

Deteriorated External Work Environment, Heavy Workload and Nurses' Job Satisfaction and Turnover Intention

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Les divers projets de réforme du système de santé au Canada depuis les années 1990 ont profondément modifié les milieux de travail et les attitudes des travailleurs dans le domaine de la santé. Dans cet article, nous examinons les liens entre, d'une part, la détérioration de l'environnement de travail externe, la lourdeur des charges de travail et la satisfaction du personnel infirmier à l'égard du travail, et, d'autre part, les intentions des travailleurs face à un changement possible d'emploi. Les données étudiées proviennent d'une enquête réalisée en 2002 et à laquelle ont répondu 1 396 infirmières et infirmiers de trois hôpitaux d'enseignement du sud de l'Ontario. Nous avons d'abord analysé les données globalement ; ensuite, nous avons étudié de façon séparée celles qui concernent le personnel à plein temps, à temps partiel et occasionnel.

Par environnement externe, nous entendons les perceptions qu'ont les infirmières et les infirmiers des décisions importantes prises à l'extérieur de l'hôpital, les ressources limitées et les réductions de budgets.

Les résultats indiquent que, quand les travailleurs considèrent que l'environnement externe se détériore et que les charges de travail sont élevées, ils éprouvent aussi une faible satisfaction à l'égard du travail. Cette faible satisfaction et les lourdes charges de travail, à leur tour, sont associées à des intentions de changer d'emploi. Pourtant, quand les infirmières et les infirmiers perçoivent une détérioration de l'environnement externe, ils sont plus enclins à rester. Par ailleurs, les effets de la détérioration de l'environnement externe et de la lourdeur des charges de travail sur les intentions de changer d'emploi varient selon qu'il s'agit de travailleurs à plein temps, à temps partiel ou occasionnels.

Nous suggérons donc aux décideurs et aux gestionnaires de tenir compte de l'impact de la détérioration de l'environnement externe de travail et des lourdes charges de travail quand ils conçoivent des stratégies pour améliorer la satisfaction des employés à l'égard du travail et pour retenir le personnel. Et, plus important encore, ils devraient considérer les impacts différents de ces facteurs selon les conventions collectives quand ils mettent en place des politiques en ressources humaines pour améliorer la satisfaction au travail la rétention du personnel.

Health system reform experienced in Canada since the 1990s profoundly affected health-care workplaces and workers' attitudes. In this paper we examine associations between deteriorated external work environment, heavy workload and nurses' job satisfaction and turnover intention. Data are from our 2002 survey responses of 1,396 nurses employed in three teaching hospitals in southern Ontario. Data are analyzed first for all nurses and then separately for full-time, part-time, and casual nurses. External work environment refers to nurses' perceptions of important decisions being made outside the hospital, limited resources, and budget cuts.

Results show that when nurses perceive a deteriorated external work environment and consider their workload to be heavy, they also report low job satisfaction. Low job satisfaction and heavy workload, in turn, are associated with nurses' turnover intention. However, when nurses perceive a deteriorated external work environment they are more inclined to stay. When data are examined separately for each employment status group, the effect of external work environment and workload are different on turnover intentions for full-time, part-time, and casual nurses.

We suggest managers and policymakers pay attention to the impact of deteriorated external work environment and heavy workload in developing strategies for nurses' job satisfaction and retention. More importantly, the different impact of these factors according to employment contracts should be considered in developing human resources policies for nurses' job satisfaction and retention.

INTRODUCTION

In the 1990s, rising costs and reduced federal funding led to health system change in Ontario and other provinces in Canada (CHSRF 2000; Wetzel 2005a). During the ensuing downsizing, beds were closed and the nursing labour market was shaken; the workforce was reduced, and new jobs were created as part-time and casual (Cesa and Larente

2004). The proportion of part-time and casual nurses increased until 1998 and stabilized thereafter. In the early 2000s, given sustained political debate, improved government finances and growing public concern, the federal government changed its policy and started increasing cash transfers to the provinces (Wetzel 2005a). This, however, did not lead to major changes in nursing employment statuses in Ontario. Hospitals created more vacancies, but they

were primarily in part-time and casual positions. Presently, in Ontario, the province in which this study took place, only 52 percent of nurses have full-time employment, 28 percent have part-time, and 8 percent have casual jobs, with 12 percent having employment status unknown (CIHI 2005). And, nurses' employment in part-time and casual jobs is substantially higher than the Canadian labour force averages (Zeytinoglu and Cooke 2005).

Health system restructuring of the 1990s changed the work environment and affected management of human resources, union-management relations, and employee attitudes (Wetzel 2005*b*). Nurses were laid off and then hired back into part-time and casual positions (Baumann 2005). Under the changed work environment, nurses felt overworked and betrayed by their organizations; they also experienced reduced job satisfaction and organizational commitment (Armstrong-Stassen *et al.* 1996; Baumann *et al.* 2001). Though some research has indicated that a decline in demand for nurses was the actual cause of large layoffs a decade ago (Vujicic and Evans 2005), there is reason for trepidation. Declining recruitment, the aging nursing workforce and an increased inclination for young nurses to leave their hospital jobs have created concerns about whether there will be sufficient numbers of nurses to meet the increasing demands in the future (Fooks *et al.* 2002; Needleman *et al.* 2002). Currently, while the demand for nurses is increasing, the nursing workforce is experiencing serious shortages (Villeneuve and Siomens 2004). There are also concerns about the quality of care and service delivery in hospitals due to staff shortages (Needleman *et al.* 2002; Aiken *et al.* 2001; O'Brien-Pallas *et al.* 2001).

