

---

## **The mediating role of work engagement between psychosocial safety climate and organisational citizenship behaviours: a study in the nursing and health sector in Quebec**

---

Sari Mansour\* and Diane-Gabrielle Tremblay

TÉLUQ,  
Université du Québec,  
5800 rue St-Denis, bureau 1105,  
Montréal, Québec, H2S 3L5, Canada  
Email: sari.mansour@teluq.ca  
Email: dgtrembl@teluq.ca  
\*Corresponding author

**Abstract:** The objective of this research, conducted with 562 staff working in the health sector in Quebec (Canada), mainly nurses, is to examine the direct and indirect effects of the psychosocial safety climate on work engagement and organisational citizenship behaviours. The results of structural equations show that the psychosocial safety climate increases engagement (vigour, dedication and absorption). However, it has no direct effect on organisational citizenship. The bootstrap results indicate that vigour, dedication and absorption all mediate the relationship between psychosocial safety climate and altruism and compliance; however, the indirect link between climate and altruism through absorption is not significant.

**Keywords:** psychosocial safety climate; PSC; work engagement; organisational citizenship behaviour; resource caravan passageways; Canada.

**Reference** to this paper should be made as follows: Mansour, S. and Tremblay, D-G. (2018) 'The mediating role of work engagement between psychosocial safety climate and organisational citizenship behaviours: a study in the nursing and health sector in Quebec', *Int. J. Human Resources Development and Management*, Vol. 18, Nos. 1/2, pp.51–71.

**Biographical notes:** Sari Mansour holds a PhD and is a Researcher Post-Doctoral Fellow at Business School, Teluq-University of Québec, Montreal, Canada.

Diane-Gabrielle Tremblay holds a PhD and is a Professor at Business School, Teluq-Tele-University of Québec, Community-University Research Alliance (CURA) on Work-Life Articulation over the Lifecourse, Montreal, QC, Canada.

---

## 1 Introduction

Organisations can create conditions that allow employees to develop their own capacities and grow personally and professionally (see Rau, 2006). Thus, by creating a psychosocial safety climate (PSC), the organisation can promote psychological health and safety of employees and provide protection against psychological risks, as indicated by Idris et al. (2015). These authors introduce the construct of PSC which can be defined as “the policies, practices and procedures aimed to protect the health and psychological safety of workers” [Dollard and Bakker, (2010), p.580]. It can act as a resource to stimulate the intrinsic and extrinsic motivation of employees, leading to more work engagement and thus to positive attitudes towards the organisation, including organisational citizenship behaviours (OCB). Moreover, work engagement, which can be defined as “a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption” [Bakker and Demerouti, (2008), p.209], promotes happiness, and engaged employees see work from a positive point of view and consider it as a pleasant aspect of life (Idris et al., 2015). This can lead to a positive behaviour such as organisational citizenship, which can be defined as “individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and in the aggregate, promotes the efficient and effective functioning of the organization” [Organ, (1988), p.4; Organ et al., (2005), p.8]. The organisational citizenship concept is important because it can lead to good quantitative and qualitative performance as well as customer satisfaction (Grant and Mayer, 2009); this can help create a competitive advantage (Organ et al., 2005).

Our study contributes to the literature by providing a new avenue through which organisations can act to improve employee engagement, which can lead to positive OCB. The concept of PSC can be seen as a management approach which can increase the well-being, work engagement and performance of the employee (Idris et al., 2015). The latter authors propose the PSC as an extension of the job demands-resources (JD-R) model (Demerouti et al., 2001) and show that it plays an important role in the motivational pathway of the JD-R theory as a beneficial resource at individual, team and organisational levels. In general, two approaches have been used by researchers to try to explain the organisational climate: the cognitive scheme approach and the shared perceptions approach (Anderson and West, 1998). Although some researchers believe that the work climate is shared by members of a group as a property of the working group or organisation (Schneider et al., 1998; Zohar and Luria, 2005), another school believes that the climate can be measured by the perceptions of individuals, or their cognitive patterns, as concerns their work environments (Jones and James, 1979). In the first approach, to have a shared perception, the data is usually aggregated from many employees in one group or in a given organisation, while in the second approach, individual perceptions of the work climate are used (Neal and Griffin, 2006). In our research, we opted for the second approach to measuring the PSC. We believe also that each employee should evaluate individually his environment, the resources the organisation provides and what he or she needs. Here, we evaluate the perception of each employee regarding the PSC, in the organisation.

The objective is to measure the direct effects of the PSC on work engagement and OCB. Indeed, some researchers have tested the relationship between the PSC, and work engagement (e.g., Dollard and Bakker, 2010; Idris and Dollard, 2011; Idris et al., 2015; Garrick et al., 2014; Law et al., 2011). These authors were concerned, however, with the

indirect relationship between work engagement and the PSC, through work resources. Our study examines the direct effect of the PSC on work engagement. Also, we wanted to examine the mediating role of work engagement on the relationship between the PSC and OCB. To our knowledge, the direct and indirect relationships between PSC and OCB have not been analysed in previous studies. We fill these gaps by examining all these relationships in this article. The originality of our research lies in the fact that it is, to our knowledge, the first to examine these relationships. Similarly, although the JD-R model of Demerouti et al. (2001) was used as a theoretical framework for the study of the concept of PSC (e.g., Idris et al., 2015, Garrick et al., 2014, Law et al., 2011), we mobilise the theory of conservation of resources of Hobfoll (1989, 1998), and in particular the concept of ‘Resource Caravan Passageways’ recently proposed by Hobfoll (2011, 2012) and not yet explored (Halbesleben et al., 2014).

## **2 Conceptual clarification**

### *2.1 Psychosocial safety climate*

The PSC can be defined as “the policies, practices and procedures aimed to protect the health and psychological safety of workers” [Dollard and Bakker, (2010), p.580]. This concept means that the organisation is concerned with the prevention and management of psychosocial risks at work. The organisation then creates a climate of trust and respect where employees perceive that management gives sufficient importance to their well-being for psychological well-being to be a priority (Dollard and Bakker, 2010). The PSC is based on four major elements (Dollard, 2012; Dollard and Bakker, 2010):

- a the support and commitment of management
- b the priority given by management to the PSC
- c organisational communication
- d organisational participation.

### *PSC as a new construct*

Although the PSC construct appears to share some similarities with other safety climate constructs (Zohar, 1980) and team psychosocial safety (Edmondson, 1999; Idris et al., 2011), PSC constitutes a new construct (Idris et al., 2014). Considered as a component of the organisational climate construct, PSC is conceived as an organisational climate which is represented by shared perceptions regarding policies, practices, and procedures, and reflected in management commitment, organisational communication, management priority, and organisational participation concerning the value of the psychosocial health and safety of employees in the workplace (Dollard, 2012; Dollard and Bakker, 2010; Hall et al., 2013; Idris et al., 2014). The difference between the PSC and others constructs appears in three essential points. First, a central criticism of studies focusing on organisational climate is relative to lack of specificity in predicting outcomes (Carr et al., 2003). Therefore, one unique characteristic that differentiates PSC from other forms of work climate is that PSC is considered as an antecedent to working conditions, that is specifically psychosocial risks that in turn cause psychological health damage (Dollard

and Bakker, 2010; Hall et al., 2010, Idris et al., 2014). Empirically, PSC is considered as an antecedent or explanatory variable for workplace environment (Idris et al., 2011). Indeed, researchers such as Bond et al. (2010) and Dollard and Bakker (2010) indicate that PSC is a valid and reliable construct in relation to working conditions and psychological health problems.

