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Original Communication

How to Satisfy and Retain Personnel Despite Job-Market Shortage

Multilevel Predictors of Nurses' Job Satisfaction and Intent to Leave

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Abstract. Retaining valuable employees is a major issue for organizations, especially for professions characterized by shortage (e.g., nursing). It is thus important for organizations to determine which factors predict personnel satisfaction and intent to leave at various levels (i.e., organization, group, and individual). Nevertheless, few studies on satisfaction in nursing have analyzed a comprehensive set of factors and taken multiple organizational levels into account using appropriate statistical analysis techniques. We conducted a study with 1,547 nurses working in 17 hospitals in Switzerland. Results from multilevel analyses suggest that job satisfaction is predicted by both individual-level (burnout and work-family conflict) and group-level (group cohesion and unit effectiveness) factors, while organizational-level factors (e.g., autonomy) have less impact. Moreover, intent to leave the job is predicted by job satisfaction, whereas the relationship is moderated by perceived differences in priorities between nurses and their employer. When developing strategies to satisfy and retain key personnel, administrators should consider both individual-level and group-level factors as well as how to align priorities and how to best communicate what they have done.

Keywords: job satisfaction, intent to leave, multilevel analyses

Retaining valuable employees is a major issue for all organizations, but especially for professions characterized by shortage. A nursing shortage has been observed in both the United States (Lynn & Redman, 2005) and Europe (Buchan, 2002) and is also an issue in Switzerland. For instance, a recent study estimated that the workforce demand for nurses in Switzerland could increase by 13% to 25% by 2020 (Jaccard Ruedin, Weaver, Roth, & Widmer, 2009). Numerous factors contribute to this shortage (Heinz, 2004; Janiszewski Goodin, 2003): The aging workforce, financial constraints in the healthcare system, the poor image nursing has in the general public, and decreasing enrollment in nursing schools have reduced the pool of nurses available to the market. Also, increasing patient needs have increased the demand for nurses. Moreover, the shortage is likely to increase in the near future (Simoens, Villeneuve, & Hurst, 2005).

Several solutions to this problem have been suggested: investing in attracting and recruiting young people, increasing the immigration of nurses, encouraging the return of nurses who have left the profession, improving the image of nursing, and retaining currently employed nurses (Janiszewski Goodin, 2003). However, most of these solutions depend on the willingness of political institutions to invest in nursing (e.g., to increase its attractiveness to young people). Others, such as immigration, are only a short-term solution (Newman, Maylor, & Chansarkar, 2002). Employers (i.e., hospitals) can develop creative recruitment strategies (Van Hoye, 2012). They can also act preventively to reduce the nursing shortage, mainly by trying to retain current employees in their organizations and, ultimately, in the profession. However, they first need to understand what factors influence nurses' satisfaction with their job because dissatisfied workers are generally more prone to leave their job (Beecroft, Dorey, & Wenten, 2008; Brewer, Kovner, Greene, & Cheng, 2009). This knowledge would enable them to develop strategies (e.g., improving the working environment, personnel policies, and benefits) to improve satisfaction and retention (Kuhar, Miller, Spear, Ulreich, & Mion, 2004).

It is therefore vital for hospitals, in order to retain their employees, to determine which factors influence job satisfaction and the intent to leave. However, predictors of employee behavior or attitudes (e.g., job satisfaction) may be found at different levels of analysis. The issue of levels is of paramount importance when investigating organizational behavior phenomena (Rousseau, 1978, 1985). Collective con-

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structs (e.g., at the team or organizational level) emerge though social interactions, and these constructs then influence the behavior of individuals (Morgeson & Hofmann, 1999). Hofmann (2002) defines three types of collective constructs: global, shared, and configural. Global constructs are objective, higher-level constructs that do not have lower-level analogs, such as group size. Shared constructs emerge when individuals within a group share similar perceptions, creating a higher-level psychological construct, such as organizational climate. Finally, configural constructs represent complex aggregations of individual-level characteristics leading to a higher-level phenomenon, such as group performance.

Examining a comprehensive set of job satisfaction predictors should thus involve investigating factors from different levels. For instance, Glisson and Durick (1988) tested a model with predictors of job satisfaction at the worker, job, and organization levels and highlighted a specific hierarchy of significant predictors of satisfaction. Nevertheless, past research on nurses' job satisfaction mainly examined antecedents at one level only (e.g., Kalisch, Lee, & Rochman, 2010) or employed only aggregated data (e.g., Leveck & Jones, 1996; Shader, Broome, Broome, West, & Nash, 2001), potentially leading to ecological or atomistic fallacies (see Hox, 1995). A recent meta-analysis (Zangaro & Soeken, 2007) included 31 studies examining predictors of nurses' job satisfaction, but did not discuss the collective nature of many constructs influencing satisfaction. Moreover, a closer examination of these 31 studies showed that, although almost half of them included shared collective constructs, none of them incorporated them into a multilevel framework. For example, Rafferty, Ball, and Aiken (2001) discussed the relationships between organizational-level shared constructs (e.g., nurses' level of autonomy in the hospital) and satisfaction, but analyzed them at the individual level without appropriate checks on whether aggregation was warranted.