The nursing shortage brought issues of recruitment and retention to the attention of the health-care managers and policymakers (Dault, Lomas and Barer 2004). In this restructured work environment managing human resources in the health-care sector became more challenging than ever (*ibid.*). A recent meeting of nurse leaders to set priorities for

nursing leadership (CHSRF 2006) recommended that workplace-level data be collected and disseminated on the impact of unhealthy work environments, including strenuous nursing workloads, nurses' recruitment, and retention. They pointed to *Listening for Directions I and II* and pressed for continued research and knowledge transfer and uptake "to make successful work environment policy changes" (*ibid.*, 9). Similarly, the Health Council of Canada's national summit identified health-care workplace practices as factors causing staff to feel overworked and stressed; and these, in turn, were contributing to turnover of staff, worsening the shortages (Health Council of Canada 2005). They recommended investing in financial and non-financial incentives to improve recruitment and retention of health-care staff.

As these commission reports, national-level meeting reports, and roundtable consultations show managers and policymakers are seeking information on "the key attributes of health-care workplaces that either encourage retention or contribute to excessively high turnover" (Dault, Lomas and Barer 2004, 13). These policy concerns were the impetus for this study.

In this paper we focus on nurses' job satisfaction and retention and examine associations between nurses' perceptions of the deteriorated external work environment and heavy workload, and their job satisfaction and turnover intention. The external work environment refers to nurses' perceptions of important decisions being made outside the hospital, limited resources, and budget cuts. Data come from our 2002 survey of 1,396 nurses employed in three teaching hospitals in southern Ontario, Canada.

TURNOVER THEORY AND THE CONCEPTUAL MODEL

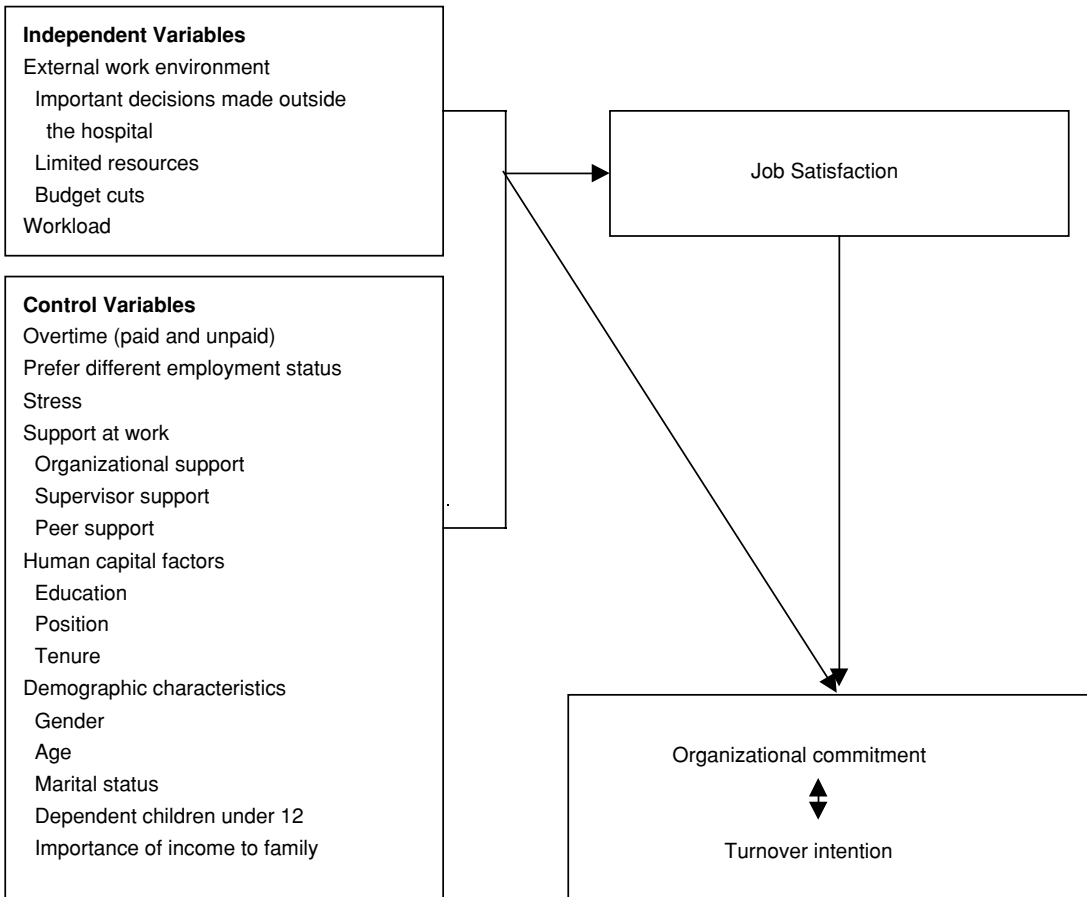
Human resources research has well established the importance of job satisfaction for retention (Arthur 2001). Retention and turnover are the opposite sides

of a coin and factors contributing to retention show the opposite effect on turnover. Turnover is the ultimate decision preceded by thoughts of leaving the organization, that is, turnover intention. Our study collected data from nurses still employed and focuses on nurses' turnover intention.