Second, safety climate, as another related construct and a specific facet of organisational climate, refers to a climate for physical health and safety (Zohar, 1980), and is defined as “employees’ perceptions of ‘management’s commitment and performance with regards to safety policy, procedures, and practice” [Rasmussen et al., (2006), p.770]. The difference between PSC and safety climate is reported by Dollard and Bakker (2010, p.580): “despite its influential history in relation to worker physical health and safety, the safety climate construct has not been used in relation to psychological health and safety”. The level of perception (individual, team or organisational) is the third aspect that distinguishes PSC from other forms of work climate (e.g., team psychological climate). Team psychological climate refers to “a shared belief held by a work team that the team is safe for interpersonal risk taking” [Edmondson, (1999), p.354]. Edmondson indicates that employees who experience a psychologically safe team environment do not adopt risky behaviours (Dollard and Bakker, 2010). According to these authors, PSC can affect not only interpersonal factors but a variety of psychosocial risk factors (e.g., work pressure, job control).

## 2.2 *Work engagement*

In the literature, there are two approaches to work engagement. The first is supported by Maslach and Leiter (1997) who consider that engagement is characterised by energy, involvement and efficacy, which are opposites to the three dimensions of burnout. According to this conceptualisation, engagement is measured by the reverse pattern of scores on the Maslach Burnout Inventory-General Survey (MBI-GS) dimensions (Maslach et al., 2001). The second approach to work engagement has been developed by Schaufeli et al. (2002) who find that Maslach and Lieter (1997) conceptualisation of work engagement does not allow an examination of the relationship between burnout and engagement since both constructs are viewed as opposite and are measured with the same instrument (the MBI-GS). According to the second approach, work engagement is defined as “a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption” [Bakker and Demerouti, (2008), p.209]. Specifically, “vigor is characterized by high levels of energy and mental resilience while working. Dedication refers to being strongly involved in one’s work and experiencing a sense of significance, enthusiasm, and challenge. Absorption is characterized by being fully concentrated and happily engrossed in one’s work, whereby time passes quickly and one has difficulties with detaching oneself from work” [Bakker and Demerouti, (2008), p.210]. These three dimensions are retained in this research to measure work engagement.

## 2.3 *Organisational citizenship behaviours*

These behaviours are defined by Organ as “individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and in the aggregate, promotes the efficient and effective functioning of the organization” [Organ, (1988), p.4; Organ et al., (2005), p.8]. It should be noted that some researchers consider this concept

of organisational citizenship as a single dimension without distinction between dimensions (e.g., Paillé, 2004). Others measure it according to two factors: altruism and overall compliance or 'general compliance' (Organ and Ryan, 1995). Smith et al. (1983) measure OCB with two sub-dimensions: altruism and compliance. They clearly differentiate citizenship targeted towards individuals (altruism representing interpersonal) from citizenship targeted towards the organisation (compliance representing impersonal).

Consistent with this important conceptual distinction between the two dimensions, past theory and research demonstrate that employees do not perform all types of OCB uniformly (Organ, 1997; Settoon and Mossholder, 2002). Additionally, research indicates that sub-dimensions of OCB differ in their relationships with antecedents and consequences only if they differentiate between citizenship behaviour targeted towards the individual and citizenship targeted towards the organisation (Barling and Cooper, 2008). In this research we distinguish between these two factors. Altruism is defined by Smith et al. (1983) as voluntary behaviours where an employee provides assistance to an individual with a particular problem to complete his or her task under unusual circumstances. According to O'Reilly and Chatman (1986), compliance happens when behaviours are adopted not because of shared beliefs but simply to gain specific rewards. Podsakoff et al. (2000, p.517) indicate that compliance "appears to capture a person's internalization and acceptance of the organization's rules, regulations, and procedures, which results in a scrupulous adherence to them, even when no one observes or monitors compliance".

### **3 Research hypotheses**

#### *3.1 The context of the health sector*

Our research was done in the context of the Canadian province of Québec. As in many other countries, the evolution of health expenditures is an issue with which the politicians and economists have had to come to terms in recent decades, due to the importance of these expenditures in the national budget. The 2013–2014 budget of the Quebec Government estimated public spending on health at \$31.3 billion, or 42.9% of total public expenditure of the Government of Quebec. In an attempt to rationalise and reduce healthcare costs for over at least ten years, the government has introduced a set of financial tools and reforms to contain health spending and, in principle at least, to ensure better management of organisations. New structures have been created over the years, and these have deeply upset the organisation of care services and the work of the staff.

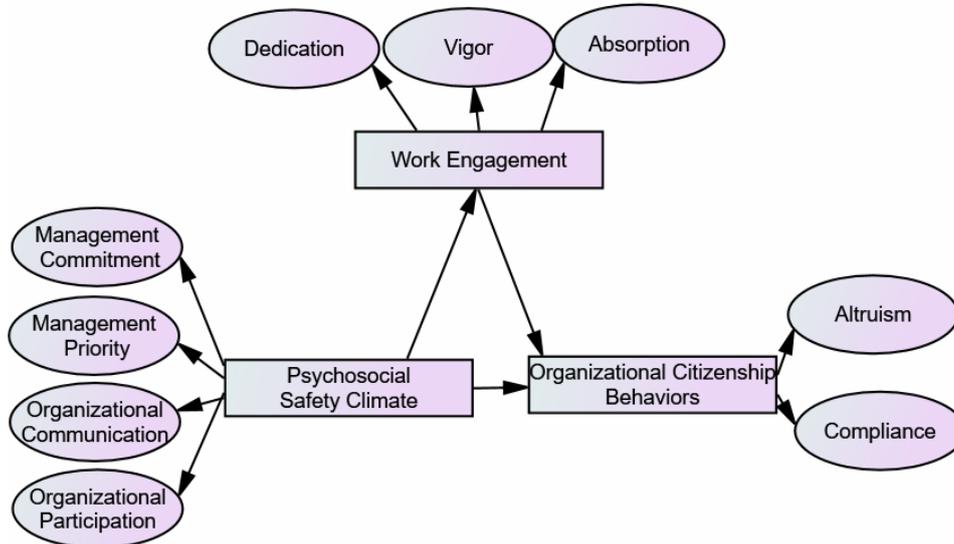
Cuts in healthcare in recent decades as well as hiring freezes and early retirement programs imposed by governments have reduced the number of nurses and other health professionals, resulting in an intensification of work and organisational difficulties (Tremblay, 2014). Despite the funds injected in the health field in recent years, the number of nurses per capita has not reached the ratio of the early '90s (CIHI, 2010a).

According to a report by the Canadian Institute for Health Information (CIHI), Canada had about 348,500 registered nurses in 2009, an increase of just over 27,000 active nurses (9%) compared to 2005 (CIHI, 2010a). In Quebec, from 2009 to 2010, the number of nurses enrolled in the professional association (OIIQ, 2010a) attained 71,371 members, an increase of 1.1%. Labour shortage seems stronger in Quebec than in the rest of Canada, although there are problems as well there. Enrolment growth is significantly

lower, there is a slightly positive balance of inputs and outputs of the registered members in the College of Nurses of Quebec (OIIQ, 2010b), and there is a problem of retention of the workforce. Regarding the registered nursing workforce, data released by CIHI show that there are fewer nurses per capita than before. In 1992, there were 824 nurses per 100,000 Canadians, against 789 now (CIHI, 2010a). So there seems to be a shortage of nurses, while there are increasing demands due to the ageing population in Canada, and even faster ageing in Quebec (due to lower immigration) (Lessard, 2010; Lévesque, 2009). As the population is ageing and requires more services, it seems that the nursing personnel have not increased enough and it is also ageing, which is a challenge for the health sector. The average age of a Canadian nurse has remained stable at 45 years, from 2005 to 2009, the last data published. Within the profession, assistant nurses (practitioners) are slightly younger, with an average age of 43 years while the average age of nurses remained stable at 45 years (CIHI, 2010a).

