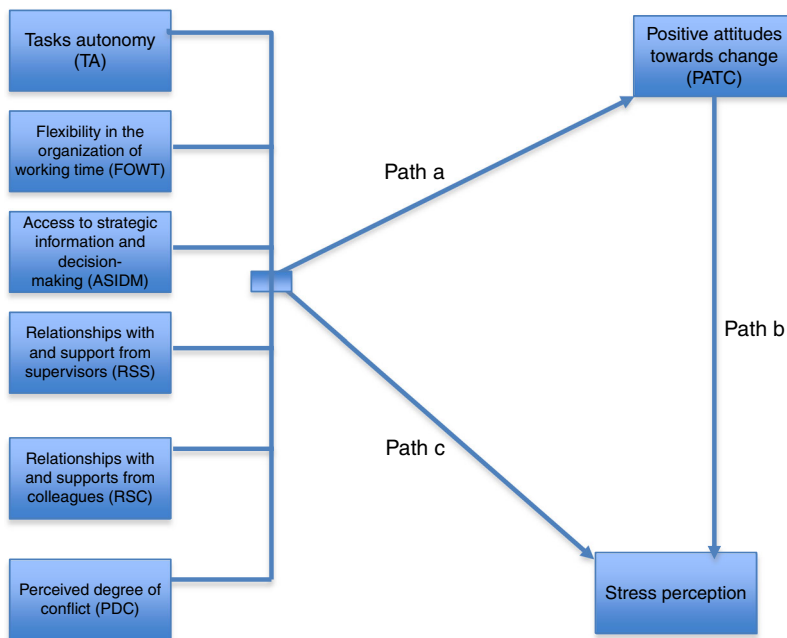


Figure 1. Conceptual model and relationships between variables

Sample and procedure

To empirically test our hypotheses, this study uses a sample from five public hospitals in the French-speaking region of Switzerland. In order to optimize the response rate in our survey, we first contacted the Human Resources department of the hospitals, whereupon its executive members gave their official approval of our study. The questionnaire was developed in partnership with the leaders of the HR department. After a test phase, an internet link to the questionnaire was sent to all middle managers by e-mail with a cover letter signed by the hospital officials. The employees were invited to fill out the electronic questionnaire over a month-long period (mid-January to mid-February of 2012). A reminder was sent at the end of January to check that all employees had had the opportunity to complete it. To ensure complete privacy, answers were directly saved on a server belonging to our research team. No hospital employees had access to this data, and employees were fully and transparently informed about the procedure. The announcement of these precautions had two purposes: to increase the participation rate, and to function as a baseline requirement to prevent common method bias (Podsakoff *et al.*, 2003).

For the purpose of this research we retained a large definition of “middle management.” According to previous research we included in this category all staff “in managerial roles (‘pure plays’ such as general, business and operations managers and department heads) and those in roles combining clinical with managerial responsibilities (‘hybrids’). The latter included staff nurses, ward sisters/managers, modern matrons and lead nurses, laboratory supervisors, clinical directors/division heads, assistant directors of nursing, and medical staff who, although having no line management responsibility for others, had project management responsibility for service improvements” (Buchanan *et al.*, 2013, p. 648). The objective was to include

different categories of middle managers, fulfilling different functions in their organization. Due to the fact that we were not authorized to directly interact with hospitals' employees, it was difficult to have a direct control over selection of employees, and questionnaires were sent via the HR department of each hospital. In order to gather as much data as possible, we asked the HR department to send the questionnaire to managers having the leadership of a unit/group/project, and who were not members of the top management (at least one level above professionals). Four categories of middle managers were determined: administrative managers (9.9 percent of the sample), nursing managers (33.7 percent), medical managers (24 percent), and other managers (32.4 percent – this category grouping different kinds of managers working in stewardship or technical functions). Within our sample, 33.9 percent declared having the leadership of a care unit, 46.4 percent said they have the responsibility of an administrative unit, and 10.1 percent declared being in charge of a team. In total, 9.6 percent did not declare any specific leadership. Furthermore, 47.7 percent of our sample said they have to supervise up to 20 collaborators, 46.3 percent declared that they supervised more than 20 collaborators, while 6 percent declared having no supervision activities.