Mobley (1977) and his colleagues (Mobley *et al.* 1979) were the first to theorize the effect of job dissatisfaction on thoughts about quitting and, ultimately, turnover. Management research using the

turnover theory showed that turnover intention is the best predictor of whether an employee will leave the organization (Steel 2002); and job satisfaction is one of the major factors affecting an individual's decision (Hom and Kinicki 2001; Griffeth, Hom and Gaertner 2000). This knowledge led managers to focus on employees' job satisfaction in order to retain valued employees. The conceptual model of our paper is based on Mobley and his colleagues' turnover theory and the effect of job dissatisfaction on turnover intention (see Figure 1). In our model, job

FIGURE 1
The Conceptual Model of Factors Associated with Nurses' Job Satisfaction and Turnover Intention



satisfaction, as an employee outcome, is the dependent variable in the first analysis. In the analysis of turnover intention, job satisfaction is one of the independent variables affecting employee behaviour of turnover intention. Turnover intention is an organizational outcome and the main dependent variable in our analysis.

External work environment and workload are independent variables associated with job satisfaction and turnover intention. External work environment refers to nurses' perceptions of: important decisions being made outside the hospital, limited resources making it difficult to meet the needs of patients, and budget cuts seriously affecting the quality of services the hospital can provide. Workload refers to nurses' perceptions of the amount of work they do. Based on the literature on changes in nurses' work environment, which was discussed in the introductory section, we expect that, in our study, nurses who perceive deteriorated external work environments and consider their workload to be heavy will report low job satisfaction and increased turnover intention.

Empirical research on turnover intention shows a number of other work, psychosocial work environment, human capital, and demographic characteristic factors affecting workers' job satisfaction and turnover intention. In our model many of these factors are included but treated as control variables. Work and psychosocial work environment factors that we include here are: paid and unpaid overtime, and preference to working in another employment status (full-time, part-time or casual). There is evidence that nurses have high rates of overtime on a more or less continuous basis (Villeneuve and Simoens 2004), and research shows that unpaid overtime and employment in a job status that is not preferred are significant factors in nurses' intention to leave their jobs (Zeytinoglu *et al.* 2006). Research is also well established on the negative effect of stress and the positive effect of support at work on job satisfaction and intention to stay (Arthur 2001; Griffith, Hom and Gaertner 2000). We also control for human capital and demographic characteristics

of nurses, since research has shown that these factors can affect employees' job satisfaction and decisions to stay or leave their workplaces (Arthur 2001; Bloom, Alexander and Nuchols 1992). Organizational commitment is strongly associated with turnover intention (Meyer and Allen 1997), and there is a reciprocal relationship between commitment and turnover intention, with lower commitment leading to greater intention to quit which, in turn, further lowers commitment (Elangovan 2001). In our conceptual model, organizational commitment is included as a control variable for turnover intention.

Studies separately analyzing full-time, part-time, and casual nurses' turnover intention are rare. One recent study shows that full-time nurses have lower propensity to leave than part-time nurses (Burke and Greenglass 2000), but the factors that can affect such a decision are not well-known. A review of the literature by Dussault *et al.* (1999) concluded that many nurses who survived restructuring accepted these work arrangements because no other options were available. We argue that although nurses work in the same environment, the effects of the external work environment and workload might be different on full-time, part-time, and casual nurses. They might have different career goals and expectations from their jobs, and therefore, their behavioural responses to the external work environment and workload factors might be different. Thus, in addition to examining all nurses as a single group, we also explore whether there are different effects of the deteriorated external work environment and heavy workload on full-time, part-time, and casual nurses' job satisfaction and turnover intention.

METHODOLOGY

This paper is based on data collected in a larger project on the topic of the "new worker phenomenon in nursing." The larger project uses a mixed research methodology design combining both qualitative and quantitative methods. The qualitative data collection, analysis, and results are presented elsewhere

(Baumann *et al.* 2003; Blythe *et al.* 2005). This paper focuses on the survey results of that project.

Data

This study is limited to a purposeful sample of nurses in three hospitals in southern Ontario. We selected nurses in these hospitals because the hospitals have experienced restructuring, changing employment patterns, and retention problems. Two of the sample sites are the largest employers of nurses in their respective cities, and the third one is among the largest employers of nurses in that city. The total population of nurses in three hospitals at the time of surveying was 2,684. All nurses in each institution were included in the survey. Pilot testing of the questionnaire was conducted in April 2002. A modified Dillman approach (2000) was used to maximize the response rate to the questionnaire. A mail-out questionnaire was sent to all nurses in May/June 2002. After sending a reminder card, in June/July 2002 a second mail out was conducted. A total of 1,396 nurses responded, representing a response rate of 52 percent. A comparison of a few demographic characteristics (age, gender, and tenure at the hospital) between the respondents and hospital aggregate figures showed respondents to be similar to hospital averages.

Using a typology of employment contracts developed by Zeytinoglu (1999), we separated the data into four employment status groups: full-time permanent, part-time permanent, part-time casual, and full-time temporary nurses. Due to small numbers in the data, full-time temporary nurses (N=25) are not examined separately. Hereafter, we use full-time, part-time, and casual terminology for the first three groups of nurses.

Instrument and Study Variables

A new health-care worker questionnaire was developed for the study (Zeytinoglu *et al.* 2002). The questionnaire has a number of sections and questions from the employment status, overtime, work life (including an external environment section) and background sections are used in this paper. Pilot

testing of the questionnaire was conducted to establish the content validity of the instruments and this resulted in minor changes only to overtime questions.