In Quebec, the average age of nurses is 43.8 years (Desjardins, 2010). However, 22% of nurses are aged 55 and over compared to 18% in 2005, reflecting an ageing profession. Thus, some 15,500 nurses are potentially eligible for retirement and this may pose a risk if the working environment continues to be difficult for them (Lacoursière, 2010; Laframboise, 2010; Lapointe et al., 2010). Retirement can become very attractive when working conditions are difficult. It also seems more difficult to attract young nurses due to difficulties in balancing work and family in such a work context. Indeed, the health sector functions 24 hours a day and 7 days a week, with the young nurses often having only access to night or evening shifts, because of lack of seniority; it takes many years to have access to a day shift (Tremblay, 2014). The Canadian context is probably similar to that of many European countries today, where the population as well as nurses are ageing, where the cost of healthcare has exploded, and where working conditions were made difficult by successive reorganisations that do not seem to give the expected results (OIIQ, 2007, 2010a, 2010b), and are followed by further restructuring, which seem to translate into a difficult working environment (Tremblay, 2014). It is in this context that the question of the motivation, engagement, attraction and retention of nurses is posed.

Initiated with the support of the largest nurses' union, which includes other health workers as well, our study contributes to broaden knowledge in order to foster a fresh look and new practices that promote a better work context. Indeed, studying the direct effect of the PSC on work engagement [which seems to be lacking and leads to retirement; see Tremblay (2014)], and the mediating role of work engagement on the relationship between the PSC and OCB, we think we can contribute to broaden knowledge. This can help in identifying solutions to the challenges facing the healthcare environment, particularly in the nursing sector which constitutes the majority of our respondents, but also for other groups where there is also a labour shortage (respiratory therapists and nursing assistants), and where there are difficult situations concerning motivation, recruitment and retention. Indeed, many nurses are retiring early from the profession because they are demotivated by the difficult working conditions, while young nurses hesitate to enter the world of work in such a context. The research model is outlined in Figure 1.

**Figure 1** Conceptual model (see online version for colours)

### 3.2 PSC and work engagement

This research proposes a motivational model based on resources. This includes the relationship between the PSC and work engagement. The dimensions of the PSC mentioned above may help explain this relationship. Indeed, when the psychological well-being of employees is a priority for senior management, workers are assured that they will have the necessary resources for their work (Idris and Dollard, 2011); the reverse is also true and can be problematic for work motivation and engagement. Idris and Dollard (2011) identify another important factor to manage health and safety. They stress that “Communication systems will be in place so that risks can be identified and managed, for example through better allocation of workload or by providing greater opportunity for recovery” [Idris and Dollard, (2011), p.327]. In organisations where the level of PSC is high, managers can help employees access adequate resources; in other words, the PSC can increase the pool of resources available to employees. By taking care of the health and psychological safety of employees, management provides employees with various resources for their work and employment situation, which will lead to more stable and safer working conditions (Idris et al., 2011). According to the Conservation of Resources theory, the ability of individuals and groups to build and protect their bank of resources (or conversely to lose their resources) is largely dependent on circumstances beyond their control (Hobfoll and de Jong, 2013). Indeed, the PSC, as a management approach, can be considered as ‘Resource Passageways’ that can protect existing resources (conservation), or develop new resources (acquisition of resources). According

to the ‘spiral of resource gains’ of Hobfoll (1998, p.82), obtaining resources can lead to acquire still more new resources for work. If the organisation provides a stimulating and supportive environment (at the organisation or team level), resources are likely to be sufficient and it will lead to work engagement and performance of health workers (Bakker et al., 2011). We therefore propose the following hypothesis:

H1 The PSC is positively associated with work engagement.

### 3.3 PSC and OCB

Since the PSC focuses on the psychological health of employees, organisations that focus on the psychological health of their employees are likely to provide more work resources, because managers are aware that inadequate resources make current requirements more difficult to manage, and even stressful (Law et al., 2011). The PSC plays an important role in the prevention of psychosocial risks by providing sufficient resources, which should also stimulate motivation and employee engagement (Idris et al., 2015). Therefore, engaged employees should be more productive, more efficient and more likely to engage in OCB (Halbesleben and Wheeler, 2008; Idris et al., 2011; Rich et al., 2010). The following hypothesis is thus presented:

H2 The PSC is positively associated with OCB.

However, no study has examined the mediating effect of work engagement between the PSC and OCB. We suggest that work engagement plays a mediating role in the relationship between PSC and OCB. The following hypothesis is formulated:

H3 Work engagement mediates the relationship between PSC and OCB.

## 4 Method

To test this model, we conducted a research in the health sector in Quebec, but our respondents are a strong majority of nurses. The sample, the explanation of selected scales and data analysis methods are presented in the following paragraphs. This research was conducted in collaboration with the main union of nurses, covering a majority of nurses (68%) but also other health personnel (nursing assistants (19%), respiratory therapists (8%) and others –5%) in Quebec. Respondents were solicited via the union, by sending newsletters and leaflets giving the website address for the survey.

**Table 1** Sample characteristics

<i>Industry</i>	<i>Nursing and the health sector</i>
Number of respondents	562
Sex	Women : 90.2%; Men : 9.8%
Occupation	Nurses: 67.8%; nursing assistants: 19.2%; respiratory therapists: 8%; perfusionists: 0.2%; others: 4.8%
Age	From 20 to 30: 29.2%; from 31 to 40: 40.8%; from 41 to 50: 16.5; from 51 to 60: 12.5; more than 60: 0.7

Table 1 shows that the majority of respondents work in hospitals (71%), but others are in local community service centres (11%), or hospitals for long-term care (10%), where there are mostly very old patients, and where care is difficult.

The survey was administered online for three months in early 2014.

#### *4.1 Instruments*

To operationalise PSC and OCB concepts, we opted for auto-evaluations from respondents on Likert scales of five levels. We tested work engagement on a scale of seven levels.

*PSC.* We used the scale (12 items) established by Hall et al. (2010) to measure the PSC. This scale consists of four subscales: management commitment (e.g., in my workplace, management acts quickly to resolve issues that affect the psychological health of employees), organisational communication (e.g., there is good communication here about issues affecting my psychological safety), management priority (e.g., management clearly believes that the psychological health of employees is of great importance) and organisational participation (e.g., in my organisation, stress prevention involves all hierarchical levels). It should be noted that most previous research has tested this scale within a team. However, it can also be applied at the individual level [i.e., without aggregation – cf., Kuenzi and Schminke (2009)]. This method does not require sampling of workers within the same work unit, so this is how we measured the PSC in our study. This allows researchers to capture the perceptions of the individual as concerns the psychological impact of the work environment on his or her own well-being (Garrick et al., 2014).

