

Original Article
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Physician satisfaction and practice intentions in Northwestern Ontario

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Objective: The goal of this research was to understand factors that affect future practice intentions of physicians who practise in rural and underserviced areas. The following 2 research questions are answered: "How many physicians in Northwestern Ontario intend to leave their practice in 5 years?" and "What is the association between professional, personal/family and community factors in physician satisfaction and intention to stay in practice?"
Methods: Between September and October 2004, physicians practising in Northwestern Ontario were mailed a survey measuring professional, personal/family and community satisfaction as well as future practice intentions. Future practice intention (question 1) was analyzed through a frequency distribution, while the factors that influenced intention (question 2) were analyzed using a 3-step process: a factor analysis, the creation of scales and a logistic regression. The themes of the scales emerging from the factor analysis were family/community, time, professional support and efficacy, and sense of belonging and appreciation. The means of these 4 scales were entered into a logistic regression model along with demographic variables that were independent predictors of future practice intention.
Results: Three hundred and twenty-eight physicians were sent the survey. After 3 consecutive mailings, the response rate was 61.3% (n = 201). Over two-thirds of Northwestern Ontario physicians intended to remain in practice in 5 years; however, most of these physicians were from Thunder Bay, the only city (100 000+ population) in Northwestern Ontario. Physicians were significantly more likely to intend to stay in practice if they were younger, practised in Thunder Bay and scored higher on the family/community scale.
Conclusion: These findings underscore the importance of addressing family and community factors, as opposed to strictly professional factors, in future retention initiatives.

Objectif : Cette recherche visait à comprendre les facteurs qui ont une incidence sur les intentions professionnelles futures des médecins actifs dans des régions rurales et mal desservies. On répond aux deux questions de recherche suivantes : « Combien de médecins du Nord-Ouest de l'Ontario ont l'intention de quitter leur pratique dans cinq ans » et « Quel est le lien entre les facteurs professionnels, personnels–familiaux et communautaires dans la satisfaction des médecins et leur intention de continuer à pratiquer? »
Méthodes : Entre septembre et octobre 2004, on a envoyé aux médecins actifs dans le Nord-Ouest de l'Ontario un questionnaire postal pour mesurer leur satisfaction professionnelle, personnelle–familiale et communautaire, ainsi que leurs intentions de pratique future. On a analysé l'intention de pratique future (question 1) en établissant une distribution statistique, et on a analysé les facteurs qui ont une influence sur l'intention (question 2) en suivant un processus en trois temps : une analyse des facteurs, la création d'échelles et une régression logistique. L'analyse factorielle a dégagé les thèmes suivants pour les échelles : la famille et la communauté, le temps, l'appui professionnel et l'efficacité, ainsi que le sentiment d'appartenance et d'appréciation. On a entré les moyennes des quatre échelles dans un modèle de régression logistique, avec des variables démographiques qui constituaient des prédicteurs indépendants de l'intention de pratique future.

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Résultats : On a envoyé le questionnaire à 328 médecins. Après trois envois consécutifs, le taux de réponse a atteint 61,3 % (n = 201). Plus des deux tiers des médecins du Nord-Ouest de l'Ontario avaient l'intention de continuer à pratiquer dans cinq ans, mais ils étaient en majorité à Thunder Bay, la seule ville (100 000 habitants et plus) du Nord-Ouest de l'Ontario. Les médecins étaient beaucoup plus susceptibles d'avoir l'intention de continuer à pratiquer s'ils étaient plus jeunes, s'ils pratiquaient à Thunder Bay et s'ils avaient de meilleurs résultats sur l'échelle familiale–communautaire.
Conclusion : Ces constatations soulignent l'importance de tenir compte des facteurs familiaux et communautaires, plutôt que des facteurs rigoureusement professionnels, dans les initiatives futures portant sur la conservation des effectifs.

