

Doctors Working Long Hours and Being Effective at Work

Does the Choice of Medical Specialty Matter?

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Abstract

Purpose: This paper examines the impact of physician workload (hours worked) on perceptions of work efficacy, work stress and burnout, satisfaction with career and worklife balance, and intent to leave medical practice. Medical specialty plays a seminal role in moderating how workload affects perceptions of work efficacy, burnout and intent to leave medical practice.

Design and Methods: Data for this study was collected by a mail survey questionnaire sent to 1936 physicians practicing in Edmonton, Canada. A total of 385 physicians who receive their compensation primarily or exclusively through fee-for-service payments constitute the database for this study. **Results:** Physicians who work very long hours (60 or more hours per week) report they are less effective in the work they perform and are less satisfied with their overall workload and with their work-life balance. They are also more likely to work in medical specialties that are classified as uncontrollable because of their potential to harm their work-life balance. Many fee-for service Canadian physicians toiling in uncontrollable lifestyle specialties, (uncontrolled specialties include family and general practice, internal medicine and pediatrics, among others), are able to reduce their potential for job burnout by actively choosing to work fewer hours in their medical practices. **Practical Implications:** Physicians who work more than 60 hours per week are highly susceptible to job stress and burnout and to self-perceptions of being less effective at work. Physicians who choose to work long hours in uncontrollable lifestyle specialties are particularly vulnerable job burnout and, unless they choose to cutback on their work hours, are much more likely to consider leaving their medical practices.

Keywords: physician workload, workload efficacy, medical specialty, work stress and burnout

Introduction

The work environment of physicians is changing rapidly, buffeted by burgeoning illnesses and emerging technologies [1]. Yet, with an emphasis on quality and productivity, physicians everywhere continue to work long hours. It would seem that societal trends toward more leisure time has not translated into less time spent at work, with weekly work hours of physicians remaining relatively stable in most western democracies in the past 10 years [2]. In the United States, the average physician worked 58 hours per week in 1997 [3]. In Canada, solo

medical practitioners reported working 54 hours per week in 1998, with general practitioners in urban areas working about 49 hours and physicians serving rural populations putting in 57 hours. Male family physicians toil 8.9 more weekly work hours than female practitioners [4]. Most medical specialists in Canada, like the United States, work even longer hours. In a 2004 survey, Higginson [5] reports that the average work week for cardiologists is 55 hours and 64 hours for cardiac surgeons, with an additional monthly on-call requirement of 106 hours for cardiologists and 196 hours for cardiac surgeons.

Several studies have examined the impact of workload on a variety of physician and patient factors. Murray and colleagues [6] found that the patients of physicians working more than 65 hours per week experience higher levels of visit-based continuity of care than patients of physicians working fewer hours, but that this appears to carry a cost to these physicians in terms of diminished personal and professional satisfaction. In another study of 2326 U.S. physicians, part time physicians (defined as those working less than 40 hours per week) report that they are significantly more satisfied than full-time physicians with patient care issues, personal time, administrative issues, and with their jobs overall, and they note significantly less stress than full-time and over-loaded physicians [7]. Part-time physicians in clinical practice have been shown to have higher productivity and to generate equivalent levels of patient satisfaction and resource utilization when compared with the full-time counterparts [8]. Parkerton and associates [9] found the U.S. primary care physicians working fewer clinical hours are associated with higher performance quality and generate similar patient satisfaction when compared with physicians working longer hours. However, if the number of hours of clinical work is too sharply curtailed, physicians may be unable to maintain their skills. Physicians working too few hours may be perceived by their colleagues as not being sufficiently “involved” in the practice of medicine, potentially lowering their overall job satisfaction and their sense of being effective in their work. Nevertheless, there is limited empirical evidence identifying the minimum number of hours that a physician must work in order to maintain clinical competency. On the other side, if physicians continue to work very long hours, they may feel they are unable to meet the psychosocial needs of their patients or from demands placed upon them by their families. Given the rather demanding workload of physicians today, it is important to elucidate the nature of perceived effectiveness in the fulfillment of their clinical activities.

Female Physicians and the Attraction of Lifestyle Controllable Medical Specialties

Historically, women have been more likely than their male counterparts to work less than full-time [10]. Part time work is often depicted as somewhat mixed but generally positive blessing for working women and to their experience of work and home [11, 12]. The finding that female physicians work fewer hours, on average, has not gone unnoticed in medical education policy circles [7]. A sharp commentary in the *Journal of the American Medical Association* [13] once described these part-time professionals as “misplaced housewives.” In the past twenty years, female participation rates in North American medical schools have exploded. Women now make up almost half of all medical students and about 20 to 30 percent of all practicing physicians in Canada, the United States, Australia, and the United Kingdom, and almost half of medical school enrolments. Yet, there is emerging evidence that female medical students are choosing to pursue specialties that allow them to work reduced hours, while leading more balanced work lives [14, 15, 16].