In the present study, we examine predictors of nurses' satisfaction using a multilevel framework, with predictors at the individual level, the group (i.e., unit) level, and the organizational (i.e., hospital) level. Moreover, given that job dissatisfaction may not directly lead to turnover (Lee, 1988), additional factors may moderate this relationship. Thus, the second objective of this study is to better understand what factors moderate the relationship between satisfaction and nurses' intent to leave the organization. Specifically, we examine the moderating role of perceived differences in priorities between nurses and their employer.

Toward a Multilevel Framework for Predicting Nurses' Satisfaction

A first step toward developing a multilevel framework to predict nurses' satisfaction is to identify the most relevant psychological variables for the nursing context and the appropriate level of analysis for each variable. We thus conducted an extensive review of the nursing literature, including existing qualitative reviews (e.g., McVicar, 2003; Utriainen & Kyngäs, 2009), theoretical models tested through empirical studies (e.g., Demerouti, Bakker, Nachreiner, & Schaufeli, 2000; Kovner, Brewer, Wu, Cheng, & Suzuki, 2006; Larrabee et al., 2003; Lum, Kervin, Clark, Reid, & Sirola, 1998; Shader et al., 2001; Weisman, Alexander, & Chase, 1980), and meta-analyses (e.g., Blegen, 1993; Zangaro & Soeken, 2007). Then we identified the appropriate level of analysis based on theoretical considerations. Following the referent-shift composition model (Chan, 1998), we composed collective constructs by changing the referent for the conceptual definition and operationalization of the construct from a lower (e.g., individual) level to a higher (e.g., group or organizational) level. Similarly, according to Hofmann's (2002) typology, shared collective constructs emerge when individuals share a similar perception and when the content of the measure specifically references a group or organization. In this study, for all group-level and organizational-level measures, the referent of the construct shifts from the individual to the group or organization. We therefore treat them as shared collective constructs. In the following, we present the predictors identified for each level and their expected relationship to job satisfaction.

Individual-Level Predictors

Several individual-level factors influence job satisfaction. Burnout and work-family conflict (WFC) are two prominent examples. Nursing involves complex working schedules (e.g., irregular schedule, night shifts, weekend work) and emotionally difficult or stressful situations (e.g., dealing with illness and death on a regular basis). Additionally, nursing is a predominantly female occupation. These factors make nurses especially prone to stress or burnout (McVicar, 2003) and WFC (Byron, 2005).

Burnout has three main components (Halbesleben & Buckley, 2004; Maslach & Jackson, 1981): emotional exhaustion (i.e., being exhausted by one's work), depersonalization (i.e., impersonal response toward patients), and reduced personal accomplishment (i.e., feeling of low competence and achievement through work). Emotional exhaustion is the component most strongly related to job satisfaction in various occupations (Schaufeli, Enzmann, & Girault, 1993), including nursing (McVicar, 2003). Nurses who are more stressed or experience more burnout report lower job satisfaction (Bratt, Broome, Kelber, & Lostocco, 2000; Spence Laschinger, Leiter, Day, & Gilin, 2009) and higher level of intent to leave (Estryn-Béhar et al., 2007; Jourdain & Chênevert, 2010; Spence Laschinger et al., 2009).

WFC reflects a situation in which "responsibilities in one domain (work or family) limit an individual from meeting the obligations in the other (family or work)" (Carr,

Boyar, & Gregory, 2007, p. 245). WFC can be caused by incompatible time demands between work and family, spillover from one domain to the other, or incompatible roles between the two domains (Eby, Casper, Lockwood, Bordeaux, & Brinley, 2005). WFC may influence job satisfaction, and such dissatisfaction may lead nurses to look for alternative positions or employers offering less conflicting working conditions (e.g., flexible working schedules) or to simply leave the occupation. Nurses facing more conflict tend to report lower job satisfaction (Bruck, Allen, & Spector, 2002; Kossek & Ozeki, 1998) and a higher level of intent to leave their job (Estryn-Béhar et al., 2007). We thus propose the following hypotheses for individual-level predictors of nurses' job satisfaction:

- *Hypothesis 1a:* Emotional exhaustion is negatively related to job satisfaction.
- *Hypothesis 1b:* Depersonalization is negatively related to job satisfaction.
- *Hypothesis 1c:* Personal accomplishment is positively related to job satisfaction.
- *Hypothesis 1d:* Work-family conflict is negatively related to job satisfaction.

