

Hands on

Is there an association between doing procedures and job satisfaction?

Christine Rivet, MD CM, MCLSC, CCFP(EM), FCFP Bridget Ryan, MSC Moira Stewart, PHD

ABSTRACT

OBJECTIVE To determine whether there is a relationship in family medicine between higher overall job satisfaction and doing a wider range of procedures.

DESIGN Secondary analysis of a population survey (mailed questionnaire) using multiple regression analysis.

SETTING Canadian family practices.

PARTICIPANTS Family physicians who responded to the 2001 National Family Physician Workforce Survey conducted by the College of Family Physicians of Canada and whose main practice settings were private offices or clinics, community clinics, community health centres, or academic family medicine teaching units.

MAIN OUTCOME MEASURES Family physicians' overall job satisfaction. The predictor variable was range of procedures performed, defined as the variety of procedures done by family physicians. Eight potential confounding variables were examined: age; sex; solo versus group practice; population served by practice (urban, semiurban, rural); number of medical services offered; teaching (yes, no); constraints to medical care services; and the balance of physicians' personal and professional commitments.

RESULTS Of 19 762 physicians who responded to the question on job satisfaction, 15.8% were dissatisfied, 54.3% were moderately satisfied, and 29.8% were very satisfied overall. In multiple regression analysis, when controlling for confounding variables, the range of procedures done by family physicians was significantly associated with overall job satisfaction ($P = .0001$). The larger the range of procedures, the more satisfied the physician. The percentage of those very satisfied ranged from 28.1% for family physicians who did only a few procedures (0 to 4) to 33.5% for those who did 10 or more procedures. Greater satisfaction was reported by very young and very old male physicians, those in solo practice, rural physicians, teachers, those who had fewer constraints to medical care services, and those who thought their balance of personal and professional commitments was about right.

CONCLUSION Family physicians might improve their overall job satisfaction by increasing the range of procedures they do. This modest association has not been described previously.

EDITOR'S KEY POINTS

- Many factors have been reported to affect physicians' satisfaction with their jobs. One factor might be doing procedures in family medicine.
- Using data from the National Family Physician Workforce Survey, which was sent to all family physicians in Canada, this study answers the question: "Is there a relationship between higher overall job satisfaction and doing a wider range of procedures?"
- Of 19 762 physicians who responded to the question on job satisfaction, 15.8% were dissatisfied with their jobs, 54.3% were moderately satisfied, and 29.8% were very satisfied overall. The key finding was that doing a wider range of procedures was associated with higher overall job satisfaction.

This article has been peer reviewed.
Full text is available in English at www.cfpc.ca/cfp.
Can Fam Physician 2007;53:92-93

Habilités techniques

Maîtriser plus de techniques procure-t-il plus de satisfaction au travail?

Christine Rivet, MD CM, MCLSC, CCFP(EM), FCFP Bridget Ryan, MSc Moira Stewart, PhD

RÉSUMÉ

OBJECTIF Déterminer s'il existe une relation entre le fait de maîtriser une plus grande variété de techniques et la satisfaction au travail du médecin de famille.

TYPE D'ÉTUDE Analyse secondaire par régression multiple d'une enquête démographique (questionnaire postal).

CONTEXTE Cabinets de médecine familiale du Canada.

PARTICIPANTS Les médecins qui ont répondu à l'Enquête nationale du groupe de travail sur les médecins de famille menée par le Collège des médecins de famille du Canada et qui portait principalement sur des cabinets ou des cliniques privés, des cliniques communautaires, des centres de santé publique ou des unités d'enseignement universitaires de médecine familiale.

PRINCIPAUX PARAMÈTRES ÉTUDIÉS Satisfaction professionnelle globale des médecins de famille. La variable prédictive était le spectre des techniques effectuées, défini comme la variété des techniques maîtrisées par le médecin. Huit variables confondantes potentielles ont été examinées: âge; sexe; pratique solo vs en groupe; clientèle de l'établissement (urbaine, semi-urbaine, rurale); nombre de services médicaux offerts; avec ou sans enseignement; contraintes liées aux services de soins; et équilibre entre les obligations personnelles et professionnelles des médecins.

