

Résumé

Les infirmières autorisées exerçant seules dans les régions rurales et éloignées du Canada

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Ce document examine les données démographiques sur les infirmières autorisées (IA) qui exercent seules dans les régions rurales et éloignées du Canada, leurs lieux de travail, ainsi que les avantages et les défis présentés par cette situation d'emploi unique. Les données sont tirées d'une enquête d'envergure nationale, une des quatre grandes approches utilisées pour mener le projet *The Nature of Nursing Practice in Rural and Remote Canada (La pratique infirmière en régions éloignées et rurales du Canada)*. Sur l'échantillon total de l'enquête, 412 infirmières (11,5 %) étaient employées comme seules infirmières autorisées dans leur milieu de travail. Les variables d'intérêts sont notamment le niveau d'instruction, le milieu d'emploi et la répartition régionale des lieux de travail. Une analyse des prédicteurs de la satisfaction au travail confirme les résultats de recherches antérieures soulignant l'importance de la formation continue et du contact direct avec des collègues. Les résultats de cette analyse pourraient aider les pouvoirs publics à prendre des décisions relatives à l'emploi des IA dans les régions rurales et éloignées du Canada.

Mots clés : rurales, éloignées, infirmières, instruction, satisfaction au travail

Registered Nurses Working Alone in Rural and Remote Canada

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This paper describes the demographics of Registered Nurses (RNs) who work alone in rural and remote Canada, their workplaces, and the benefits and challenges of this unique nursing employment situation. Data presented are from a national survey, one of 4 principal approaches used in conducting the project *The Nature of Nursing Practice in Rural and Remote Canada*. Of the total survey sample, 412 nurses (11.5 %) were employed as the only RN in their work setting. Variables of interest included level of education, employment setting, and regional distribution of workplaces. An exploration of predictors of work satisfaction confirmed previous research findings with respect to the importance of continuing education and face-to-face contact with colleagues. Findings from this analysis may inform policy decisions regarding the employment of RNs in rural and remote Canada.

Keywords: rural, remote, nurses, education, job satisfaction

Introduction

Nursing is a profession that offers opportunities to practise in a diversity of settings. Each nursing workplace presents unique challenges, requires a specific set of skills and knowledge, and offers an array of personal and professional rewards that combine to create work satisfaction and professional merit. The diversity of workplace settings increases exponentially in terms of the range of urban to rural and remote settings spanning the country. These work situations can vary from hundreds of registered nurses (RNs) employed by a large hospital to one RN working alone as the sole provider of nursing services to a specific population.

A national survey from the multi-method project *The Nature of Nursing Practice in Rural and Remote Canada* (MacLeod, Kulig, Stewart, Pitblado, & Knock, 2004) provided the data for this analysis (Stewart et al., 2005). The subsample of the survey data set used for the present analysis was derived from responses to the question “At your primary workplace how many RN positions (in full time equivalents) are there including yourself?” This paper will describe the demographics, primary work setting, employers, and predictors of work satisfaction of

RNs who reported working alone. Predictor variables included the RNs' personal characteristics, work characteristics, perceptions of their work-lives, and characteristics of the communities in which they practised.

Literature Review

Historical Perspective

Presentation of the history of nursing practice in early Canada is beyond the scope of this paper; however, it is important to provide some background in order to set the context for nursing practice in rural and remote settings. Historically, nursing care in Canada was provided by both laywomen and trained nurses, most often working alone (McPherson, 1996). Rural nursing, practised by highly respected and highly visible nurses working independently, was the staple in health-care services during the early development of this nation (Rennie, Baird-Crooks, Remus, & Engel, 2000). Nurses visited clients in their homes to provide care to the ill and dying, as well as offering midwifery and communicable disease services (Allemang, 1985). Progression of our health-care system towards centralized hospital care led to a reduction in the number of rural nurses and in the number of their nursing responsibilities. However, the community visibility of the rural nurse has been an enduring feature of health care in such environments.

The history of nursing in remote settings such as northern Canada also has at its roots the practice of RNs working alone. Nurses employed by the federal government and the provinces are historically documented as working alone in an expanded scope of practice (Meijer Drees & McBain, 2001; Waldram, Herring, & Young, 1995). Waldram and colleagues, writing on the history of Aboriginal health care in Canada, note that remote nurses were identified as being highly visible in their communities and that sometimes this visibility was accentuated by cultural differences, as in the case of Caucasian RNs working in an Aboriginal community. In investigating the role of RNs practising in northern Saskatchewan communities from 1930 to 1950, Meijer Drees and McBain found that nurses experienced varying degrees of geographical and professional isolation.

