



The Influence of Workload and Health Behavior on Job Satisfaction of General Practitioners

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BACKGROUND AND OBJECTIVES: Workload, personal health behavior, and job satisfaction of the physicians are crucial aspects for the quality of care they provide. The aim of our study was to identify influencing factors on job satisfaction with regard to general practitioners' (GPs) characteristics such as age, gender, health behavior, body mass index (BMI), and workload.

METHODS: A cross-sectional survey with a sample of 1,027 German GPs was used. Job satisfaction was measured according to a modified version of the Warr-Cook-Wall job satisfaction scale. Further, we collected data about health behavior and BMI of GPs and demographic data. Group comparison was evaluated using ANOVA with Bonferroni correction for post-hoc tests. A linear regression analysis was performed in which each of the job satisfaction items were handled as a dependent variable.

RESULTS: The response rate was 34.0%. GPs were rather satisfied with their job with the exception of "hours of work," "physical working condition," and "income." GPs working in cities had less working hours per week, less number of patients per day, longer consultation times, and a higher proportion of privately insured patients compared to GPs working in rural areas. Being female, a higher age, a good health behavior, a lower BMI, and a high proportion of privately insured patients were positively associated with job satisfaction.

CONCLUSIONS: Our results suggest that job satisfaction depends on different aspects of working conditions and individual characteristics. Therefore, strategies to improve job satisfaction should target improving working conditions and activating physicians' health resources.

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working hours and low income and increases with contact with other colleagues and more variety in job.⁵

Within an international comparison, the Commonwealth Fund surveyed GPs from seven countries to compare aspects of daily work and quality of health care. The results of this study showed that German GPs have the highest workload and were most dissatisfied compared to their colleagues from other countries, feeling like hamsters on a treadmill.⁶ Job dissatisfaction is a major cause of GPs turnover, subsequently leading to a shortage of GPs in some areas.⁷ In Germany, there is a continuous decline of the number of GPs, leading to a shortage of GPs especially in the rural parts of the country.⁸

Workload characteristics such as number of patients seen per week or time spent on administrative work have been found to be associated with job satisfaction.⁹ International studies have shown that rural GPs have higher workloads.^{10,11} However, an Australian job satisfaction survey showed that GPs working in rural areas were more satisfied than urban GPs.¹² Gender and age also have an impact on job satisfaction of GPs. In a United Kingdom (UK) survey, it was shown that male GPs

“Medicine is an inherently stressful profession with long hours, pressing clinical problems, ethical dilemmas, difficult patients, and conflicting demands.”¹ Workload, personal health behavior and job satisfaction of the physicians are crucial aspects for the quality of care they provide.² Previous studies

have shown that poor job satisfaction is associated with suboptimal health care delivery and poor clinical outcomes, for instance due to adverse events or reduced patient adherence.²⁻⁴ In a systematic literature review it has been shown that job satisfaction of general practitioners (GPs) decreases with the number of

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were less satisfied than female GPs and younger GPs were less satisfied than older GPs, especially with one aspect of job satisfaction, the amount of responsibility.¹³ Further, there is an association of job satisfaction with physicians' health and wellness.^{4,14} Low job satisfaction is associated with poor mental and physical health and could have potential impact on sickness absence.¹⁵ It was found that job satisfaction has a protective effect of work-related stress in medical specialists.¹⁶ However, the evidence regarding work-related stress of physicians and their health behavior is scarce. In studies with employees, work-related stress was associated with increasing health risk behavior such as smoking or reduced physical activity.^{17,18} Further, there are studies showing an association between work stress and BMI in employees.^{19,20}

Knowing that many of the influencing factors are culturally sensitive and dependent on the health care system, the aim of the study was to identify influencing factors on job satisfaction with regard to individual and job characteristics of GPs in Germany, also including questions on health behavior and health indicators.

Methods

Design and Participants

The presented study was designed as a cross-sectional survey with a nationwide random sample of GPs. In March 2007, questionnaires were sent to 3,000 randomly selected GPs. The recruiting process and the development of the questionnaire are described elsewhere.^{21,22}

Measures

GPs were asked to answer questions about gender, age, location of practice (city, medium-size town, rural area), region of practice (Eastern or Western Germany), working hours per week, average number of patients per day, the proportion of privately insured patients per practice, and the average time for consultation. The health behavior of GPs was

evaluated with two questions, one regarding regular physical activity and one regarding smoking status. The response categories for physical activity were regular, occasional, and rarely and for smoking status yes or no. Further, the BMI as a health indicator was calculated using height and weight. The cutpoint of the BMI was 25. According to the World Health Organization (WHO), a BMI equal to or more than 25 is considered as overweight, which has been identified as a risk factor for a number of chronic diseases.²³

Finally, job satisfaction was measured according to a modified version of the Warr-Cook-Wall (WCW) job satisfaction scale originally developed by Warr et al (5-point Likert scale with 1=extreme dissatisfaction to 5=extreme satisfaction).²⁴ Cronbach's α of the modified job satisfaction scale in this study was 0.82.

