Do residents in a northern program have better quality lives than their counterparts in a city?

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abstract

OBJECTIVE To determine whether McMaster University’s family medicine residents training in the Family Medicine North (FMN) program have better quality lives than those based in Hamilton, Ont (urban).

DESIGN Residents at both sites were simultaneously given the Quality of Life Questionnaire, a standardized measurement tool. They were asked to complete the questionnaire anonymously and to provide demographic data.

SETTING Family practice residencies in Ontario.

PARTICIPANTS McMaster University’s family medicine residents. Of 66 residents living in Hamilton, 36 completed the questionnaire; five respondents were ineligible. Of 25 residents living in Thunder Bay, Ont, 24 completed the questionnaire; none were ineligible.

MAIN OUTCOME MEASURES Total quality-of-life score. Score was divided into five major domains, each with several subdomains: general well-being (material, physical, and personal growth), interpersonal relations (marital, parent-child, extended family, and extramarital), organizational activity (altruistic and political behaviour), occupational activity (job characteristics, occupational relations, and job satisfiers), and leisure and recreational activity (creative/esthetic behaviour, sports activity, vacation behaviour).

RESULTS The FMN residents scored significantly higher than the Hamilton-based residents on overall quality of life (124.7 vs 112.5, *p* < .05) and tended to score higher in the five major domains. The trend reached statistical significance in general well-being and occupational activity; it was also apparent in various subdomains, with statistically significant differences in material well-being, marital relations, job characteristics, job satisfiers, and vacation behaviour.

CONCLUSION Family Medicine North residents enjoy better quality of life than their urban counterparts based on responses to a standardized questionnaire.

résumé

OBJECTIF Déterminer si les résidents en médecine familiale de la McMaster University qui reçoivent leur formation dans le programme du Nord ont une meilleure qualité de vie que ceux qui la suivent à Hamilton, en Ontario (en milieu urbain).

CONCEPTION On a administré simultanément aux résidents des deux sites le questionnaire sur la qualité de vie, un instrument de mesure standardisé. On leur a demandé de remplir le questionnaire de manière anonyme et de fournir des données démographiques.

CONTEXTE Des programmes de résidence en pratique familiale en Ontario.


PRINCIPALES MESURES DES RÉSULTATS Le total des résultats obtenus dans le questionnaire sur la qualité de vie. Les résultats étaient divisés en cinq grands thèmes, comportant quelques sous-sections: le bien-être général (matériel, physique, croissance personnelle), les relations interpersonnelles (conjugales, parent-enfant, famille élargie, extraconjugales), l’activité organisationnelle (comportement altruiste et politique), l’activité professionnelle (caractéristiques de l’emploi, relations professionnelles et satisfactions au travail), et les loisirs et les activités récréatives (comportement créatif/esthétique, activités sportives, comportement en vacances).

RÉSULTATS Les résidents du programme du Nord ont obtenu des résultats significativement plus élevés que ceux de Hamilton dans la qualité de vie globale (124.7 contre 112.5, *p* < 0.05) et avaient tendance à avoir des cotes plus élevées dans les cinq principaux thèmes. La tendance a atteint une signification statistique dans le bien-être général et l’activité professionnelle; elle était aussi apparente dans diverses sous-sections, notamment des différences statistiquement significatives dans le bien-être matériel, les relations conjugales, les satisfactions au travail et le comportement en vacances.

CONCLUSION Les résidents du programme de médecine familiale du Nord jouissent d’une meilleure qualité de vie que leurs homologues en milieu urbain, en se fondant sur les réponses à un questionnaire standardisé.
RESEARCH

Do residents in a northern program have better quality lives than their counterparts in a city?

Medical schools have become increasingly interested in providing adequate training for family medicine residents wanting to practise in northern and rural areas. One of the strategies to provide this training has been development of community-based teaching sites away from university-based hospital teaching centres. The goal of these community-based programs has been to expose residents to rural environments in order to help them develop knowledge, skills, and attitudes necessary for practice in rural and remote areas.

Articles in the literature describe appropriate training for residents desiring a career in rural medicine and investigate whether this kind of training is effective at attracting and retaining doctors in rural areas. A greater awareness of the unique lifestyle needs of rural physicians has surfaced. Qualitative research has recently looked at the factors that affect rural practitioners when they try to decide whether to stay in rural practice. At the same time, there has been growing concern about the psychological health and working conditions of medical residents.