A total of 942 middle managers' surveys were returned (some further information with respect to complete/incomplete questionnaires is available in Table I). Unfortunately, it is impossible to calculate a response rate due to the fact that we were unaware of how many employees ultimately received our questionnaire. This difficulty arose because the internet link was sent directly by the HR departments of the investigated hospitals. Because of this missing data, we decided to delete incomplete questionnaires, bringing the final number of employee surveys in this study to 720.

Questionnaires and sample characteristics are described in Table I.

Measures

The questionnaire items associated with all the measures of the study are presented in the Appendix. Most of the items were measured using five-point Likert-type scales. Furthermore, the instruments used in this research rely on self-reports.

Independent variable. SP. This measure is a self-perceived measure of stress. For the purposes of this study, we used the measure developed by Cohen *et al.* (1983). After factor analysis, we selected three items to measure this variable. The Cronbach's α of this scale is 0.760, and summative index was then created for regression analysis.

Mediator. Attitudes toward change (PATC). In this study, we used an instrument which has been already tested in previous research (Giauque, 2015). This instrument seeks to measure middle managers' perception with regard to recent organizational and managerial transformations and their impact on their day-to-day work. These individuals' perceptions of various changes contribute to building a general sentiment against reforms, which is why we called this variable "PATC." The items for this specific measure were measured using a five-point Likert-type scale with the endpoints: "very unfavorable" (1) and "very favorable" (5). The items were ultimately averaged to create a six-item overall measure of attitudes toward change (α reliability of the overall scale = 0.909).

Independent variables. Tasks autonomy (TA). This variable has been measured through three items aiming to capture the degree of satisfaction or dissatisfaction of middle managers with respect to several aspects of their work (room for maneuver,

<i>Complete and incomplete questionnaires with respect to the five hospitals under study</i>						
	1	2	3	4	5	Total
Complete questionnaires (a)	23	122	433	91	51	720
Incomplete questionnaires (b)	3	36	125	46	12	222
Total (a + b)	26	158	558	137	63	942
<i>Proportion of complete questionnaires according to the different hospitals under study</i>						
	1	2	3	4	5	Total
Proportion of complete questionnaires (a/(a + b)) (%)	88.5	77.2	77.6	66.4	81.0	76.4
<i>Variables</i>	<i>Sample characteristics</i>					
Gender	45% women 55% men					
Age categories	20 years old and less: 0.1% 21-30: 1.5% 31-40: 17.7% 41-50: 39% 51-60: 36% 61 and more: 5.7%					
Function categories	Other managers: 32.4% Administrative managers: 9.9% Nursing managers: 33.7% Medical managers: 24%					
Professional tenure	Less than one year: 2.1% 1-2: 2.9% 3-5: 6.1% 6-10: 9.8% 11-15: 17.6% 16-24: 32.4% 25 and more: 29.2%					
Functional tenure	Less than one year: 3.3% 1-2: 7.8% 3-5: 17.9% 6-10: 20.2% 11-15: 23.1% 16-24: 20.6% 25 and more: 7.1%					
Organizational tenure	Less than one year: 1.4% 1-2: 2.1% 3-5: 5.5% 6-10: 13.9% 16-24: 31.3% 25 and more: 26.5%					

Table I.
Questionnaires
information
and sample
characteristics

responsibility, and the possibility of using their skills and competencies). The three items were then averaged to create a three-item overall measure (α reliability of the overall scale = 0.827).

Flexibility in the organization of working time (FOWT). To measure the perceptions of our respondents in relation to their ability to organize and manage their own working time, we used three items. The coefficient of reliability for this scale is 0.844. A summative index was then created for regression analysis.

Access to strategic information and decision making (ASIDM). This variable has been measured through four items aiming to capture the degree of satisfaction or dissatisfaction

of middle managers with respect to different aspects related to the organizational communication and their involvement in the decision making. The four items were then averaged to create a three-item overall measure (α reliability of the overall scale = 0.825).

Relationships with and support from supervisors (RSS). This variable has been measured via four items which aim to measure middle managers' perception with respect to their relationship with their supervisors, but also with respect to the degree of support they receive from their supervisors. The four items were then averaged to create a four-item overall measure (α reliability of the overall scale = 0.938).

