

- 5 Veling W, Susser E, van OJ, et al. Ethnic density of neighborhoods and incidence of psychotic disorders among immigrants. *Am J Psychiatry* 2008;165:66–73.
- 6 Williams DR, Neighbors HW, Jackson JS. Racial/ethnic discrimination and health: findings from community studies. *Am J Public Health* 2003;93:200–8.
- 7 Harris R, Tobias M, Jeffreys M, et al. Racism and health: the relationship between experience of racial discrimination and health in New Zealand. *Soc Sci Med* 2006;63:1428–41.
- 8 Borrell C, Muntaner C, Gil-Gonzalez D, et al. Perceived discrimination and health by gender, social class, and country of birth in a Southern European country. *Prev Med* 2010;0:86–92.
- 9 Burgess DJ, Ding Y, Hargreaves M, et al. The association between perceived discrimination and underutilization of needed medical and mental health care in a multi-ethnic community sample. *J Health Care Poor Underserved* 2008;19:894–911.
- 10 Casagrande SS, Gary TL, LaVeist TA, et al. Perceived discrimination and adherence to medical care in a racially integrated community. *J Gen Intern Med* 2007;22:389–95.
- 11 Greer TM. Perceived racial discrimination in clinical encounters among African American hypertensive patients. *J Health Care Poor Underserved* 2010;21:251–63.
- 12 Thrasher AD, Earp JA, Golin CE, et al. Discrimination, distrust, and racial/ethnic disparities in antiretroviral therapy adherence among a national sample of HIV-infected patients. *J Acquir Immune Defic Syndr* 2008;9:84–93.
- 13 Mouton CP, Carter-Nolan PL, Makambi KH, et al. Impact of perceived racial discrimination on health screening in black women. *J Health Care Poor Underserved* 2010;21:287–300.
- 14 Van Houtven CH, Voils CI, Oddone EZ, et al. Perceived discrimination and reported delay of pharmacy prescriptions and medical tests. *J Gen Intern Med* 2005;20:578–83.
- 15 Bazargan M, Norris K, Bazargan-Hejazi S, et al. Alternative healthcare use in the under-served population. *Ethn Dis* 2005;15:531–9.
- 16 Perez D, Sribney WM, Rodriguez MA. Perceived discrimination and self-reported quality of care among Latinos in the United States. *J Gen Intern Med* 2009; 24(Suppl 3):548–54.
- 17 Netherlands Institute for Social Research. *Gezondheid en welzijn van allochtone ouderen*. The Hague: Netherlands Institute for Social Research (SCP), 2004.
- 18 Netherlands Institute for Social Research. *Discriminatiemonitor niet-westerse allochtonen op de arbeidsmarkt* 2007. The Hague. Netherlands Institute of Social Research (SCP), 2007.
- 19 Andersen RM. Revisiting the behavioral model and access to medical care: does it matter? *J Health Soc Behav* 1995;36:1–10.
- 20 Clark R, Andersen NB, Clark VR, Williams DR. Racism as a Stressor for African Americans. A Biopsychosocial Model. *Am Psychol* 1999;54:805–16.
- 21 Westert GP, Schellevis FG, de Bakker DH, et al. Monitoring health inequalities through general practice: the Second Dutch National Survey of General Practice. *Eur J Public Health* 2005;15:59–65.
- 22 Uiters AH. Primary Health Care Use among Ethnic Minorities in the Netherlands. A Comparative Study. Utrecht: Netherlands Institute for Health Services Research (NIVEL)/ Erasmus Universiteit Rotterdam, 2007.
- 23 Phalet K, van Lotringen C, Entzinger H. Islam en de multiculturele samenleving. Ovattingen van jongeren in Rotterdam. *Utrecht* 2000. May.
- 24 CBS. Available at: www.cbs.nl (15 May 2011, date last accessed).
- 25 Aaronson NK, Acquadro C, Alonso J, et al. International quality of life assessment (IQOLA) project. *Qual Life Res* 1992;1:349–51.
- 26 Sixma HJ, van CC, Kerstens JJ, Peters L. Quality of care from the perspective of elderly people: the QUOTE-elderly instrument. *Age Ageing* 2000;29:173–8.
- 27 el Fakiri F, Sixma HG, Weide MG. *Kwaliteit van huisartsenzorg vanuit migrantenperspectief: ontwikkeling van een meetinstrument*. Utrecht: NIVEL, 2000.
- 28 Lamkaddem M, Spreeuwenberg PM, Deville WL, et al. Changes in health and primary health care use of Moroccan and Turkish migrants between 2001 and 2005: a longitudinal study. *BMC Public Health* 2008;8:40.
- 29 Clarke PM, Fiebig DG, Gerdtham UG. Optimal recall length in survey design. *J Health Econ* 2008;27:1275–84.

