

ORIGINAL RESEARCH

Procedural justice, supervisor autonomy support, work satisfaction, organizational identification and job performance: the mediating role of need satisfaction and perceived organizational support

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Abstract

Aim. To test a model linking procedural justice, supervisor autonomy support, need satisfaction, organizational support, work satisfaction, organizational identification and job performance.

Background. Research in industrial and organizational psychology has shown that procedural justice and supervisor autonomy support lead to positive outcomes. However, very little research related to this subject has been conducted in healthcare settings. Moreover, few studies have examined mechanisms that could account for these positive relationships.

Design. A cross-sectional correlational design was used.

Method. Convenience sampling was used and a sample of 500 nurses working in haematology, oncology and haematology/oncology units in France was surveyed in 2011. The final sample consisted of 323 nurses (64.6% response rate). The hypothesized model was tested using structural equation modelling.

Results. Procedural justice and supervisor autonomy support significantly and positively influenced need satisfaction and perceived organizational support, which in turn positively predicted work satisfaction, organizational identification and job performance.

Conclusion. Organizations could deliver training programmes for their managers aimed at enhancing the use of fair procedures in allocating outcomes and developing their autonomy-supportive behaviours to improve nurses' work satisfaction, organizational identification and job performance.

Keywords: identification, job performance, management, need satisfaction, nurses, organizational practices, work satisfaction

Introduction

With the emergence of positive psychology (Seligman & Csikszentmihalyi 2000), there has been increasing interest in nursing performance and well-being research. Although several environmental and interpersonal factors have been identified as potential determinants of nurses' well-being and performance (see Dellve *et al.* 2011, Wong & Laschinger in press), human-resources policies and practices that recognize and reward employee contributions appear to be particularly important for enhancing nurses' well-being and performance. In particular, when nurses perceive their supervisors as fair and autonomy-supportive, they respond positively to their work, reporting higher work satisfaction, organizational identification and job performance (Gagné & Deci 2005, St-Pierre & Holmes 2010). In the present research, we used Thibaut and Walker's (1975) procedural justice theory, self-determination theory (Deci & Ryan 1985) and organizational support theory (Eisenberger *et al.* 1986) to develop and test a model linking procedural justice, supervisor autonomy support, perceived organizational support, satisfaction of the psychological needs for autonomy, competence and relatedness and various outcomes (i.e. work satisfaction, organizational identification and job performance).

Background

Recent research has shown that procedural justice and supervisor autonomy support predicted favourable outcomes (see Cohen-Charash & Spector 2001, Gagné & Deci 2005). In parallel, past studies have found that satisfaction of the three psychological needs (e.g. Baard *et al.* 2004, Van den Broeck *et al.* 2008) and perceived organizational support related to positive outcomes (e.g. Chiang & Hsieh 2012, Francis 2012). In the present research, we examined the relationships of procedural justice and supervisor autonomy support to work satisfaction, organizational identification and job performance, as mediated by psychological need satisfaction and perceived organizational support (Figure 1).

Organizational factors

Two organizational factors were examined in the present research. The first is the direct supervisor's autonomy-supportive behaviours (Deci & Ryan 1987). Autonomy-supportive supervisors give a meaningful rationale for doing the tasks, emphasize choice rather than control and acknowledge nurses' feelings and perspectives (Deci *et al.* 1989). Supervisors who exhibit autonomy-supportive

behaviours facilitate the development of subordinates' well-being and performance (e.g. Gillet *et al.* 2010, Moreau & Mageau 2012). The second source of support is a form of organizational justice namely, procedural justice. Procedural justice is referred to as the extent to which supervisors use correct and fair procedures in allocating outcomes (Thibaut & Walker 1975, Leventhal 1980). Rodwell *et al.* (2009) have shown that procedural justice positively predicted work satisfaction in a sample of nurses working with elderly patients. Numerous studies have also provided evidence that procedural justice was positively related to organizational identification and job performance (e.g. Chien *et al.* 2010, Cho & Treadway 2011). Given that procedural justice and supervisor autonomy support relate to nurses' work satisfaction, organizational identification and job performance, then what are the processes mediating such effects?