Articles on the happiness, stressors, and physical and psychological health of family practice residents have appeared. American studies have looked at many aspects of residents' physical and psychological health along with the differences between male and female residents in emotional problems and coping behaviours. A survey of Ontario family practice residents focused on work-related stress, and a survey of McGill family practice residents dealt broadly with stress and lifestyle. Neither of these Canadian studies used a validated research tool, and both were narrowly focused on stressors. None of the aforementioned studies attempted to analyze overall quality of life (QOL). In reviewing the literature, we found no studies comparing the lives of community-based family practice residents with those of residents based in urban areas.

Quality of life could differ for the two groups for many reasons. Community-based residents enjoy a relative lack of competition for learning experiences and tend to be in smaller hospitals where they can develop closer relationships with their supervisors and other staff. On the other hand, they face challenges such as less access to educational resources (journals, continuing medical education); separation from spouses, families, and colleagues; and more pressure to perform independently in the workplace. From a recreational perspective, community-based residents are usually closer to natural resources, but urban-based residents have greater access to cultural activities and professional sports events. Community-based residents usually live in smaller, more secure communities, but have to contend with the lack of anonymity in smaller towns.

My hypothesis was that residents in community-based programs would enjoy a better overall QOL despite the many unique challenges. The purpose of this study was to see whether community-based family medicine residents located in a northern program had better lives than their urban counterparts.

METHODS

Participants

Family medicine residents at McMaster University were the study group. McMaster accepts medical students into two main programs: a Hamilton-based program and Family Medicine North (FMN), a community-based program that aims to prepare graduates for rural, remote, and northern practice. The FMN program is administered in Thunder Bay, a small city in northwestern Ontario more than 600 km from the nearest academic medical centre. Residents are required to spend at least 6 months away from Thunder Bay in smaller northwestern Ontario communities on family medicine rotations. As a result of its special program goals, FMN has a unique selection process and special rotation schedules and academic activities in comparison with other McMaster programs. Hamilton, a large city in southern Ontario, supports a medical school and hospitals with a full range of services. Each year, approximately 32 residents are accepted into the Hamilton program and 12 into FMN.

Measures

Residents in this study were administered the Quality of Life Questionnaire (QOLQ), a standardized tool consisting of 192 true-false questions in five major domains and 15 subdomains. Total QOL score (possible 180) was the sum of scores from the 15 subdomains. Unmarried subjects and those without children received average scores from the categories in which they had valid totals, so that their totals were also out of 180. Each subdomain was scored out of a maximum of 12; because major domains had a variable number of subdomains, scores were averaged so that the maximum score was also 12.

Dr Johnsen completed his residency at Family Medicine North in 1999 and is currently practising in Thunder Bay, Ont.
Twelve questions comprised a social desirability scale; they were included in the QOLQ to probe the influence of social desirability on participants’ responses. The QOLQ has been assessed for reliability and cross-validated on a sample of Canadians according to the company that produced the questionnaire. The questionnaire was found to have test-retest reliability and internal consistency. The questionnaire had never been tested on medical residents, but no literature indicated that any QOL research tool had been validated for testing medical residents.

Questionnaires were administered to both groups of residents on November 11, 1998, while they attended core educational events outside of clinic duties. Participants were given an instruction sheet along with a brief letter describing the rationale of the project. Informed consent was implied by filling out the questionnaire. Participants were allowed to drop out at any point. They were instructed not to give their names, but demographic data were requested.

**Statistical analysis**

Data were subject to statistical analysis using Microsoft Excel 97. Demographic data were compared using \( \chi^2 \) analysis. Quality-of-life data were compared using a two-tailed t-test. Any differences where the P value was <.05 were considered statistically significant.

Carbon-backed answer sheets transmitted answers directly to score sheets. Because of the potential for subjects to bias their answers by studying the score sheet, a security seal was placed on the answer sheet, and subjects were specifically instructed not to tamper with it. Answer sheets with compromised seals or with more than 10% of the answers blank were excluded from the analysis. When fewer than 10% of the questions were unanswered, blank responses were considered negative. All subjects were included in the demographic analysis.