Historically, female medical students in North America have been more likely to choose medical specialties that allow them to better balance work and home life commitments. The

proportion of female US medical residents choosing specialties with controllable lifestyles increased from 18% in 1996 to 36% in 2003, although for male residents, the percentage also grew, increasing from 28% to 45% [17]. Women physicians are also likely to enter lifestyle uncontrollable medical specialties like family medicine, and pediatrics because of their potential to generate a part-time practice, and less likely to chose surgical specialties because of extensive time commitments [18]. Female pediatric residents are more likely than male residents to consider part-time or reduced-time positions [19]. In one Canadian study, female physicians in family and general practice are found to provide 33% fewer services per year than their male counterparts in these specialties [20], in part because they work fewer hours, but also they may spend more time with each patient they see [21].

Most Canadian physicians enjoy good physical and mental health and lead satisfying and productive lives. Nevertheless, certain medical practices such as family medicine, general surgery, and internal medicine, are considered to be lifestyle uncontrollable specialties because the structure of the practice is such that physicians have to work long hours in order to maintain income targets [22, 23]. Being able to effectively work long hours without experiencing work stress and burnout may also be moderated by a variety of personal and contextual factors, including time pressures [24]. Some individuals are able to manage their heavy workloads without inducing crippling stress, burnout, or work dissatisfaction, while others are less successful [25]. The ability to manage ones' workload effectively is at least partially tempered by institutional (workplace) and social (workplace and non-workplace) supports that an individual is provided. A balanced work and non-work life are necessary for generating satisfaction with a career in medicine [26]. This paper examines the contribution of workload (hours worked per week in patient care), work-related stress, job facet satisfaction, and intent to leave medical practice.

It is hypothesized that two major factors contribute significantly to perceptions of physicians that they are effective in the performance of their duties: the number of hours worked, and whether they structure of their medical practice facilitates (or inhibits) the pursuit of a work-life balance. Two hypotheses will be examined:

Hypothesis #1: *Physicians that work more than 60 hours per week (over-load physicians) will perceive they are less able to be effective at work, will report lower levels of job satisfaction, and higher levels of work related stress and burnout.*

Hypothesis #2: *After controlling for the number of hours worked, physicians who work in lifestyle uncontrollable medical practices, (ie. general and family practice, general surgery, internal medicine, pediatrics), will report lower levels of workload efficacy, lower levels of job-related facet satisfaction, and higher levels of work stress and burnout when compared with physicians that work in lifestyle controllable medical specialties (ie. anesthesiology, emergency medicine, psychiatry).*

Methods

Study Participants and Procedure

Data for this study was collected by a mail survey questionnaire that was sent to one thousand nine hundred thirty-six 1936 Edmonton and area physicians. The study received approval by the Health Research Ethics Board of the University of Alberta. All participants were informed about the nature of the study and that their participation was voluntary, anonymous, and confidential. Approximately six weeks after the initial courier mailing, another questionnaire was sent to all physicians in the database. In total, seven hundred fifty-two (752) usable questionnaires were returned. Thirty-one (31) questionnaires were returned unanswered due to an incorrect or incomplete address, or were refused or returned by the addressee or by Canada Post. The predominant reason why a questionnaire was refused was change in physician work situation due to either physician retirement or change in work arrangement. After subtracting returned or refused questionnaires, an overall response rate of 39.5 percent was attained. For the purposes of our analysis, it is essential to remove those individuals who have different work arrangements and those whom do not have a substantial clinical practice. Canada has a single-payer, publicly-insured health care system that covers physician care for all Canadians. Most physicians who practice medicine with patients are compensated on the basis of fee-for-service. Fee-for-service compensation allows physicians to variously adjust their workloads or hours of work in response to their income targets or to the number of hours they want to make themselves available to work. In total, 412 physicians are found to receive their compensation primarily or exclusively through fee-for-service arrangements (see Table 1). When classifying physicians on the basis of basis of the controllability of lifestyle of their medical practice, 385 physicians comprised our database (see Table 3). This sample size was further reduced to 355 physicians because of missing data on key variables of interest upon further analysis (see Table 4).

Physician participants were examined for representativeness and non-response bias. Representativeness was assessed by comparing early (first wave) and late (second wave) respondents with respect to physician age and gender. Generally speaking, no statistically significant differences were found with respect to these variables between early and late responders. This provides some evidence that our survey sample may be somewhat representative to the larger physician population practicing in Edmonton, Alberta, Canada.

Study Variables

Given the long hours that many Canadian physicians work, we are interested in assessing the degree to which physicians believe they are effective in the performance of their work activities. A *physician workload efficacy score* was constructed consisting of three items. For example, physicians were asked to assess their level of agreement (with 1=strongly disagree to 6=strongly agree) to statements such as: "I am able to effectively manage my daily workload" and "I have sufficient resources to handle my workload as a physician." A Cronbach alpha for this three-item scale is .83, indicating an acceptable level of internal reliability.