Relationships with and support from colleagues (RSC). This variable has been measured via four items which aim to measure middle managers' perception with respect to their relationship with their colleagues, but also with respect to the degree of support they receive from their colleagues. The four items were then averaged to create a four-item overall measure (α reliability of the overall scale = 0.852).

Perceived degree of conflict (PDC). In order to measure the degree of conflict middle managers have to deal with in their organization, we use a single item. This item aims to measure how often participants have to manage conflicts in their organization. We are aware that a single-item scale is not statistically optimal. Nevertheless, several studies have adopted such a strategy, and some authors consider single item measurement to be highly reliable (Taylor, 2008).

Controls. Previous research has shown that employees' age, gender, and organizational tenure are related to many work outcomes such as SP. Therefore, these variables were included in our analyses in order to exclude alternative explanations from our findings. We also included several categories of middle managers in order to control for possible effects related to the different occupations middle managers have to deal with (nursing managers, physician managers, administrative managers, others).

Statistical analysis

Prior to assessing the reliability of our different variables, two other indicators were used for testing the condition of the data set. The data were reviewed to ensure that the assumptions of normality were upheld. Finally, the data set was examined to determine if multicollinearity was an issue (Hayduk, 1987). The tolerance and VIF scores of our data also fell within the acceptable range for all the variables. On the basis of this evidence, we can conclude that the data set was in good condition.

In order to test our different hypotheses, we performed ordinary least square regression analysis using SPSS 21. The mediating effect of PATC is assessed by applying a hierarchical regression analysis according to the rules developed by Baron and Kenny (1986). "These rules state that mediation is shown when: a) there are significant correlations between the independent variable and the presumed mediator (path a); b) the presumed mediator affects the dependent variable (path b); c) differences in the independent variable are significantly related to differences in the dependent variable (path c); and finally, when path a and path b are controlled, the previously significant relationship between independent and dependent variable (path c) vanishes" (Schott and Pronk, 2014, p. 14).

As complete mediation is unlikely to be noted in this kind of research (see for instance: Vandenabeele, 2009), we pay particular attention to the partial mediation effect. The "Sobel test" is a statistical procedure that may be used to test such a partial mediation effect, resulting in a Z-score (a Z-score > 1.95 can be considered as the cutoff criteria for partial mediation).

Results

If we look at the Pearson's correlation coefficients between all the variables included in this study, we can make some initial comments. First, we can note strong correlations between SP and all our independent variables, and most of them, except for PDC, correlate with PATC, indicating that we cannot reject the hypothesis of mediation. Second, it is important to note that correlations between the predictor variables are weak, indicating that multicollinearity is not a concern in the present study. Third, we can also underline that individual characteristics (gender, age, organizational tenure) are not related to SP. A first interesting result comes from the correlations associated with PATC. In fact, it can be noted that older respondents express a greater PATC compared to their younger counterparts. Moreover, physician managers are more willing to declare a low level of PATC among our study population.

Tables III and IV report results of regression analyses testing relationships between independent variables and the mediator (Path a), and between independent variables and the dependent variable (Path c). Findings related to Path b are contained in Table II, where we can note that the mediator (PATC) is strongly and negatively associated with the dependent variable (SP) ($r = -0.371$; $p < 0.000$). This latter result gives support to *H7* confirming that respondents reporting PATC will also report a lesser level of SP. Starting with this first result, we will then comment on findings with regards to Table III (Path a) and Table IV (Path c).

Thus, if we turn now to the results with respect to antecedents of PATC (Table III), we can note that two controls' variables are associated with the mediator variable. Age ($r = 0.094$; $p < 0.05$) and the physician managers category ($r = -0.132$; $p < 0.05$) are significantly related to PATC. The former variable has a positive association with PATC, whereas the latter variable is negatively related to PATC.

It is also important to note that when independent variables are included in the regression analysis (Model 2 in Table III), the controls' variables are not significantly associated with PATC anymore. Furthermore, according to our statistical analysis, controls' variables account for only 3 percent of the variance of PATC. Our study shows that job characteristics' variables (our independent variables) account for 43.4 percent of the variance of PATC, suggesting that organizational variables are more important than individual characteristics when it comes to explaining PATC. Most of our independent variables, except PDC, are positively and significantly related to PATC even if RSS is statistically weakly associated with PATC. In other words, those job characteristics may constitute important work conditions prerequisites to shaping PATC among a population of middle managers. Surprisingly, the degree of conflict managers have to deal with does not have significant impact on PATC in this current study.