*Work engagement.* Regarding work engagement, we used the Utrecht Work Engagement Scale (UWES) (Schaufeli et al., 2006). This is a multidimensional scale (17 items) composed of three dimensions, namely vigour (6 items, e.g., “When I work, I do not see time pass”), dedication (6 items, e.g., “To me, my job is challenging”) and absorption (5 items, e.g., “I get carried away when I’m working”). The responses go from 1 (never) to 7 (always).

*OCB.* As for the scale of OCB, we used the two-dimensional OCB scale, namely altruism (4 items, e.g., “I frequently volunteer to do things without being asked”), and compliance (4 items, e.g., “I put in a great deal of effort at work”) (Lambert et al., 2008).

#### *4.2 Analysis*

In order to verify the structure of concepts and the reliability and validity of the measurement scales that are included in our study, confirmation was carried out by the method of maximum likelihood, given the reflective nature of our construct and the size of our sample. To assess the quality of adjustment of scales for the data, indexes such as GFI and AGFI (Joreskog and Sorbom, 1993), the CFI (Bentler, 1990), NFI, RMSEA, and chi-square were retained. Statistical analysis was carried out with the AMOS software, Version 22. The results of confirmatory factor analyses are presented in Table 3. To assess convergent validity, the average variance extracted (AVE) for each construct was calculated. Where AVE was larger than the construct’s correlation with other constructs, then convergent validity was considered to be confirmed (Gefen et al., 2000).

Discriminant validity was established where maximum shared variance (MSV) was lower than the AVE for all the constructs (Hair et al., 2010).

## 5 Research results

We now turn to the results of our research, starting with the analysis of the measurement model.

### 5.1 Measurement model

Regarding the PSC scale, it is based on the four factors mentioned above. The reliability analysis shows that the four dimensions have good reliability (the rho of Joreskog varies between 0.70 and 0.91). Convergent validity varies between 0.53 and 0.78, which is very satisfying. In the discriminant analysis, we can see that the multiple correlations between variables are too high (between 0.74 and 0.88) and larger than the AVE. Therefore, the discriminant validity is not proven. It seems that there is an overlap in the construct. That is why we conducted a confirmatory factor analysis of second order. Regarding reliability of the global concept of 'PSC', the rho of Jöreskog is satisfactory (0.959). The rho convergent validity is over 85%; it exceeds the 50% threshold and MSV is lower than AVE.

The results of the confirmatory analysis show that the structure of work engagement is three-dimensional (vigour, dedication and absorption). The reliability of selected scales was tested by calculating Cronbach's alpha and the rho of Joreskog (see Tables 2 and 4). The results show a good reliability for the scale of work engagement (the rho of Joreskog is 0.853, 0.73 and 0.866, respectively) after removing an item from the vigour concept and four items from the absorption dimension, following the recommendation of the index change on AMOS. Convergent validity for this measurement scale is good, with the exception of absorption, which has a convergent validity of 0.481. This construct is represented by only three items, which could explain this weakness. We decided to keep this dimension because of its importance in the model but also because it is close to the threshold of 0.50.

Discriminant validity is confirmed, as the variance of the latent variables is greater than the square of the correlation between the latent variables. In other words, AVE is larger than MSV.

Regarding the OCB, analyses show that the structure is two-dimensional (altruism and compliance). After removing two items from the concept of compliance and an item from altruism, reliability is satisfactory for this scale (rho of Joreskog is 0.70 for altruism and 0.76 for compliance). Convergent validity is also good for general compliance but low for altruism (0.44), which is composed of only three items, which may explain this weakness. As for the discriminant validity, it is confirmed as the multiple correlation between variables is too low (0.125 and 0.035 respectively) and the variance of the latent variables is greater than the square of the correlation between latent variables (AVE is larger than MSV).

**Table 2** Means, standard deviations, and correlations

Variables	M	SD	1	2	3	4	5	6	7	8	9	10
1 Climate global	2.28	0.81	0.94									
2 Engagement	2.3	0.94	0.89**	0.88								
3 Priority	2.14	0.93	0.93**	0.8**	0.91							
4 Communication	2.24	0.83	0.90**	0.71**	0.78**	0.77						
5 Participation	2.52	0.97	0.79**	0.56**	0.65**	0.67**	0.69					
6 Vigour	4.62	0.89	0.28**	0.25**	0.25**	0.28**	0.21**	0.84				
7 Dedication	5.21	0.89	0.23**	0.21**	0.19**	0.22**	0.20**	0.64**	0.86			
8 Absorption	4.87	0.86	0.159**	0.148**	0.126**	0.150**	0.140**	0.522**	0.564**	0.69		
9 Altruism	4.09	0.59	0.003	0.033	-0.02	-0.007	0.006	0.227**	0.289**	0.264**	0.68	
10 Compliance	5.53	0.75	-0.03	0.028	-0.05	-0.069	-0.019	0.055	.091*	.092*	0.140**	0.76

Notes: M = mean; SD = standard deviation; \*significant p < 0.05; \*\* significant p < 0.01; \*\*\* significant p < 0.001. Cronbach's  $\alpha$  measuring the reliability of scales used is presented in the diagonal. It is between 0.68 and 0.94.

**Table 3** Assessment of the measurement model

<i>Variables retenues</i>	<i>CR</i>	<i>AVE</i>	<i>MSV</i>
Climate global	0.959	0.855	0.094
Management commitment	0.877	0.703	0.812
Management priority	0.913	0.779	0.884
Organisational communication	0.781	0.548	0.884
Organisational participation	0.695	0.532	0.740
Vigour	0.853	0.595	0.558
Dedication	0.866	0.570	0.558
Absorption	0.730	0.481	0.366
Altruism	0.702	0.440	0.125
Compliance	0.762	0.616	0.035

Note: CR: composite reliability; AVE: average variance extracted, MSV: maximum shared variance.

The values of the adjustment indexes reflect the good fit of the theoretical model proposed for the data. These indexes are considered satisfactory. A good model means a model that fits well the data. Indeed, indexes should be satisfactory: RMSEA less than .08 (Bollen, 1990), GFI and AGFI near or over 0.9 (Joreskog and Sorbom, 1993), and CFI and NFI near or over 0.9 (Bentler, 1990). In our study, all these indexes are satisfactory: the  $\chi^2/df$  is equal to 2.46 (878 556/357;  $p < 0.001$ ), the GFI is 0.90, the AGFI is 0, 88, the CFI is 0.94, the NFI is 0, 91 and the RMSEA is 0051.

### 5.2 *Structural model and test of the research hypotheses*

To test the research hypotheses, we used structural equations. The mediation effects were tested by the method of indirect effects based on a bootstrap analysis (Preacher and Hayes, 2004) which overcomes the limits of the approach of Baron and Kenny (1986), traditionally used in the analysis of mediation and in particular the statistical power problem (Edwards and Lambert, 2007) and the decrease in type I error (Preacher and Hayes, 2008). Our analyses are based on 1,000 replications generated by the bootstrap method with a 95% confidence interval. The results are shown in Table 4 (direct effects) and Table 5 (indirect effects).

The quality of the proposed model is good. Indeed, the values of the adjustment indexes attest to the good fit of the theoretical model proposed with the data. These indexes are considered satisfactory. Indeed, the  $\chi^2/df$  is equal to 2.95 (1,082.584/367;  $p < 0.001$ ), the GFI is 0.89, the AGFI is 0.86, the CFI is 0.92, the NFI is 0.88, and RMSEA is 0.059.