RÉSULTATS Sur les 19762 médecins qui ont répondu à la question sur la satisfaction professionnelle, 15,8% se sont dits insatisfaits; 54,3%, modérément satisfaits; et 29,8%, globalement très satisfaits. L'analyse de régression multiple avec contrôle pour les variables confondantes a révélé une association significative entre l'éventail des techniques maîtrisées par le médecin et sa satisfaction professionnelle globale ($P=0,0001$). Plus il maîtrise de techniques, plus le médecin est satisfait. Le pourcentage des très satisfaits passait de 28,1% pour ceux qui utilisaient seulement quelques techniques (0 à 4) à 33,5% pour ceux qui en utilisaient 10 ou plus. Les hommes médecins très jeunes ou très vieux, ceux exerçant en solo, les médecins ruraux, les enseignants, ceux qui avaient moins de contraintes envers les services de soins et ceux qui croyaient maintenir un équilibre adéquat entre leurs obligations personnelles et professionnelles rapportaient des niveaux plus élevés de satisfaction.

CONCLUSION Le médecin de famille pourrait accroître sa satisfaction professionnelle globale en augmentant l'éventail des techniques qu'il maîtrise. Cette association modeste n'a pas été décrite auparavant.

POINTS DE REPÈRE DU RÉDACTEUR

- Le dernier Sondage national auprès des médecins de famille canadiens révèle que ceux-ci sont modérément satisfaits de leur travail. Plusieurs facteurs peuvent contribuer à ce sentiment, dont la diversité des actes posés.
- Cette analyse tend à démontrer que la pratique d'une plus grande diversité d'actes est associée à un degré plus élevé de satisfaction.
- Évidemment, comme le reconnaissent les auteurs, rien n'indique le sens de cette association: la pratique de plus d'actes médicaux contribue-t-elle à la satisfaction générale ou est-ce simplement que les médecins plus satisfaits de leur travail ont tendance à poser une plus grande diversité d'actes? Cette étude ne peut répondre à cette question.

Cet article a fait l'objet d'une révision par des pairs.
Le texte intégral est accessible en anglais à www.cfpc.ca/cfp.
Can Fam Physician 2006;53:92-93

Many factors have been reported to affect physicians' job satisfaction: solo versus group practice,^{1,2} variety of work,^{3,4} the ability to obtain services for their patients,^{5,6} teaching,⁷ rural versus urban practice,^{1,4,8} and relationships with their patients.^{2,3,9} One of the most frequently cited factors affecting job satisfaction is control of the job or being able to balance personal and professional commitments.^{1,5,8-11}

There is an association between physicians staying in a job and job satisfaction. Studies show that physicians who are dissatisfied professionally plan to relocate.^{9,12,13} One factor, of much interest to teaching programs, that might increase job satisfaction is doing procedures in family practice.¹⁴ The most frequently quoted article on physician satisfaction with doing procedures reports on a 1986 survey on the relationship between patient (rather than physician) satisfaction and office procedures.¹⁵ Is there, however, any real evidence that doing procedures is associated with job satisfaction among family physicians?

The National Family Physician Workforce Survey (NFPWS) sent to all family physicians in Canada in 2001 contained questions related to job satisfaction and range of procedures performed. The responses permitted us to answer the important question of whether there is an association between doing more office procedures and being more satisfied with the job.

METHOD

The College of Family Physicians of Canada (CFPC) created the NFPWS in 1997 to gather information on all family physicians in Canada. These physicians make up half the physician work force in Canada. In 2001, the NFPWS was conducted again. The survey, a self-report questionnaire, was mailed to all 28 340 family physicians in Canada. A pilot survey had been conducted in summer 2000, and recommendations from that were included in the final version of the questionnaire. National-level estimates based on 2001 NFPWS study results are considered accurate to within $\pm 0.64\%$ 19 times out of 20.¹⁶

Response rate was 51.2%.¹⁶ To adjust for total nonresponse and for significant differences in response rate by sex and health region, the data were weighted to

Dr Rivet is an Associate Professor in the Department of Family Medicine at the University of Ottawa in Ontario. She is currently on sabbatical at the University of New South Wales in Sydney, Australia. **Ms Ryan** is Project Coordinator at the Centre for Studies in Family Medicine at the University of Western Ontario in London. **Dr Stewart** is a Professor in the Departments of Family Medicine and Epidemiology and Biostatistics and is Director of the Centre for Studies in Family Medicine at the University of Western Ontario.

represent the entire family physician population. For this study, physicians' responses were included if their main practice settings were private offices or clinics, community clinics or health centres, or academic family medicine teaching units. Physicians whose main practice settings were free-standing walk-in clinics, nursing homes, hospital inpatient units, or emergency departments were excluded. This resulted in an effective sample size of 20 507.