The Current Context

In 2000 there were 399 communities in Canada where nursing care was provided by a "Sole RN" (Canadian Institute for Health Information [CIHI], 2002, p. 39). These positions are reported to exist within community health agencies (Leipert, 1999), rural hospitals (MacLeod, 1998), and outpost nursing stations (Tarlier, Johnson, & Whyte, 2003). RNs are commonly known to work alone in rural and remote communities,

employed in home care, industrial settings, small integrated rural clinics, physician offices, long-term-care facilities, or other locations where they are the only health-care provider (MacLeod, Browne, & Leipert, 1998). Conditions under which RNs are employed to work alone are not well known. Further analysis of solitary practice by RNs may involve exploration of regulatory requirements (e.g., provincial occupational health and safety regulatory requirements such as those under the *Mines Act*), population-based provincial economic factors (e.g., number of rural community health positions), and federal or provincial policy mandates regarding health-care provision (e.g., size of a rural or remote community population as an indicator for government health personnel requirements).

Rural and remote nursing practice has been understood to involve a unique set of practice characteristics (MacLeod et al., 1998). There exists a potential for these practice characteristics to be magnified, in either a positive or a negative direction, which could result in an increased level of personal and professional strain on RNs who work alone. Nursing research has not specifically addressed working alone in the context of professional nursing issues, although research reports do suggest the potential for increased challenges (e.g., limited rural-specific educational preparation) (Kenny & Duckett, 2003). Exploration of rural and remote nursing practice research both nationally and internationally has been limited (CIHI, 2002; MacLeod et al., 2004). A literature review of rural and remote Canadian nursing practice identified issues related to defining the practice roles of nurses (Vukic & Keddy, 2002) and work setting and environmental and clinical issues (MacLeod et al., 1998).

Practice Issues in Rural and Remote Nursing

Challenges in rural and remote nursing have also been stated to include requests for health information/advice from community members outside of the workplace and outside of working hours (Leipert & Ruetter, 1998), barriers to continuing education, limited resources, the “generalist” knowledge base, and the enormity of professional responsibility in these practice settings (MacLeod, 1998). Practising in isolation as an RN may preclude interaction with other nurses or health-care professionals, further increasing the sense of responsibility perceived by rural and remote RNs. Kulig et al. (2003) suggest that the responsibilities of Canadian rural or remote nurses have not been adequately supported by relevant educational programs to prepare nurses for the generalist roles inherent in non-urban settings.

The nursing literature has paid limited attention to discussions of employment characteristics of the rural or remote RN. Davis and Drees (1993) found that rural RNs in the United States had decreased access

to full-time positions outside of the hospital setting, little access to public health positions, and increased access to half-time jobs or those of fewer hours due to the financial restraints of rural employers. They also report that obtaining vacation relief in rural areas is perceived as problematic, and suggest that RNs employed as the only nurse in an agency experience increased difficulty securing time off from work. A recent Canadian report (CIHI, 2002) shows that older nurses in rural areas and small towns are employed full-time more often than their younger colleagues, and that younger nurses more often report having more than one employer.

Contrasting the challenges of working in a rural or remote location, nursing research has documented the personal and professional benefits ascribed to these practice settings. Leipert (1999) found that nurses felt they made a difference within their communities and perceived greater support from nursing colleagues when working in the north. Hegney, McCarthy, Rogers-Clark, and Gorman (2002) report the main reasons for practising in rural or remote settings in Australia as: positive occupational or personal experiences in the rural setting, family connection to a rural/remote location, appeal of the rural lifestyle, availability of employment, and the autonomy inherent in rural and remote nursing practice. Although some of these areas of rural and remote nursing have been explored in Canada (MacLeod et al., 2004), more research is needed to describe nursing practice and settings where nurses work alone.

Work Satisfaction

Measures of work satisfaction enable organizations to assess the morale of the nursing workforce, investigate factors that are both positively and negatively related to work satisfaction, and assist in recruitment and retention efforts. Predictor variables used in previous research on work satisfaction have included age, education, gender, personal ability to deal with stress (referred to as hardiness), autonomy, pay, occupation and organization type, control over work hours, organization of nursing care, and management style (Stamps, 1997). However, there appears to be no set list of predictor variables consistent in the research (Stamps).