### 5.3 *Direct effects of the PSC on work engagement and OCB*

Hypothesis 1 postulates that the PSC is positively associated with work engagement. This hypothesis is validated. Indeed, the results of statistical analyses reveal a positive and highly significant relationship between PSC and each dimension of work engagement

( $\gamma = 0.309$ ,  $p < 0.001$  for vigour;  $\gamma = 0.26$ ;  $p < 0.001$  for dedication;  $\gamma = 0.107$ ,  $p < 0.05$  for absorption). As a result, in organisations where the level of PSC is high, employee engagement will be increased, in particular vigour, dedication and absorption.

**Table 4** Direct effects of PSC on work engagement and citizenship behaviour

Variables	Vigour	Dedication	Absorption	Altruism	Compliance
$\gamma$	0.309***	0.26***	0.107*	-0.057ns	-0.004 ns
t-student	5.786	5.458	2.186	-0.082	-1.165

Notes: \* Significant  $p < 0.05$ ; \*\* significant  $p < 0.01$ ; \*\*\* significant  $p < 0.001$ . Coefficients are standardised ( $\gamma$ ).

However, the results of analyses of the direct effects of the PSC indicate that it has no direct significant effects on OCB ( $\gamma = -0.057$ ns for altruism and  $\gamma = -0.004$  ns for conformism). Thus, H2 is not confirmed. The PSC has no direct effect on organisational citizenship behaviour.

#### 5.4 Indirect effects of PSC on organisational citizenship behaviour through engagement

The results of the bootstrap test attest to the indirect effect of the PSC on organisational citizenship behaviour through engagement. Indeed, the results show that the safety environment has an indirect effect on organisational citizenship behaviour via two dimensions of work engagement. Specifically, vigour mediates the relationship between PSC and altruism ( $\gamma = 0.100$ ,  $p < 0.01$ ). It remains to determine the type of mediation, looking at the direct link (c) between the safety climate and altruism, after taking into account vigour ( $\gamma(c) = 0.11$ ,  $p < 0.05$ ). Our results indicate that mediation is partial and significant. In the same vein, statistical tests indicate a significant indirect effect between the PSC and compliance, through vigour ( $\gamma = 0.028$ ,  $p < 0.05$ ). The direct link between the PSC and compliance after entering the mediator is no longer significant ( $\gamma(c) = -0.075$  (ns)). These results mean that mediation is perfect. It is the same for the indirect relationship between the PSC and organisational citizenship behaviour through dedication. Indeed, dedication mediates the relationship between, on the one hand, the PSC and altruism ( $\gamma = 0.91$ ,  $p < 0.01$ ), and compliance ( $\gamma = 0.27$ ,  $p < 0.05$ ) on the other. The direct link between the safety climate and compliance after entering the mediator (devotion) is not significant ( $\gamma(c) = -0.087$  ns), meaning that mediation is perfect. As for the indirect effect between PSC and OCB via absorption, bootstrap results indicate that the indirect link between safety climate and altruism via absorption is not significant ( $\gamma = -0.014$  ns), which means there is no mediation.

However, the indirect relationship between PSC and compliance via absorption is significant ( $\gamma = 0.034$ ,  $p < 0.05$ ). Looking at the direct link between the safety climate and compliance after having controlled for absorption, this link is not significant, indicating perfect mediation. Given these results, it seems that work engagement mediates the relationship between PSC and organisational citizenship behaviour. H3 is thus validated.

**Table 5** Results of bootstrap: indirect effects of PSC on citizenship behaviours via work engagement

<i>Independent variable</i>	<i>Dependent variables</i>			
	<i>Altruism</i>		<i>Compliance</i>	
<i>Psychosocial safety climate</i>	<i>γ indirect effects</i>	<i>Mediation type</i>	<i>γ indirect effects</i>	<i>Mediation type</i>
Mediator vigour	0.100**	Partial		
γ(c) = 0.11*	0.028*	Full		
γ(c) = -0.088 ns				
Mediator dedication	0.091**	Full		
γ(c) = -0.10 ns	0.027*	Full		
γ(c) = -0.087 ns				
Mediator absorption	-0.014 ns	No mediation	0.034*	Full
γ(c) = -0.048 ns				

Notes: N = 562 (standardised coefficients are reported). \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ . Two-tailed probability.

## 6 Discussion

This article aimed, firstly, to better understand the direct effects of PSC on work engagement and organisational citizenship behaviour. The results show that the PSC has a positive effect on the three facets of work engagement, namely vigour, dedication and absorption. This is consistent with the results of Idris et al. (2015) who found that PSC stimulates motivation and engagement of workers. They also show that the PSC has no direct effect on organisational citizenship behaviour (altruism and compliance). This result can be explained by the action of other variables mediating or moderating this relationship. Indeed, the results of the indirect effects analyses show the mediating effects of three facets of work engagement, namely vigour, dedication and absorption, on the relationship between the PSC and organisational citizenship behaviour. To our knowledge, our research is the first to have tested these relationships, which can contribute to the extant literature.

Organisations can thus use the PSC as a management approach or ‘Resource Passageway’ to motivate employees and lead them to have positive behaviours such as altruism and compliance. In this research, it is altruism or conformism (compliance) to their work and/or their organisation which is highlighted, in particular through the engagement of these employees. Indeed, the PSC acts as a ‘Passageway’, allowing employees to protect their available resources but also have access to other resources in the workplace. In other words, in organisations where the level of the PSC is high, and where the organisation is concerned about the mental health and wellbeing of its employees, the employees feel better protected by the resources available at work, as indicated by Law et al. (2011). The safety included in the concept of PSC can help employees to safely use the resources available at work. If employees feel safe and not under pressure or threat, they are likely to access more resources (e.g., support from colleagues, superiors or collaboration with others) (Hobfoll, 2002). According to the

principle concerning the quantity of resources available to an individual (Hobfoll, 1989), the initial amount of resources possessed by the individual or the group plays a major role with regard to the reaction of individuals and their strategy for adapting to stress. Hobfoll (2002) notes that people with a lot of resources are less vulnerable to loss of resources and are thus more likely to invest to get more.

Thus, the organisation that creates a good PSC offers its employees a “string of resources” since “the initial resource gain may lead to future gain” [Hobfoll, (1998), p.81]. Thus, employees who feel that their employer cares about their mental health and wellbeing are willing to invest more resources in work, which could lead to more work engagement and sense of belonging to the organisation in which they work. This may explain the direct effect of the PSC on work engagement. According to the principle of resource gains, following a gain of resources that is crucial for the individual, work engagement can encourage employees to behave positively vis-à-vis the organisation; they will demonstrate organisational citizenship, that is to say, altruism or general compliance (respect of rules). Work engagement therefore transfers the positive effects of a PSC into altruistic behaviour and compliance. This confirms our result on work engagement’s mediator role between PSC and organisational citizenship. This principle of the spiral of resource gains (Hobfoll, 1998) can also explain the non-significant direct link between PSC and organisational citizenship: resources interact in a caravan to lead to positive results at work. According to Halbesleben et al. (2014), most studies do not examine how resources interact (e.g., resource caravans), and we showed precisely this here.

## **7 Conclusions**

We conducted a research in the health sector in Quebec, specifically among registered nurses, nursing assistants, respiratory therapists, and other health professionals. The aim was to test the direct and indirect effects of the PSC on work engagement and organisational citizenship behaviour. The results of this study have theoretical, methodological and practical implications.