Dependent variables are turnover intention and job satisfaction. *Turnover intention* is measured by summing the three-question construct of Landau and Hammer's (1986) propensity to leave scale and Lyons' (1981) intention to stay scale. The six questions are summed to create a turnover intention scale. Lyons' items are reversed in creating the scale. A sample item from Landau and Hammer's scale is "As soon as I find a better job, I'll leave this hospital," and from Lyons' is "If I were completely free to choose, I would prefer to keep working in this hospital." The responses to each item are scored as 1 = strongly disagree to 5 = strongly agree with responses ranging between 6 (lowest) to 30 (the highest) propensity to leave the hospital score. The confirmatory factor analysis with "varimax" rotation suggested turnover intention as one construct. The internal consistency of the scale is supported with a Cronbach's alpha of 0.88 for the full data (and similarly high reliability for each subgroup) as shown in Table 1. For further details, including percentage responses to each item, see Zeytinoglu *et al.* (2005).

Job satisfaction uses Spector's 1985 Job Satisfaction Survey. The job satisfaction survey assesses nine facets of job satisfaction and the overall job satisfaction scale is created by summing the 36 scale items (Spector 1997). The nine components of total job satisfaction are satisfaction with pay, satisfaction with promotion opportunities, satisfaction with immediate supervisor, satisfaction with fringe benefits, satisfaction with contingent rewards, satisfaction with rules and procedures, satisfaction with co-workers, satisfaction with the type of work done, and satisfaction with communication within the organization. A sample item for the survey is "I feel I am paid a fair amount for the work I do." The subscales are added together to obtain the overall job satisfaction score which we use in our paper.

TABLE 1
Descriptive Statistics for all Variables
(means, standard deviations, and scale reliabilities (α))

Variables	All N = 1,396 Mean (s.d.)	All α	Full-Time N = 791 Mean (s.d.)	Full-Time α	Part-Time N = 452 Mean (s.d.)	Part-Time α	Casual N = 115 Mean (s.d.)	Casual α
Dependent variables								
Turnover intention	14.7(4.7)	0.88	14.4(4.6)	0.88	14.9(4.6)	0.88	16.1(5.4)	0.90
Job satisfaction	110.3(15.3)	0.89	109.9(15.6)	0.89	110.9(14.8)	0.88	109.8(14.9)	0.88
Independent variables								
External work environment	11.8(2.1)	0.73	11.9(2.1)	0.74	11.7(2.0)	0.67	11.4(2.3)	0.78
Workload	20.6(4.4)	0.85	20.7(4.4)	0.84	20.6(4.5)	0.87	20.0(4.4)	0.83
Control variables								
Overtime								
Paid	367(27%)	n/a	232(30%)	n/a	115(26%)	n/a	13(11%)	n/a
Unpaid	283(21%)	n/a	181(23%)	n/a	82(18%)	n/a	9(8%)	n/a
Prefer different status								
Yes	294(21%)	n/a	164(21%)	n/a	92(20%)	n/a	30(26%)	n/a
No	1,089(79%)	n/a	624(79%)	n/a	358(80%)	n/a	85(74%)	n/a
Stress	32.4(7.9)	0.87	33.1(8.1)	0.88	31.8(7.6)	0.86	30.2(7.2)	0.86
Support at work								
Organization	16.5(3.9)	0.74	16.3(4.0)	0.76	16.4(3.7)	0.71	17.0(3.5)	0.70
Supervisor	19.1(5.6)	0.94	19.3(5.5)	0.94	18.6(5.7)	0.94	18.8(5.7)	0.95
Peer	15.5(2.5)	0.81	15.6(2.5)	0.80	15.5(2.6)	0.82	14.9(2.4)	0.78
Commitment to hospital								
Affective	17.7(4.5)	0.82	17.8(4.5)	0.82	17.4(4.4)	0.82	17.3(4.5)	0.81
Continuance	18.0(4.1)	0.72	18.4(4.0)	0.69	17.7(3.9)	0.70	15.5(4.7)	0.83
Normative	15.7(4.4)	0.83	15.8(4.4)	0.83	15.5(4.3)	0.84	15.7(4.5)	0.85
Education								
University	309(22%)	n/a	170(22%)	n/a	103(23%)	n/a	31(27%)	n/a
Other than university	1,087(78%)	n/a	624(79%)	n/a	349(77%)	n/a	84(73%)	n/a
Position								
RN	1,279(93%)	n/a	731(93%)	n/a	426(94%)	n/a	96(86%)	n/a
RPN	103(8%)	n/a	56(7%)	n/a	26(6%)	n/a	16(14%)	n/a
Tenure (in months)								
Hospital	154(113)	n/a	162(116)	n/a	156(104)	n/a	92(101)	n/a
Position	96(90)	n/a	101(93)	n/a	100(86)	n/a	58(71)	n/a
Gender (female)	1,324(96%)	n/a	743(94%)	n/a	437(98%)	n/a	109(97%)	n/a
Age	41.2(9.5)	n/a	42.4(9.7)	n/a	41.4(8.9)	n/a	40.6(10.0)	n/a
Marital status								
(married/common-law)	998(72%)	n/a	516(67%)	n/a	371(83%)	n/a	85(74%)	n/a
Presence of children under 12	496(43%)	n/a	219(35%)	n/a	219(53%)	n/a	45(45%)	n/a
Importance of income to family	4.40(0.86)	n/a	4.57(.72)	n/a	4.22(.90)	n/a	3.86(1.18)	n/a

Item responses are from 1 to 5, with 1 = strongly disagree to 5 = strongly agree. In creating the scale, some of the items are reverse-scored (as suggested by Spector 1997). Spector's job satisfaction survey is widely used and has been reported as a sound measure of job satisfaction in many studies in human resources. In this study, the confirmatory factor analysis with varimax rotation showed a comprehensive job satisfaction scale with Cronbach's alpha of 0.89 for full data. For each nursing employment group, see Table 1. For further details including percentage responses to each item see Zeytinoglu *et al.* (2005).