Need satisfaction as mediator

In their self-determination theory, Deci and Ryan (2000, p. 229) defined the needs for autonomy, competence and relatedness as the 'innate psychological nutrients that are essential for on-going psychological growth, integrity and well-being'. The need for autonomy reflects the need for individuals to feel volitional and responsible for their own behaviour (de Charms 1968). The need for competence is defined as the extent to which individuals interact effectively with their environment (White 1959). Finally, the need for relatedness concerns the degree to which individuals feel connected and accepted by others (Baumeister & Leary 1995). In accordance with Deci and Ryan's (2000) theorizing, recent research has shown that satisfaction of these needs was positively associated with well-being and performance (e.g. Baard *et al.* 2004, Van den Broeck *et al.* 2010). Moreover, numerous studies have confirmed that need satisfaction represents an important mechanism

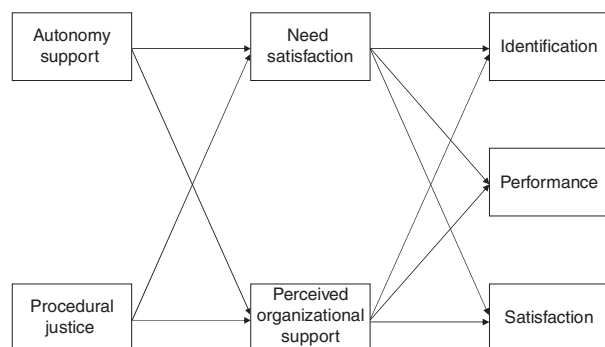


Figure 1 Hypothesized model.

through which supervisor autonomy support has positive effects on individual and organizational outcomes (see Gagné & Deci 2005). Accordingly, we propose that need satisfaction may be at play in the relationships of supervisor autonomy support to work satisfaction, organizational identification and job performance:

Hypothesis 1: Need satisfaction mediates the relationships of supervisor autonomy support to work satisfaction, organizational identification and job performance

Although procedural justice has indirect effects on various outcomes (e.g. via cognitive and affective trust; see Hon & Lu 2010), no previous research to the best of our knowledge has documented the links between procedural justice, need satisfaction, work satisfaction, organizational identification and job performance in the healthcare context. Yet, Lian *et al.* (2012) have recently shown that procedural justice was positively linked to need satisfaction. In addition, the multiple needs model of organizational justice (Cropanzano *et al.* 2001) posits that employees may react positively when perceiving a corporate justice because the action fulfils their psychological needs. However, more research is needed to examine the mediating role of need satisfaction in the relationships of procedural justice to work satisfaction, organizational identification and job performance. This constitutes one of the purposes of the present research:

Hypothesis 2: Need satisfaction mediates the relationships of procedural justice to work satisfaction, organizational identification and job performance

Perceived organizational support as mediator

In the present research, we also looked at the mediating role of perceived organizational support because it has been found to be an important mechanism explaining how organizational factors lead to various positive outcomes (see Sluss *et al.* 2008). Perceived organizational support is defined as workers' 'global beliefs concerning the extent to which the organization values their contributions and cares about their well-being' (Eisenberger *et al.* 1986, p. 501). Past research has shown that perceived organizational support lead to positive work outcomes including work satisfaction, organizational identification and job performance (for reviews, see Rhoades & Eisenberger 2002, Eisenberger & Stinglhamber 2011).

First, we hypothesized that the positive link between procedural justice and outcomes would be mediated by nurses' perceived organizational support. Shore and Shore (1995) suggested that procedural justice should have a significant

impact on perceived organizational support by indicating a concern for employees' welfare. Cropanzano and Byrne (2001) also posited that procedural justice enhances employees' confidence in the organization, leading to increased perceived organizational support. Consistent with this view, several studies (e.g. Masterson *et al.* 2000, Rhoades *et al.* 2001) have provided empirical support for the mediating role of perceived organizational support in the relationship between procedural justice and positive outcomes (see Eisenberger & Stinglhamber 2011, for a review). This leads us to the following hypothesis:

Hypothesis 3: Perceived organizational support mediates the relationships of procedural justice to work satisfaction, organizational identification and job performance