Introduction

For most of rural and remote Canada the shortage of physicians is a persistent challenge. Although nearly one-quarter of the population resides in rural and remote areas, less than 10% of physicians practise in these communities. Despite the investment in recruitment and retention efforts, these figures have remained relatively stable over the past decade.[1]

The primary strategy for recruitment and retention of physicians in rural Canada has continued to be financial incentives even though the evidence would indicate that this method alone is insufficient.[2] One example is given by the Underserviced Area Program (UAP) in Ontario, which provides free tuition to medical students in exchange for return-of-service in underserviced areas of the province as well as financial incentives to doctors who practise in these areas.[3] Evaluations of the UAP have reported that financial incentives alone have not been successful in alleviating rural physician shortages and that broader issues such as quality of life should also be addressed.[4] A similar conclusion was drawn by Pong and Russell[2] in their review of 53 provincial and national reports on physician retention. Their analysis revealed that financial incentives were the most frequently used retention initiative but that these incentives on their own did not have a sufficient impact on retention, and that personal and community factors should receive further study.

It may be that financial incentives are more successful as a means to attract physicians to rural practice than as a means for keeping them in practice. Support for this conclusion was provided by Yang[5] in a study of physicians who had moved from urban to rural areas. Yang found that financial incentives were necessary in the short term but unsuccessful over the longer term. This is consistent with the results of a survey conducted by Kazanjian and Pagliccia[6] in British Columbia that revealed the relatively low value of financial incentives as a way to potentially retain physicians. In Kazanjian and Pagliccia's study, both rural and urban physicians who reported an intention to leave their practice listed personal/family factors, followed by professional factors, then community factors and last financial factors as the reasons influencing their decisions. A qualitative study by Cutchin[7] offers further insight into the importance of personal and professional issues for practice satisfaction. Data collected through in-depth, open-ended interviews with rural physicians and key informants in rural Kentucky revealed 3 dominant themes: 1) dimensions of security (e.g., confidence in medical abilities, degree of on-call coverage, social and cultural networks, etc.); 2) dimensions of freedom (e.g., challenge and diversity in practice, involvement in community affairs, ability to develop health care resources, etc.); and 3) dimensions of identity (e.g., roles played and responsibilities taken, seeing the self as belonging to the community, etc.). Cutchin concluded that for continuing satisfaction a process of community integration is required to give physicians and their families meaning, purpose and subsequent ties to their community of practice.

These findings highlight the need to further explore the role of personal and community issues in addition to professional and financial factors as factors that may contribute to the retention of physicians in underserviced areas. The goal of this study, therefore, was to examine the association between professional, personal/family and community factors and the future practice intentions of physicians who practise in rural and underserviced areas.

Method

Sample

The sample consisted of physicians in Northwestern Ontario whose names were obtained from the

Ontario Medical Association's membership list, updated May 2004. Northwestern Ontario includes the following communities: Thunder Bay, Fort Frances, Red Lake, Sioux Lookout, Pickle Lake, Atikokan, Kenora, Geraldton, Marathon, Manitouwadge, Vermillion Bay, Keewatin, Nipigon, Emo, Dryden, Terrace Bay, Rainy River, Schreiber and Longlac. After the list was reviewed by key informants, names of physicians who were retired, gravely ill or had recently located to an urban area were removed from the sample. Physicians were mailed the survey up to 3 times, with 2 weeks separating each mailing. Surveys were coded to avoid duplicate responses.

Instrument

Kazanjian and Pagliccia's study[6] provided a guide for questionnaire development and was adapted for application to physicians practising in Northwestern Ontario. Physicians from the Thunder Bay Medical Society along with 2 family medicine residents assisted with question design and pretesting of the instrument. The resulting mail-out survey consisted of a mixture of closed- and open-ended questions that assessed professional, personal/family and community satisfaction as well as physicians' future practice intentions. The satisfaction questions were logically divided for clarity and ease of response into the 3 subfactors used by Kazanjian and Pagliccia,[6] namely, professional, personal and community factors. Several Likert scale questions provided a measure of satisfaction and dissatisfaction for each factor. The survey was structured to answer 2 research questions: "How many physicians in Northwestern Ontario intend to leave their practice in 5 years?" and "What is the association between professional, personal/family and community factors in physician satisfaction and intention to stay in practice?"