Data Analysis

Continuous data were summarized using means and standard deviations. Categorical data are presented as frequency counts and percentages. Group comparisons between aspects of job satisfaction and workload across three levels of practice location (city, medium-size town, and rural areas) were performed using ANOVA with Bonferroni correction for post-hoc tests with list-wise exclusion of missing data. Afterward, a linear regression analysis was performed with each of the job satisfaction items as dependent outcomes and the other measures as potential predictors. The analyses were performed using SPSS version 18.0 (SPSS Inc, Chicago). An alpha level of $P < .05$ was used for tests of statistical significance.

Ethical Approval

The ethics committee of the Heidelberg Medical School informed us that approval by an ethics committee was not necessary for a study that involves a questionnaire survey with physicians. Anonymity of the participating physicians and data safety were ensured.

Results

Out of 3,000 questionnaires handed out, 1,027 were returned, for a response rate of 34.0%. Details of the recruiting process and the response rate are described elsewhere.²² The demographic data of participating physicians is shown in Table 1. Our sample did not differ from data of the National Association of Statutory Health Insurance on GPs in Germany in terms of gender, age, and location of practice.^{22,25}

A total of 979 GPs (95.3%) out of the 1,027 respondents completed the questions about job satisfaction. GPs were most satisfied with the "amount of variety in job" (mean=4.07) and most dissatisfied with their "hours of work" (mean= 2.47).

A total of 853 GPs (83.0%) out of the 1,027 respondents completed all questions about job satisfaction, workload, and location of practice. GPs working in cities had less working hours per week, less number of patients per day, longer consultation times, and a higher proportion of privately insured patients comparing to GPs working in rural areas. In contrast, only two significant differences among all job satisfaction items (hours of work and income) were found across practice locations. GPs working in a rural area were most dissatisfied with "hours of work" (mean= 2.32 and mean 2.58, respectively) with a significant difference compared to GPs working in a medium-size town. In contrast, GPs working in a rural area were more satisfied with their "income" than GPs from cities (mean=2.46 and mean 2.73, respectively) (Table 3).

Linear regression analyses revealed several statistically significant associations between individual characteristics and job satisfaction items. Items with multiple significant associations were especially found among the GP characteristics of age, gender, smoking, and BMI. Older age, being female and having good health behavior has a positive effect on job satisfaction. Further, the two workload items, "privately insured patients" and "working hours

Table 1: Characteristics of Participating Physicians*

		Our Sample
Gender, n (%)	Male	601 (58.5)
	Female	412 (40.1)
Age, mean (SD)		51.3 (8.2)
Physical activity, n (%)	Regular	479 (46.6)
	Occasional	308 (30.0)
	Rarely	226 (22.0)
Smoking, n (%)	Non-smoker	856 (83.3)
	Smoker	151 (14.7)
Body mass index, n (%)	< 25	635 (61.8)
	≥ 25	359 (35.0)
Regions, n (%)	Western Germany	869 (84.6)
	Eastern Germany	158 (15.4)
Location of practice, n (%)	City	276 (26.9)
	Medium-size town	286 (27.8)
	Rural area	439 (42.7)
Workload, mean (SD)	Working hours per week	50.4 (23.2)
	Number of patients per day	50.1 (23.2)
	Average consultation time (minutes)	11.6 (8.8)
	Proportion of privately insured patients per practice	10.9 (10.0)

* n=1,027

n varies due to missing data

n=number of responses

SD—standard deviation

Table 2: Descriptive Statistics of Job Satisfaction*

Items**	Mean (SD)	CI (95%)
Amount of responsibility	3.71 (1.02)	3.65–3.77
Amount of variety in job	4.07 (0.87)	4.02–4.13
Hours of work	2.47 (1.21)	2.39–2.55
Physical working condition	2.70 (1.12)	2.63–2.77
Income	2.65 (1.10)	2.58–2.72
Recognition for work	3.72 (1.02)	3.66–3.79
Freedom of working method	3.36 (1.19)	3.28–3.43
Colleagues and fellow workers	3.95 (0.84)	3.89–4.00
Overall job satisfaction	3.69 (0.82)	3.64–3.74

* n=979

** range from 1 “extreme dissatisfaction” to 5 “extreme satisfaction”

per week,” showed multiple associations with several dimensions of satisfaction. Less working hours per week were associated with a higher satisfaction regarding the items “hours of work,” “physical working condition,” “income,” “freedom

of working method,” and “overall job satisfaction.” A higher number of privately insured patients were associated with a higher satisfaction regarding the items “freedom of working method” and overall job satisfaction (Table 4).