.....
European Journal of Public Health, Vol. 22, No. 4, 478–483

© The Author 2011. Published by Oxford University Press on behalf of the European Public Health Association. All rights reserved.

doi:10.1093/eurpub/ckr114 Advance Access published on 22 September 2011

Growing discontent of Swiss doctors, 1998–2007

Thomas V. Perneger¹, Marie Deom^{1,2}, Stéphane Cullati¹, Patrick A. Bovier³

1 Division of Clinical Epidemiology, University Hospitals of Geneva, and Faculty of Medicine, University of Geneva, Geneva, Switzerland

2 Chaux-de-Fonds Hospital, La Chaux-de-Fonds, Switzerland

3 Community-based General Internist, Lausanne, Switzerland

Correspondence: Thomas V. Perneger, Division of clinical epidemiology, University Hospitals of Geneva, 4 rue Gabrielle-Perret-Gentil, CH-1211 Geneva, Switzerland, tel: +41 22 372 9037, fax: +41 22 372 9035, e-mail: thomas.perneger@hcuge.ch

Background: Work satisfaction of doctors is a useful indicator of the functioning of the health-care system. We documented the work satisfaction of doctors nine years apart, before and after the implementation of several health-care reforms (limitation of working hours for medical trainees, restrictions on new doctors' offices, new reimbursement fee schedule, greater administrative controls). **Methods:** Two surveys of all doctors working in the Canton of Geneva, Switzerland (1998: 1146 respondents, 2007: 1546 respondents). The doctors filled in a 17-item questionnaire rating their satisfaction with different aspects of their professional life, each on a scale between 1 and 7. For each item, proportions of highly satisfied (scores 6–7) and highly dissatisfied (scores 1–2) doctors were compared over time. **Results:** The proportion of doctors who were highly satisfied decreased significantly for 15 out of 17 items between 1998 and 2007. Meanwhile, 'time available for family, friends, or leisure' improved, and 'opportunity for continuing education' remained stable. Proportions of highly satisfied respondents decreased the most for 'enjoyment of work' (–17.2%), 'autonomy in treating your patients' (–15.8%), 'autonomy in referring patients to a specialist' (–14.0%), 'relations with patients' (–13.9%) and 'global satisfaction with current work situation' (–13.3%). The proportion of respondents who were highly dissatisfied (score 1–2) increased the most for 'administrative burden' (+8.9%) and 'social status and respect' (+5.0%). **Conclusions:** Doctors' satisfaction with most aspects of their professional lives has decreased sharply during the past decade. This trend may be linked, tentatively, with specific policy changes.

.....

Introduction

Professional satisfaction of doctors is important for several reasons.^{1–5} First, it is desirable for its own sake—all things being equal, it is better

if doctors are happy at work than not. Secondly, professional satisfaction is an indicator of the good functioning of the health-care system as a whole; some global quality systems such as the European Foundation for Quality Management model include professional satisfaction among key

indicators of performance.⁶ Thirdly, doctors' discontent may lead to undesirable outcomes, such as lack of motivation, burnout,⁷ poor patient care,^{8,9} career change or retirement^{10,11} and may reduce the attractiveness of the profession to the next generation.

Doctors' satisfaction is particularly prone to change if conditions of work change. Change is pervasive in health systems, including in Switzerland. The Swiss health-care system is based on a mix of governmental regulation and market initiative.^{12,13} Swiss doctors train in public hospitals; some remain in senior positions at public hospitals, but most go into private practice (solo practice, group practice or private clinics) once their specialty training is completed. In the past 10 years, several changes were introduced that may have affected doctors' experience at work:

First, work time for doctors in training was capped at 50 h per week (40 h of work and 10 h of training), in compliance with the Federal Law on work, applicable to hospitals since 2005. Previously, the average weekly work time was closer to 60–70 h, sometimes more. The Law also limits the duration of night work.

Secondly, the salary scale for medical interns at Geneva University Hospitals was modified in 2002, resulting in higher pay in early years of training. Salaries have remained constant for more senior doctors.

Thirdly, the continuing education requirements for medical doctors to maintain their medical specialty title were increased, starting in 2002. For most specialties 80 h of continuing education per year are required.

Fourthly, strict limitation on the opening of new doctors' practices ('need clause') was enacted through an urgent federal edict in 2002. As a result, many trained doctors who would have moved into private practice were forced to remain in public hospitals, which responded by creating posts for senior hospitalists.

Finally, a new medical fee schedule (Tarmed) was enacted in 2004. This schedule applies to all doctors in private practice, who bill on a fee-for-service basis. Billing has become more detailed and burdensome. Also, the intent of the new schedule was to increase reimbursement for intellectual acts, as opposed to technical acts, and to limit the progression of medical expenses globally.

It is unclear what the cumulated effect of these reforms might have been on doctors' satisfaction.