Group-Level Predictors

Job satisfaction can also be influenced by group-level factors. According to Hofmann (2002), a measure represents a shared collective construct if it references the group rather than the individual. Group cohesion and team effectiveness are two examples of measures involving the group as the reference because employees are asked to evaluate how cohesive and effective their group is. We note that team effectiveness could also be directly measured as a global construct (i.e., using objective measures of team performance), but we focus here on the shared construct of perceived team effectiveness. In a nursing unit, cohesion among team members and the ability for teams to work effectively are essential (Leveck & Jones, 1996). Teammates represent a source of social support, which may increase satisfaction at work. In a recent review (Utriainen & Kyngäs, 2009), interpersonal relationships among nurses were the main source of job satisfaction. Indeed, employees working in more cohesive teams generally report higher job satisfaction (Dobbins & Zaccaro, 1986). In nursing, group cohesion leads to better teamwork and satisfaction (Kalisch et al., 2010; Larrabee et al., 2003; Shader et al., 2001). Nurses working in more effective units provide high-quality care that meets patient needs (Shortell, Rousseau, Gillies, Devers, & Simons, 1991). In addition, nurses who perceive their work to be important to their patients' well-being are more satisfied with their job (Kangas, Kee, & McKee-Waddle, 1999). Therefore, nurses who perceive their unit to be more effective may also perceive more satisfaction with their job. We thus propose the following hypotheses:

- *Hypothesis 2a:* Group cohesion is positively related to job satisfaction.
- *Hypothesis 2b:* Unit effectiveness is positively related to job satisfaction.

Organizational-Level Predictors

Job satisfaction can also be influenced by organizational-level factors. Research on nurses' job satisfaction has focused on the concept of magnet hospitals (McClure & Hinshaw, 2002). Such hospitals share specific organizational attributes and professional nursing practices that allow them to attract and retain nurses, even in periods of shortage (Kramer & Schmalenberg, 2002; Stordeur, D'Hoore, & the NEXT-Study Group, 2006). Among these practices, three have often been cited: nurses' control over the conditions of practice, nurses' autonomy, and good nurse-physician relationships (Aiken, Clarke, & Sloane, 2002; Aiken & Patrician, 2000). Although these aspects are often measured via nurses' perceptions, they represent shared collective constructs at the organizational level (Hofmann, 2002) because nurses are asked to evaluate the level of control and autonomy they have in their hospital as well as the overall quality of the relationships nurses have with physicians in their hospital. They reflect organizational-level strategies and policies put in place by hospital administrators or nursing directors which are then implemented in the entire organization, but which are also affected by daily social interactions among workers. Measures of "magnetism" like the nursing work index are described as capturing organizational traits of hospitals (Aiken & Patrician, 2000). Hospitals that allow nurses to have control over nursing practice, freedom to offer the care they consider appropriate for patients, and support in their decisions by the organization, their peers, and physicians can expect higher satisfaction (Hinshaw, 2002) and lower turnover intentions (Van den Heede et al., in press) among their employees. In addition, overall, magnet-related factors appear to be more efficient than monetary incentives as a retention strategy (Upenieks, 2003). The effects of autonomy and control over practice are echoed in Kanter's (1977) theory of empowerment and related studies (see Nedd, 2006) that suggest a positive impact of empowering work environments on attitudes like satisfaction. However, again, research has rarely analyzed magnet factors within a multilevel framework, nor used multilevel analyses to test the joint impact of magnet factors and individual-level factors. In addition, these factors have rarely been tested together with other psychological variables (Zangaro & Soeken, 2007). We are therefore interested in testing whether we can find relationships between magnet factors and satisfaction when other (individual-level and group-level) variables are included and appropriate multilevel analyses are used. We thus propose the following hypotheses:

– *Hypothesis 3a:* Control over practice is positively related to job satisfaction.
– *Hypothesis 3b:* Autonomy is positively related to job satisfaction.
– *Hypothesis 3c:* Good nurse-physician relationships are positively related to job satisfaction.

Keeping Employees in the Organization

Beyond keeping their employees satisfied, employers are pressured to retain their employees in their organizations in case of a job-market shortage. In hospitals, demographic characteristics (Flinkman, Leino-Kilpi, & Salanterä, 2010) or an inadequate patient-to-nurse ratio (Curtin, 2003) are important predictors of nurses' intent to leave. However, hospitals may have difficulty controlling these factors, for instance, because of financial restrictions or during shortage periods. Job satisfaction can indirectly be influenced by hospitals and is an important (negative) predictor of nurses' intent to leave their job (Beecroft et al., 2008; Brewer et al., 2009; Flinkman et al., 2010; Larrabee et al., 2003; Lum et al., 1998). Therefore, nurses who are more satisfied with their job should be less prone to leave it, which leads to our next hypothesis:

– *Hypothesis 4:* Job satisfaction is negatively related to a person's intention to leave their job.