If we look now at the Table IV which reports statistical results with respect to hierarchical regression analyses for variables predicting SP, first of all we can underline that controls are clearly not associated with SP in this study (controls included in Model 1 account for 0.4 percent of the variance of SP). In contrast, when independent variables are included in the equation (Model 2 of Table IV), some interesting results emerge. First, not all the independent variables are significantly related to SP. In fact, RSC ($r = -0.124$; $p < 0.01$), TA ($r = -0.120$; $p < 0.01$), FOWT ($r = -0.235$; $p < 0.001$), and PDC ($r = 0.212$; $p < 0.001$) are significantly associated with middle managers SP.

Baron and Kenny (1986) recommend that a new regression analysis be developed, integrating the mediator variable into the analysis of the relationship between the

Table II.
Bivariate correlations
between the study's
variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Stress	1														
PATC	-0.371**	1													
Gender	0.029	0.041	1												
Age	-0.029	0.090*	0.073*	1											
Org. tenure	-0.009	0.044	0.046	0.484**	1										
Nursing managers	-0.010	0.001	-0.229**	-0.079*	0.121**	1									
Administrative managers	0.017	0.003	0.056	-0.049	-0.225**	-0.236**	1								
Physician managers	0.016	-0.106**	0.218**	0.136**	0.156**	-0.401**	-0.186**	1							
Other managers	-0.035	0.090*	0.009	-0.025	-0.030	-0.371**	-0.172**	-0.292**	1						
RSS	-0.318**	0.484**	-0.055	-0.044	0.027	0.115**	0.026	-0.199**	0.068	1					
RSC	-0.355**	0.498**	0.002	0.037	0.062	0.036	0.030	-0.039	0.043	0.518**	1				
ASDM	-0.298**	0.580**	0.021	0.069*	0.057	0.060	0.015	-0.148**	0.047	0.539**	0.498**	1			
T.A	-0.353**	0.554**	0.045	0.048	0.058	-0.026	0.025	-0.109**	0.097**	0.605**	0.534**	0.624**	1		
FOWT	-0.340**	0.406**	-0.078	-0.008	-0.115**	0.065	0.114**	-0.355**	0.121**	0.372**	0.334**	0.301**	0.357**	1	
PDC	0.253**	-0.068	-0.037	-0.033	-0.056	0.148**	-0.038	-0.114**	-0.048	-0.056	-0.120**	-0.006	-0.085*	-0.042	1

Notes: * $p < 0.05$; ** $p < 0.01$

Stress among
public middle
managers**1271****Table III.**
Hierarchical
regression
analyses for
variables predicting
PATC (Path a)

	Model 1 B (SE)	Model 2 B (SE)
<i>Step 1: control variables</i>		
Gender	0.058 (0.052)	0.036 (0.039)
Age	0.094 (0.033)*	0.058 (0.025)
Org. tenure	0.017 (0.021)	-0.012 (0.016)
Nursing managers	-0.020 (0.088)	-0.012 (0.067)
Administrative managers	-0.013 (0.108)	-0.030 (0.081)
Physician managers	-0.132 (0.092)*	0.025 (0.072)
Other managers	0.044 (0.092)	0.023 (0.069)
<i>Step 2: independent variables</i>		
RSS		0.084 (0.024)*
RSC		0.154 (0.031)***
ASIDM		0.299 (0.032)***
TA		0.164 (0.032)***
FOWT		0.187 (0.033)***
PDC		-0.014 (0.024)
R^2	0.030	0.464
R^2 -change	0.030	0.434
F -change	3.494**	107.514***
Adjusted R^2	0.021	0.455
F -statistic	3.494**	53.001***

Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$ **Table IV.**
Hierarchical
regression
analyses for
variables predicting
stress (Path c)