Research on work satisfaction among rural and remote RNs is limited. The literature that is available suggests a high level of work satisfaction among rural RNs in Australia (Hegney & McCarthy, 2000), rural nurse practitioners and midwives in the United States (Keith, Coburn, & Mahoney, 1998), and rural long-term-care nurses in the United States (Coward et al., 1995). Sardell (1996) describes the role of professional clinical networks in supporting health-care providers who work with the poor in areas where medical services are scarce. These supportive and educative networks have served to increase workplace satisfaction as well

as retention and recruitment. Sardell's preliminary findings support the need for further research, according to the author, in order to compare workplaces with and without formal support networks.

The Study

This paper examines some of the issues surrounding nurses working alone in rural and remote Canada. The data examined are from a larger national sample of rural and remote nurses. The national survey received ethics approval from the University of Saskatchewan's Behavioural Research Ethics Board. Canadian provincial and territorial nursing associations assisted with the mailout of the survey questionnaire, either by addressing and mailing it in order to ensure anonymity, or by releasing the names and addresses with a contract to ensure confidentiality. More details on the method of the national survey can be found in Stewart et al. (2005).

Content of the Questionnaire

The content domains of the questionnaire were demographic (Who are rural and remote nurses?), characteristics of the work environment and nursing practice roles (Where do nurses work and what do they do?), context of practice (community, educational, and interdisciplinary supports for practice), and issues related to nurse worklife (work satisfaction, safety, health, and career plans). English- and French-language questionnaires were developed for this study.

Measures Analyzed

Three demographic variables (age, gender, and nursing education) and one work characteristic variable (employment status) were compared across the total sample (inclusive of the sample of RNs working alone) and with the Registered Nurses Database (RNDB) population data on nurses in rural and small-town settings in Canada (CIHI, 2002). The workplace settings and employers identified by the participants were recoded to reflect groupings whereby the largest categorical sampling could be presented and analyzed (e.g., mental health centre; corrections and addictions were grouped due to the small numbers of respondents in each work setting).

The Index of Work Satisfaction (IWS) scale developed by Stamps (1997) was modified and embedded in the questionnaire. The total score from the scale in the survey was used as the dependent variable to measure work satisfaction among RNs working alone. The 30-item modified scale included six subscales that measured autonomy, pay, organizational policies, professional status, nurse-to-nurse interactions, and

nurse-physician interactions. Each subscale had five questions and used a seven-point Likert scale for responses. The modified IWS had a coefficient alpha of .87, which was consistent with the reliability reported in previous studies that used this measure, where alphas ranged from .82 to .91 (Stamps).

Three subscales from the standard Job Content Questionnaire (Karasek, 1985) were included in the survey: the five-item scale of psychological demands (alpha = .76), the three-item scale of decision authority (alpha = .68), and the six-item scale for skill discretion (alpha = .74). Karasek and Theorell (1990) report alphas in the range of .61 to .81. The decision latitude score is created with the combined scales of skill discretion (independent decisions for the use of skills) and decision authority (prescribed ability to make decisions regarding structure or function of work elements). The theoretical basis for the Job Content Questionnaire is the "demand control model" (Karasek & Theorell), which explores the relationship between occupational work stressors and the psychological response of workers.

Data Collection

The questionnaire was mailed to a random sample of rural nurses (stratified by province), all nurses registered in the territories, and all nurses who indicated on their annual registration form that their workplace was a nursing station or outpost. Data collection used a modified version of Dillman's (2000) Tailored Design Method. A total of 3,933 rural and remote nurses completed and returned the questionnaire, resulting in a response rate of 68%.

Working Alone Subsample

The subsample representing RNs who work alone was derived from responses to the question ($n = 3,585$) "At your primary workplace how many RN positions (in full time equivalents) are there including yourself?" Participants were included in this analysis if their response to the question indicated one or fewer nursing positions in their workplace. These criteria resulted in a subsample of 412 (11.5%) participants from all provinces and territories. A limitation of the sampling procedure is the possible inclusion of participants in a job-share situation, whereby one RN may work alongside another.