Analysis

Quantitative data were analyzed with SPSS version 11.5 (SPSS Inc.). Future practice intentions were analyzed using a frequency distribution, while the factors influencing intentions were analyzed using a 3-step process: a factor analysis, the creation of scales and a logistic regression. The themes of the scales emerging from the factor analysis were family/community, time, professional support and efficacy, and sense of belonging and appreciation. The means of these 4 scales were entered into a logistic regression model along with demographic variables that were independent predictors of future practice intention (Table 1).

Results

Of the 328 physicians who were sent the survey, 201 physicians responded, which resulted in a response rate of 61.3%. The sample was equally divided between urban Thunder Bay and the surrounding region, that is, the smaller rural communities. Overall, almost 70% of respondents stated an intention to stay in practice in the next 5 years. Of those who did not intend to stay in practice, approximately two-thirds were from the region. When Thunder Bay and regional data were analyzed separately, 18% of physicians in Thunder Bay intended to leave practice, compared with 44% in the region. The mean scores of the satisfaction scales all fell into the neutral category. Physicians displayed the lowest mean satisfaction score on the "time" scale and the highest mean satisfaction score on the "sense of belonging and appreciation" scale. The components of these scales are shown in Table 2. When satisfaction scores by location (Thunder Bay v. the surrounding region) were examined, physicians in the

Table 1. Variables used in logistic regression

Predictor variables	Mean (and SD) no. of respondents*	
Age, yr (n = 191)	46.6	(11.9)
Size of childhood community, % (and frequency) (n = 195)		
Up to 10 000 people	34.4	(67.0)
> 10 000 people	65.6	(128.0)
Location of present practice†		
Surrounding region (population ≤ 10 000)	45.6	(89.0)
Thunder Bay (population > 100 000)	54.4	(106.0)
Satisfaction scales (n = 201)		
Family and community	2.5	(0.8)
Time	2.1	(1.0)
Professional support and efficacy	2.7	(0.7)
Sense of belonging and appreciation	2.7	(0.8)
Outcome variable, % (and frequency)		
Intention to stay in practice 5 yr (n = 193)		
No	30.6	(59.0)
Yes	69.4	(134.0)

*Unless otherwise indicated.
†Thunder Bay city encompasses 52% of the population of Northwestern Ontario while the remaining communities are depicted as "the surrounding region."

surrounding region displayed significantly lower family/community satisfaction.

Forty-three Likert-style questions were entered into a factor analysis using the principle axis factoring extraction method and varimax rotation. Items were eliminated if they had correlations lower than 0.4, or if they loaded similarly into more than 1 factor. Taking these rules into account, we removed 8 variables from the analysis, leaving 35 variables that converged into 4 factors. These 4 factors made up the new satisfaction scales and were subsequently tested for reliability using Cronbach α reliability analysis. On the basis of the variables in each scale, the scales were named family/community, time, professional support and efficacy, and sense of belonging and appreciation.

Table 2. Factor analysis

Factors*	Item loadings
Family and community (0.8511α)	
Availability of cultural events	0.83
Availability of recreation	0.71
Size of community	0.69
Partner/spouse's contentment in community	0.67
Ease of travel in and out of community	0.67
Geographic location	0.62
Weather/climate	0.58
Quality of life for children	0.57
Quality of education for children	0.53
Access to relatives/extended family	0.44
Employment opportunities	0.42
Time (0.9141α)	
Time for family life/relationships	0.84
Time for personal recreation/leisure	0.82
Amount of uninterrupted free time from work	0.81
Length of working hours	0.80
Patient volume	0.72
Workload in relation to income	0.67
Amount of on call	0.62
Friendships/social relationships	0.53
Professional support and efficacy (0.8233α)	
Availability of professional support	0.74
Clinical consultation/referral system	0.64
Relationship among physicians	0.54
Relationship with health care/hospital administration	0.50
Your compatibility with the medical community	0.48
Opportunity for group practice	0.47
Teaching and academic medicine opportunities	0.47
Opportunity for involvement in professional associations	0.46
Degree of professional autonomy	0.45
Challenge and variety of practice	0.42
Sense of belonging and appreciation (0.7951α)	
Sense of being appreciated by the community	0.69
Feeling of belonging in the community	0.54
Possibility for community involvement/ leadership	0.51
Access to religious groups/churches	0.49
Relationship with your patients	0.48
Degree of respect/esteem you experience	0.46

*Cronbach internal consistency α for the factor.