The *independent variables* consist of external work environment and workload. Our study uses a perceived deteriorated external work environment and perceived workload measure. Perceptions show one's feelings. Although what we perceive can be different from reality, perceptions are important because employees' attitudes, such as job satisfaction and turnover intention, are based on the perception of what reality is, not on reality itself (Robbins and Langton 2003). A perceived work environment and workload measure can capture all aspects that might contribute to the feeling of the deteriorated work environment and heavy workload. Research shows sufficient reliability to consider perception-based measures to be accurate (Spector *et al.* 2000).

The external work environment measure is developed based on our qualitative studies of restructured nursing work environments in hospitals (Baumann *et al.* 2003; Blythe *et al.* 2005) and in home care (Denton, Zeytinoglu and Davies 2003). The workload scale is from Denton, Zeytinoglu and Davies (2002) and Denton *et al.* (2002). When exposed to the same objective situation of workplace change or increased workload, the feeling of whether the environment deteriorated or the workload increased may differ from one individual to another. While some may consider an increase in workload as heavy workload (physically and mentally), others may consider

the same increase in workload as the appropriate level for their job and do not perceive it as heavy. Similarly, external work environment changes may be considered as a challenge to conquer (positive) for some workers, but may be perceived as deteriorated (negative) work environment for others.

For the workload measure, one other reason for using a perception-based measure is that objective data on nursing workload in Ontario are not as reliable as generally believed. In a symposium sponsored by Dr. O'Brien-Pallas, CHSRF/CIHR National Chair, Nursing Human Resources, Scott (2006) showed that objective nursing workload data collected for the Ministry of Health and Long-Term Care in Ontario have serious flaws. Conference Chair Dr. O'Brien-Pallas also confirmed the objectivity concerns of workload data reported to the ministry. Even the managers in some hospitals questioned accuracy of the workload data reported from their hospitals.

The *external work environment* variable is a composite variable consisting of three items with responses scored as 1 = strongly disagree to 5 = strongly agree. The measure ranges between 3 (lowest) to 15 (the highest), with higher values showing agreement with the deteriorated external work environment. The statements are: "Too many important decisions about this hospital are made by those outside the hospital. Limited resources make it difficult to meet the needs of patients. Budget cuts are seriously affecting the quality of the services this hospital can provide." We used exploratory factor analysis (principal components factor analysis) with the "varimax" rotation method to identify items composing the scale. Items composing the scale were summed and Cronbach's alpha was calculated for scale as a measure of reliability. The principal components factor analysis suggested external work environment to be a single construct. The internal consistency of this measure was supported with Cronbach's alpha of 0.73 for full data. See Table 1 for nursing subgroups.

The *workload* scale (Denton, Zeytinoglu and Davies 2002; Denton *et al.* 2002) asks respondents to indicate whether they agree or disagree with the statements such as "I have too much to do on this job." The responses are coded on a Likert scale with 1 = strongly disagree to 5 = strongly agree, and the measure ranging between 6 (lowest) and 30 (highest) with higher values indicating perceptions of a heavy workload. The confirmatory factor analysis showed that workload is a single construct for our data and the Cronbach's alpha for internal consistency is 0.85 for full data, indicating very good reliability (see Table 1 for each nursing subgroup).

Control variables consist of two work environment factors: paid and unpaid overtime, and preference for a different employment status. *Paid and unpaid overtime* is measured as no overtime in the last two-week pay period = 0, and worked overtime = 1. *Prefer a different employment status* is asked through two questions. First, current employment status of full-time, part-time, or casual is asked, followed by "Would you prefer a different employment status?" and a "yes" or "no" response is selected.

Stress is measured by *symptoms of stress* scale (Denton *et al.* 2002). Respondents are presented with 14 symptoms of stress and are asked on a five-point scale ranging from 1 = none of the time to 5 = all of the time how often they felt this way during the past month. A sample item for the scale is: "I am (not) able to sleep through the night." Stress scores range from 14 (lowest) to 70 (highest) stress score. The validity and reliability of the scale is reported in Denton *et al.* (2002). For the data in this research, high internal consistency of the scale was reported with Cronbach's alpha = 0.87 for full data (and Table 1 showing the alpha's for subgroups). For further details, see Zeytinoglu *et al.* (2005).

Three types of social support are controlled for in the study. *Organizational support* and *supervisor support* scales are each measured using a six-item and *peer support* is measured using a four-

item Likert scale adapted from Denton *et al.* (2002). For scale items and the validity and reliability of the scale, see Denton *et al.* (*ibid.*), and for the internal consistency of the constructs for this data, Cronbach's alpha is reported in Table 1. *Organizational commitment* is measured using the Organizational Commitment Scale of Meyer, Allen and Smith (1993) and consists of *affective commitment* (nurse's emotional attachment to, identification with, and involvement in the hospital), *continuance commitment* (nurse's awareness of the costs that might be associated with leaving the hospital), and *normative commitment* (feeling of obligation to the hospital to continue employment). The organizational commitment scale is widely used and is a sound measure of organizational commitment with three components (Meyer and Allen 1997). This is a Likert-type scale with each subscale scores ranging from 6 to 30 with higher scores indicating higher commitment to the hospital. For sample items, percentage response to each item and further details, see Zeytinoglu *et al.* (2005). For Cronbach's alpha for reliability, see Table 1.