### *7.1 Scientific contributions*

This research presents several scientific contributions. First, our sample, essentially nurses (but also some other health professionals working in the same environment), is profession where the level of stress is recognised as very high (Lapointe et al., 2000; Tremblay, 2014), which has also led many nurses to leave their job for a different environment and often a different occupation altogether (Tremblay, 2014). Thus, the survey is extremely relevant for healthcare workers’ attraction and retention, but also potentially for other occupational groups experiencing stressful working conditions, which is the case in many environments that have experienced restructuring and reorganisation of work. Also, we tested our model on a large sample, which allows better external validity.

Second, very few researchers have studied the relationship between the PSC and well-being (Garrick et al., 2014). We were interested in studying here a relationships previously unexamined in the literature, not even in Garrick et al. (2014), who worked on

a similar theme. We decided to study the direct and indirect link between the PSC, work engagement and organisational citizenship behaviour. Our study is, to our knowledge, the first to have tested these relationships, which can contribute to enrich theoretical knowledge, but also serve to provide managerial recommendations. However, our results should be interpreted with caution because some significant results may be found due to chance or to other variables not studied in our research. For example, since we measured PSC as an individual's perception – and people with higher perception of PSC are more engaged in general –, they are to some extent not affected only by their environment but also by their personality traits. Future studies should thus be conducted to validate our results.

Similarly, the concept of PSC is fairly new in the literature (Dollard and Bakker, 2010). Thus, we have shown in this research that the PSC, which may include a system of communication and participation, should also rest on management's commitment to prioritise the psychosocial health of its employees. This could improve the engagement of the employees, leading to positive behaviour vis-à-vis the organisation (including altruism and better service or care for patients). This type of voluntary positive organisational citizenship behaviour can also help promote cohesion and mutual support within the team. Thus, working in a positive atmosphere where colleagues and the various hierarchical levels help each other can improve organisational effectiveness.

## *7.2 Practical implications*

The results of this study are very important for the area of nursing work, but also more broadly for the health sector in general, where reorganisations and successive restructuring have resulted in a lack of motivation, a desire to leave the organisation, retirement, etc. (Desjardins, 2010; Tremblay, 2014). For a dozen years or more, the health ministers have proceeded with various forms of reorganisation but have not succeeded in finding a solution to increase motivation at work and to attract and retain nurses and caregivers. The health budgets are exploding and the staff seems increasingly unhappy after successive restructuring. It could be beneficial to build a working environment including policies, procedures and practices to identify and resolve problems that threaten the psychosocial well-being and try to satisfy basic human needs of nursing staff (Idris et al., 2015). Organisations, including those in the health sector, could thus consider the PSC as a policy lever for caregivers to have the resources to cope with the significant challenges they face and try to create a sense of belonging and work engagement of employees towards the organisation and the team, which could improve the performance (Rich et al., 2010). It could be very interesting to create such environments in the healthcare sector where there are difficult situations concerning motivation, recruitment and retention. Indeed, the PSC could help attract young nurses, who could feel that in such an organisation, there would be less stress and burnout and that the management will care about their wellbeing. This could also be helpful to retain those already working in such organisations through more engagement at work, and in turn, more citizenship behaviour which could lead to better performance.

Given the difficult situation in the health sector (Lacoursière, 2010; Laframboise, 2010; Lapointe et al., 2010) in many countries, and the often strained relations between the unions and the Ministry of Health, this is not easy to do, but it appears these could be solutions to be considered.

### 7.3 Limitations of the study and avenues for future research

Finally, this study presents a new application for an existing measure, the PSC. From a theoretical and a methodological point of view, our research shows that the concept of PSC is a second-order concept, as different dimensions overlap.

Indeed, we have found a somewhat unstable structure of the measurement scale of this concept; in previous studies, it was a scale including four dimensions. It would require more research to ensure the reliability, validity and stability of the measurement scale across different countries. However, previous research has examined this concept at the level of the team and it was even built at group level; this could explain the second-order structure of this scale in our study. This is reported by Mierlo et al. (2008) who indicate that a construct measurement could be different between the individual level and the group level. Indeed, group size may affect the difference between the case where the items refer to the individual situation, and the case where items refer to the work group (Mierlo et al., 2008). These authors noted “members of larger groups might, for example, be more heterogeneous in their assessment of group characteristics than members of smaller groups because they will typically be less aware of the work of many fellow group members” [Mierlo et al., (2008), p.21]. They advanced that group characteristics other than size, such as physical dispersion, group cohesion, and group development, may affect the properties of and differences between direct-consensus and referent-shift composition measures (Mierlo et al., 2008). Also, other variables such as burnout, work resources and demands could be interesting to incorporate into our research model and to examine in future research to have a complete view of the effects of the PSC. It would also be interesting to examine the positive role that organisational citizenship behaviour can play to promote the support of colleagues. It may be that the individual who has such behaviour at work could encourage other group members to adopt similar behaviours, which could improve the performance of the group. Also, we could investigate other workplaces where stress is often high and where the financial resources are limited (shops, hotels, restaurants, etc.) to see whether in terms of PSC, the availability of resources can improve engagement, attraction and retention in these sectors also.

### References

- Anderson, N.R. and West, M.A. (1998) ‘Measuring climate for work group innovation: development and validation of the team climate inventory’, *Journal of Organizational Behavior*, Vol. 19, No. 3, pp.235–258.
- Bakker, A.B. and Demerouti, E. (2007) ‘The job demands-resources model: state of the art’, *Journal of Managerial Psychology*, Vol. 22, No. 3, pp.309–328.
- Bakker, A.B. and Demerouti, E. (2008) ‘Towards a model of work engagement’, *Career Development International*, Vol. 13, No. 3, pp.209–223.
- Bakker, A.B., Albrecht, S.L. and Leiter, M.P. (2011) ‘Key questions regarding work engagement’, *European Journal of Work and Organizational Psychology*, Vol. 20, No. 1, pp.4–28 [online] <http://dx.doi.org/10.1080/1359432X.2010.485352>.
- Barling, J. and Cooper, C.L. (2008) *The Sage Handbook of Organizational Behavior*, Vol. 1, 776pp, Micro Approaches, Sage Publications, London, UK.