Retention can also be enhanced by well-integrated human resource management programs developed in organizations by (nursing) administrators and their human resources (HR) partners (Wheeler, Halbesleben, & Harris, 2012). For instance, encouraging professional development opportunities (e.g., training, promotions) or offering competitive contractual conditions (e.g., financial incentives, flexible work schedules) can help reduce turnover (Heinz, 2004). However, such programs are only effective (1) if they correspond with employees' (i.e., nurses') priorities and needs and (2) if they are clearly communicated to employees. That is, the success of such programs ultimately depends not only on the amount of resources employers have invested, but on how these programs are perceived and valued by nurses. Two factors could reduce the success of employers' attempts to improve work-related factors for nurses and, in turn, lead to nurses' dissatisfaction with these factors. First, employers may fail to recognize factors that nurses consider to be essential (or attach greater importance to other factors; Kuhar et al., 2004). Information about nurses' priorities or needs has to travel several steps to reach decision makers in hospitals; it passes from registered nurses to head nurses or nurse managers, from head nurses to nursing directors, and sometimes from nursing directors to HR managers (i.e., bottom-up communication issues). Employers may thus be unaware of nurses' actual priorities and fail to invest resources in developing the appropriate factors. For instance, it could be that training opportunities are key factors for nurses, but that nursing directors are unaware of this and thus fail to invest in developing training programs. Second, employers may recognize the appropriate factors, invest in them, but fail to effectively communicate to nurses what they have done (i.e., top-down communication issues). Implemented changes are not always received by nurses as expected and changes can be perceived as insufficiently communicated (Rousseau & Tijoriwala, 1999). For instance, nursing directors may be informed about nurses' interest in training opportunities, develop appropriate training programs, but insufficiently communicate it to the nurses. In both cases, differences would be observed between nurses' priorities regarding various work-related factors and the nurses' perception of their employer's priorities regarding these factors. Because communication problems are likely in nursing (Chant, Jenkinson, Randle, & Russell, 2002) and because nurses have often been described as dissatisfied with their working conditions (Lynn & Redman, 2005), we expect such differences to appear for most factors.

– *Hypothesis 5:* Nurses' perceptions of their employers' priorities regarding work-related factors are lower than their own priorities.

These perceived differences in priorities may constitute a potential moderator of the relationship between job satisfaction and intent to leave. Small differences in priorities can be interpreted as nurses perceiving their employer to attach importance to work-related factors that are important for them (i.e., their salary, but also their working conditions, the flexibility of their work schedule, or their development opportunities). In such a situation, nurses may believe that their employer cares about them and invests enough resources to retain them. They may also believe that the conditions in their current position are acceptable in comparison to possible conditions with another employer. Evidence from a meta-analysis suggests that the relationship between job satisfaction and turnover is moderated by the quantity of employment alternatives available, with dissatisfied employees being more likely to remain in their job during high-unemployment periods (Carsten & Spector, 1987). For nurses, unemployment is not an issue (i.e., because of the existing shortage of nurses), but other moderators (such as perceived differences in priorities) may act in a similar fashion. As such, nurses may remain in their job (and in their organization) even if they are not particularly satisfied with it if they perceive their employer to be attaching enough importance to key factors (i.e., when the differences in priorities are small):

– *Hypothesis 6:* Perceived differences in priorities moderate the relationship between job satisfaction and intention to leave the job.

We tested the above hypotheses via a cross-sectional survey in Swiss hospitals. The nurses completed an online questionnaire (except for those in one organization where paper versions were used) measuring job satisfaction, their priorities regarding work-related factors, intent to leave the job, and various individual-level, unit-level, and hospital-level potential predictors of job satisfaction.

Method

Participants

Participants were 1,547 nurses working in 245 health care units in 17 private and public hospitals or health care institutions from French-speaking Switzerland, representing an average participation rate of 37.1% (*SD* = 18.0%). Women represented 85.1% of the sample. Nurses were mainly Swiss (55.4%) or French (35.3%) and most of them (80.6%) lived in Switzerland. The participants' age was normally distributed with 79.4% of nurses between the age of 26 and 50 (the median group was 36–40 years old). Nearly half of the respondents (49.7%) were married and 61.7% had children. On average, the participants had been working for 13.90 (*SD* = 9.60) years in nursing, for 8.81 (*SD* = 7.92) years with their current employer, and for 6.16 (*SD* = 6.47) years in their current position. Forty percent of nurses worked fulltime and the remaining worked parttime. Nurses took care of 8.09 patients per day (*SD* = 6.76).

Procedure

The nursing directors of each organization were contacted individually by phone and were informed about the objective of the study and the data collection procedure. Of the 20 directors contacted, 17 agreed to participate. Data was collected with an online questionnaire in French. The head nurses of each unit were informed about the study during a meeting, either by one of the authors or by the nursing director, depending on the hospital policy. The head nurses were then asked to describe the study to all of the nurses in their units during their next handover and to give each nurse a one-page, standardized document describing the study. Additionally, we arranged with the nursing directors and the information technology teams of each organization to either install the questionnaire website as the main page of the internet browser or to create a link to the study in their intranet system.