Second, we hypothesized that nurses' perceptions of organizational support would also play a mediating role in the relationships between supervisor autonomy support to nurses' work satisfaction, organizational identification and job performance. By indicating the supervisor's trust in nurses to decide wisely how they will carry out their job, high autonomy support increases perceived organizational support (Eisenberger *et al.* 1999). Numerous studies also reported significant and positive relationships between employees' feelings of autonomy and their perceptions of organizational support (see Rhoades & Eisenberger 2002, for a review):

Hypothesis 4: Perceived organizational support mediates the relationships of supervisor autonomy support to work satisfaction, organizational identification and job performance

Summary of the literature

The impact of supervisor autonomy support on psychological need satisfaction is well-supported by research results in various domains such as sport and education (e.g. Barkoukis *et al.* 2010, Adie *et al.* 2012). However, the impact of procedural justice and supervisor autonomy support on the satisfaction of the needs for autonomy, competence and relatedness measured simultaneously is still scarce in the work domain. Moreover, although the study of perceived organizational support has received considerable attention in the literature (Eisenberger & Stinglhamber 2011), no investigation has empirically examined the mediating role of perceived organizational support in the relationships of procedural justice and supervisor autonomy support to work satisfaction, organizational identification and job performance in the healthcare context. Finally, few studies in the healthcare domain have included both determinants (e.g. procedural justice, supervisor autonomy support) and

consequences (e.g. work satisfaction, organizational identification, job performance) of psychological need satisfaction and perceived organizational support.

Hypothesized model

On the basis of propositions from procedural justice theory (Thibaut & Walker 1975, Leventhal 1980), self-determination theory (Deci & Ryan 1985, Ryan & Deci 2000) and organizational support theory (Eisenberger *et al.* 1986, Rhoades & Eisenberger 2002) and review of the literature, we hypothesized that procedural justice and supervisor autonomy support have positive effects on their work satisfaction, organizational identification and job performance, indirectly through need satisfaction and perceived organizational support. First, overall need satisfaction is hypothesized to fully mediate the relationships of procedural justice and autonomy support to work satisfaction, organizational identification and job performance. Second, we hypothesized that the effects of procedural justice and supervisor autonomy support on work satisfaction, organizational identification and job performance are fully mediated by perceived organizational support.

The study

Aim

The purpose of the present research was to propose and test an integrative model that examines the influence of procedural justice and supervisor autonomy support on nurses' work satisfaction, organizational identification and job performance through their effects on need satisfaction and perceived organizational support.

Design

A correlational, cross-sectional design was used to investigate the research model.

Participants

Nurses representing 47 units in one province in the north-west of France were recruited for the study. Only haematology, oncology or haematology/oncology units from a cancer centre (i.e. Cancéropôle Grand Ouest) located in the north-west of France were chosen. Convenient sampling was used (Polit & Beck 2007). The questionnaire was distributed to 500 nurses and 323 returned the questionnaire, yielding a response rate of 64.6%. Surveys were sent to all employees working in the units. Participants were 323 nurses (306

women and 17 men) working in a haematology unit ($n = 41$), an oncology unit ($n = 203$) or a haematology/oncology unit ($n = 79$). The mean age of the participants was 36.28 years (SD 10.31) and the average length of service in the unit was 6.70 years (SD 7.30).

Data collection

The data were collected during 2011 and the research procedure involved different steps. First, after seeking permission from the directors of the hospital and explaining the purpose and requirements of the study to the nurses' supervisors (i.e. head nurses), we asked the supervisors of each service if they would be willing to voluntarily collaborate in the present research. Second, questionnaires were sent to the supervisors accompanied by an introductory letter explaining the objectives and relevance of the study, promising anonymity and describing how to return the survey to the researchers. Each of the supervisors passed the questionnaires on to their subordinates. Each respondent was given a sealable envelope in which to deposit the completed survey and was told that they their supervisor was blinded about who did respond. Finally, supervisors returned all the completed questionnaires with a prepaid return envelope addressed to the laboratory.

Measures

All the instruments were developed in French except for procedural justice and perceived organizational support measures. These French versions of the scales were evaluated using the standard back-translation technique (Breslin 1970).