	Model 1 B (SE)	Model 2 B (SE)
<i>Step 1: control variables</i>		
Gender	0.028 (0.060)	0.033 (0.052)
Age	-0.040 (0.038)	-0.019 (0.033)
Org. tenure	0.014 (0.025)	0.035 (0.022)
Nursing managers	-0.038 (0.102)	-0.066 (0.090)
Administrative managers	-0.005 (0.126)	0.024 (0.110)
Physician managers	-0.019 (0.107)	-0.123 (0.098)*
Other managers	-0.056 (0.107)	-0.028 (0.093)
<i>Step 2: independent variables</i>		
RSS		-0.059 (0.033)
RSC		-0.124 (0.042)**
ASIDM		-0.072 (0.043)
TA		-0.120 (0.043)**
FOWT		-0.235 (0.044)***
PDC		0.212 (0.032)***
R^2	0.004	0.261
R^2 change	0.004	0.257
F -change	0.405	42.957***
Adjusted R^2	-0.006	0.248
F -statistic	0.405	20.118***

Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

independent and the dependent variable to test for possible mediation effects. Therefore, only the variables that are significantly related to SP and PATC according to previous analyses have been included in this supplementary regression analysis (see Table V; RSC, TA, and FOWT).

With regard to this new regression analysis, we can note that after including PATC, the strong effects of the three independent variables on SP have been reduced. To check whether this reduction in the β s may be attributed to partial mediation effects, Sobel tests have been performed (see Table VI). According to the results obtained, we may note that PATC partially mediates the relationship between the following variables and SP: RSC (Z -score = -4.42 ; $p < .000$), TA (Z -score = -4.53 ; $p < 0.000$), and FOWT (Z -score = -4.90 ; $p < 0.000$). "If this score (score of the Sobel test) exceeds 1.96, this demonstrates statistical significance at a level of 0.05 or lower" (Vandenabeele, 2009, p. 20).

Our different findings are included in Table VII.

Discussion

According to SP, relationships with and support from their colleagues (RSC) are important for middle managers' ability to manage difficult and complex situations in a changing environment. This result confirms that social support is a potentially important job resource for middle managers (Bakker *et al.*, 2008; Johnson and Hall, 1988), and it gives support to *H5*. In fact, without the collaboration of their colleagues and also subordinates, middle managers are barely able to perform their work and to reach their objectives. This specific result gives support to the scientific literature

Table V.
Mediation model:
regression statistics
for independent
variables and
stress while the
mediator is fixed

	Model 1 B (SE)	Model 2 B (SE)
<i>Step 1: independent variables</i>		
RSC	-0.190 (0.040)***	-0.152 (0.041)***
TA	-0.175 (0.037)***	-0.121 (0.039)**
FOWT	-0.214 (0.042)***	-0.183 (0.043)***
<i>Step 2: PATC</i>		
PATC		-0.154 (0.046)***
R^2	0.202	0.216
R^2 -change	0.202	0.014
F -change	63.320***	13.693***
Adjusted R^2	0.199	0.212
F -statistic	63.320***	51.716***
Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$		

Table VI.
Testing partial
mediation effects of
OC (Sobel test)

	β (a)	β (b)	SE (a)	SE (b)	Z
RSC	0.154***	-0.371***	0.031	0.038	-4.42***
TA	0.164***	-0.371***	0.032	0.038	-4.53***
FOWT	0.187***	-0.371***	0.033	0.038	-4.90***
Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$					

Hypotheses supported by our data (antecedents of stress perception)	Hypotheses not supported by our data (antecedents not related to stress perception)	Partial mediations supported by our data
<i>H1</i> : the more middle managers have room of manoeuvre with respect to the way they have to tackle their tasks, the less they will perceive stress	<i>H3</i> : the more middle managers have access to strategic information and decision-making, the less they will perceive stress	Work relationships with and support from colleagues Tasks autonomy Flexibility in the organization of working time
<i>H2</i> : the more middle managers benefit from flexibility in the organization of their working time, the less they will perceive stress	<i>H4</i> : the more middle managers benefit from positive relationships with and support from superiors, the less they will perceive stress	The associations between the above variables with Stress perception are partially mediated by PATC
<i>H5</i> : the more middle managers benefit from positive relationships with and support from colleagues, the less they will perceive stress		
<i>H6</i> : the more middle managers are confronted to organizational conflict, the more they will perceive stress		
<i>H7</i> : positive attitudes of middle managers toward change will be negatively related to stress perception		

Table VII.
Summary of the
main empirical
findings

which underlines the centrality of professional identities and professional norms in the functioning of healthcare organizations (Andersen, 2009; Ingo *et al.*, 2014). In period of changes, work identity and professional identities really do matter. If RSC is significantly and negatively related to SP, then RSS is negatively but not significantly related to perceived stress. In other words, surprisingly, this study does not bring any support to *H4*. This result seems to suggest that RSC, a variable related to professional activities, are more important resources to cope with stress than RSS, a variable related more specifically to managerial activities. But further research is needed to confirm such a finding.