Measures

Individual-Level Variables

Job satisfaction was measured with 5 items (α = .73) from the Extended Satisfaction with Life Scale (Alfonso, Allison, Rader, & Gorman, 1996). An example of an item was "I am pleased with the praise I get for doing a good job." Items were translated into French and a 7-point rating scale was used for all items (1 = *completely disagree*, 7 = *completely agree*). Four researchers fluent in both English and French performed backtranslation on all items. Work-family conflict was measured with 8 items (α = .86) from the French version of the Survey Work-Home Interaction-Nijmegen (Geurts, 2000; Lourel, Gana, & Wawrzyniak, 2005). An example of an item was "How often does it happen that your work schedule makes it difficult for you to fulfill your domestic obligations?" Responses were made on a 4-point scale (1 = *never*, 4 = *always*). We assessed three aspects of burnout using the French version of the Maslach Burnout Inventory (Maslach & Jackson, 1981; Mitaine, Adiceom, & Colombat, 1998): emotional exhaustion (9-item scale, α = .85), depersonalization (5-item scale, α = .69), and personal accomplishment (8-item scale, α = .73). Examples of items included "I feel used up at the end of the workday" (emotional exhaustion), "I don't really care what happens to some recipients" (depersonalization), or "I feel I'm positively influencing other people's lives through my work" (personal accomplishment). Responses were made on a 7-point scale (1 = *never*, 7 = *every day*).

Group-Level Variables

Group cohesion was measured with a 7-item scale (α = .77) taken from the Team Diagnostic Survey (Wageman, Hackman, & Lehman, 2005). An example of an item was "Working together energizes and uplifts members of our team." Unit effectiveness was measured with a 5-item scale (α = .77) taken from the Perceived Effectiveness section of the ICU Nurse-Physician Questionnaire (Shortell et al., 1991). An example of an item was "Overall, our unit functions very well together as a team." All items were translated into French and evaluated using a 5-point rating scale (1 = *completely disagree*, 5 = *completely agree*). The same four researchers backtranslated all of the items.

Organizational-Level Variables

Control over practice (7-item scale, α = .76), autonomy (5-item scale, α = .73), and nurse-physician relationship (3-item scale, α = .82) were measured with the Revised Nursing Work Index (Aiken & Patrician, 2000). Examples of items included "There is enough time and opportunity to discuss patient care problems with other nurses" (control over practice), "Nurses have the freedom to make important patient care and work decisions" (autonomy), or "Physicians and nurses have good working relationships" (nurse-physician relationship). All items were translated into French. The original 4-point rating scale was used for all items (1 = *completely disagree*, 4 = *completely agree*). Again, the same researchers backtranslated the items.

Table 1
Individual-level correlations between main study variables and aggregation indicators

Variable	Scale	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12
1. Tenure	–	9.60	8.82	–											
2. Emotional exhaustion	1–7	3.76	1.09	–.07	(.85)										
3. Depersonalization	1–7	3.10	1.02	–.11	.55	(.69)									
4. Personal accomplishment	1–7	6.18	.90	.04	–.33	–.34	(.73)								
5. Work-family conflict	1–4	1.92	.48	–.03	.56	.26	–.06	(.86)							
6. Group cohesion	1–5	3.96	.35	.03	–.26	–.17	.17	–.26	(.77)						
7. Unit efficacy	1–5	3.87	.36	.10	–.23	–.19	.21	–.19	.41	(.77)					
8. Control over practice	1–4	2.79	.13	.03	–.39	–.24	.14	–.30	.26	.42	(.76)				
9. Autonomy	1–4	2.86	.13	.06	–.32	–.22	.16	–.28	.36	.45	.62	(.73)			
10. Nurse-physician relationships	1–4	2.89	.20	.05	–.19	–.16	.15	–.18	.22	.36	.41	.52	(.82)		
11. Difference in priorities	–6–6	1.44	1.12	–.01	.20	.10	–.01	.29	–.07	–.16	–.31	–.30	–.12	(.87)	
12. Job satisfaction	1–7	5.05	.85	.07	–.38	–.24	.16	–.37	.44	.43	.43	.56	.34	–.42	(.73)
13. Intent to leave	1–5	2.00	.94	–.13	.39	.22	–.07	.35	–.29	–.37	–.27	–.30	–.17	.28	–.43
ICC(1)group		.23	.24	.44	.16	.27									
ICC(2)group		.51	.62	.78	.48	.65									
$r_{WG(J)}$group		.92	.90	.94	.93	.91									
ICC(1)org		.16	.12	.29	.03	.08									
ICC(2)org		.70	.84	.93	.70	.86									
$r_{WG(J)}$org		.89	.90	.93	.92	.91									

Note. Scale reliabilities (Cronbach's α) appear on the diagonal in parentheses. $N = 1{,}547$. All correlations above .06 or below –.06 are significant at $p < .01$.