Procedural justice

Six items (e.g. 'My supervisor clarifies decisions and provides additional information when requested') from the scale developed by Niehoff and Moorman (1993) were used to assess nurses' perceptions of procedural justice. Items were completed on a 7-point Likert-type scale ranging from 1 ('totally disagree') to 7 ('totally agree'). This scale has been widely used in previous research and demonstrated good psychometric properties (e.g. Yeo & Ananthram 2008).

Supervisor autonomy support

Nurses' perceptions of supervisor autonomy support were assessed with the French version of the scale used by Moreau and Mageau (2012). This questionnaire is a nine-item self-report measure assessing the extent to which

employees perceive their supervisor to be autonomy-supportive (e.g. ‘My supervisor consults with me to find out what modifications I would like to make to my work’). Answers are given on a 7-point Likert-type scale ranging from 1 (‘strongly disagree’)–7 (‘strongly agree’). This scale had high levels of construct validity and internal consistency (e.g. Gillet *et al.* 2012).

Need satisfaction

Nurses’ need satisfaction was assessed with the Basic Psychological Needs in Sport Scale (Gillet *et al.* 2008). The scale was modified in the present study to assess need satisfaction in the work domain (see also Gillet *et al.* 2012). Specifically, we replaced ‘in my sport activity’ by ‘in my work’. This questionnaire is composed of three subscales (i.e. autonomy, competence and relatedness) with a total of 15 items. All responses were indicated on a 7-point Likert-type scale ranging from 1 (‘totally disagree’)–7 (‘totally agree’). The internal consistency of this scale has been found to be acceptable in previous research (e.g. Gillet *et al.* 2009). To reduce the number of variables in the tested model, an overall index of need satisfaction which aggregates across the three needs was created (see Smith *et al.* 2011).

Perceived organizational support

Perceived organizational support was measured with an eight-item version of the Perceived Organizational Support Scale developed by Eisenberger *et al.* (1986). The scale includes two items that are reverse scored (e.g. ‘The organization shows very little concern for me’) and respondents are asked to indicate the extent to which they agree with the eight statements on a 7-point scale from 1 (‘not at all agree’)–7 (‘totally agree’). This scale has been used extensively in previous research and evidence of validity and reliability has been provided through numerous empirical investigations with workers (e.g. Lee & Peccei 2011, Francis 2012).

Outcomes

Work satisfaction (i.e. ‘Globally, I am satisfied with my work’) and job performance (i.e. ‘How do you evaluate your team’s quality of work?’) were each measured using single items. Responses were anchored on a 5-point

Likert-type scale ranging from 1 (‘strongly disagree’)–5 (‘strongly agree’) for work satisfaction and a 10-point Likert-type scale ranging from 1 (‘very poor’)–10 (‘excellent’) for job performance. Wanous *et al.* (1997) found that the reliability of single-item measures of job satisfaction was respectable. In addition, job performance was measured using a one-item, self-report measure in past research (e.g. Nagy 2002). Based on the Inclusion of Other in Self scale (Aron *et al.* 1992), organizational identification was measured with an aided visual diagram reflecting the relation between the nurses and their unit (see Bergami & Bergozzi 2000). We asked participants to circle one of the four pictures (i.e. 1–4) which best describes the link between them and their unit (Figure 2). Higher scores represent higher organizational identification.

Ethical approval

Questionnaire research in France does not require approval by Research Ethics Committees and thus approval was not sought. However, the present research followed the regulations for data storage and protection. The study was approved by the participating hospitals’ management teams. Questionnaires were distributed and returned as described earlier. Participation was voluntary and anonymous and return of a completed questionnaire was taken as consent to participate in the study. Participants were provided with an information sheet outlining the purpose of the study and given assurances that their data would be treated confidentially. Finally, they were promised that their answers would only be used for the purposes of the present research as aggregated result.

Data analysis

The reliability of the scales was measured by Cronbach’s alpha. In addition, descriptive statistics and Pearson correlations were computed for all study variables (see Table 1). The hypothesized structural model was tested using structural equation modelling with the LISREL 8-30[®] software (Jöreskog & Sörbom 1996). Path analysis was used to simultaneously demonstrate both direct and indirect effects of independent variables on dependent variables. This analysis was conducted on the covariance matrix and the solutions were generated on the basis of maximum likelihood

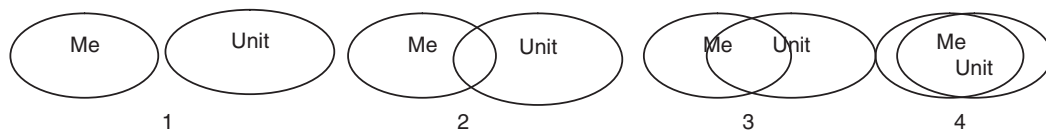


Figure 2 The four pictures used to assess organizational identification.