We can note that TA is an important resource for middle managers in dealing with stress (*H1* is supported in the present study). This confirms the centrality of job characteristics when it comes to mitigate SP (Van den Broeck *et al.*, 2008). Furthermore, if middle managers are able to self-manage their time and their tasks (FOWT), they will be able to better cope with their managerial duties. These results give support to *H2* and are supported by several previous publications on new trends in hospitals (Berg, 2014; Bode and Maerker, 2014). Surprisingly, in the present study ASIDM is not significantly associated with SP (*H3* is not confirmed in the present study). While ASIDM is strongly, significantly, and positively related to PATC, ASIDM is nevertheless not related to stress, and that is surprising. How can we make sense of such a result? An initial explanation can point to the very top-down reforms' initiatives taken mainly by political authorities in order to reform hospitals in Switzerland. Middle managers probably do not have many expectations with respect to opportunities they could have to obtain strategic information and to impact on decision-making process.

And, therefore, in accordance with such a low level of expectation, ASIDM is not perceived as a central job resource. We can also speculate that most of stressful situations middle managers have to deal with are related to the level of their job, and not to the organizational level. In a previous study, we have found that person-job fit and person-vocation fit are negatively and significantly related to SP among a population of middle managers working in hospitals (Giauque *et al.*, 2014). While person-vocation fit refers to the congruence of skills and needs at the level of the occupation, in contrast, person-job fit refers to the congruence present in a specific position (Vogel and Feldman, 2009). Therefore, the results of this study suggest that resources allowing a better fit at the job and vocation levels are more useful for dealing with stress than the ones related to the organizational level (in this study ASIDM), which is probably beyond the middle managers' scope. But further investigation is needed to confirm such analyses.

Finally, we also have to stress that PDC is strongly, significantly, and positively related to SP. This finding gives support to *H6*, and confirms that conflict management, in a period of managerial and organizational changes, may be a truly demanding challenge for middle managers. Having a middle-management position implies engaging in emotional labor, which can be very demanding (Hsieh *et al.*, 2011). Previous research has demonstrated that conflicts, which often emerge in the aftermath of reforms in the public sector (Aberbach and Christensen, 2014; Ratner, 2011), have detrimental effects on public employees, may increase turnover intention, and negatively impact public servants' identities (Edey Gamassou, 2015; Kirpal, 2004). Finally, this study highlights the fact that SP is primarily related to job characteristics' variables, and is not primarily associated with controls or individual characteristics.

If we look now at the results with respect to PATC, we can note that older employees are more willing to declare PATC compared to their younger counterparts. We can interpret this result in light of previous empirical research on organizational commitment (Benkhoff, 1997; Meyer *et al.*, 2002), which showed that age is a correlate of organizational commitment. People are becoming more committed to their organization as they get older, either because they do not have other job alternatives (continuance commitment), or because they have the feeling they owe something to their organization (normative commitment), or, finally, because they have created affective ties to their organization and the people working in it (affective commitment). It is also important to stress that contradictory findings do exist regarding this complex relationship between age and attitudes toward change. Even if the present study found that age is positively correlated to PATC, other study points out that age could be negatively related to "resistance to change" (Kunze *et al.*, 2013).