Priorities Regarding Work-Related Factors

Nurses reported the priority of 16 work-related privileges and factors (e.g., education opportunities, flexible work schedules, variety of tasks; see Table 4 for a complete list of items) on a 7-point scale ranging from *not important at all* to *very important*. They were then asked to evaluate how high a priority they perceived these 16 factors to have for their employer on similar scales. These 16 factors were adapted from previous research on HR factors influencing personnel retention (e.g., Ulrich, 1997).

Intent to Leave the Job

The intention to leave one's job was measured with one item: "How often do you think about leaving your current position?" Possible responses were *never*, *a few times a year*, *a few times a month*, *a few times a week*, or *every day*.

Control Variables

The control variables were sex, age, and organizational tenure.

Data Analyses

All analyses were conducted using SPSS Statistics 20. Group-level (i.e., unit effectiveness and group cohesion) and organizational-level (magnet hospital factors) constructs were operationalized following the referent-shift composition model (Chan, 1998). Data were collected at the individual level (i.e., nurses' perceptions), and within-group or within-organization agreement was verified by computing intraclass correlation indicators (i.e., ICC(1) and ICC(2)) using Bliese's (2000) approach and the average $r_{WG(J)}$ using LeBreton and Senter's (2008) approach. All values are presented in Table 1. We found good levels of agreement at the group or organizational level for the variables measuring unit- or hospital-level predictors of satisfaction, suggesting that aggregation of these measures was appropriate.

Results

Predictors of Job Satisfaction

Table 1 presents the descriptive results and individual-level correlations among the main study variables. Furthermore, we tested Hypotheses 1 to 3 using four models of multilevel linear regression with job satisfaction as the dependent variable (Table 2). In Model 2.1, only control variables

Table 2
Multilevel linear regression explaining job satisfaction

Parameter	Model 2.1	Model 2.2	Model 2.3	Model 2.4
Fixed effects				
Intercept	4.824 (.110)	5.659 (.257)	3.155 (.405)	4.319 (1.538)
Control				
Sex	.090 (.069)	.131* (.062)	.144* (.061)	.138* (.062)
Age	.018 (.015)	.009 (.014)	.010 (.014)	.013 (.014)
Tenure	.006 (.004)	.002 (.003)	–.002 (.003)	.000 (.003)
Individual-level factors				
Emotional exhaustion	–.164** (.032)	–.149** (.033)	–.144** (.032)	
Depersonalization		–.094** (.028)	–.085** (.028)	–.095** (.029)
Personal accomplishment		.138** (.030)	.122** (.030)	.112** (.030)
Work-family conflict		–.391** (.061)	–.375** (.059)	–.396** (.060)
Group-level factors				
Group cohesion			.308** (.074)	.291** (.076)
Unit effectiveness			.318** (.070)	.329** (.072)
Organizational-level factors				
Control over practice				.439 (.699)
Autonomy				–1.465 (.994)
Nurse-physician relationships				.689 (.589)
–2Loglikelihood	2777.078	2408.448	2348.618	2194.430
df	7	11	13	16
Δ –2LL		–368.630**	–59.830**	–154.188**

Notes. N = 1,547 at the individual level, 245 at the group level, and 17 at the organizational level. Values are unstandardized estimates for the random intercepts (standard errors in brackets). Sex: 1 = female, 2 = male. Intraclass correlation (ICC[1]) = .010 at the organization level and .096 at the group level when computed on the null model and .023/.061 when computed on Model 2.4. Models including random slopes did not show better fit indices and their results are thus not presented here. * $p < .05$, ** $p < .01$, * $p < .05$.

(sex, age, and tenure) were included. Individual factors (the three facets of burnout and work-family conflict) were included as predictors of satisfaction in Model 2.2. Group-level factors (group cohesion and unit effectiveness) were additionally included as predictors in Model 2.3. Finally, organizational-level factors (control over practice, autonomy, and nurse-physician relationships) were included in Model 2.4. The models displayed are based on the random intercepts and fit indices (–2 log likelihood) are presented. Fit indices showed that adding individual-, group-, and organizational-level predictors improved the model. However, models including random slopes at the group or organizational level did not improve the model and are thus not presented. Hypothesis testing was based on Model 2.4. The results showed that the three aspects of burnout (emotional exhaustion, depersonalization, and personal accomplishment) and work-family conflict significantly predicted job satisfaction at the individual level, providing support for Hypotheses 1a, 1b, 1c, and 1d. At the group level, both group cohesion and unit effectiveness were significant predictors of job satisfaction, supporting Hypotheses 2a and 2b. Finally, at the organizational level, none of the magnet factors (control over practice, autonomy, and nurse-physician relationships) were significant predictors of job satisfaction. Hypotheses 3a, 3b, and 3c were therefore rejected.