Table 1 Means, standard deviations, alpha reliabilities and correlations for study variables.

Variables	M	SD	1	2	3	4	5	6	7
1. Procedural justice	4.45	1.22	0.88						
2. Autonomy support	5.13	1.02	0.60**	0.91					
3. Need satisfaction	5.32	0.64	0.42**	0.40**	0.89				
4. Perceived organizational support	4.66	0.99	0.63**	0.53**	0.56**	0.83			
5. Work satisfaction	4.42	0.69	0.24**	0.17*	0.37**	0.29**	–		
6. Organizational identification	3.00	0.69	0.21**	0.20**	0.38**	0.33**	0.28**	–	
7. Job performance	6.98	1.32	0.33**	0.27**	0.41**	0.42**	0.33**	0.41**	–

* $P < 0.01$; ** $P < 0.001$.

Alpha coefficients are reported on the diagonal.

estimation. We used well-established indices to assess model fit of the hypothesized model: the chi-square (χ^2) and significance (P), the chi-square/degrees of freedom ratio ($\chi^2/\text{d.f.}$) and incremental fit indices such as the Comparative Fit Index (CFI), the Incremental Fit Index (IFI), the Goodness of Fit Index (GFI) and the Root Mean Square Error of Approximation (RMSEA). The chi-square is interpreted as the test of the difference between the hypothesized model and the just-identified version of the model. Low non-significant values are desired (Kline 2005). A chi-square to degrees of freedom ratio of less than 2 gives a rough indication that the model may fit the data (Tabachnik & Fidell 2001). The CFI compares the null model with the observed covariance matrix, to gauge the percentage of lack of fit which is accounted for by going from the null model to the hypothesized model. The IFI gives an estimation of the relative improvement of the hypothesized model over a baseline model. The GFI indexes the relative amount of the observed variances and covariances explained by the model. Finally, the RMSEA is a measure of error of approximation which estimates of how well the fitted model approximates the sample covariance matrix per degree of freedom. According to Tabachnik and Fidell (2001), the CFI, IFI and GFI should be 0.90 or higher and the RMSEA should be 0.05 or lower, for a good model fit. Finally, the Sobel (1982) test was computed to estimate whether need satisfaction and perceived organizational support significantly carry the influence of the independent variables (i.e. procedural justice and supervisor autonomy support) on the dependent variables (i.e. work satisfaction, organizational identification and job performance; Kline 2005).

Results

Preliminary analyses

Table 1 shows the means, standard deviations, internal consistency reliabilities (Cronbach's alphas) and

intercorrelations of the study variables. All alphas were in acceptable ranges (between 0.83–0.91). As expected, procedural justice, supervisor autonomy support, need satisfaction and perceived organizational support were significantly and positively correlated with work satisfaction, organizational identification and job performance. In addition, procedural justice and supervisor autonomy support were positively correlated with need satisfaction and perceived organizational support. A multivariate analysis of variance (MANOVA) was conducted to examine gender effects on the seven study variables (i.e. procedural justice, supervisor autonomy support, need satisfaction, perceived organizational support, work satisfaction, organizational identification and job performance). Results revealed no significant differences on any variables [$F(7, 315) = 0.69, P = 0.68$].

Main analyses

The hypothesized model contained two exogenous variables (i.e. procedural justice and supervisor autonomy support) and five endogenous variables (i.e. need satisfaction, perceived organizational support, work satisfaction, organizational identification and job performance). Because the correlations between perceived organizational support and need satisfaction were substantial (see Table 1), the two variables were free to covary with each other. The three outcomes were also free to covary with each other. All estimated paths were significant and the goodness of fit of the model was adequate. Indeed, although the chi-square value was significant [χ^2 (d.f. = 6, $N = 323$) = 3.00, $P < 0.05$], the other fit indices were satisfactory [$\chi^2/\text{d.f.} = 0.50$; IFI = 1.00, CFI = 1.00, GFI = 1.00 and RMSEA = 0.00 (0.00–0.05)]. Figure 3 displays the results of the path analysis.