Human capital variables include education, profession, and tenure at their employing hospital and current position. *Education* is coded as university degree = 1 or other (refers to all other levels of education) = 0, *position* is coded as RPN = 1, RN = 0, *tenure* is measured as months worked at hospital, and months worked in current position. *Personal characteristics* for this study include *gender* (female = 1, male = 0), *age* (years), *marital status* (married/living with a partner = 1, else = 0), *children under age 12* (coded as yes = 1, or no = 0) and the *importance of income to family's economic well-being* (measured with a single item with a five-point scale, with responses to "How important is your income to your family's economic well-being?" coded as 1 = not at all important to 5 = very important).

Analysis

The analysis is conducted for all nurses in the sample and separately for nurses in three work status groups: full-time, part-time, and casual. We begin

analysis with descriptive statistics giving means, standard deviations, and Cronbach's alphas for scale reliabilities (for all variables and for three groups of nurses). Analysis of variance and Tukey's tests were conducted for (confirmatory) significance testing between three groups of nurses' responses to dependent variables and independent variables. Next, we report correlations between key independent and dependent variables examining associations between variables. Following that, we proceed to the multivariate analysis of the ordinary least square (OLS) regression analysis. The OLS regression shows the association between the independent variable and the dependent variable when all other factors are controlled for. In Model 1 (Table 2) job satisfaction is the dependent variable, and in the full Model (in Table 3), job satisfaction and commitment are included as independent and control variables, respectively. To show the variance explained by these factors we provide Adjusted R^2 . Due to their small numbers in the data, for casual nurses the analysis is conducted only with the variables that showed as significant in the bivariate regressions of the full data. Commitment variables are included in the turnover analysis but not in the job satisfaction analysis since the theory shows that it is not a factor that affects job satisfaction.

We also tested whether job satisfaction mediates the effect of the independent variables (external work environment and workload) and turnover intention using the three-stage regression analysis of Baron and Kenny (1986) mediation test. This involved (i) regressing the mediator on the independent variables, (ii) regressing the dependent variable on the independent variables, and (iii) regressing the dependent variable on both mediator and independent variables. The following conditions indicate mediation: the independent variables affect the mediator in the first equation; the independent variables affect the dependent variable in the second equation; the mediator affects the dependent variable in the third equation; and the effects of independent variables on the dependent variable

are weaker in the third equation than in the second equation. Perfect mediation holds when, controlling for the mediator, the independent variable no longer predicts the dependent variable.

The results showed that job satisfaction did not mediate the external work environment, and therefore we included it as an independent variable in the turnover analysis. Job satisfaction partially mediated workload and this is discussed in the results section. Due to space limitations these results are not provided here, but are available from the first author.

Limitations of the Study

It is important to note that our study has certain limitations. First, it is a survey of only three teaching hospitals in one province. Although conducting the study focusing on a small number of hospitals allowed us to examine the issues in-depth, we caution the readers about generalizing from our results. Though these results, reflecting the respondents' views are valid, they cannot be generalized to other hospitals in Ontario and elsewhere. We suggest further studies on the topic, and ideally, a national-level analysis of these issues for generalizations.

Second, our study is a cross-sectional analysis and thus, we are only able to show associations between variables. We cannot make causal inferences from our study. We recommend longitudinal studies on nurses' attitudes and behavioural responses to policy changes to show causal relationships.

Third, our study was conducted in 2002 and the results are valid for that time period and the circumstances of nurses at that time. However, since then there has been some policy changes and infusion of funds that addressed working conditions with the aim of improving recruitment and retention. It is possible that, if the survey was conducted today, results might be different. This is another reason for recommending longitudinal, national-level studies on the topic. Finally, we also recommend studies to examine nurses' perceptions versus actual decisions,

TABLE 2
Factors Associated with Nurses' Job Satisfaction
(the OLS regressions)

	<i>Job Satisfaction</i>							
	<i>All Data</i>		<i>Full-Time</i>		<i>Part-Time</i>		<i>Casual</i>	
	<i>B</i>	<i>S.E.</i>	<i>B</i>	<i>S.E.</i>	<i>B</i>	<i>S.E.</i>	<i>B</i>	<i>S.E.</i>
Constant	95.716	4.447	93.127	6.670	99.950	7.279	93.793	14.604
External work environment	-0.818***	0.152	-0.776***	0.221	-0.947***	0.252	-1.028	0.545
Workload	-0.719***	0.075	-0.793***	0.110	-0.725	0.117	-0.569*	0.272
Overtime								
Unpaid	1.195	0.720	0.833	0.987	2.231	1.212	-	-
Paid	-0.701	0.627	-0.774	0.870	-1.031	1.011	-	-
Prefer different status	-0.943	0.675	-1.261	0.970	-0.057	1.161	-	-
Stress	-0.321***	0.041	-0.323***	0.058	-0.300***	0.067	-0.257	0.169
Support at work								
Organizational	1.044***	0.098	1.053***	0.139	1.002***	0.160	1.031*	0.420
Supervisor	0.849***	0.060	0.901***	0.087	0.754***	0.094	0.883***	0.223
Peer	0.664***	0.115	0.534***	0.170	0.898***	0.183	0.565	0.427
Education								
University = 1, Else = 0	-0.179	0.695	0.576	1.008	-0.959	1.101	-	-
Position (RPN = 1, RN = 0)	-5.292***	1.088	-4.393**	1.617	-6.979***	1.939	-5.872*	2.865
Tenure								
Hospital	0.006	0.004	0.001	0.006	0.008	0.007	-	-
Current position	-0.010*	0.004	-0.010	0.006	-0.011	0.007	-0.003	0.015
Gender	2.494	1.4969	1.912	1.851	1.928	2.834	-	-
Age	0.096*	0.042	0.159*	0.062	0.050	0.076	0.124	0.101
Married/common-law vs not	0.938	0.759	0.823	1.014	1.611	1.446	-	-
Child(ren) under 12	-0.149	0.610	-0.185	0.908	-1.084	1.025	-	-
Importance of income to family	-0.199	0.323	0.464	0.574	-0.532	0.490	-	-
Adjusted R ²	0.641		0.629		0.647		0.601	

Notes: *p < 0.05 **p < 0.01 ***p < 0.001.