Discussion

Main Findings

The presented study evaluated workload and job satisfaction of GPs, including influencing factors such as location of practice, health behavior, and the health indicator BMI. In

Table 3: Job Satisfaction and Workload of GPs Working in Cities, Medium-size Towns, and Rural Areas*

	City n=241 Mean (SD)	Medium-size town n=243 Mean (SD)	Rural area n=369 Mean (SD)
Job satisfaction			
Amount of responsibility	3.74 (1.04)	3.70 (0.98)	3.68 (1.04)
Amount of variety in job	4.01 (0.88)	4.05 (0.91)	4.12 (0.83)
Hours of work ^b	2.51 (1.28)	2.58 (1.22)	2.32 (1.15)
Physical working condition	2.78 (1.15)	2.72 (1.08)	2.57 (1.10)
Income ^a	2.46 (1.13)	2.62 (1.12)	2.73 (1.07)
Recognition for work	3.82 (1.00)	3.65 (1.02)	3.69 (1.03)
Freedom of working method	3.53 (1.16)	3.32 (1.15)	3.16 (1.21)
Colleagues and fellow workers	3.94 (0.85)	4.00 (0.82)	3.87 (0.84)
Overall job satisfaction	3.68 (0.78)	3.74 (0.79)	3.62 (0.86)
Workload			
Working hours per week ^a	48.21 (13.59)	49.95 (12.34)	51.97 (11.80)
Number of patients per day ^{a,b,c}	43.64 (22.47)	48.54 (22.87)	54.89 (22.35)
Average consultation time (minutes) ^{a,b}	13.11 (10.46)	11.81 (9.08)	9.94 (6.05)
Average proportion of privately insured patients per practice ^a	12.74 (12.21)	10.97 (8.60)	9.52 (8.53)

* n=853

SD—standard deviation

^a Statistical significances: $P < .05$ for city versus rural area^b Statistical significances: $P < .05$ for medium-size town versus rural area^c Statistical significances: $P < .05$ for city versus medium-size town

general, GPs were rather satisfied with their job with the exception of “hours of work,” “physical working condition,” and “income.” Job satisfaction differed only slightly regarding the location of practice although the workload characteristics such as working hours, number of patients, consultation time, and proportion of privately insured patients were significantly more favorable for GPs working in bigger cities. While the location of practice seems to have a minor impact on the job satisfaction, female gender, older age, good health behavior, and lower BMI as well as a high proportion of privately insured patients were positively associated with job satisfaction. Additionally, GPs with a lower number of working hours per week were more satisfied in their job.

Importance of Our Findings

Our results are comparable with another study regarding job

satisfaction, including 523 GPs who also had the lowest scores for the items “physical working condition,” “hours of work,” and “income.”²⁶ A comparison of income development in eight European countries showed that from 1975 to 2005 the income of GPs in Germany has continuously increased.²⁷ However, the working hours in Germany are the highest compared to the other seven countries.²⁷ Similar results were found in an international study of the Commonwealth Fund comparing GPs from seven countries in aspects of their daily work and quality of health care. The results of the Commonwealth Fund study showed that German GPs had the highest workload and were more dissatisfied with their work than their colleagues from all other countries.⁶

In addition, planning for a secure career in medicine depends on a secured income. A survey with medical students showed that economical

guarantee has an essential impact for students on choosing a specific career.²⁸ However, GPs in Germany get their remuneration for their work 3 months afterwards. Further, political conditions regarding payment are subject to frequent changes. These aspects could lead to a decreasing satisfaction with the job. Therefore, sustainable developments on the political level are urgently needed. The Advisory Council for the Concerted Action in Health Care has published a survey including suggestions for new concepts of care supporting especially GPs in rural areas treating their patients.²⁹ The Federal Minister of Health plans a reform of the law aiming at increasing the proportion of GPs in rural areas (“Versorgungsgesetz”).³⁰

Further, our results showed that GPs practicing in rural areas have more working hours, higher numbers of patients per day, lower consultation times, and less privately

insured patients. Nevertheless, GPs working in rural areas did not necessarily have a lower job satisfaction, leading to the conclusion that other factors may be more relevant for job satisfaction than the location of practice.³¹ In our study, candidates for positively influencing factors are female gender, older age, good health behavior, lower BMI, a high proportion of privately insured patients, a lower number of working hours, and longer consultation times.