The outcome measure was family physicians' overall job satisfaction. As is typical in formation of an index,¹⁷ overall job satisfaction was made up of the 3 items of satisfaction in the survey: relationship with hospital, relationship with specialist physicians, and current professional life. Each item was scored on a 7-point Likert scale; if one response was missing, an overall sum was not calculated. This gave a range of scores from 3 to 21.

The predictor variable was range of procedures performed, defined as the variety of procedures done. This included 18 procedures, most of which were done in the office, and was treated as a continuous variable with a range from 1 to 18.

Eight potential confounding variables identified in the literature were examined: age; sex; solo versus group practice; population served by practice (urban, semiurban, rural); number of medical services offered; teaching (yes, no); constraints to medical care services; and balance of physicians' personal and professional commitments. The analysis sought to answer the question: Is there a relationship between higher overall job satisfaction and doing a wider range of procedures?

The Statistical Package for the Social Sciences, version 11, was used in a 2-step analysis. First, in the bivariable analysis, each potential confounding variable was tested against the predictor variable and the outcome variable using either *t* tests or correlations, as appropriate. Variables that were statistically significantly associated, at the 0.1 level, with both predictor and outcome variables were defined as confounders. Second, in the multivariable analysis, multiple regression analysis was used to test the relationship between range of procedures and overall job satisfaction, taking into account the confounding variables.

In accordance with the University of Western Ontario's guideline on secondary use of data, research ethics board approval was not required.

RESULTS

Physicians practising in private offices or clinics (88.4%), community clinics or health centres (8.6%), and academic family medicine teaching units (3.0%) were included in the sample. **Table 1** lists the characteristics of the sample. Most physicians were 45 to 54 years old; slightly more than half the respondents were 45 or older.

Most were male, worked in groups (73.8%), and practised in urban settings (65.0%). A few respondents were teachers; 15.9% reported serving rural populations.

About 75% of physicians reported moderate or severe problems with accessing medical services, such as specialists, emergency care, hospital beds, and long-term beds. The balance of personal and professional

commitments was considered “about right” by about 25% of physicians; the remainder wanted more time for family, for their careers, or for themselves.

Not shown in **Table 1** is the number of medical services offered. Respondents offered an average of 10.2 services out of the list of 19 possible services. Services offered by more than 50% of respondents were, for example, chronic disease management, emergency management, and housecalls.

On average, family physicians did 6.85 (± 3.32) procedures in their practice settings. The full range of procedures done by respondents is shown in **Table 2**. From a total of 19762 physicians who responded to the question on overall satisfaction, 15.8% were dissatisfied (score 3 to 9), 54.3% were moderately satisfied (score 10 to 15), and 29.8% were very satisfied (score 16 to 21). The average score for overall job satisfaction was 13.4 (± 3.7).

Of the 8 potential confounding variables, all but the number of medical services offered were associated (at the 0.1 level) with the predictor and outcome variables (**Table 3**). In multiple regression analysis, the range of procedures done was significantly associated with overall job satisfaction in the expected direction ($P = .0001$), over and above association with the 7 confounding

Table 1. Characteristics of sample (potential confounding variables)

POTENTIAL CONFOUNDING VARIABLES	N (%)
Age	
• <35	2079 (10.3)
• 35-44	6458 (31.9)
• 45-54	7216 (35.6)
• 55-64	3287 (16.2)
• ≥ 65	1229 (6.1)
TOTAL*	20269 (100)
Sex	
• Male	13283 (65.1)
• Female	7134 (34.9)
TOTAL*	20417 (100)
Setting	
• Solo practice	5323 (26.2)
• Group practice	15033 (73.8)
TOTAL*	20356 (100)
Population served by practice	
• Urban	12474 (65.0)
• Semiurban	3679 (19.2)
• Rural	3045 (15.9)
TOTAL*	19198 (100)
Teaching	
• Yes	4500 (22.2)
• No	15733 (77.8)
TOTAL*	20233 (100)
Constraints to medical care services	
• No problem	1186 (6.2)
• Minor problem	4168 (21.7)
• Moderate problem	9382 (48.8)
• Severe problem	4493 (23.4)
TOTAL*	19229 (100)
Balance of personal and professional commitments	
• About right	5130 (25.2)
• Not right	15195 (74.8)
TOTAL*	20325 (100)

*Totals vary due to missing data; total data set represented 20507 family physicians.