In 1998 we have conducted a survey of all doctors practicing in canton Geneva, Switzerland, that included a 17-item work satisfaction scale.¹⁴ To document changes, we repeated a similar survey 9 years later, in 2007. The purpose of this analysis was to examine changes in doctors' professional satisfaction over time, and to link specific reforms that occurred in the intervening period with specific changes in satisfaction.

Methods

Design

We conducted two mail surveys of all doctors practicing patient care in canton Geneva, Switzerland, using the same data collection methods, in 1998 and 2007.^{14,15} The surveys addressed various topics related to health-care policy and the role of the medical profession. The section of work satisfaction was identical in the two surveys. Because the surveys were anonymous, doctors who responded to both surveys could not be identified and their results could not be linked. Both surveys were approved by the Committee on research ethics of the Geneva Medical Association. Finally, we compared the results to work satisfaction trends measured by the Swiss Household Panel study in the general population, in 1999 and 2007.

Participants

Doctors were identified from membership files of the Geneva Medical Association and of the University Hospitals of Geneva. The former includes all doctors in private practice or affiliated with private clinics, and many senior doctors working at the public hospital. The latter includes all doctors in training and permanent hospital staff. Files were merged, and duplicate records were eliminated by hand. Non-clinical specialists were removed as well (pathologists, public health specialists).

The 1998 file included 1994 eligible doctors, of whom 1184 returned the survey (59.4%), and the 2007 file included 2746 doctors, of whom 1546 participated (56.3%). The Swiss Household Panel study¹⁶ included 5119 respondents in 1999 and 4799 in 2007.

Variables

The dependent variables were the doctors' work satisfaction items. The main independent variable was time (1998 vs. 2007). Potential confounding variables were doctor characteristics (age, sex and specialty).

Instruments

Doctor satisfaction was measured by means of a 17-item instrument,¹⁴ based on the work of the SGIM Career Satisfaction Study Group.¹⁷ In the initial survey the items had high completion rates (95–99%), and a factor analysis of 16 items (excepting 'overall satisfaction') identified five domain-specific scores. The corresponding subscales had satisfactory internal consistency (Cronbach α = 0.66–0.63) and all correlated significantly with the 'overall satisfaction' item.

The items were introduced by the following instruction: 'Please indicate to what extent you are satisfied with the following aspects of your professional life', and the answers were to be circled on a seven-point numerical scale, from 'extremely dissatisfied' to 'extremely satisfied'. The list of items appears in the Supplementary Attachment 1.

In the Swiss Panel study, global work satisfaction was evaluated by a single item, rated on a scale between 0 and 10.

Power and sample size

The survey was sent to all doctors practicing clinical medicine in canton Geneva; the sample size was not driven by a power computation. With the sample size that was achieved, the power was >0.99 to detect a difference in proportions of satisfied (or dissatisfied) doctors of 10% between the two surveys, and >0.72 to detect a difference of 5%.

Statistical analysis

First, we compared mean values of all satisfaction items in 1998 and 2007, and tested the shifts in distributions using Mann–Whitney tests (Supplementary Attachment 1). However, mean values of arbitrary scales are not easy to interpret. Therefore, we report in detail on proportions of doctors who were highly satisfied (score of 6 or 7 on the response scale) and highly dissatisfied (score of 1 or 2 on the response scale), for each item.

Overall proportions of highly satisfied and highly dissatisfied doctors were compared using two-sided Fisher's test and χ^2 -test. These analyses were also stratified by the doctors' work situation (in training, senior hospital doctors, private practice) and specialty (in five strata). Differences between strata in changes over time were tested in logistic regression models that included an interaction term for the year of the survey (1998 = 0, 2007 = 1) and the stratification variable, e.g. sex (men = 0, women = 1). The model was: $\text{logit}(p) = b_0 + b_1 \cdot \text{year} + b_2 \cdot \text{sex} + b_3 \cdot \text{year} \cdot \text{sex}$, where the coefficient b_0 corresponds to the proportion in 1998 among men, b_1 to the change in men between 1998 and 2007, b_2 to the difference between women and men in 1998 and b_3 to the additional change in women, over and beyond the change in men (the latter is the interaction term). All interactions were tested, but only selected results are shown.

Because respondent characteristics differed between the two surveys, we assessed possible confounding by comparing unadjusted mean differences for each item to differences adjusted for sex, age group, work context and specialty, by means of a general linear regression model.

We dichotomized the general work satisfaction item from the Swiss Panel study as 0–8 vs. 9–10, and compared the proportion of highly satisfied respondents for the two study years. We obtained *P*-values from a logistic regression model where the year was the sole predictor, using generalized estimating equations to take into account repeated responses from a portion of the panel.

We used $P < 0.05$ to define statistical significance. Data were analysed using SPSS version 17.