B = Regression coefficient.

S.E. = Standard error.

TABLE 3
The Full Model of Factors Associated with Nurses' Turnover Intention
(the OLS regressions)

	<i>Turnover Intention: Full Model with Job Satisfaction (and commitment) Included</i>							
	<i>All Data</i>		<i>Full-Time</i>		<i>Part-Time</i>		<i>Casual</i>	
	<i>B</i>	<i>S.E.</i>	<i>B</i>	<i>S.E.</i>	<i>B</i>	<i>S.E.</i>	<i>B</i>	<i>S.E.</i>
Constant	31.536	1.923	31.070	2.503	30.930	3.543	29.565	6.068
External work environment	-0.117*	0.055	-0.036	0.071	-0.231*	0.100	-0.249	0.195
Job satisfaction	-0.057***	0.011	-0.047**	0.014	-0.072**	0.021	-0.036	0.032
Workload	0.086**	0.028	0.099**	0.037	0.061	0.048	0.087	0.100
Overtime								
Unpaid	-0.215	0.258	0.098	0.317	0.229	0.478	-	-
Paid	-0.238	0.224	-0.101	0.279	-0.487	0.397	-	-
Prefer different status	0.874***	0.241	0.436	0.312	2.132***	0.457	-0.348	0.840
Stress	0.067***	0.015	0.031	0.019	0.108***	0.027	0.230**	0.063
Support at work								
Organizational	-0.027	0.038	-0.003	0.050	-0.066	0.067	-	-
Supervisor	0.003	0.024	-0.020	0.030	0.061	0.040	-	-
Peer	-0.128**	0.042	-0.128*	0.055	-0.045	0.075	-0.111	0.160
Commitment								
Affective	-0.408***	0.034	-0.418***	0.044	-0.384***	0.066	-0.526***	0.110
Continuance	-0.047	0.028	-0.021	0.036	-0.008	0.052	-	-
Normative	-0.150***	0.035	-0.170***	0.044	-0.153*	0.064	-0.230*	0.100
Education								
University = 1, Else = 0	0.667**	0.248	0.913**	0.323	0.219	0.432	0.130	0.848
Position (RPN = 1, RN = 0)	-0.713	0.397	-0.519	0.525	-1.916*	0.778	-	-
Tenure								
Hospital	-0.003*	0.001	-0.001	0.002	-0.006*	0.003	0.003	0.004
Current position	0.000	0.001	0.001	0.002	0.000	0.003	-	-
Gender	0.555	0.525	0.699	0.592	0.171	1.115	-	-
Age	0.029	0.015	-0.007	0.020	0.056	0.030	-	-
Married/common-law vs not	0.065	0.271	0.173	0.324	-0.361	0.572	-	-
Child(ren) under 12	-0.217	0.219	-0.226	0.291	-0.025	0.405	-	-
Importance of income to family	-0.406**	0.118	-0.378*	0.186	-0.414*	0.197	-0.336	0.308
Adjusted R ²	0.530		0.549		0.511		0.542	

Notes: *p < 0.05 **p < 0.01 ***p < 0.001.

B = Regression coefficient.

S.E. = Standard error.

that is, behaviours, to further shed light on the topic. It is possible that once given the choice to leave, nurses might decide to stay (for economic reasons or for lack of better opportunities elsewhere) even if they are not satisfied with their current jobs.

RESULTS

Descriptive Results

A substantial minority of nurses indicated an intention to leave the hospital although there were clear differences by employment status. Analysis of a variance test indicated significant differences in intention to leave between groups, and further tests (Tukey's test) confirmed significant differences between casual nurses and full-time and part-time nurses, with casual nurses having a higher intention to leave in comparison to full-time and part-time nurses. There were no significant differences between full-time and part-time nurses. In terms of job satisfaction, all nurses were moderately satisfied with their jobs, and there were no statistically significant differences according to employment status. Table 1 provides descriptive statistics for all nurses, and for each subgroup.

The vast majority of nurses, regardless of employment status, agreed with the external work environment statements that budget cuts are affecting the quality of service, limited resources make it difficult to meet needs, and too many decisions are made by those outside the hospital. There were no statistically significant differences in nurses' responses to these questions. Regarding workload, the average score suggests that nurses feel their workload to be heavy, and there were no statistically significant differences according to employment statuses.

Correlations

Bivariate correlations between key variables show that turnover intention is highly correlated with decreased job satisfaction (-0.495 , $p \leq .01$), with perceptions of deteriorated external work environment (0.192 , $p \leq .01$) and with heavy workload

(0.289 , $p \leq .01$). Decreased job satisfaction is also strongly related to perceptions of deteriorated external work environment (-0.435 , $p \leq .01$) and heavy workload (-0.465 , $p \leq .01$). There is a strong relationship between perceptions of deteriorated external work environment and heavy workload (0.376 , $p \leq .01$).