We also found that physician managers express more negative attitudes toward change compared to their middle manager counterparts belonging to other job categories (nursing managers, administrative managers, other managers). Making sense of such differences is not always easy. Nevertheless, we suggest that physician middle managers are more impacted by managerial and organizational changes in the sense that they have to manage people (physicians' colleagues) who traditionally benefit from a large amount of job autonomy. As previous studies already pointed out (Oxman *et al.*, 2005; Evetts, 2009), tensions arose between clinical/medical staff and management, and between professionals' values/expectations and managerial changes as well (Kerpershoek *et al.*, 2016) during periods of changes and reforms. Changing rules in such professions is not an easy job, and previous research has demonstrated

that physicians' satisfaction is greatly related to job autonomy (Bovier and Perneger, 2003; Siegrist *et al.*, 2010). Periods of managerial and organizational transformations contribute to increased organizational constraints and red tape (DeHart-Davis and Pandey, 2005), and, therefore, could contribute to shaping negative feelings of changes among physician managers.

Here again job characteristics account for an important proportion of the variance of PATC (43.4 percent) compared to individual characteristics or controls' variables (3 percent). Our different regression analyses mainly give support to Hackman and Oldham's (1976) model, and demonstrate that job characteristics may constitute central job resources in order to overcome stress and foster PATC among a population of middle managers. Our study also shows that PATC is an important work outcome because middle managers are more able to successfully fight stress when they have positive attitudes toward their changing environment. This particular finding suggests that when employees perceive that their organization's job characteristics (or even HRM practices) might help improving their job, they experience higher levels of job involvement, which leads to lower levels of emotional exhaustion (Shantz *et al.*, 2016). In this vein, work conditions or job characteristics can help creating such a PATC. This study shows also that the relationships between RSC, TA, FOWT, and SP are partially mediated by PATC. This result confirms previous findings demonstrating that attitudes toward change do matter when it comes to explain individual attitudes and behaviors (Giauque, 2015; Vakola and Nikolaou, 2005). But we have to stress also that individuals' attitudes and behaviors toward change are related not only to current conditions around resources and demand but also to past experiences with reforms (Kuipers *et al.*, 2014; Morin *et al.*, 2015). Therefore, longitudinal studies regarding PATC could usefully complement our study.

Conclusions

Our findings yield important information for practitioners as well as well scholars. First of all, we demonstrate that SP is not primarily a psychological state related to individuals' characteristics, but rather organizations and their leaders can manage stress by ensuring certain important job conditions for middle managers. According to this study, the degree of TA middle managers benefit from, the flexibility they have in the organization of their working time, and the quality of their relationships with and support from their colleagues are all important when it comes to dealing with demanding situations. These results are consistent with the self-determination theory (Ryan and Deci, 2000). According to this theory, individuals will develop higher levels of autonomous motivation provided that they can satisfy three psychological needs. "The need for autonomy refers to individuals exercising control over their own actions and behaviors, or engaging in actions on their own volition rather than in response to external forces. The need for competence involves feeling effective or having mastery over one's work, and having an effect on one's outcomes. The need for relatedness is associated with having a sense of belonging and being connected to others and of being important to other persons" (Gould-Williams, 2016, p. 771). Indeed, our results suggest that RSC (need for relatedness), TA (need for competence – having mastery over one's work), and FOWT (need for autonomy) are important resources for middle managers in order to deal with demanding situations. Therefore, high-involvement work practices (Lawler, 1986), aiming to decentralize control and to give individuals the opportunity to self-manage and engage in problem-solving activities could be appropriate work conditions in order to tackle stress.

That said, in contemporary organizations, managers, especially middle managers, are dedicating too much time to administrative tasks rather than to managerial tasks. Therefore, they are only able to manage conflicts when they arise despite preventative measures. And we have also seen that PDC is positively related to SP. This may also be due to the fact that current reforms in public hospitals are seeking to drastically reduce costs. As noted by Pfeffer (2010, p. 215), the scarcer the resources, the more struggle over their allocation.

Finally, practitioners have to be aware that PATC is important for coping with perceived stress. When middle managers think that reforms are legitimate and fair (Chênevert *et al.*, 2013), and that they do not impair their capacity to manage and take care of their duties, then they will benefit from more resources to help them deal with stressful situations. In other words, when middle managers perceive that organizational reforms may produce favorable impacts on their day-to-day work, they will be more likely to express less concern about stress.