Results

There were more women among the respondents in 2007 than in 1998, more respondents >50 years of age, more hospital-based doctors and fewer primary care physicians (table 1).

Overall changes

The respondents' satisfaction ratings decreased significantly for 15 of 17 items between 1998 and 2007 (Supplementary Attachment 1). The scores remained stable for 'opportunity for continuing education' (4.89 vs. 4.93, $P = 0.75$), and increased for 'time available for family, friends, or leisure' (3.41 vs. 3.55, $P = 0.013$).

Table 1 Characteristics of participants in two surveys of doctors practicing in canton Geneva, Switzerland, in 1998 and 2007

	1998	2007	P-value
Number of participants	1184	1546	
Sex			0.020
Women	400 (33.8)	589 (38.1)	
Men	784 (66.2)	956 (61.9)	
Age groups			<0.001
≤35 years	263 (22.6)	304 (19.7)	
36–50 years	568 (48.8)	612 (39.6)	
≥50 years	332 (28.5)	628 (40.7)	
Work context			<0.001
Doctors in training	362 (30.8)	515 (33.3)	
Senior hospital doctors	67 (5.7)	164 (10.0)	
Doctors in private practice	748 (63.6)	877 (56.7)	
Specialty			0.009
Internal medicine spec.	196 (16.6)	231 (15.0)	
Paediatrics	83 (7.0)	128 (8.3)	
Surgery and technical	325 (27.4)	449 (29.2)	
Psychiatry	178 (15.0)	286 (18.6)	
Primary care	402 (34.0)	445 (28.9)	

Numbers are frequencies (%)

The proportions of doctors who were highly satisfied with various aspects of their work (scores of 6 or 7) were high for items that belonged to the dimensions of patient care, personal rewards and professional relations (table 2). As for mean scores, these proportions decreased significantly for 15 of 17 items. The two stable items were 'time available for family, friends, or leisure' and 'opportunity for continuing education'. The decreases in the proportions of very satisfied respondents were particularly strong for 'enjoyment of work' (−17.2%), 'autonomy in treating your patients' (−15.8%), 'autonomy in referring patients to a specialist' (−14.0%), 'relations with patients' (−13.9%) and 'global satisfaction with current work situation' (−13.3%).

The proportions of very dissatisfied respondents (scores of 1 or 2) were generally low, except for the items that belonged to the dimensions of burden and income/prestige (table 2). Two of these proportions decreased significantly, signalling improvement: 'workload' (−3.0%), and 'time available for family, friends, or leisure' (−5.8%). The two that increased most were 'administrative burden' (+8.9%) and 'social status and respect' (+5.0%).

Changes according to work situation

For 12 of the 17 items, the changes were similar (i.e., the interaction term was not statistically significant) for medical trainees, senior hospital-based doctors, and doctors in private practice. However, for five items, the impact differed substantially (table 3). Satisfaction with 'workload' improved among trainees, with a small increase in the proportion who were very satisfied, but more importantly a strong decline in the proportion who were dissatisfied (−16.4%). In the two other groups, the pattern was opposite. Of note, doctors in private practice were still the most satisfied with their workload, even in 2007. Trainees were also more satisfied with their 'time available for family, friends, or leisure'; the proportion who were very dissatisfied with this aspect fell by 18.8%, but remained rather stable in the two other groups. Both hospital-based doctor groups fared slightly better on 'work-related stress', but the trend was clearly negative among doctors in private practice. While no doctor group was satisfied with the 'administrative burden', the proportion who were very dissatisfied decreased among trainees by 7.5%, but jumped up among doctors in private practice by 17.8%. Finally, satisfaction with 'current income' was stable among trainees, but the trend was clearly unfavourable among the two other

Table 2 Proportions of doctors who were satisfied (scores 6 or 7) or dissatisfied (scores 1 or 2) with specific aspects of their professional life in 1998 and 2007, and statistical tests on the differences between years

	Proportion satisfied (%) score 6 or 7			Proportion dissatisfied (%) score 1 or 2		
	1998	2007	P-value	1998	2007	P-value
Patient care						
Relations with patients	76.3	63.4	<0.001	0.6	0.8	0.50
Autonomy in treating your patients	60.9	45.1	<0.001	1.7	3.9	0.001
Autonomy in referring patients to a specialist	80.4	66.4	<0.001	0.4	1.3	0.036
Quality of care you can provide	63.1	55.9	<0.001	0.4	1.0	0.08
Burden						
Workload	25.7	17.9	<0.001	17.6	14.6	0.039
Time available for family, friends, or leisure	14.3	13.0	0.33	34.4	28.6	0.001
Work-related stress	14.4	10.8	0.005	19.2	22.6	0.036
Administrative burden	6.5	4.5	0.025	40.6	49.5	<0.001
Income/prestige						
Current income	26.9	20.9	<0.001	13.1	15.6	0.07
Manner in which you are currently paid	29.4	21.2	<0.001	13.1	16.2	0.025
Social status and respect	36.9	27.8	<0.001	5.4	10.4	<0.001
Personal rewards						
Intellectual stimulation	56.0	49.3	<0.001	2.5	3.5	0.14
Opportunity for continuing education	39.3	39.5	0.90	7.6	5.9	0.10
Enjoyment of work	69.9	52.7	<0.001	1.6	2.9	0.030
Professional relations						
Relations with peers	64.5	58.0	0.001	1.2	1.2	1.00
Relations with non-medical staff	73.7	62.7	<0.001	0.8	1.4	0.26
Overall assessment						
Global satisfaction with current work situation	42.0	28.7	<0.001	2.9	4.2	0.10