Procedural justice and supervisor autonomy support positively predicted need satisfaction and perceived organizational support, which in turn were positively associated with work satisfaction, organizational identification and job

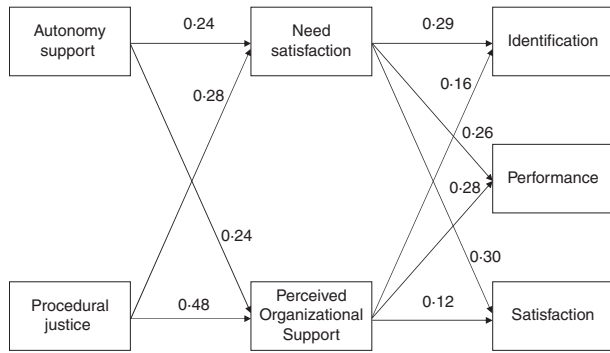


Figure 3 Results of the structural equation modelling. All coefficients were standardized and were significant ($P < 0.05$). For the sake of clarity, covariances among error terms are not shown.

performance. Reasonably large proportions of the variance in our measures can be explained. Procedural justice and supervisor autonomy support explains 43% of the variance in perceived organizational support and 21% of the variance in need satisfaction. In addition, 15% of the variance in nurses' work satisfaction, 16% of the variance in nurses' organizational identification and 22% of the variance in nurses' job performance are explained by perceived organizational support and need satisfaction.

We subsequently conducted Sobel (1982) tests. Sobel tests supported a statistically significant indirect effect (via need satisfaction) from procedural justice to work satisfaction ($z = 3.27, P < 0.01$), organizational identification ($z = 3.20, P < 0.01$) and job performance ($z = 3.11, P < 0.01$). Sobel tests also showed that the indirect effects (via perceived organizational support) of procedural justice on work satisfaction ($z = 1.95, P = 0.05$), organizational identification ($z = 2.46, P < 0.05$) and job performance ($z = 4.16, P < 0.001$) were statistically significant. Moreover, Sobel tests supported a statistically significant indirect effect (via need satisfaction) from supervisor autonomy support to work satisfaction ($z = 3.03, P < 0.01$), organizational identification ($z = 2.98, P < 0.01$) and job performance ($z = 2.90, P < 0.01$). Sobel tests also showed that the indirect effects (via perceived organizational support) of supervisor autonomy support on organizational identification ($z = 2.25, P < 0.05$) and job performance ($z = 3.32, P < 0.001$) were statistically significant. Finally, Sobel tests showed that the indirect effect (via perceived organizational support) of supervisor autonomy support on work satisfaction ($z = 1.84, P = 0.07$) was marginally significant.

Therefore, need satisfaction and perceived organizational support fully mediate the relationships of procedural justice and supervisor autonomy support to nurses' work satisfaction, organizational identification and job performance.

Discussion

The present study investigated the relationships between procedural justice, supervisor autonomy support, psychological need satisfaction, perceived organizational support and various outcomes (i.e. work satisfaction, organizational identification and job performance) to determine if need satisfaction and perceived organizational support have a mediating role in the relationships of procedural justice and supervisor autonomy support to nurses' work satisfaction, organizational identification and job performance. The current results revealed that procedural justice and supervisor autonomy support were significantly related to work satisfaction, organizational identification and job performance through their effects on need satisfaction and perceived organizational support. Of major importance is the fact that the present results are the first, in the work setting, to demonstrate the effects of both procedural justice and supervisor autonomy support on need satisfaction and perceived organizational support. This study is also the first to provide support for the mediating role of need satisfaction and perceived organizational support between procedural justice and supervisor autonomy support to nurses' work satisfaction, organizational identification and job performance. Results are also noteworthy as there are few investigations linking organizational factors to nurses' organizational identification (Katrinli *et al.* 2009) and job performance (Brady-Germain & Cummings 2010). Overall, our findings revealed that the more nurse managers are seen as fair and autonomy-supportive, the more nurses perceive themselves as autonomous, competent and related to others, perceive that their organization values their contributions and cares about their well-being, and thus are satisfied with their work, identify strongly with their organization, and perform better in their job.