The study was approved by Lakehead University’s Ethics Advisory Committee.

**RESULTS**

Demographic data are presented in **Table 1**. Of the 66 Hamilton residents, 36 completed the questionnaire, but five were excluded. Two questionnaires were incomplete and three had compromised seals. Of the 25 Thunder Bay residents, 24 completed the questionnaire, and none were excluded. Differences in average age and proportion of first-year residents (R1s) and second-year residents (R2s) were not statistically significant between the two groups.

<table>
<thead>
<tr>
<th>CHARACTERISTICS</th>
<th>HAMILTON</th>
<th>FAMILY MEDICINE NORTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total responses</td>
<td>36 (66)*</td>
<td>24 (25)*</td>
</tr>
<tr>
<td>First-year residents</td>
<td>19 (34)</td>
<td>12 (12)</td>
</tr>
<tr>
<td>Second-year residents</td>
<td>16 (32)</td>
<td>12 (13)</td>
</tr>
<tr>
<td>Year not specified</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Male</td>
<td>10 (20)</td>
<td>12 (13)</td>
</tr>
<tr>
<td>Female</td>
<td>24 (46)</td>
<td>9 (12)</td>
</tr>
<tr>
<td>Sex not specified</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Average age (years)</td>
<td>28.7</td>
<td>30.0</td>
</tr>
<tr>
<td>Age not specified</td>
<td>5</td>
<td>1</td>
</tr>
</tbody>
</table>

*Figures in parentheses indicate maximum number possible.

**Table 2. Total score and results from major domains of the Quality of Life Questionnaire:**

<table>
<thead>
<tr>
<th>CATEGORIES</th>
<th>HAMILTON (N=36)</th>
<th>FAMILY MEDICINE NORTH (N=24)</th>
<th>P VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total quality of life</td>
<td>112.5 (19.7)</td>
<td>124.7 (17.8)</td>
<td>.02</td>
</tr>
<tr>
<td>General well-being</td>
<td>8.1 (1.6)</td>
<td>8.9 (1.5)</td>
<td>.03</td>
</tr>
<tr>
<td>Interpersonal relations</td>
<td>8.9 (1.7)</td>
<td>9.2 (1.6)</td>
<td>.48</td>
</tr>
<tr>
<td>Organizational activity</td>
<td>5.2 (2.1)</td>
<td>5.8 (1.9)</td>
<td>.27</td>
</tr>
<tr>
<td>Occupational activity</td>
<td>7.8 (1.9)</td>
<td>8.9 (1.9)</td>
<td>.04</td>
</tr>
<tr>
<td>Leisure and recreation</td>
<td>6.8 (1.9)</td>
<td>7.7 (1.8)</td>
<td>.06</td>
</tr>
</tbody>
</table>

SD—Standard deviation.

Differences in sex were significant; there were more women in the Hamilton group. A previous study had found that women were more likely to be in University-based programs. The difference in sex ratios between the two groups might explain some differences in scores. When data were compared according to sex rather than residency location, however, no significant differences were observed.

Residents in FMN scored significantly higher in total QOL (**Table 2**). In the five major domains, there was a trend for FMN residents to score higher than Hamilton residents. This difference reached statistical significance in the major domains general well-being and occupational activity. In all subdomain categories except extended
family relations, there was a trend for FMN residents to score higher than Hamilton residents (Table 3). This difference reached statistical significance in the subdomains material well-being, marital relations, job characteristics, job satisfiers, and vacation behaviour.

The difference in mean score in the social desirability index (Table 3) between the two groups was not statistically significant. Study data were also analyzed to compare R1s with R2s and to compare female and male participants. No statistically significant differences were found (data not shown).

**DISCUSSION**

Study results suggest that FMN residents have better overall lives than their Hamilton colleagues. This could be partly due to the working conditions in northwestern Ontario as evidenced by the overall higher scores of FMN residents in the occupational activity domain. Specifically, FMN residents are happier with their jobs and have more job satisfiers.

Two subdomains where FMN residents surprisingly scored higher were material well-being and marital relations. The material well-being of all residents in the survey should theoretically be the same. All Ontario residents are paid according to the same contract, and the cost of living in Hamilton and Thunder Bay is similar. Social circumstances, such as spousal employment or number of children, might influence material well-being, but such information was not obtained from the groups in our study.