Analysis

The analysis was conducted using the SPSS Version 12 statistical application program. In addition to descriptive statistics, multiple linear regression analysis was used to examine predictors of work satisfaction. Potential predictors were at the level of the individual RN (age, gender,

and nursing education), the workplace (presence of a support network of colleagues, having face-to-face contact with colleagues, availability of the equipment necessary to provide care, nurses as first health-care contact in their work community, and having more than one nursing position), and the community (population of home community, community accessible only by plane, and frequency of being asked for advice outside of the workplace). In addition, predictors were selected on the basis of whether they reflected the individual RN's perceptions of his or her worklife (perception of role as advanced practice nurse, perception of barriers to continuing education, psychological demands, and decision latitude). The sample size decreased in the regression analysis, from 412 to 304, as respondents with missing values for the variables were removed. Power analysis, given the large sample size for the regression analysis ($n = 304$), was calculated using .01 level of significance returning a power of .99.

Table 1 Demographic and Work Characteristics of RNs Working Alone, Compared to Total Sample and RN Database^a

		Working Alone ($n = 412$) % (n)	Total Sample ($N = 3,933$) % (N)	CIHI (2002) ($N = 41,502$) % (N)
Gender				
Female		95.6 (394)	94.8 (3,722)	95.6 (39,694)
Male		4.4 (18)	5.2 (203)	4.4 (1,808)
Highest nursing education				
Diploma		70.5 (287)	72.6 (2,825)	81.4 (33,788)
Degree		29.0 (118)	26.0 (1,012)	18.0 (7,451)
Post-graduate degree		.5 (2)	1.3 (52)	.6 (263)
Employment status				
% Full-time	Yes	45.5 (185)	50.7 (1,983)	49.6 (20,599)
	No	54.5 (222)	49.3 (1,928)	
% Part-time	Yes	36.6 (149)	32.8 (1,281)	50.3 (20,894)
	No	63.4 (258)	67.2 (2,630)	
% More than one nursing position	Yes	26.8 (110)	20.8 (814)	16.4 (6,808)
	No	73.2 (300)	79.2 (3,099)	

^aData reported for RNs from rural and small towns for the year 2000 (CIHI, 2002).

Table 2 Employer of RNs by Number of RNs in Workplace

Employer	Number of RNs in Workplace in Full-Time Equivalents			
	≤ 1 RN^a % (n)	> 1 to ≤ 6 RNs % (n)	> 6 RNs % (n)	Total Sample RNs % (n)
Provincial government	36.9 (144)	48.1 (703)	64.1 (982)	54.0 (1,829)
Local health board/municipality	30.9 (121)	30.6 (448)	42.6 (423)	29.3 (992)
Private for-profit business	15.9 (62)	2.2 (73)	1.7 (26)	4.8 (161)
Federal government	4.6 (18)	8.7 (127)	4.1 (63)	6.1 (208)
Tribal council/band government	5.9 (23)	6.4 (93)	1.6 (25)	4.2 (141)
Other	5.9 (23)	1.3 (19)	0.8 (12)	1.6 (54)
Total	100 (391)	100 (1,463)	100 (1,531)	100 (3,385)

^a ≤ 1 RN represents RNs working alone.

Table 3 Primary Work Setting of RNs Working Alone by Number of RNs in Workplace

Work setting	Number of RNs in Workplace in Full-Time Equivalents				Total Sample RNs % (n)
	≤ 1 RN ^a % (n)	> 1 to ≤ 6 RNs % (n)	> 6 RNs % (n)		
Community health/public health agency	19.9 (81)	14.5 (221)	6.0 (97)		11.2 (399)
Outpost/nursing station/health centre	19.4 (79)	24.2 (370)	4.1 (67)		14.5 (516)
Home-care agency	12.8 (52)	10.0 (152)	4.1 (67)		7.6 (271)
Nursing home/long-term-care facility	11.5 (47)	19.1 (292)	10.8 (175)		14.4 (514)
Physician's office/family practice unit	9.8 (40)	1.4 (21)	0.2 (3)		1.8 (64)
Private business/self-employed	7.1 (29)	1.1 (17)	0.1 (1)		1.3 (47)
General hospital/air ambulance/dialysis unit	4.2 (17)	15.7 (239)	63.2 (1,027)		36.0 (1,283)
Educational institution/association/government	3.4 (14)	2.3 (35)	1.6 (26)		2.1 (75)
Mental health centre/corrections or addictions facility	2.5 (10)	1.9 (29)	1.5 (25)		1.8 (64)
Other	9.6 (39)	9.8 (150)	8.5 (138)		9.2 (327)
Total	100 (408)	100 (1,526)	100 (1,626)		100 (3,560)

^a ≤ 1 RN represents RNs working alone.