Limitations and future research

As with all research, this study encountered several limitations. The first concerns common method bias. Because our respondents were asked to report predictors and outcomes variables in the same online questionnaire, this survey strategy might inflate reported effect sizes. We conducted a Harman's single factor test which is the most widely used in the literature (Podsakoff *et al.*, 2003). The result of this factor test shows that the first component accounts for less than 50 percent (40.7 percent) of the all variables in the model. This could indicate that our statistical results are free from significant common method bias effects. Nevertheless, empirical strategies aiming to measure independent and dependent variables separately are preferable (Favero and Bullock, 2014; Jakobsen and Jensen, 2015). It was impossible to do so in this present study.

Second, despite the fact that all of our independent variables explain a little more than 26 percent of the variance of SP and more than 40 percent of the variance of PATC, this study may ignore important variables that would offer additional explanations for SP and attitudes toward change among a population of middle managers. For instance, the goals set in the reforms and organizational changes may have an impact on perceived stress and PATC as well (Locke and Latham, 2002). Leadership could also be an important variable which is not taken into account in the present study (Alimo-Metcalfe *et al.*, 2008).

We also must note that our findings are based on a sample of Swiss middle managers in Swiss public hospitals. According to recent findings, academics are more and more willing to admit that context matters (Boxall *et al.*, 2016). Therefore, we are aware that our own findings might be related to specific characteristics with respect to the population and organizations under study.

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Further reading

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(The Appendix follows overleaf.)

Control variables	Gender	Female = 1 Male = 2
	Age	Six categories: 20 years old and less = 1 21-30 = 2 31-40 = 3 41-50 = 4 51-60 = 5 61 and more = 6
	Organizational tenure	Seven categories: Less than one year = 1 1-2 = 2 3-5 = 3 6-10 = 4 11-15 = 5 16-24 = 6 25 and more = 7
	Nursing managers	Two categories: 1 = yes 0 = no
	Administrative managers	Two categories: 1 = yes 0 = no
	Physician managers	Two categories: 1 = yes 0 = no
Dependent variable	Other managers	Two categories: 1 = yes 0 = no
	Stress perception	Coded 1-5 (never-very often): during your professional activities in the last month [...] 1. Have you felt that you could not come to grips with everything you had to do? 2. Have you found yourself thinking about all the work that was left to do? 3. Have you felt overwhelmed by work difficulties?
Mediator variable	Positive attitudes towards change	6 items coded 1-5 (very unfavorable-very favorable) According to you, have recent organizational changes had a favorable or unfavorable impact on the following aspects of your job? 1. Coordination of activities between colleagues 2. Teamwork 3. Management of uncertainties 4. Rigor in objectives 5. Flexibility and adaptability to change 6. Decision making power
Independent variables	Relationships with and support from supervisors	Coded 1-5 (very unsatisfactory-very satisfactory): how would you characterize the following aspects of your job? 1. Relationships with supervisors 2. Support from your supervisors in your activities

Table A1.
Items used in
this research

(continued)

Relationships with and support from colleagues	<p>3. Acknowledgement of your work by your supervisors</p> <p>4. Recognition of positive aspects of your work by your supervisors</p> <p>Coded 1-5 (very unsatisfactory-very satisfactory): how would you characterize the following aspects of your job?</p> <ol style="list-style-type: none"> 1. Relationships with colleagues 2. Support from the colleagues in your activities 3. Job atmosphere 4. Opportunity to communicate openly in your service
Tasks autonomy	<p>Coded 1-5 (very unsatisfactory-very satisfactory): how would you characterize the following aspects of your job?</p> <ol style="list-style-type: none"> 1. Room of manoeuver 2. Responsibility given 3. Opportunity to fully invest your skills and qualifications
Flexibility in the organization of working time	<p>Coded 1-5 (very unsatisfactory-very satisfactory): how would you characterize the following aspects of your job?</p> <ol style="list-style-type: none"> 1. Work schedule 2. Organizing your days off and vacations 3. Balance between your professional and private life
Access to strategic information and decision-making	<p>Coded 1-5 (very unsatisfactory-very satisfactory): how would you characterize the following aspects of your job?</p> <ol style="list-style-type: none"> 1. Communication within the hospital 2. Constructive conflict management in the hospital 3. Information management in the hospital 4. Involvement in the decision-making
Perceived degree of conflict	<p>Coded 1-3 (never-very often): how often do you do the following activities?</p> <ol style="list-style-type: none"> 1. Conflict management

Table AI.

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