Theoretical implications

There are several interesting theoretical findings in the current article. First, as we predicted, the potentially beneficial effects of procedural justice and supervisor autonomy support on nurses' need satisfaction and perceived organizational support were confirmed. These results are consistent with past research linking procedural justice and supervisor autonomy support to favourable outcomes (e.g. Cohen-Charash & Spector 2001, Gagné & Deci 2005). Second, the present research clearly demonstrates that need satisfaction and perceived organizational support lead to beneficial outcomes for nurses (e.g. increased work satisfaction) and the organization (e.g. increased organizational identification

and performance). These results concur with past research which has shown that when employees perceive high levels of organizational support and when their needs of autonomy, competence and relatedness are satisfied, positive outcomes occur. Such findings have been obtained with outcomes as diversified as well-being (e.g. Panaccio & Vandenberghe 2009, Brien *et al.* 2012), work engagement (e.g. Van den Broeck *et al.* 2010, Zacher & Winter 2011) and organizational commitment (e.g. Tremblay *et al.* 2010, Meyer *et al.* 2012). More generally, our findings give evidence that the predictions of self-determination theory (Deci & Ryan 2008) and organizational support theory (Eisenberger *et al.* 1986) are relatively robust.

We also examined whether procedural justice and supervisor autonomy support are positively associated with nurses' work satisfaction, organizational commitment and job performance through their influence on need satisfaction and perceptions of organizational support. Although previous research has looked at the relationships between procedural justice and supervisor autonomy support to various outcomes (e.g. Posthuma *et al.* 2007, Moreau & Mageau 2012), our results confirm that need satisfaction and perceived organizational support fully mediate these relationships. Therefore, the present results agree with those from previous studies suggesting that procedural justice and supervisor autonomy support have the potential to make a considerable contribution to nurses' work satisfaction, organizational commitment and job performance (in our study, via need satisfaction and perceived organizational support). Our study contributes to previous research (Hochwarter *et al.* 2003, Gillet *et al.* 2012) in the sense that need satisfaction and perceived organizational support appear to be powerful psychological mechanisms that fully mediate the link between procedural justice and supervisor autonomy support to nurses' work satisfaction, organizational commitment and job performance.

Practical implications

Delivery of high-quality health services depends on the skills of health workers and working conditions that support performance excellence (Salanova *et al.* 2011). Numerous organizational factors have been shown to be positively associated with the retention of staff, the improvement of patients' and workers' satisfaction and the delivery of cost-effective services (e.g. Ellenbecker & Cushman 2012). The present findings have some practical implications for promoting nurses' work satisfaction, organizational identification and job performance and could be applied to strengthen nursing staff worldwide. Specifically,

our findings suggest that procedural justice and supervisor autonomy support facilitate nurses' need satisfaction and lead to an increase in their perceptions of organizational support and thus lead to the development of their satisfaction and organizational identification and better performance. Therefore, procedural justice and supervisor autonomy support play key roles in strengthening work satisfaction, organizational identification and job performance. In light of the present results, it appears important for researchers to identify factors that enhance procedural justice and encourage supervisors to be autonomy supportive.

First, the size of the effect between procedural justice and perceived organizational support ($\beta = 0.48$, $P < 0.05$) highlighted the importance of procedural justice in creating work conditions that facilitate nurses' perceptions of organizational support, that in turn are positively associated with work satisfaction, organizational identification and job performance. First, the consistent application of policies and procedures (while still taking into account the uniqueness of every circumstance) has the potential to increase nurses' perceptions of procedural justice. Second, it is also important for nurses to have clear job descriptions from their supervisors to avoid role conflict or role ambiguity (St-Pierre & Holmes 2010). Third, some human resource management practices such as bottom-up information (e.g. regularly asks for the nurses' opinion) and non-monetary rewards (e.g. the noteworthy contributions are announced publicly in the organization and the organization announces its desire to treat individual contributions fairly) can also increase nurses' perceptions of procedural justice (Tremblay *et al.* 2010). Finally, supervisors should also administer rewards contingently (e.g. explicitly link their praise to the nurses' performance levels) to adhere more closely to equity principles in their reward allocation procedures (Podsakoff *et al.* 2006).