Table 4 Number of RNs in Workplace by Work Satisfaction Predictor Variables					
Variables	Number of RNs in Workplace in Full-Time Equivalents				
	≤ 1	> 1	χ²	p	
Workplace characteristics					
Colleague support network to provide consultation and/or support	Yes	91.0	88.2	2.8	.095
	No <i>n</i>	9.0 409	11.8 3,149		
Face-to-face contact with colleagues	Yes	55.7	75.7	73.6	.000*
	No <i>n</i>	44.3 406	24.3 3,104		
Availability of equipment to provide care	Yes	76.1	71.3	3.7	.055*
	No <i>n</i>	23.9 364	28.7 3,085		
Nurses first health-care contact in community	Yes	52.0	49.4	1.0	.329
	No <i>n</i>	48.0 408	50.6 3,526		
Currently have more than one nursing position	Yes	26.8	20.1	10.1	.001*
	No <i>n</i>	73.2 410	79.9 3,156		

Community characteristics						
Community accessible only by plane	Yes No n	10.5 89.5 411	10.6 89.4 3,164	0.0	.953	
Population of work community	200 or less 201-500 501-1,000 1,001-2,500 2,501-5,000 5,001-10,000 10,001 or more n	8.0 15.5 16.0 20.4 15.0 11.2 13.8 412	1.3 5.5 10.7 19.9 19.6 18.8 24.0 3,173	177.5	.000*	
Frequently asked for advice outside of work	Yes No n	85.3 14.7 401	78.2 21.8 3,062	10.8	.001*	
Perception of worklife						
Perceived role as advanced practice nurse	Yes No n	35.9 64.1 412	34.7 65.3 3,173	0.2	.624	
Perceive barriers to accessing continuing education	Yes No n	63.5 36.5 406	66.8 33.2 3,523	1.7	.188	

Notes: Ns differ across categories due to non-response. Figures in cells are percentages within columns.
 * Statistically significant.

Results

Personal and Work Characteristics of RNs Working Alone

The mean age of RNs working alone ($M = 47.5$ years, $n = 408$) was higher than the total sample population ($M = 45.0$, $N = 3,886$) and higher than the RNDB total population of RNs ($M = 42.9$, $N = 41,502$) living in rural and small-town Canada in 2000 (CIHI, 2002). Table 1 compares the percentage of RNs working alone to the total survey sample and Canadian Institute for Health Information (CIHI) data on gender, education, and employment status. The percentages of men and women in the samples are similar across the three data sets. RNs who worked alone had attained a slightly higher level of nursing education than the total sample, which was higher than the RN education level reported by CIHI. The employment status of RNs working alone was comparable to the total sample and the CIHI data for percentages of nurses working full time. A considerably smaller percentage of RNs in the total sample as well as the RNs working alone were employed part time, compared to the CIHI data. RNs who worked alone reported having a higher percentage of multiple nursing positions than the total sample, and the total sample had a higher percentage than the CIHI data.

RN position groupings, represented in Tables 2 and 3, were determined by using the total sample where the mode was equal to one and the median number of RNs in a workplace was six. Overall, the most frequent employers (Table 2) were provincial governments and local health boards, regardless of the number of full-time-equivalent (FTE) RN positions in a workplace. However, RNs working alone had a higher percentage practising in private for-profit or business settings (e.g., self-employed or employed in industry). Table 3 presents the subsample by work setting and FTE RN positions. Most solitary RN positions were reported in community health/public health and outpost nursing stations. When the number of RN positions increases from ≤ 1 to >1 to ≤ 6 , the predominant employment setting remains outpost/nursing stations/health centres; however, the second-largest setting is combined nursing home/long-term-care facility. Consistent with the RNDB data (CIHI, 2002), when the number of RNs in FTE positions reaches > 6 , hospitals are revealed as the largest employer of RNs in rural and remote Canada, followed by long-term-care facilities and community health/public health agencies.

Table 4 presents descriptive data contrasting the RNs who worked alone to those who worked in settings with more than one FTE nursing position. It identifies no significant difference in responses to questions regarding workplace characteristics regardless of the number of RNs in the workplace; however, face-to-face contact with colleagues was less fre-

quent for RNs working alone. Percentages of RNs working alone who reported having the equipment necessary to provide care were higher than for the comparison group with more nurses. A higher percentage of nurses working alone were employed in more than one position, as indicated in Table 1.