- Baron, R.M. and Kenny, D.A. (1986) 'The moderator-mediator variable distinction in social psychology research: conceptual, strategic, and statistical considerations', *Journal of Personality and Social Psychology*, Vol. 51, No. 6, pp.1173–1182.
- Bentler, P.M. (1990) 'Comparative fit indexes in structural models', *Psychological Bulletin*, Vol. 107, No. 2, pp.238–246.
- Bond, S., Tuckey, M. and Dollard, M.F. (2010) 'Psychosocial safety climate, workplace bullying and symptoms of post-traumatic stress', *Organization Development Journal*, Vol. 28, No. 1, pp.37–56.
- Canadian Institute for Health Information (CIHI) – Institut canadien d'information sur la santé-ICIS (2010a) *Infirmières réglementées: tendances canadiennes, 2005 à 2009*, ICIS Ottawa [online] <https://www.cihi.ca/en/about-cihi> (September 2016).
- Canadian Institute for Health Information (CIHI) – Institut canadien d'information sur la santé-ICIS (2010b) *Infirmières réglementées: tendances canadiennes, 2004 à 2008*, revised February, ICIS, Ottawa [online] <https://www.cihi.ca/en/about-cihi> (August 2016).
- Carr, J.Z., Schmidt, A.M., Ford, J.K. and Deshon, R.P. (2003) 'Climate perceptions matter: a meta-analytic path analysis relating molar climate, cognitive, and affective states, and individual level work outcomes', *Journal of Applied Psychology*, Vol. 88, No. 4, pp.605–619.
- Demerouti, E., Bakker, A.B., Nachreiner, F. and Schaufeli, W.B. (2001) 'The job demands resources model of burnout', *Journal of Applied Psychology*, Vol. 86, No. 3, pp.499–512.
- Desjardins, J. (2010) 'Des milliers d'infirmières bientôt à la retraite', *dans 24 h, Actualité*, 5 Novembre, p.10.
- Dollard, M.F. (2012) 'Psychosocial safety climate: a lead indicator of workplace psychological health and engagement and precursor to intervention success', in Biron, C., Karanika-Murray, M. and Cooper, C.L. (Eds.): *Managing Psychosocial Risks in the Workplace: The Role of Process Issues*, Routledge/Psychology Press, London, UK.
- Dollard, M.F. and Bakker, A.B. (2010) 'Psychosocial safety climate as a precursor to conducive work environments, psychological health problems, and employee engagement', *Journal of Occupational and Organisational Psychology*, Vol. 83, No. 3, pp.579–599.
- Edmondson, A. (1999) 'Psychological safety and learning behavior in work teams', *Administrative Science Quarterly*, Vol. 44, No. 2, pp.350–383.
- Edwards, J.R. and Lambert, L.S. (2007) 'Methods for integrating moderation and mediation: a general analytical framework using moderated path analysis', *Psychological Methods*, Vol. 12, No. 1, pp.1–22.
- Fédération des infirmières et infirmiers du Québec (FIIQ) (1998) *Avis sur l'organisation des services de santé et des services sociaux sur l'île de Montréal 1998–2002 Déposé à la Régie régionale de la santé et des services sociaux de Montréal-Centre*, FIIQ, Montréal.
- Garrick, A., Mak, A.S., Cathcart, S., Winwood, P.C., Bakker, A.B. and Lushington, K. (2014) 'Psychosocial safety climate moderating the effects of daily job demands and recovery on fatigue and work engagement', *Journal of Occupational and Organisational Psychology*, Vol. 87, No. 4, pp.694–714.
- Gefen, D., Straub, D. and Boudreau, M-C. (2000) 'Structural equation modeling and regression: guidelines for research practice', *Communications of the AIS*, Vol. 4, No. 7, pp.1–78.
- Grant, A.M. and Mayer, D.M. (2009) 'Good soldiers and good actors: prosocial and impression management motives as interactive predictors of affiliative citizenship behaviors', *Journal of Applied Psychology*, Vol. 94, No. 4, pp.900–912.
- Hair, J., Black, W., Babin, B. and Anderson, R. (2010) *Multivariate Data Analysis 7*, Prentice-Hall, Inc., Upper Saddle River, NJ, USA.
- Halbesleben, J.R., Neveu, J.P., Paustian-Underdahl, S.C. and Westman, M. (2014) 'Getting to the 'COR': understanding the role of resources in conservation of resources theory', *Journal of Management*, Vol. 40, No. 5, pp.1334–1364.

- Halbesleben, J.R.B. and Wheeler, A.R. (2008) 'The relative roles of engagement and embeddedness in predicting job performance and intentions to leave', *Work & Stress*, Vol. 22, No. 3, pp.242–256 [online] <http://dx.doi.org/10.1080/02678370802383962>.
- Hall, G.B., Dollard, M.F. and Coward, J. (2010) 'Psychosocial safety climate: development of the PSC-12', *International Journal of Stress Management*, Vol. 17, No. 7, pp.353–383, DOI: 10.1037/a0021320.
- Hall, G.B., Dollard, M.F., Winefield, A.H., Dormann, C. and Bakker, A.B. (2013) 'Psychosocial safety climate buffers effects of job demands on depression and positive organizational behaviors', *Anxiety, Stress and Coping: An International Journal*, Vol. 26, No. 4, pp.355–377.
- Hobfoll, S.E. (1989) 'Conservation of resources: a new attempt at conceptualizing stress', *American Psychologist*, Vol. 44, No. 3, pp.513–524.
- Hobfoll, S.E. (1998) *Stress, Culture, and Community: The Psychology and Philosophy of Stress*, Plenum Press, New York.
- Hobfoll, S.E. (2002) 'Social and psychological resources and adaptation', *Review of General Psychology*, Vol. 6, No. 4, pp.307–324.
- Hobfoll, S.E. (2011) 'Conservation of resource caravans and engaged settings', *Journal of Occupational and Organisational Psychology*, Vol. 84, No. 1, pp.116–122.
- Hobfoll, S.E. (2012) 'Conservation of resources and disaster in cultural context: the caravans and passageways for resources', *Psychiatry: Interpersonal and Biological Processes*, Vol. 75, No. 3, pp.227–232.
- Hobfoll, S.E. and de Jong, J.T.V.M. (2013) 'Sociocultural and ecological views of trauma: replacing cognitive-emotional models', in N.C. Feeny and L. Zoellner (Eds.): in *Facilitating Resilience and Recovery Following Traumatic Events*, pp.69–90, Guilford, New York, NY.
- Idris, M.A. and Dollard, M.F. (2011) 'Psychosocial safety climate, work conditions, and emotions in the workplace: a Malaysian population-based work stress study', *International Journal of Stress Management*, Vol. 18, No. 4, pp.324–347, DOI: 10.1037/a0024849.
- Idris, M.A., Dollard, M.F. and Tuckey, M.R. (2015) 'Psychosocial safety climate as a management tool for employee engagement and performance: a multilevel analysis', *International Journal of Stress Management*, Vol. 22, No. 2, pp.183–206.
- Idris, M.A., Dollard, M.F. and Winefield, A.H. (2011) 'Integrating psychosocial safety climate in the JD-R model: a study amongst Malaysian workers', *SA Journal of Industrial Psychology*, Vol. 37, No. 2, pp.851.1–851.11, DOI: 10.4102/sajip.v37i2.851.
- Idris, M.A., Dollard, M.F. and Yulita, (2014) 'Psychosocial safety climate, emotional demands, burnout, and depression: a longitudinal multilevel study in the Malaysian private sector', *Journal of Occupational Health Psychology*, Vol. 19, No. 3, pp.291–302.
- Jones, A.P. and James, L.R. (1979) 'Psychological climate: dimensions and relationships of individual and aggregated work environment perceptions', *Organizational Behavior and Human Performance*, Vol. 23, No. 2, pp.201–250.
- Joreskog, K.G. and Sorbom, D. (1993) *LISREL 8: Structural Equation Modeling with the SIMPLIS Command Language*, LISREL 8, Lawrence Erlbaum Associates, Inc, Chicago, USA.
- Kuenzi, M. and Schminke, M. (2009) 'Assembling fragments into a lens: a review, critique, and proposed research agenda for the organizational work climate literature', *Journal of Management*, Vol. 35, No. 3, pp.654–717.
- Lacoursière, A. (2010) 'Des infirmières toujours plus sollicitées', *dans Cyberpresse*, La Presse, 13 décembre [online] <http://www.cyberpresse.ca/actualites/quebec-canada/sante/201012/12/01-4351737-desinfirmieres-toujours-plus-sollicitees.php> (consulté le 10 février 2011).
- Laframboise, A-S. (2010) 'Bolduc promet de trouver un terrain d'entente', *dans 24 h, Actualité*, 9 novembre, p.8.