A Canadian study showed that implementing more group practices in rural areas increases the job satisfaction of GPs in these areas.¹⁰ Moreover, it is known that the satisfaction of working in a rural area depends on the origin of medical students.¹¹ On the other hand, it has been shown that interventions on the level of GPs such as cognitive behavioral training, career counseling,

or error management could be useful.^{32,33}

Other job satisfaction-relevant factors may be found in health behavior and health indicators of GPs. Those factors should also be targeted by approaches to support GPs. A study with German physicians demonstrated work-related behavior as a predictor of mental health.³⁴ Studies with employees found that higher stress at work and poor working conditions could increase smoking and decrease physical activity^{18,19} and could indirectly influence physicians' wellness.⁴ It has been observed that the smoking status of physicians is associated with the content of the counseling physicians provide for their patients who smoke.³⁵ Moreover, physicians who smoke were less likely to identify smoking cessation as a high priority for intervention.³⁶

Further, our results show that about 35% of GPs in our sample had a BMI over 25. Since a higher score of BMI is negatively associated with job satisfaction, it may be hypothesized that better health indicators lead to a higher job satisfaction which has, in turn, positive consequences for the quality of patient care. It was found that working long hours was positively associated with a higher BMI.¹⁹

In our study, there was no association between physical activity and job satisfaction. However, a recent study showed that physical activity of GPs had a positive influence on the way of counseling patients for a healthy lifestyle and for promotion of their physical activity.³⁷ Interestingly, it has also been observed that physicians in private sector were more satisfied with their job and pay more

Table 4: Impact of GP Characteristics, Workload, and Practice Characteristics on Job Satisfaction*

	JSF1	JSF2	JSF3	JSF4	JSF5	JSF6	JSF7	JSF8	JSF9
GP characteristics									
Gender	-0.09*	0.03	-0.14*	-0.10*	-0.12*	0.02	-0.02	0.00	0.02
Age	0.08*	0.04	0.09*	0.12*	-0.01	0.08*	0.09*	0.00	0.09*
Health behavior of GPs									
Physical activity	-0.03	0.06	0.05	0.09*	0.04	0.06	0.02	0.01	0.00
Smoking	-0.03	-0.09*	-0.05	-0.06	-0.13*	-0.08*	0.01	-0.08*	-0.05
BMI	-0.00	-0.02	-0.03	-0.07*	-0.10*	-0.10*	-0.06	-0.12*	-0.11*
Workload of GPs									
Working hours per week	-0.07	0.06	-0.34*	-0.28*	-0.12*	-0.03	-0.13*	-0.04	-0.20*
Number of patients per day	0.08	0.01	-0.01	-0.07	0.12*	-0.01	-0.02	-0.02	0.05
Average consultation time (minutes)	0.06	0.04	0.13*	0.09*	0.06	0.04	0.12*	0.01	0.07
Privately insured patients	0.11*	0.15*	0.05	0.02	0.04	0.10*	0.11*	0.01	0.14*
Practice characteristics									
Regions in Germany (East/West)	-0.05	-0.04	-0.03	-0.06	-0.01	-0.02	0.10*	0.05	-0.03
Location of practice	-0.01	0.04	-0.03	-0.04	0.07	-0.03	-0.11*	-0.04	0.00

* results of linear regression analysis under specification of standardized beta coefficient ($\alpha=5\%$); statistical significances of difference: $P<0.05$

JSF1—Amount of responsibility, JSF2—Amount of variety in job, JSF3—Hours of work, JSF4—Physical working condition, JSF5—Income, JSF6—Recognition for work, JSF7—Freedom of working method, JSF8—Colleagues, JSF9—Overall job satisfaction

attention to their wellness than physicians in the public sector.³⁸

The relation between job satisfaction and health of physician may not be unilateral but may mutually influence each other. A relevant concept contributing to feeling more satisfied with job and health is the concept of “social support.”³⁹ Social support has proved to be an important health resource in the prevention of mental or physical illness as well as for the promotion of general health.³⁹ Sources of social support for physicians could be colleagues and fellow workers. Indeed, our results show that health behavior and health indicators of GPs are positively associated with the satisfaction with colleagues.

Limitations and Strengths of the Study

A strength of this study is the nationwide random sample of GPs and the usage of a well-proven instrument, the Warr-Cook-Wall scale, which has often been used in other studies.^{24,26,40} However, this is a cross-sectional study and thus, we must be cautious to derive causal links from these findings. Further, because of the response rate of 34%, our results should be regarded with caution. However, the motivation of German GPs to participate in surveys is generally low with rates between 15% and 30%.⁶ Moreover, it was a pseudonymous survey; there is no information about non-responding GPs. In addition, *P* values are explorative and, therefore, should be interpreted carefully.

Conclusions

The results of this survey suggest that job satisfaction depends on different aspects of working conditions and individual characteristics of GPs. Therefore, interventions to support GPs should focus on both, improvement of working conditions and activation of physicians' health resources. Probably different strategies are required for GPs working in rural and urban areas.

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