Residing in a community accessible only by plane was not significantly different for RNs working alone and RNs working in settings with more than one FTE nursing position. A larger percentage of RNs working alone lived in communities with a population between 1,001 and 2,500. When the population rose above 2,501 the percentage of RNs working alone decreased. Lastly, Table 4 indicates that RNs working alone were more often solicited for advice outside of the workplace than RNs in settings with more than one FTE RN. Percentages reported under worklife perceptions reveal similar responses in the two groups regarding barriers to continuing education and viewing their work role as advanced practice nurse.

Work Satisfaction

Table 5 presents the regression analysis predicting work satisfaction for RNs who worked alone. In the model, six of the 15 independent variables entered were significant predictors of work satisfaction, accounting for 30% of the variance in job satisfaction, $F(15, 288) = 9.68, p < 0.001$. The only significant personal factor in the model was level of nursing education. The results suggest a higher level of work satisfaction among RNs educated at the diploma level than RNs with one or more degrees. The workplace characteristics with a statistically significant positive relationship to work satisfaction were ability to have face-to-face contact with colleagues and availability of the equipment needed to provide care (both characteristics were lower for nurses working alone). Community characteristic variables were not statistically significant. The RNs' perceptions of their worklife resulted in three significant factors related to work satisfaction: barriers to continuing education and psychological demands had significant negative relationships with work satisfaction, whereas decision latitude had a significant positive relationship.

Discussion

The purpose of the present analysis of 412 RNs working alone in rural and remote Canada was to describe this subsample from the national survey and to examine predictors of work satisfaction that may be useful in health human resource planning. The RNDB (CIHI, 2002) focuses on the community level (i.e., the sole RN serving a community), while this presentation of data is related to RNs working alone in a diversity of

Table 5 Multiple Regression Predictors of Work Satisfaction (n = 304)				
Variables	B	SEB	β	p*
Personal characteristics				
Age	.11	.12	.05	.375
Female ^a	3.86	5.62	.03	.493
Diploma (DP) ^a	6.66	2.59	.13	.011*
Workplace characteristics				
Colleague support network ^a	4.68	4.10	.06	.256
Collegial contact face-to-face (FF) ^a	6.30	2.42	.14	.010*
Equipment needed is available (EN) ^a	8.43	2.34	.18	.000*
More than one nursing position ^a	-2.21	2.48	-.04	.372
Nurses first health-care contact ^a	-.61	2.48	-.01	.805
Community characteristics				
Community accessible only by plane ^a	6.69	4.16	.09	.109
Size of population	.50	.73	.04	.488
Asked for advice when not at work ^a	-4.45	3.24	-.07	.171
Perceptions of worklife				
Perceived role as advanced practice nurse ^a	-.67	2.73	-.01	.806
Fewer barriers to continuing education (BE) ^a	-8.50	2.49	-.18	.001*
Psychological demands (PD)	-.84	.19	-.22	.000*
Decision latitude (DL)	.80	.12	.35	.000*
Constant = 96.8, $p < .001$				
R squared = .34				
Adjusted R square = .30				
Work satisfaction: Model $F(15, 288) = 9.68, p < .001$				
$Y = -8.5 BE + 8.4 EN + 6.7 DP + 6.3 FF - .84 PD + .8 DL$				
^a Variables are dummy coded (1 = yes, 0 = no).				
* Statistically significant.				

work settings. Working alone was not found to be synonymous with employment in a small community.

The demographic and employment data from the working-alone subsample are similar to those in the full sample and are comparable to rural data from the RNDB analysis (CIHI, 2002). Present concerns regarding an aging rural and remote workforce, however, are accentuated in the working-alone subsample, whose average age is 47.5 years, compared to 42.9 years in the RNDB data. The potential for the RNs working alone to retire 5 years earlier than those in the full sample has implications for recruitment of rural and remote nurses, and for the

future provision of health-care services to populations served by RNs who work alone.

Of the RNs in the sample, 27% reported having more than one nursing position. Again, the RNDB (CIHI, 2002) analysis reports different results, identifying only 16.4% of RNs with multiple employers. These RNs are also stated to be younger than those employed full time in one position. It is plausible that full-time employment is more difficult to secure in rural locations. Although the present study did not analyze factors associated with multiple employment, future investigations into the rationale for part-time and multiple employment might be useful in describing the challenges or benefits of employment for novice RNs in rural and remote settings in general, as well as workplaces where nurses work alone.