Table 2. Percentage of physicians doing various procedures (predictor variable is range of procedures): Mean number of various procedures done by physicians was 6.85 (± 3.32).

PROCEDURE	% DOING PROCEDURE (N = 20238)
Pap smear	94.7
Suturing	81.8
Other minor surgery	71.1
Musculoskeletal injections or aspirations	67.6
Skin biopsy	59.8
Intrauterine device insertion	49.3
Casting or splinting	42.5
Needle aspiration for diagnosis or biopsy	40.9
Electrocardiogram interpretation	40.2
Anoscopy	34.3
Other procedures	26.5
Pulmonary function testing	19.7
Lumbar puncture	15.1
Other biopsy	14.9
Other endoscopy	13.9
Dilatation and curettage aspiration	7.5
Audiometry	7.0
Refraction	1.9

Table 3. How confounding variables relate to predictor variable and outcome variable: Differences noted were based on $P < 0.1$.

POTENTIAL CONFOUNDING VARIABLE	RELATIONSHIP TO RANGE OF PROCEDURES	P VALUE	RELATIONSHIP TO OVERALL JOB SATISFACTION	P VALUE
Age	Younger physicians did significantly more procedures	.0001	Significant differences based on age	.0001
Sex	Male physicians did significantly more procedures	.0001	Significantly greater for male physicians	.019
Group or solo practice	Physicians in groups did significantly more procedures	.0001	Physicians in solo practice were significantly more satisfied	.0001
Population served by practice (urban, semiurban, rural)	Rural physicians did significantly more procedures than semiurban physicians, who did significantly more than urban physicians	.0001	Rural physicians were more satisfied than semiurban physicians, who were more satisfied than urban physicians	.0001
Number of medical services offered	Physicians who provided more services did significantly more procedures	.0001	No significant difference	.854
Teaching (yes, no)	Physicians who taught did significantly more procedures	.0001	Teachers were significantly more satisfied	.0001
Constraints to medical care services	Significantly different among groups	.0001	Physicians with more constraints were significantly less satisfied	.0001
Balance of personal and professional commitments	Physicians who reported the balance was about right did significantly fewer procedures	.0001	Those with the balance about right were significantly more satisfied	.0001

variables (**Table 4**). Among physicians who did only a few procedures (0 to 4), 28.1% said they were very satisfied; among physicians who did 10 or more procedures, 33.5% reported they were very satisfied ($P = .001$).

Significant associations of confounding variables with overall job satisfaction revealed more satisfied family physicians to be young or old men, solo, rural, teachers, who reported fewer constraints and that their "balance was about right."

DISCUSSION

The key finding of this study is that doing a wider range of procedures seems to partly explain higher overall job satisfaction. This finding supports Sharman's opinion.¹⁵ The association holds for most subgroups: old and young, solo and group, rural and urban, teaching or not; perceiving constraints or not perceiving them, and having or not having a balance of commitments (**Table 4**).

In addition to doing a wider range of procedures, other factors were related to job satisfaction also. Physicians reported that solo practice was significantly related to

higher overall job satisfaction than group practice was. This contradicts findings of previous surveys^{1,2,18} in New Zealand and the United States where family physicians reported lower levels of satisfaction in solo practice and in groups of 3 or fewer members. This might be a sign of the difference in medical care in Canada from that in other countries and might reflect another important factor in job satisfaction: job control.¹¹ This has important implications for the new primary care networks. Self-determination will need to be respected in these new governance structures.

Physicians serving rural populations were more satisfied than their urban colleagues. Findings in the literature are inconsistent. In New Zealand, rural GPs were on call more frequently and expressed more concern about their independence than urban physicians.⁴ Australian rural GPs had significantly higher job satisfaction scores than urban GPs, especially for autonomy.⁸ Therefore, rural versus urban practice might not be a separate variable but, like solo versus group practice, related to job control.