Predictors of Intent to Leave

We again used multilevel linear regression with intent to leave as the dependent variable to test Hypothesis 4 (Table 3). Model 3.1 only included control variables, while job satisfaction was entered as predictor in Model 3.2. Table 3 presents the main results and showed that adding the latter two predictors improved the model. Again, models including random slopes did not improve the model and are thus not presented. The results of Model 3.2 showed that job satisfaction was negatively related to intent to leave, supporting Hypothesis 4.

Priorities Regarding Work-Related Factors

Table 4 presents the priority for nurses and the priority for employers as perceived by the nurses of the 16 work-related factors. We performed a one-way between-groups multivariate analysis of variance (MANOVA), with the 16 factors as dependent variables and type of response (nurses' vs. nurses' perceptions of employers) as the independent variable, to test Hypothesis 5. We controlled for employer with 15 control variables, using weighted effect coding (Cohen, Cohen, West, & Aiken, 2003) to correct for difference in sample size

Table 3
Multilevel linear regression explaining intent to leave

Parameter	Model 3.1	Model 3.2	Model 3.3	Model 3.4
Fixed effects				
Intercept	2.265 (.122)	4.577 (.186)	4.208 (.222)	3.602 (.280)
Control				
Sex	.100 (.081)	.122 (.073)	.119 (.074)	.097 (.074)
Age	–.064** (.018)	–.050** (.016)	–.044** (.017)	–.046* (.016)
Tenure	–.005 (.004)	–.004 (.004)	–.005 (.004)	–.004 (.004)
Job satisfaction		–.479** (.031)	–.435** (.035)	–.310** (.049)
Perceived difference in priorities			.094** (.026)	.479** (.112)
Job satisfaction × Perceived difference in priorities				–.080** (.022)
–2Loglikelihood	2833.941	2615.942	2466.116	2453.758
df	7	8	9	10
Δ –2LL		–217.999**	–149.826**	–12.358**

Note. N = 1,368 at the individual level, 245 at the group level, and 17 at the organizational level. Values are unstandardized estimates for the random intercepts (standard errors in brackets). Sex: 1 = female, 2 = male. Models including random slopes did not show better fit indices and their results are thus not presented here. * $p < .05$, ** $p < .01$.

Table 4
Priority for nurses versus priority for employer as perceived by nurses for the 16 factors

Work-related factor	Priority for nurses		Perceived priority for employer		
	M	*SD*	*M*	*SD*	Cohen's *d*
Work-life balance	6.50	0.88	4.05	1.63	1.87
Job security	5.97	1.17	4.61	1.56	.99
Task variety	5.96	1.00	4.37	1.50	1.25
Reasonable workload	5.90	1.12	3.83	1.64	1.47
Autonomy	5.86	1.01	4.59	1.43	1.03
Training opportunities	5.83	1.19	4.90	1.51	.68
Personal development opportunities	5.72	1.20	4.26	1.58	1.04
Flexible work schedule	5.49	1.34	4.27	1.54	.85
Leadership role opportunities	5.48	1.31	4.54	1.43	.96
Holidays	5.46	1.31	3.81	1.56	1.15
Benefits	5.37	1.34	3.77	1.57	1.10
Competitive salary	5.37	1.38	3.89	1.50	1.03
Home-work distance	5.22	1.55	3.26	1.78	1.17
Promotion opportunities	5.11	1.52	4.20	1.47	.61
Discounts on meals	4.50	1.90	3.34	1.75	.64
Available day care	3.97	2.26	2.85	1.91	.54
Mean	5.48	1.34	4.03	1.58	.99

Note. N = 1,352.

between hospitals. There was a statistically significant difference between the two types of response, $F(16, 2547) = 187.57$, $p < .001$, $\eta^2_p = .54$. As expected, for all factors, the priority for nurses was superior to the priority for employers as perceived by the nurses. Univariate tests revealed that differences reached statistical significance for all dependent variables, using a Bonferroni adjusted α level of .002, all Fs$(1, 2562) > 204.65$, all $ps < .001$, all $\eta^2_p > .07$, with medium to large effect sizes (Table 4). Together, the results provide full support for Hypothesis 5.

To test Hypothesis 6, we computed an overall score for the perceived difference in priorities. First, we computed the difference in priorities for each of the 16 factors and for each nurse. We then computed the average across the 16 factors to obtain a global score for each nurse (the reliability for this scale was good, $\alpha = .87$). Thus, a positive score means that nurses perceive that their employer allocates less priority to the factors than they do. We introduced this variable as an additional predictor of intent to leave in Model 3.3 and the two-way interaction with job satisfaction

in Model 3.4 (Table 3). The improvement in fit indices was significant, suggesting that the perceived difference score explains additional variance in intent to leave the job. Moreover, the interaction between perceived difference in priorities and job satisfaction was also significant, implying that perceived difference in priorities moderated the relationship between job satisfaction and intent to leave, supporting Hypothesis 6. Slope tests revealed significant negative slopes both for low (–1 *SD*; $B = -.34$, $t = 5.10$, $p < .001$) and high (+ 1 *SD*; $B = -.52$, $t = 2.46$, $p < .01$) perceived differences in priorities. However, the interaction suggested that the relationship between job satisfaction and intent to leave was stronger when nurses also perceived large differences with respect to work-related factors.