Canada has a wide diversity of settings in which RNs work alone. Equally diverse are the employers of these RNs, although such positions are most often identified as primary care or primary health care. In the literature as well, rural and remote nurses are reported as holding community health or outpost nursing positions (Tarlier et al., 2003; Vukic & Keddy, 2002). One difficulty with assessing the work setting from the data is the current usage of the term community health centre, versus nursing station, to denote facilities that are nurse-managed clinics in rural and remote settings. Further analysis is needed to examine work settings by work characteristics, to allow for clarification of the categorization of the settings in which RNs practise.

Predictors of work satisfaction included individual characteristics, workplace characteristics, and perceptions of worklife. Surprisingly, the community variables selected in this regard were not statistically significant. The individual characteristics of age and gender were non-significant predictors of job satisfaction, whereas nursing education at the diploma level versus at a degree level was found to be a significant predictor of job satisfaction. Yet more RNs working alone had a degree than did RNs in the total sample or RNs in the RNDB data (CIHI, 2002). Further analysis is needed to examine the effect of education in predicting work satisfaction for RNs working alone; such analysis might include an examination of those workplace characteristics that require higher levels of education.

RNs working alone were more satisfied with their work if they had face-to-face contact with colleagues and access to the equipment they needed to provide care. Face-to-face contact with colleagues (not necessarily RNs) was a significant predictor of work satisfaction. Collegial support did not have a significant impact on work satisfaction. Over 90% of RNs in the subsample indicated that collegial support was provided; therefore, *type* of contact with colleagues, such as the ability to converse

face-to-face, supports Sardell's (1996) finding that collegial support affects job satisfaction. Efforts to maximize face-to-face collegial contact among RNs working alone could result in increased work satisfaction and retention of RNs in these types of nursing situations.

RNs in rural and remote communities are commonly asked for advice outside of work (MacLeod et al., 1998). Although a large percentage of the RNs working alone reported being asked for advice outside of the work setting, this had no significant effect on work satisfaction. This finding, combined with population size and accessibility of the community as non-significant predictors of work satisfaction, suggests that nurses inherently understand that, when employed in small communities, they are expected to give advice outside of work.

Among RNs working alone, 64% perceived barriers to their participation in continuing education, and this perception of barriers had a significant *negative* relationship with work satisfaction, which suggests that increasing access to continuing education could be an important way to increase work satisfaction. Additionally, increasing access to continuing education may serve to improve the delivery of health care in rural and remote Canada, where 52% of RNs working alone reported nurses as the first health-care contact in their workplace communities.

The multiple barriers to continuing nursing education for rural and remote nurses include the obvious challenge of great geographical distances between the work setting and educational institutions. Kulig et al. (2003) identify recent developments in Canadian nursing education and offer recommendations for the delivery of continuing educational resources to rural and remote RNs, as well as for basic nursing education. They express the belief that education specific to rural and remote nursing requires ongoing development. They also indicate that work satisfaction is a key factor in the retention of nurses in such work settings.

For RNs working alone, greater decision latitude and lower psychological demands were significant predictors of work satisfaction. Psychological demands are associated with workload; therefore, large workloads have a significant negative correlation with work satisfaction. Karasek and Theorell (1990) suggest that job strain results from situations of high demand and low decision latitude. Decision latitude as a significant predictor suggests that RNs working alone perceive that they are in a position to exercise the discretion necessary to make decisions, organize their work, and use their skills. It is important that this significant inverse relationship between work satisfaction and psychological demands be relayed to employers of nurses who work alone. High psychological (job) strain may be related to the nurses' high degree of responsibility and the closeness of their relationship with their patients and communities.

Conclusion

This initial national exploration of RNs who work alone in rural and remote Canada describes the diversity of the country's rural and remote nursing workplaces and employers. The analysis suggests two general points that have the potential to affect policy. First, nurses who work alone are significantly older than other nurses practising in rural and remote settings. Retirement of this cohort of nurses will require special attention with respect to the orientation of replacement nurses, in order to ensure continuity of care. Second, characteristics of the work environment are important to job satisfaction. Face-to-face contact with colleagues, adequate medical equipment, minimal barriers to continuing education, and greater decision latitude result in increased job satisfaction and are important focus areas for employers regarding recruitment and retention of nurses who work alone.

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