Table 3 Proportions of doctors who were satisfied (scores 6 or 7) or dissatisfied (scores 1 or 2) with selected aspects of their professional life in 1998 and 2007, by work context

	Proportion satisfied (%) score 6 or 7			Proportion dissatisfied (%) score 1 or 2			
	1998	2007	P-value	1998	2007	P-value	
Workload			0.013*				<0.001*
Doctors in training	8.6	10.5	0.42	35.8	19.4		<0.001
Senior hospital doctors	15.2	7.9	0.14	25.8	27.8		0.87
Private practice	35.1	25.1	<0.001	8.1	9.5		0.38
Time available			0.006*				0.002*
Doctors in training	3.6	8.2	0.007	57.4	38.6		<0.001
Senior hospital doctors	1.5	4.0	0.68	43.9	41.1		0.76
Private practice	20.7	17.5	0.11	22.6	20.5		0.33
Work-related stress			0.25*				0.002*
Doctors in training	7.5	8.2	0.80	30.1	25.0		0.10
Senior hospital doctors	12.1	9.3	0.63	21.2	27.3		0.40
Private practice	17.7	12.6	0.005	13.9	20.3		0.001
Administrative burden			0.16*				<0.001*
Doctors in training	3.4	4.1	0.72	57.8	50.3		0.032
Senior hospital doctors	6.1	2.0	0.20	42.4	44.1		0.88
Private practice	7.9	5.2	0.032	32.3	50.1		<0.001
Continuing education			0.92*				0.21*
Doctors in training	25.3	26.6	0.70	16.9	11.3		0.02
Senior hospital doctors	54.5	55.6	0.88	3.0	0.7		0.22
Private practice	44.6	44.4	0.96	3.6	3.7		1.00
Current income			0.14*				0.005*
Doctors in training	18.9	18.3	0.79	19.2	15.9		0.20
Senior hospital doctors	33.3	21.1	0.061	4.5	11.8		0.13
Private practice	30.4	22.5	<0.001	10.7	16.1		0.002
Global work situation			0.15*				0.18*
Doctors in training	30.8	23.9	0.029	4.2	3.5		0.59
Senior hospital doctors	43.9	32.9	0.13	0.0	2.6		0.32
Private practice	47.3	30.8	<0.001	2.6	4.9		0.018

*P-value for difference in changes over time between three groups of doctors

groups. For two additional items the interaction effects were not statistically significant, but suggested a different evolution. Fewer trainees were dissatisfied with their continuing education in 2007 than in 1998. More importantly, the proportion who were very satisfied with their 'global work situation' decreased by only 6.9% among trainees, and much more among senior hospital doctors (−11.0%) and doctors in private practice (−16.5%).

Changes by specialty

For most items, the changes did not differ significantly by specialty. Dissatisfaction with the administrative burden increased substantially in all groups—it increased by a massive 26.0% among psychiatrists—except surgeons and technical specialists (table 4). Psychiatrists were slightly more satisfied with their income (although not significantly) in 2007 than in 1998, but primary care doctors were much less satisfied. The differences in the 'global work situation' were not quite statistically significant, but the proportion who were highly satisfied decreased only a little among surgeons and technical specialists (−5.4%), and much more among paediatricians (−13.5%), internal medicine specialists (−16.2%), primary care doctors (−16.9%) and psychiatrists (−17.9%).

Adjusted differences

Mean differences in scores between 1998 and 2007 remained essentially unchanged after adjustment for sex, age, work context and specialty (Supplementary Attachment 2). The Pearson correlation coefficient between unadjusted and adjusted differences was 0.994 ($P < 0.001$). Averaged over items, the mean unadjusted difference was −0.233, and the mean adjusted difference was −0.228.

Swiss household panel

In 1999, 2153 (42.1%) respondents gave a global work satisfaction rating of 9 or 10, vs. 1680 (35.0%) in 2007, a decrease of 7.1%. The odds ratio of high satisfaction in 1999 compared to 2007 was 1.35 [95% confidence

interval (95% CI) 1.25–1.46, $P < 0.001$]. In comparison, among the doctors, the odds ratio of high satisfaction in 1998 compared to 2007 was 1.80 (95% CI 1.54–2.12, $P < 0.001$).