Discussion

Retaining key employees is important for any organization, especially when there is a shortage in the profession, such as in today's job market for nurses in Switzerland and elsewhere. In addition to leaving the organization, nurses may also quit the profession, which could threaten the overall quality of health care services provided in a region. The present research contributes to existing research on nurse satisfaction by proposing and testing a multilevel framework of predictors of job satisfaction at various levels. It is also one of the first studies to simultaneously examine multiple predictors of nurses' satisfaction in the Swiss context. In this study, both individual-level and group-level constructs predicted satisfaction, while organization-level factors did not predict satisfaction over and above lower-level constructs. Previous research provided nursing administrators with generic suggestions regarding retention strategies (e.g., Shader et al., 2001). However, our results allow us to suggest more specific strategies at various levels. At the individual level, burnout and work-family conflict are strongly related to work dissatisfaction. Organizations may thus want to develop policies (e.g., flexible work schedules) and provide support (e.g., daycare services) to reduce WFC and stress. At the work unit level, group cohesiveness and unit efficiency are related to satisfaction. Interventions focusing on team-building programs as a means to foster cohesion may help make nurses feel more satisfied. Finally, at the organizational level, policies (e.g., autonomy given to people performing operational tasks) were not strongly related to job satisfaction when the variance explained by individual-level and group-level variables was controlled for. Earlier studies showed a more optimistic picture, some suggesting that people feel fulfilled in their jobs when they have a sense of autonomy and control over the activities they perform (Hackman & Oldham, 1975). Others, however, argued that nursing administrators could develop policies that empower nurses, for instance, by encouraging, facilitating, and rewarding decision making at the bedside (Hinshaw, 2002).

Our data suggest that at least group-level intervention should be taken into consideration, but that organizational-level factors (e.g., magnet hospitals factors) may be less important when lower-level factors are controlled for. Our effects at the organizational level are based on a limited number of hospitals (i.e., $N = 17$), but our sample does represent a substantial proportion of the existing hospitals in French-speaking Switzerland. Nevertheless, more research is necessary on this issue, and we (as well as others – see Rousseau, 1985) are convinced that investigating a multifaceted phenomenon such as job satisfaction requires simultaneously testing the effect of key variables (including collective constructs) at all relevant levels. Doing this allows us to state that effective intervention cannot be limited to one level in particular. For instance, one can invest resources in helping people who face burnout, but these resources are likely to be invested in vain if group or organizational factors prevent individuals from getting better. Also, higher-level intervention (e.g., communication strategies, improvement of working conditions) should be fostered to deal with burnout and reestablish balance between work and other aspects of life (Maslach, Schaufeli, & Leiter, 2001).

This study also showed that dissatisfied nurses intend to leave their organization, and that this relationship is moderated by the extent to which they believe that employers allocate enough priority to work-related factors. The smaller the perceived difference in priorities, the less nurses intend to leave even if dissatisfied by their job. In addition, not all work-related factors have the same importance for nurses. Thus, hospitals who cannot afford to invest resources in all the factors described above could still potentially reduce turnover by focusing on the right factors (e.g., on personal and professional development opportunities). However, such interventions are effective only if they are indeed perceived and valued by employees. Therefore, organizations need to develop efficient (top-down and bottom-up) communication between employees and administration (e.g., nursing directors, but also HR) to identify key factors for employees and inform them about what has been done to improve them. In hospitals, this could include nursing directors regularly participating in staff rounds or meetings, but also nurses participating in clinical practice committees (Kuhar et al., 2004).

This research has some limitations. First, our data are cross-sectional, and our results may not be free of problems associated with common method variance. Some of the relationships presented here may be reversed. For instance, we suggest burnout as a predictor of job satisfaction among nurses, but job dissatisfaction could also be a source of burnout. Future research should try to replicate our results using a longitudinal design, for instance, with predictors at the three levels at Time 1, job satisfaction at Time 2, and intent to leave (or actual turnover) at Time 3. Second, our results were obtained with French-speaking Swiss nurses, a population for which shortage is presently not too severe (Simoens et al., 2005). Different results may have been ob-

tained with hospitals operating in countries where the shortage is already more severe. Future studies should thus attempt to replicate our results in other countries, or compare countries (or regions) with different levels of shortage.

Conclusion

Our study highlighted factors predicting job satisfaction and intent to leave for nurses. Our results highlight the incremental value of group-level factors above and beyond individual-level factors when predictors of job satisfaction are examined. They thus stress the importance of incorporating predictors at various levels and applying appropriate multilevel analyses. Our study also encourages administrators and HR managers to consider various levels when developing strategies to satisfy and retain employees and to carefully design their communication plans in order to make these strategies more effective.

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