- Lambert, E.G., Hogan, N.L. and Griffin, M.L. (2008) 'Being the good soldier organizational citizenship behavior and commitment among correctional staff', *Criminal Justice and Behavior*, Vol. 35, No. 1, pp.56–68.
- Lapointe, P.-A. et al. (2000) 'La reconfiguration des soins de santé et la réorganisation du travail infirmier', *Nouvelles pratiques sociales*, Vol. 13, No. 2, pp.164–180.
- Law, R., Dollard, M.F., Tuckey, M.R. and Dormann, C. (2011) 'Psychosocial safety climate as a lead indicator of workplace bullying and harassment, job resources, psychological health and employee engagement', *Accident Analysis and Prevention*, Vol. 43, pp.1782–1793 [online] <http://dx.doi.org/10.1016/j.aap.2011.04.010> (accessed August 2016).
- Lessard, D. (2010) 'Le cinquième des infirmières fait 70% des heures sup', *dans Cyberpresse*, 4 mai, La Presse [online] <http://www.cyberpresse.ca/actualites/quebec-canada/sante/201005/03/01-4276801-lecinquieme-des-infirmieres-fait-70-des-heures-sup.php> (consulté le 10 février 2011).
- Lévesque, L. (2009) 'Des primes pour garder les infirmières au travail', *Dans Cyberpresse*, 30 juin, La Presse [online] <http://www.cyberpresse.ca/actualites/quebec-canada/sante/200906/30/01-880176-desprimes-pour-garder-les-infirmieres-au-travail.php> (consulté le 10 février 2011).
- Maslach, C. and Leiter, M.P. (1997) *The Truth about Burnout*, Jossey-Bass, New York, NY.
- Maslach, C., Schaufeli, W.B. and Leiter, M.P. (2001) 'Job burnout', *Annual Review of Psychology*, Vol. 52, No. 1, pp.397–422.
- Mierlo, H.V., Vermunt, J.K. and Rutte, C.G. (2008) 'Composing group-level constructs from individual-level survey data', *Organisational Research Methods*, Vol. 12, No. 2, pp.368–398, DOI: 10.1177/1094428107309322.
- Neal, A. and Griffin, M.A. (2006) 'A study of the lagged relationships among safety climate, safety motivation, safety behavior, and accident at the individual and group levels', *Journal of Applied Psychology*, Vol. 91, No. 4, pp.946–953.
- O'Reilly, C.A. and Chatman, J.A. (1986) 'Organizational commitment and psychological attachment: the effects of compliance, identification and internalization on prosocial behavior', *Journal of Applied Psychology*, Vol. 71, No. 3, pp.492–499.
- OIIQ (2007) *Une nouvelle approche de planification des effectifs infirmiers: des choix à faire de toute urgence*, Mémoire déposé à la table de concertation sur la situation de la pénurie de main-d'oeuvre en soins infirmiers, OIIQ, Québec [online] <http://www.oiiq.org/uploads/publications/memoires/Effectifs.pdf> (consulté le 12 juillet 2012).
- OIIQ (2010a) *Historique*, site Internet de l'Ordre des infirmières et infirmiers du Québec [online] <http://www.oiiq.org/infirmieres/historique/communautes.asp> (September 2016).
- OIIQ (2010b) *Rapport statistique sur l'effectif infirmier 2009–2010, Le Québec et ses régions*, OIIQ, Westmount, Québec.
- Organ, D.W. (1988) *Organizational Citizenship Behaviour: The Good Soldier Syndrome*, Lexington Book, Lexington, MA.
- Organ, D.W. (1997) 'Organizational citizenship behavior: it's construct clean-up time', *Human Performance*, Vol. 10, No. 2, pp.85–97, DOI: 10.1207/s15327043hup1002\_2.
- Organ, D.W. and Ryan, K. (1995) 'A meta-analytic review of attitudinal and dispositional predictors of organizational citizenship behavior', *Personnel Psychology*, Vol. 48, No. 4, pp.775–802.
- Organ, D.W., Podsakoff, P.M. and MacKenzie, S.B. (2005) *Organizational Citizenship Behavior: Its Nature, Antecedents, and Consequences*, Sage, Thousand Oakes, CA.
- Paillé, P. (2004) 'Examen empirique sur le caractère multidimensionnel de l'engagement normatif et sur les liens avec les engagements affectif et continu', *Psychologie du Travail et des Organisations*, Vol. 10, No. 4, pp.327–339.
- Podsakoff, P.M., MacKenzie, S.B., Paine, J.B. and Bachrach, D.G. (2000) 'Organizational citizenship behaviors: a critical review of the theoretical and empirical literature and suggestions for future research', *Journal of Management*, Vol. 26, No. 3, pp.513–563.

- Preacher, K.J. and Hayes, A.F. (2004) 'SPSS and SAS procedures for estimating indirect effects in simple mediation models', *Behaviour Research Methods, Instruments, and Computers*, Vol. 36, No. 4, pp.717–731.
- Preacher, K.J. and Hayes, A.F. (2008) 'Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models', *Behaviour Research Methods*, Vol. 40, No. 3, pp.879–891.
- Rasmussen, K., Glasscock, D.J., Hansen, O.N., Carlsense, O., Jepsen, J.F. and Nielsen, K.J. (2006) 'Worker participation in change processes in a Danish industrial setting', *American Journal of Industrial Medicine*, Vol. 49, No. 9, pp.767–779.
- Rau, R. (2006) 'Learning opportunities at work as predictor for recovery and health', *European Journal of Work and Organisational Psychology*, Vol. 15, No. 2, pp.158–180.
- Rich, B.L., LePine, J.A. and Crawford, E.R. (2010) 'Job engagement: antecedents and effects on job performance', *Academy of Management Journal*, Vol. 53, No. 3, pp.617–635.
- Schaufeli, W., Bakker, A.B. and Salanova, M. (2006) 'The measurement of work engagement with a short questionnaire: a cross-national study', *Educational and Psychological Measurement*, Vol. 66, No. 4, pp.701–716.
- Schaufeli, W.B., Salanova, M., Gonzalez-Roma, V. and Bakker, A.B. (2002) 'The measurement of burnout and engagement: a confirmatory factor analytic approach', *Journal of Happiness Studies*, Vol. 3, No. 1, pp.71–92.
- Schneider, B., White, S.S. and Paul, M.C. (1998) 'Linking service climate and customer perceptions of service quality: tests of a causal model', *Journal of Applied Psychology*, Vol. 83, No. 2, pp.150–163.
- Settoon, R.P. and Mossholder, K.W. (2002) 'Relationship quality and relationship context as antecedents of person- and task-focused interpersonal citizenship behavior', *Journal of Applied Psychology*, Vol. 87, No. 2, pp.255–267.
- Smith, C.A., Organ, D.W. and Near, J.P. (1983) 'Organizational citizenship behavior: its nature and antecedents', *Journal of Applied Psychology*, Vol. 68, No. 2, pp.655–663.
- Tremblay, D-G. (2014) *Infirmière: vocation, engagement et parcours de vie*, Éditions du Remue-ménage, 153pp, Montréal.
- Zohar, D. (1980) 'Safety climate in industrial organizations: theoretical and applied implications', *Journal of Applied Psychology*, Vol. 65, No. 1, pp.96–102.
- Zohar, D. and Luria, G. (2005) 'A multilevel model of safety climate: cross-level relationships between organization and group-level climates', *Journal of Applied Psychology*, Vol. 90, No. 4, pp.616–628.