Discussion

We have documented doctors' work satisfaction before and after the implementation of several reforms that directly influence the practice of medicine in Geneva, Switzerland, between 1998 and 2007. The general trend in work satisfaction among doctors was negative. For most items, the proportions of highly satisfied doctors decreased substantially over time, or the proportions of highly dissatisfied doctors increased. These were not small differences. Notably the proportion of doctors who were highly satisfied with their work situation decreased from 42.0% in 1998 to 28.7% in 2007. This decrease was about twice as strong as the trend in the general population measured by the Swiss Household Panel study, using a comparable instrument (42.1% highly satisfied in 1999 vs. 35.0% in 2007).

Among doctors, deteriorations were similar or greater for enjoyment at work, autonomy in treating and in referring patients and social status and respect. Previous studies that have examined doctors' satisfaction over time in the USA,^{18–21} England,^{22–24} and Norway²⁵ have shown small decreases, fluctuations, or even improvement.^{24,25} Only one study has documented a sharp decrease in satisfaction:¹⁹ the proportion of primary care physicians in Massachusetts affiliated with selected managed care plans who were very satisfied with their current practice situation decreased from 28.7% in 1996 to 17.7% in 1999, which was attributed to changes in managed care practices.

The changes that we observed are particularly striking because they affect the whole population of doctors practicing in a given region, all specialties and work contexts included. Our results are consistent with the hypothesis that the policy changes to the practice of medicine that were enacted in Switzerland and in Geneva specifically during the past decade have steeply reduced doctors' satisfaction with most aspects of their

Table 4 Proportions of doctors who were satisfied (scores 6 or 7) or dissatisfied (scores 1 or 2) with selected aspects of their professional life in 1998 and 2007, by medical specialty

	Proportion satisfied (%) score 6 or 7			Proportion dissatisfied (%) score 1 or 2		
	1998	2007	P-value	1998	2007	P-value
Administrative burden			0.32*			<0.001*
Internal medicine spec.	5.2	5.2	1.00	38.3	45.7	0.14
Paediatrics	6.1	2.3	0.27	34.1	53.9	0.007
Surgery and technical	6.3	6.1	1.00	44.4	43.6	0.82
Psychiatry	9.6	4.6	0.051	27.7	53.7	<0.001
Primary care	6.1	3.2	0.047	45.7	53.3	0.032
Current income			0.002*			0.061*
Internal medicine spec.	34.4	18.8	<0.001	10.9	10.9	1.00
Paediatrics	25.3	20.6	0.50	7.2	11.9	0.35
Surgery and technical	27.5	24.2	0.31	15.6	17.6	0.49
Psychiatry	19.8	25.5	0.17	16.4	12.1	0.21
Primary care	26.4	15.6	<0.001	11.8	19.4	0.003
Global work situation			0.08*			0.88*
Internal medicine spec.	47.6	31.4	0.001	3.1	2.6	0.78
Paediatrics	45.8	32.3	0.048	1.2	1.6	0.65
Surgery and technical	38.6	33.2	0.13	3.4	5.4	0.034
Psychiatry	42.6	24.7	<0.001	2.3	3.9	0.34
Primary care	41.1	24.2	<0.001	3.0	4.8	0.12

*P-value for difference in changes over time between groups of specialists

professional lives. Our results also confirm more anecdotal reports of increasing unhappiness heard from doctors over the past years, as well as reports of increasing burnout among Swiss doctors.²⁶ The growing dissatisfaction with loss of autonomy also echoes the negative perceptions that doctors have of many managed care tools.¹⁵

There were two notable exceptions to this negative trend. Satisfaction with continuing education opportunities remained stable. During the study period, the continuing education requirements to maintain one's specialty title became more demanding for most specialties, but also better organized. But the only clearly positive change was the doctors' greater satisfaction with time available for family and leisure. This improvement was only seen among doctors in training, whose working hours became subjected to the federal Law on work. As a result, trainees work no more than 50 h per week, less than previously (although the difference was not quantified). Fittingly, the trainees' satisfaction with workload improved as well (the proportion who were dissatisfied went from 35.8% in 1998 to 19.4% in 2007), whereas an inverse trend was observed among senior hospital doctors and doctors in private practice. Similar positive effects were observed when work-time limits were enacted in the USA.²⁷

Another context-specific evolution concerns dissatisfaction with administrative tasks. The situation remained stable for hospital doctors, both senior and in training, but dissatisfaction increased radically among doctors in private practice (the proportion who were highly dissatisfied went from 32.3% to 50.1%). This is likely related to the introduction of the new Swiss medical fee schedule,²⁸ which was accompanied by more onerous requirements for documenting and referencing each medical service provided. Interestingly, the growing dissatisfaction with administrative tasks affected all specialties except surgeons and other technical specialists. It is possible that the new tariff implied little change for these specialties, compared with others.