A difference in material well-being might be seen if one group were dominated by R2s who earn a higher salary than R1s. Neither group was dominated by R2s, and, despite the fact that R2s drew a substantially higher salary, when the data were analyzed according to year of residency, R2s did not rate their material well-being significantly higher than R1s.

The higher scores of FMN residents in marital relations is similarly difficult to explain. Any participant with a partner received a score in marital relations. It is possible that people in stable, long-term relationships are more willing to relocate to remote areas such as Thunder Bay.
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**Limitations**

There is always a bias in self-reported measurements of QOL, but, because this study was comparative, this bias should have been equal in the two groups. It could be argued that FMN residents would be more likely to respond positively because the project was being conducted by an FMN resident. If that were so, however, FMN residents would have been expected to score higher on the social desirability scale, which was included in the QOLQ specifically to look for respondents who would seek to inflate their scores by responding positively.

It is possible that the results are skewed by the fact that not all Hamilton residents were included in the sample. The poor response rate from the Hamilton group was disappointing and limits the reliability of the data. Conclusions can be accepted only if the sample adequately reflects the total population of Hamilton residents. Demographically, the sample of Hamilton residents reflected the total resident population for year of residency and sex distribution. Whether the average age of the Hamilton sample was a true reflection of Hamilton residents' age is unknown. Residents' ages are not kept on record.

A previous study had found that women were more likely to be in University-based programs. The difference in sex ratios between the two programs might explain the differences. However, when the data were compared according to sex rather than residency location, no significant differences were observed.

Differences in scores on the subdomain of vacation behaviour are probably explained by the FMN's vacation guidelines. While all residents in the McMaster Family Medicine program get the same vacation time, the FMN program allows residents to take their vacation at any time of the year and in blocks of 1 day to 2 weeks. This flexibility might lead to a perception of better vacation opportunities.

Differences in scores on the major domain of leisure and recreation and the subdomain of sports activity was surprising. The better access to modern facilities, arts and cultural activities, and professional sports in Hamilton probably balanced out this category. Perhaps differences in work environment led to differences in leisure activities. The fact that FMN residents also spend at least 6 months of their 2-year residency outside Thunder Bay on rural rotations might affect access to recreational activities. No attempt was made to determine where Thunder Bay residents were actually doing rotations at the time of the study because it was thought that might compromise anonymity.

It is also possible that location does not actually influence QOL; residents in FMN might have scored higher than the control group even before starting residency. This could happen because residents must compete for positions, and positions are somewhat self-selected. Certainly, FMN residents might have scored higher no matter what residency program they were in. With important differences in scores occurring in the areas of occupational activity and material well-being, however, it is safe to assume that these areas change substantially between medical school and residency. Even if FMN residents would have scored higher based on prerresidency characteristics, the study still confirms that a high QOL is maintained once they enter FMN.

Results presented here are not necessarily generalizable to all community-based programs. This is a small study of residents in only one program, which might be quite different from other family medicine residency programs. To my knowledge, however, this is the first time an attempt has been made to

**Editor's key point**

- Residents in McMaster's Family Medicine North (FMN) program in Thunder Bay, Ont, appeared to have better overall quality of life than their counterparts in urban Hamilton.
- The FMN residents scored higher in material well-being, marital relations, job characteristics, job satisfiers, and leisure activities.
compare the QOL of family medicine residents in a northern community-based program with that of residents based in an urban teaching centre. It opens the door for questions and research into what the differences between residency programs are that lead to improved QOL. Now that community-based programs are growing and multiplying, these issues are worth exploring.

Conclusion
Residents in FMN appear to have a better overall QOL, as shown by scores on a standardized QOLQ, than residents based in McMaster’s urban program. Areas where FMN residents score significantly higher include general well-being and occupational activity. Specifically, residents of FMN scored higher in material well-being, marital relations, job characteristics, job satisfiers, and vacation behaviour.

These data suggest that residents in community-based programs distant from university teaching centres can have excellent QOL. Results cannot be generalized to all community-based programs, but argue for further research to better define differences between programs.

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Competing interests
None declared

References