Teaching was significantly associated with overall job satisfaction as was previously reported.⁷ This is good

Table 4. Multiple regression analysis of overall job satisfaction with predictor range of procedures and confounding variables: *N* = 16877.*

PREDICTOR VARIABLES	STANDARDIZED BETA	T	P
Range of procedures	.040	4.906	.0001
Age	.028	3.487	.0001
Sex	-.014	-1.736	.083
Group or solo practice	.042	5.419	.0001
Population served by practice:			
urban vs rural	-.101	-9.899	.0001
semiurban vs rural	-.024	-2.422	.015
Teaching	.052	6.794	.0001
Constraints to medical care services	-.227	-30.412	.0001
Balance of personal and professional commitments	.140	18.641	.0001

*Total varies from the sample size of 20 507 because analysis was conducted only on physicians with complete data for all variables. All the predictor variables correlated with overall job satisfaction ($R=0.302$), therefore, all the predictor variables explain 9.1% of the variance ($R^2=.91$).

news in an era of expanding family medicine residency programs and of needing new teachers.

Physicians who stated there were constraints on the medical care they provided reported lower overall job satisfaction. Landon et al⁵ found that one of the strongest and most consistent predictors of job satisfaction was physicians' ability to obtain services for their patients. Solutions to issues in the entire health care system, therefore, are likely to improve physicians' overall job satisfaction.

Physicians who reported that the "balance was about right" between personal and professional commitments were significantly more satisfied. In the literature, a similar but not identical concept, job control, has been found to be one of the strongest predictors of job satisfaction in New Zealand, the United States, Australia, and England.^{1,5,8,10}

This study has identified 8 factors related to job satisfaction. Readers who want to improve job satisfaction will note that some of these factors are more amenable to change than others.

Strengths and limitations

A strength of this study is having the full sample of a large national survey, which is likely to be generalizable. Also, the sample is weighted, and this increases its representativeness.¹⁶ The large sample size means that any true relationships are very likely to be found statistically significant. A limitation of a large sample size, however, is that small differences might be found to be statistically significant. Other strengths are the use of multi-variable analysis and a thorough search for confounding variables.

A limitation is that the survey is self-reported, so self-report bias must be considered a possibility for range of procedures. The range of procedures could be over-reported or under-reported, but this should not change

degree of satisfaction. Self-report is the only way to measure satisfaction.

This study found that 10% of variance (considered low to moderate in most social science literature)¹⁹ was explained by relevant items in the 2001 survey. We should wonder what other factors (not included in the 2001 survey) could explain most of the variance: relationship with patients is supported in the literature,^{2-4,9} but family physicians' personality characteristics were not described in the literature we reviewed (nor were they included in the survey). Future studies should test for these factors, which are not available in the data set used for this study.

Two interpretations are possible for any cross-sectional study because one cannot attribute the direction of the relationship or causation. Does a wider range of procedures increase overall job satisfaction or does higher overall job satisfaction lead family physicians to increase their range of procedures? A cohort study is required to answer this question.

Conclusion

Family practitioners might try to improve their overall job satisfaction by increasing their range of procedures. This modest association has not been described previously. Although not part of our initial objective, we also found that other relatively malleable factors, such as teaching and ensuring that the balance in their personal and professional lives is "about right," are associated with greater job satisfaction.

Family medicine educators will note that, because teaching was related to overall job satisfaction, we can mention this to potential family physician teachers as we recruit for the expansion of family medicine programs.

We found systems issues that should be addressed to increase overall job satisfaction and retention of family

physicians. Most physicians reported that they experienced constraints on obtaining medical services for their patients and that this was significantly associated with overall job satisfaction. Comprehensive solutions that affect the whole health care system, therefore, will have a large effect on these constraints and on overall job satisfaction. In this study, most family physicians reported that the balance in their lives was not "about right," and the literature emphasizes the importance of job control. This finding could guide primary care reform to foster balance between professional and personal commitments as an important goal. ❁

Acknowledgment

We thank **Sarah Scott, MHSc**, Janus Project Coordinator, in particular. This work was conducted when **Dr Rivet** was in the Master's of Clinical Science Program at the University of Western Ontario. The study described in this paper was conducted using original data collected for the College of Family Physicians of Canada's National Family Physician Workforce Database.