The Cronbach α level for each of the 4 scales was over 0.8, which demonstrates high reliability (Table 2).

The variables were entered into a logistic regression in 2 blocks. The first block contained demographic variables (Table 3).These demographic variables were chosen because they were statistically significant predictors of future practice intention when tested independently. In the second block, the mean satisfaction scores of each of the scales were entered. Table 3 outlines the final logistic regression model containing all of the variables. The significant predictors are indicated with an asterisk.

Physicians have greater odds of intending to stay in future practice if they are younger, if they practise in Thunder Bay and if they are more satisfied with aspects related to their family and community. The overall model is statistically significant at the p = 0.01 level according to the model χ^2 statistic and predicts 76.1% of the responses correctly. In other words, this model correctly predicts future practice intentions of physicians in this sample over three-quarters of the time.

Nonsignificant predictors

Although not statistically significant, physicians have greater odds of intending to stay in practice if they are from a childhood community of 10 000 people or more. This finding contradicts other research that has demonstrated a connection between physicians' rural background and an increasing likelihood of remaining in rural practice.[8] Since this analysis included Thunder Bay (population of over 100 000) and the surrounding region (where populations are mostly 10 000 or less), a separate analysis of regional physicians was conducted. Even then, there was no difference in intention to stay according to size of childhood home town. Also unexpected was the finding that physicians were more likely to intend to stay in practice if they had a lower mean satisfaction score on the "time" scale and "professional support and efficacy" scale. As predicted, physicians who scored higher on the

"sense of belonging and appreciation" scale were more likely to remain in practice.

Discussion

"How many physicians in Northwestern Ontario intended to leave their practice in 5 years?"

Thirty-one percent of physicians, the majority of whom practised in the region surrounding Thunder Bay, intended to leave practice in 5 years. This signifies a particularly acute retention problem in the smaller-populated communities in Northwestern Ontario. Since our study examined the future practice intentions of physicians, one may ask, "How does this relate to the actual retention of physicians?"

The connection between intention and action (retention) is conceptualized in Ajzen and Fishbein's Theory of Reasoned Action (TRA).[8] This widely used conceptual framework was developed in 1975 and postulates that intention is the precursor to action. Two main factors influence intention: attitude toward the behaviour (the person's positive and/or negative attitudes about the behaviour) and subjective norms (the person's perception of whether or not the behaviour will be acceptable). One weakness of the theory is that the relationship between intention and retention is not always simple because people are generally free to act as they choose regardless of prior intentions. This may be a result of personal choice, or other constraints that get in the way of achieving the desired action.

The complexity of the connection is evident in an Australian study[9] in which 49% of physicians who intended to leave practice had stayed after 10 years, while one-quarter (24%) who intended to stay had left. Those who had left were unable to solve the problems related to professional and personal aspects. Despite the limitations of this model, a literature review conducted by Feeley[10] demonstrates that the TRA is a useful conceptual framework in understanding the link between intention and physician retention. Feeley demonstrates that the relationship between physicians' attitudes concerning rural practice and rural life, along with the perception of others (e.g., the physicians' spouses) shape intentions and subsequent behaviour. Thus understanding intention can predict (to a certain degree) outcomes (behaviour). A proactive solution to physician retention requires an understanding of factors that influence a physician's decision to remain in future practice.

"What is the association between professional, personal/family and community factors in physician satisfaction and intention to stay in practice?"

Significant predictors of future practice intention are age, location of current practice and satisfaction with family/community.

Age

Younger physicians are more likely to intend to stay in practice in 5 years. Although this trend is partly attributable to an aging physician workforce, almost two-thirds of the study sample were under the age of 50, suggesting that factors outside of retirement appear to be influencing future practice intention.