Second, there is a dearth of research on the factors that lead a supervisor to adopt an autonomy-supportive style even if a few recent intervention studies showed that people can learn how to become more autonomy-supportive in their interactions with others (e.g. Reeve *et al.* 2004, Reeve & Jang 2006). For instance, results from an intervention-based experimental study conducted by Hardré and Reeve (2009) revealed that managers who received training on how to be more autonomy-supportive with their employees displayed more autonomy-supportive behaviours than did non-trained managers in a control group. In addition, employees in the experimental condition were more autonomously motivated and engaged in their work than those in the control condition. This means that supervisors should consider the nurses' perspective and feelings, encourage choice and self-regulation and temper extrinsic demands

What is already known about this topic

- Numerous studies have referred to work satisfaction, organizational identification and job performance in relation to procedural justice.
- Need satisfaction and perceived organizational support lead to various positive outcomes.
- Previous studies have identified need satisfaction and perceived organizational support as important mechanisms explaining the influence of organizational factors on employees' well-being.

What this paper adds

- Findings provided further support for the application of self-determination theory in nursing.
- Nurses' work satisfaction, organizational identification and job performance can be indirectly increased by supervisors' autonomy-supportive behaviours.
- Procedural justice was significantly and positively related to work satisfaction, organizational identification and job performance through its positive effect on need satisfaction and perceived organizational support.

Implications for practice and/or policy

- By exerting autonomy-supportive behaviours and introducing consistent policies and procedures, managers are more likely to facilitate nurses' need satisfaction and strengthen their perceptions of organizational support.
- Managers should be fair and autonomy-supportive to increase nurses' work satisfaction, organizational commitment and job performance.
- Training to improve procedural justice and autonomy support among nurse managers is an important future development.

and pressures (Deci *et al.* 1989), rather than behave in a controlling manner (e.g. use threats and deadlines, pressure nurses to behave in a specific and supervisor-directed way) to increase nurses' well-being (Gillet *et al.* 2012).

Limitations

The present study has some limitations. First, our design was correlational in nature and we thus cannot infer causality from the present results. Future research using longitudinal and experimental designs should be conducted to

improve our understanding about the effects of procedural justice, supervisor autonomy support, need satisfaction and perceived organizational support on work satisfaction, organizational identification and job performance. Second, all the outcomes assessed in the present study were assessed with self-reported measures. Such measures can be impacted by social desirability and we thus encourage researchers to conduct additional research using objective assessment of outcomes. For instance, it will be important in future research to assess objective levels of nurses' performance. Third, future research should assess work satisfaction and organizational identification with multi-item scales. Fourth, we only considered one form of organizational justice (i.e. procedural justice). It would be interesting in future research to examine the role of other dimensions of organizational justice (i.e. distributive justice, informational justice and interpersonal justice) on nurses' well-being and job performance. Fifth, although the current results confirm that it is important to consider mediators when examining the role of organizational factors to explain work outcomes, future research might examine other mechanisms (e.g. job characteristics, intrinsic motivation) in these relationships (see Zapata-Phelan *et al.* 2009, Li & Bagger 2012). Finally, another limitation is that we obtained the data in only one country (France) and the possibilities of generalizing to other countries need to be demonstrated.

Conclusion

Our findings contribute to our understanding of the role of procedural justice and supervisor autonomy support in the prediction of various work outcomes. Specifically, this is the first research documenting an indirect relationship between procedural justice and supervisor autonomy support to work satisfaction, organizational identification and job performance through need satisfaction and perceived organizational support in the nursing setting. This study adds to the nursing knowledge base showing the positive influence of organizational factors on nurses' work satisfaction, organizational identification and job performance (e.g. Salanova *et al.* 2011, Gutierrez *et al.* 2012).

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Conflict of interest

None declared.

Author contributions

All authors have agreed on the final version and meet at least one of the following criteria [recommended by the ICMJE (http://www.icmje.org/ethical_1author.html)]:

- substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data;
- drafting the article or revising it critically for important intellectual content.

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