Satisfaction with income also differed by work context and by specialty. Trainees were equally satisfied with their income in 1998 and 2007, but the satisfaction decreased among senior hospital doctors and those in private practice. Senior doctors were hospitalists by choice in 1998, but many were forced to remain at the hospital in 2007 due to restrictions on opening new medical practices. Thus their greater dissatisfaction with income may have been due unfulfilled expectations rather than to any change in revenue. As for doctors in private practice, the new fee schedule and greater pressure from insurers probably resulted in income reductions for some groups of doctors, if not across the board. However, these are mere speculations from observational data.

It is also worth noting that the new fee schedule did not achieve one of its goals, which was to redistribute money from technical to less technical specialties such as primary care. A reason for this was to make primary care specialties more attractive. In fact the impact was just the opposite: primary care doctors and internists have become much less satisfied with their income, while the satisfaction of surgeons and technical specialists has remained stable. More generally, the decrease in work satisfaction of primary care doctors is worrisome, given the increasing reliance of health-care systems on the generalist.²⁹

Limitations

The main limitations of this study are a limited response rate, and the impossibility to determine the exact causes of the changes that were observed. The response rate was in line with other published doctor surveys (between 50% and 60%), but the possibility remains that the non-respondents may have felt quite differently about their work satisfaction than the respondents. This limits the trust in absolute numbers from this study, such as percentages of highly satisfied doctors. However, it is unlikely that the selection mechanism would have differed between 1998 and 2007; therefore the analysis of changes over time remains presumably valid.

The issue of causality is always problematic in an observational before-after study. Between 1998 and 2007 a number of changes have occurred in the doctors' professional environment, and the attribution of specific changes in satisfaction to specific causes is by nature speculative. We believe that the explanations we proposed are reasonable, but we cannot prove that they are true. Large-scale experimentation in this area would yield more definitive answers, but the feasibility of such studies is limited. Alternative explanations for the decrease in doctors' work satisfaction include changes in the composition of the physician workforce (through graduation, retirement and migration), and wider changes to society, such as demographic trends, technological progress, changes in values, etc. all of which may influence doctors' work satisfaction.

We were not able to connect responses by the same doctors in 1998 and 2007, because personal linkage information was destroyed after each survey, per protocol, to eliminate risks of breach of confidentiality. Analysing individual changes may have yielded additional insights and would have increased statistical power (even though lack of power was not an issue in this study).

Implications

The substantial decrease in doctors' work satisfaction observed in Geneva, Switzerland is alarming. As medicine becomes less enjoyable and less attractive, doctors may decide to change careers, reduce their work time, or retire early, and potential medical students may opt for more rewarding careers.^{7–11} A shortage of doctors affects currently many countries;³⁰ thus improving doctors' work conditions may be a wise public health investment.

On the positive side, our results suggest that work satisfaction may be influenced by specific measures; e.g. reducing working hours leads to greater satisfaction with workload and free time. The biggest back spot identified in our study revolves around administrative tasks and the limitations imposed on clinical decisions by managers or payers. Improving this aspect of medical practice has a large potential for improving doctors' work satisfaction. Given the difficulty in drawing causal inferences from observational data, we suggest that it would be prudent to conduct small scale experimentation with new medical policies before large-scale implementation.

Supplementary data

Supplementary data are available at *EURPUB* online.

Acknowledgements

The Swiss Household Panel data have been collected by the Swiss Foundation for Research in Social Sciences, University of Lausanne, with funding by the Swiss National Science Foundation.

Funding

Research and Development grant, University Hospitals of Geneva (PRD 07-I-14).

Conflicts of interest: None declared.

Key points

- Doctors' work satisfaction is an indicator of health system performance.
- In Geneva, Switzerland, the work satisfaction of doctors decreased substantially between 1998 and 2007 for most dimensions; notably, the proportion who were highly satisfied with their current work situation decreased from 42.0% to 28.7%.
- Many changes could be linked—tentatively—to specific health-care policy changes; e.g. capping medical trainees' work time at 50 h per week resulted in greater satisfaction with workload and with free time, and the introduction of a new fee schedule for private practitioners resulted in greater dissatisfaction with the administrative burden.
- Doctors' work satisfaction may be sensitive to reforms in the health-care sector.