Regression Results

With respect to job satisfaction, as we show in Table 2, external work environment and increased workload are significantly and negatively associated with job satisfaction for all nurses. When all variables are considered, using ordinary least square regression, the model explains 64 percent of variance in job satisfaction for the full data (i.e., all nurses). Perceptions of the external work environment are significantly associated with full-time and part-time nurses' job satisfaction with the magnitude of the regression coefficient showing a strong negative association. For casual nurses external work environment has no significant association with job satisfaction, though the sign of the regression coefficient suggests a negative association. The workload variable is significant and the magnitude of the regression coefficient is high and negative for full-time and part-time nurses' job satisfaction. For casual nurses, workload has a weak significant negative association with job satisfaction. The lower magnitude of the regression coefficient suggests lesser association with workload and job satisfaction for casual nurses. For full-time nurses, the model, including all variables, explains 63 percent of the variance in the job satisfaction outcome, and for part-time nurses 65 percent of the variance in the job satisfaction outcome is explained. For casual nurses, the variables that were found to be significantly associated with full data analysis were included in the model and these variables show 60 percent of the variance in the job satisfaction outcome.

For turnover intention, as we show in Table 3 for all data, external work environment is a weak but negatively significant factor in nurses' intention to leave their employing hospital. Job satisfaction is significantly and negatively associated, and

workload is significantly and positively associated with nurses' turnover intention. The magnitudes of these three regression coefficients are low, suggesting lower influence on the dependent variable of turnover intention. Although we are not presenting the mediation analysis in detail, the results showed that workload is partially mediated through job satisfaction in affecting turnover intention for all nurses. When job satisfaction is added to the equation, the effects of workload (on nurses' intention to leave) are greatly diminished. With all variables included in the regression, our model explained 53 percent of variance in the turnover intention of nurses.

When nurses are analyzed separately according to job status, the external work environment factor shows a weak significance (with a low magnitude) only for part-time nurses' turnover intention. Job satisfaction is moderately significant and has low magnitude, suggesting low influence on turnover intentions of full-time and part-time nurses. Job satisfaction is not significantly associated with casual nurses' turnover intentions. Workload is significantly and positively associated with full-time nurses' turnover intentions, but for part-time and casual nurses workload is not significant. Workload's effect is partially mediated through job satisfaction for full-time and part-time nurses and thus, the magnitude of workload regression coefficient has decreased in this model. In casual nurses' data, the magnitude of the regression coefficient for workload also shows a decreased value, but the data do not show mediation through job satisfaction. For full-time nurses, our regression model explains 55 percent of the variance in turnover intention. For part-time nurses, our regression model with the full set of variables explains 51 percent of the variance in turnover intentions, and for casual nurses, variables that were significant for the full data show 54 percent of the variance in turnover intentions.

POLICY IMPLICATIONS OF FINDINGS

There is a great need and interest among nurse managers and policymakers to understand factors

associated with recruitment and retention of nurses (CHSRF 2006; Dault, Lomas and Barer 2004; Health Council of Canada 2005; O'Brien-Pallas and Murphy 2005). Recently, Shamian, Villeneuve and Siomens (2004) and Wetzel (2005a) argued that Canada's nursing shortages and retention problems are policy driven and are related to the 1990s' health system changes and employment policies. Our study, with its rich survey data from nurses, supports the arguments put forward by Shamian *et al.* and Wetzel.

Decisions of the federal government to decrease transfer funding, and successive provincial governments' decisions to restructure the health-care sector, cutting budgets while demanding increased service affected nurses' attitudes. Nurses' perceptions of important decisions being made outside the hospital, limited resources making it difficult to meet the needs of patients, their belief that budget cuts are seriously affecting the quality of care their employing hospital can provide, and their perceptions of heavy workloads are affecting their attitudes toward their job and workplaces. They are reporting low job satisfaction and higher turnover intention.

There are, however, some differences among nurses according to their employment statuses. In particular, heavy workload is a factor for full-time nurses' turnover intention and perceived deteriorated external work environment is contributing to the part-time nurses' decision to hold on to their jobs and stay in their employing hospitals. For casual nurses, however, neither the deteriorated external work environment nor the heavy workload is a factor associated with their intention to leave or stay.

As Wetzel (2005b) discusses, while transitional consequences of health sector restructuring can be changed with new funding or policies, operational consequences of these reforms on workers are more enduring. To respond to the nursing shortage, in the province where this study took place, the Ontario government initiated a new health human resources strategy, and policies to retain new graduates and

senior nurses (OMHLTC 2006 *a, b, c*). It announced full-time jobs to all new graduates in nursing and promised to take action to provide healthy work environments for all nurses and to create flexibility measures for nurses over 55 years of age to retain the experienced nurses within the profession.

While these policy changes are in the right direction, it will take time for the initiatives to change nurses' attitudes. Nurses feel as though they have been treated merely as a cost item on budget sheets for such a long time, and operational decisions have been made without seriously considering the long-term consequences of decisions of layoffs, creating mostly part-time or casual jobs, or temporary positions and hiring unregulated workers. Now nurses do not trust the system anymore. They are worried about earning a "decent income" for themselves and their families. They cannot make long-term plans for their lives in a volatile labour market where decisionmakers and policymakers treat them as a cost item rather than an asset on a balance sheet and in the provision of care to patients. Policymakers at both federal and provincial levels have to make genuine efforts to change these ingrained attitudes, and earn the nurses' trust.

In developing human resources policies for the health-care sector, we strongly suggest policymakers pay attention to the enduring effects of their policies on the nursing workforce, and as an extension of that, on the health-care workforce. Once workers' trust in the system is lost, it is difficult to retain staff. In addition, we recommend separate health sector human resources policies for full-time, part-time, and casual nurses so that policies can be geared to each employment status group's needs and interests. A blanket policy for all nurses cannot be a solution to retention concerns.

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