This database is part of the College of Family Physicians of Canada's JANUS Project: Family Physicians Meeting the Needs of Tomorrow's Society. The study was also supported by the Canadian Institute for Health Information, the Canadian Medical Association, La *fédération des médecins omnipraticiens du Québec*, Health Canada, Scotiabank, Merck Frosst, and the Royal College of Physicians and Surgeons of Canada.

Contributors

Dr Rivet posed the research question, participated substantially in designing the study and in decisions regarding measures to be collected, contributed substantially to the analysis, and was the principal writer of the manuscript.

Ms Ryan was responsible for data management, contributed substantially to analysis and interpretation of the data, and assisted with manuscript preparation. **Dr Stewart** supervised all phases of the study, contributed to analysis

and interpretation of the data, and provided revisions to the manuscript.

Competing interests

None declared

Correspondence to: Dr Christine Rivet, 210 Melrose Ave, Ottawa, ON K1Y 4K7; telephone 613 761-4334; fax 613 761-4200; e-mail crivet@ottawahospital.on.ca or crivet@uottawa.ca

References

- Dowell AC, Hamilton S, McLeod DK. Job satisfaction, psychological morbidity and job stress among New Zealand general practitioners. *N Z Med J* 2000;113(1113):269-72.
- Skolnik NS, Smith DR, Diamond J. Professional satisfaction and dissatisfaction of family physicians. *J Fam Pract* 1993;37(3):257-63.
- Baillie R, Sibthorpe B, Douglas B, Broom D, Attewell R, McGuinness C. Mixed feelings: satisfaction and disillusionment among Australian GPs. *Fam Pract* 1998;15(1):58-66.
- Walton VA, Romans-Clarkson SE, Herbison GP. Variety and views in general practice. *N Z Med J* 1990;103(892):287-90.
- Landon BE, Reschovsky J, Blumenthal D. Changes in career satisfaction among primary care and specialist physicians, 1997-2001. *JAMA* 2003;289(4):442-9.
- DeVoe J, Fryer GE Jr, Hargraves JL, Phillips RL, Green LA. Does career dissatisfaction affect the ability of family physicians to deliver high-quality patient care? *J Fam Pract* 2002;51(3):223-8.
- Eliason BC, Guse C, Gottlieb MS. Personal values of family physicians, practice satisfaction, and service to the underserved. *Arch Fam Med* 2000;9(3):228-32.
- Ulmer B, Harris M. Australian GPs are satisfied with their job: even more so in rural areas. *Fam Pract* 2002;19(3):300-3.
- Pathman DE, Williams ES, Konrad TR. Rural physician satisfaction: its sources and relationship to retention. *J Rural Health* 1996;12(5):366-77.
- Cooper CL, Rout U, Faragher B. Mental health, job satisfaction, and job stress among general practitioners. *BMJ* 1989;298(6670):366-70.
- McGlone SJ, Chenoweth IG. Job demands and control as predictors of occupational satisfaction in general practice. *Med J Aust* 2001;175(2):88-91.
- Thommasen HV, Lavanchy M, Connelly I, Berkowitz J, Grzybowski S. Mental health, job satisfaction, and intention to relocate. Opinions of physicians in rural British Columbia. *Can Fam Physician* 2001;47:737-44.
- Mainous AG III, Ramsbottom-Lucier M, Rich EC. The role of clinical workload and satisfaction with workload in rural primary care physician retention. *Arch Fam Med* 1994;3(9):787-92.
- Berry DP, Harding KG. Potential pitfalls of minor surgery in general practice. *Br J Gen Pract* 1993;43(374):358-9.
- Sharman J. Patient's response to a general practice minor surgery service. *Practitioner* 1986;230:27-9.
- College of Family Physicians of Canada. 2001 CFPC National Family Physician Workforce Survey [Part of the Janus Project: Family physicians meeting the needs of tomorrow's society]. Mississauga, Ont: College of Family Physicians of Canada; 2001.
- Aday LA. *Designing and conducting health surveys*. 2nd ed. San Francisco, Calif: John Wiley and Sons Inc; 1996.
- Hueston WJ. Family physicians' satisfaction with practice. *Arch Fam Med* 1998;7(3):242-7.
- Moore DS. *Statistics: concepts and controversy*. 5th ed. New York, NY: W.H. Freeman; 2000.