References

- Zuger A. Dissatisfaction with medical practice. *N Engl J Med* 2004;350:69–75.
- Mechanic D. Physician discontent. Challenges and opportunities. *JAMA* 2003;290:941–6.
- Edwards N, Kornacki MJ, Silversin J. Unhappy doctors: what are the causes and what can be done? *BMJ* 2002;324:835–8.
- Haas JS. Physician discontent: a barometer of change and need for intervention. *J Gen Intern Med* 2001;16:496–7.
- Wallace JE, Lemaire JB, Ghali WA. Physician wellness: a missing quality indicator. *Lancet* 2009;374:1714–21.
- Nabitz U, Klazinga N, Walburg J. The EFQM excellence model: European and Dutch experiences with the EFQM approach in health care. *Int J Qual Health Care* 2000;12:191–201.
- Fahrenkopf AM, Sectish TL, Burger LK, et al. Rates of medication error among depressed and burned out residents: prospective cohort study. *BMJ* 2008;336:488–91.
- Haas JS, Cook EF, Puopolo AL, et al. Is the professional satisfaction of general internists associated with patient satisfaction? *J Gen Intern Med* 2000;15:122–8.
- Quinn MA, Wilcox A, Orav EJ, et al. The relationship between perceived practice quality and quality improvement activities and physician practice dissatisfaction, professional isolation, and work-life stress. *Med Care* 2009;47:924–8.
- Sibbald B, Bojke C, Gravelle H. National survey of job satisfaction and retirement among general practitioners in England. *BMJ* 2003;326:22.
- Landon BE, Reschovsky JD, Pham HH, Blumenthal D. Leaving medicine – the consequences of physician dissatisfaction. *Med Care* 2006;44:234–42.
- Reinhardt UE. The Swiss health system. Regulated competition without managed care. *JAMA* 2004;292:1227–31.
- Perneger TV, Hudelson PM. Public support for social financing of health care in Switzerland. *Int J Health Serv* 2005;35:91–9.
- Bovier PA, Perneger TV. Predictors of work satisfaction among physicians. *Eur J Public Health* 2003;13:299–305.
- Deom M, Agoritsas T, Perneger TV. What doctors think about the impact of managed care tools on quality of care, costs, autonomy, and relations with patients. *BMC Health Services Res* 2010;10:331.
- Tillman R. Swiss Household Panel (SHP) 2008–2009. Scientific report 2009. Lausanne: Swiss foundation for research in social sciences, 2010. Available at: http://www.swisspanel.ch/IMG/pdf/FNS_SCRIP_2009_June_2010.pdf (14 September 2011, date last accessed).
- McMurray JE, Williams E, Schwartz MD, et al. Physician job satisfaction: developing a model using qualitative data. *J Gen Intern Med* 1997;12:711–4.
- Murray A, Montgomery JE, Chang H, et al. Doctor discontent. A comparison of physician satisfaction in different delivery system settings, 1986 and 1977. *J Gen Intern Med* 2001;16:451–9.
- Landon BE, Aseltine R, Shaul JA, et al. Evolving dissatisfaction among primary care physicians. *Am J Managed Care* 2002;8:890–901.
- Landon BE, Reschovsky J, Blumenthal D. Changes in career satisfaction among primary care and specialist physicians, 1997–2001. *JAMA* 2003;289:442–9.
- Zafar HM, Lewis RS, Sunshine JH. Satisfaction of radiologists in the United States: a comparison between 2003 and 2005. *Radiology* 2007;244:223–31.
- Sibbald B, Enzer I, Cooper C, et al. GP job satisfaction in 1987, 1990 and 1998: lessons for the future? *Fam Pract* 2000;17:364–71.
- Whalley D, Bojke C, Gravelle H, Sibbald B. GP job satisfaction in view of contract reform: a national survey. *Br J Gen Pract* 2006;56:87–92.
- Whalley D, Gravelle H, Sibbald B. Effect of the new contract on GPs' working lives and perceptions of quality of care: a longitudinal survey. *Br J Gen Pract* 2008;58:8–14.
- Nylen M, Gulbradsen P, Forde R, Aasland OG. Unhappy doctors? A longitudinal study of life and job satisfaction among Norwegian doctors 1994–2002. *BMC Health Serv Res* 2005;5:44.
- Arigoni F, Bovier PA, Sappino PA. Trend in burnout among Swiss doctors. *Swiss Med Weekly* 2010;140:w13070.
- Gotein L, Shanafelt TD, Wipf JE, et al. The effects of work-hour limitations on resident well-being, patient care, and education in an internal medicine residency program. *Arch Intern Med* 2005;165:2601–6.
- Zweifel P, Tai-Seale M. An economic analysis of payment for health care services: the United States and Switzerland compared. *Int J Health Care Finance Econ* 2009;9:197–210.
- Grumbach K, Bodenheimer T. A primary care home for Americans: putting the house in order. *JAMA* 2002;288:889–93.
- Salsberg E, Grover A. Physician workforce shortages: implications and issues for academic health centers and policymakers. *Acad Med* 2006;81:782–7.