Location of current practice

The majority of physicians intended to remain in practice in 5 years; however, most were practising in Thunder Bay. Twice as many physicians in the region intended to leave, compared with their urban

Table 3. Logistic regression model ($p < 0.01$)

Variable	β coefficient	Odds ratio	95% CI	*p* value
Age	–0.52*	0.95*	0.92–0.98*	0.002*
Size of childhood community	0.34	1.41	0.65–3.04	0.384
Location of present practice	1.65*	5.20	2.25–12.0*	0.000*
Family/community satisfaction	0.57*	1.77*	1.05–2.98*	0.032*
Time	–0.28	0.76	0.51–1.12	0.167
Professional support and efficacy	–0.13	0.88	0.44–1.77	0.719
Sense of belonging and appreciation	0.26	1.29	0.71–2.36	0.409

CI = confidence interval.
*Significant predictors.

counterparts. The researchers of this study plan to follow up with study participants in 2009 (the 5-year mark from the study's inception) to examine the relationship between intention to leave practice and action (whether or not the physicians actually leave). The follow-up will also determine whether or not physicians who planned to leave practice relocate within Northwestern Ontario or move outside the region entirely.

Satisfaction with family/community

Physicians who displayed a higher mean satisfaction score on the family/community scale were more likely to intend to stay in future practice. The importance of family factors is consistent with Kazanjian and Pagliccia's study[6] conducted in British Columbia. The variables in the family/community scale (with the exception of community size, geographic location and weather/climate) represent target areas for future retention strategies. Availability of cultural events and recreation, partner/spouse's contentment in community and their access to employment, ease of travel in and out of the community, quality of life and education for children, and access to relatives/extended family are the components that make up this scale.

The fact that size of childhood community was not significant suggests that community and family factors with immediate social impact on day-to-day life are more influential.

Although not statistically significant, Northwestern Ontario physicians are more likely to stay in practice if they are satisfied with their sense of belonging and appreciation within the community. This is consistent with Cutchin's research[7] on experiential place integration and future practice intentions of physicians. Surprisingly, Northwestern Ontario physicians who intended to stay were more dissatisfied with the professional aspects of rural medicine (time and professional support/efficacy). This suggests that professional factors on their own do not affect future practice intentions. Perhaps it is when professional dissatisfaction coalesces with personal/family dissatisfaction that future practice intention is affected. From this perspective, a certain degree of professional dissatisfaction may be persistent among rural physicians and family/community dissatisfaction may act as the "tipping point" in future practice decisions.

This would suggest that future retention initiatives should incorporate a more "balanced" approach to reflect the interplay of professional, personal and community factors, which affect the physician's experience in rural practice. Goertzen's[11] conceptualization of the "4-legged" kitchen stool captures the importance of balance. Each leg of the stool represents different elements of a physician's life: personal interests and background, appropriate training, community attributes and working conditions. The findings from our paper add to this evidence base. Understanding the intentions of Northwestern Ontario physicians to stay or leave practice along with sources of dissatisfaction is necessary to alleviating the retention problem.

Conclusion

It must be remembered that a job will bring someone to Northwestern Ontario, but it is personal life that will keep them here. If employment hampers personal life, then people will seek satisfaction elsewhere.

— quote from spouse/partner of a Northwestern Ontario physician

Our research has generated knowledge useful for health human resource planning in Northwestern Ontario. It has also contributed to the understanding of rural physician retention in a number of ways. First, it provides empirical evidence to support previous contentions that financial compensation and other professional factors are not primary in physician retention. Rather, family and community factors dominated as predictors of retention in this study. Many of these identified family and community factors could be addressed through interventions to improve community integration. Second, the study emphasizes the complexity and multifactorial nature of physicians' decisions to leave rural practice. The implication is that we need a complex and multifactorial approach to physician retention that is individualized and attends to issues of family/community satisfaction, time issues, and professional support and efficacy. Finally, it lends support to the notion of a "tipping point" in a physician's life that results in a decision to leave rural practice. Factors such as dissatisfaction with the availability of culture and recreation, a spouse's discontent or the distance from extended family, when added to professional frustrations, can become catalysts for making a decision to move. Future research is needed to explore the dynamics of the "tipping point," with a view to prediction and prevention of leaving rural practice. Retention efforts may involve supporting physicians on an ongoing basis to manage the dynamic interplay between personal, community and professional factors and to maximize their satisfaction with rural life.

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