Feelings about being effective or ineffective at managing one's workload may be conditioned by a number of factors: the actual workload itself, feelings of being stressed and burned out at work, a sense about their satisfaction with their choice as medicine as a career, and their worklife balance. Physicians who are experiencing high levels of stress and job burnout may also be more likely to leave their medical practices [25]. *Physician workload* was assessed

by asking respondents how many hours they work in a typical week in performing their duties as physicians. As many physicians experience high levels of stress and occupational burnout as a consequence of working long hours, we are interested in assessing their level of work stress and burnout. Physicians were asked to respond to statements (where 1=strongly disagree to 6=strongly agree) to indicate their level of perceived work-related stress. Sample statements include: “I feel emotionally exhausted from my work” and “My workplace stress negatively impacts my private life.” A five-item *work stress and burnout score* was constructed and demonstrated strong internal reliability (Cronbach alpha of .87). Single item measures were also constructed by asking physicians their level of satisfaction (1=highly dissatisfied to 6=highly satisfied) with their total workload, their level of satisfaction with medicine as a career, and their level of satisfaction with their work-life balance. Physicians were also asked (using a six-point scale) to indicate their likelihood of leaving their medical practice in the next two years.

Results

Canadian physicians work long hours. They can be characterized on the basis of the number of hours they spend in clinical practice. Physicians were arbitrarily classified on the basis of the number of hours they work in the performance of their regular duties. Part-time physicians were identified as those working less than 40 hours per week, full-time physicians working 40 or more hours per week, but less than 60 hours per week, and over-load physicians 60 or more hours per week. Table 1 provides study physician characteristics by workload.

Table 1 Physician Characteristics by Work hours

	<i>Part-timers</i> (n=193)		<i>Full-timers</i> (n=143)		<i>Over-loaders</i> (n=76)	
	Mean	SD	Mean	SD	Mean	SD
Hours worked per week	16.69	11.45	47.33	5.23	68.14	10.70
Workload Efficacy score	3.90	1.10	4.04	1.00	3.30	1.08
Satisfaction with total workload	3.89	1.21	3.80	1.07	3.03	1.33
Satisfaction with medical career	4.57	1.06	4.51	1.07	4.16	1.45
Satisfaction with work-life balance	4.01	1.26	3.85	1.01	2.89	1.29
Work stress/burnout score	3.22	1.17	3.44	0.99	4.13	1.07
Intent to leave practice	2.11	1.42	2.16	1.25	2.53	1.56
Female gender	0.33	0.47	0.23	0.42	0.21	0.41
Family/general medicine*	0.46	0.50	0.34	0.48	0.27	0.45
Medical specialty*	0.31	0.47	0.39	0.49	0.43	0.50
Surgical specialty*	0.09	0.29	0.10	0.31	0.14	0.34

*Medical Practice specialty proportions do not sum to 1.00 because of missing data

Part-timers in our study work just under 17 hours per week, full-timers about 47 hours per week, while over-loaders work more than 68 hours per week. Study variables generally report linear relationships when aggregated against physician workload (number of hours worked).

Table 2 Bi-variate Analysis for Fee-for-Service Physicians

	1	2	3	4	5	6	7	8	9	10
1. Hours worked per week	1.00	-.14*	-.21**	-.13*	-.27**	.27**	.10	-.10*	-.09	-.22**
2. Workload efficacy score		1.00	.65**	.43**	.61**	-.61**	-.37**	.00	.19**	-.13*
3. Satisfaction with total workload			1.00	.56**	.74**	-.66**	-.38**	.01	.17*	-.19**
4. Satisfaction with medicine as career				1.00	.51**	-.45**	-.29**	-.02	.18**	-.18*
5. Satisfaction with work-life balance					1.00	-.68**	-.34**	.03	.14*	-.20**
6. Work stress/burnout score						1.00	.42**	-.01	-.18**	.06
7. Intent to leave medical practice							1.00	-.11*	.12*	.12*
8. Female gender								1.00	-.23**	.09
9. Physician age									1.00	.09
10. Uncontrolled medical specialty										1.00
* p<.05; **p<.001										

Over-loaded physicians in our study who report working long hours report lower satisfaction scores (for total workload, worklife balance, and choice of medicine as a career), than physicians working fewer hours. They are also much more likely to work in lifestyle uncontrollable medical specialties ($p<.001$) and to report they are contemplating leaving their medical practices ($p<.001$). Physicians who report high levels of work stress and burnout report working more hours ($p<.001$), are less effective at work ($p<.001$) and generally less satisfied with their workload, career choice and work-life balance ($p<.001$). By contrast, physicians who report working part-time hours state that they are more satisfied with their total workload, their choice of medicine as a career, and their worklife balance ($p<.001$). They are also more likely to report that they are less likely to leave their medical practices in the next two years ($p<.001$). Interestingly, high work stress and burnout was not found to be associated with the choice of a lifestyle uncontrollable medical specialty, suggesting that the choice of specialty alone is not the only factor important in predicting work stress and burnout. Indeed, physicians working in lifestyle uncontrollable medical specialties are found to demonstrate reduced workloads ($p<.001$), which may indicate that the characteristics of these practices (such as family medicine and general medicine), allow them to more effectively work successfully reduced hours so as to prevent burnout. Nevertheless, physicians in our study sample in uncontrolled lifestyle medical

practices report lower satisfaction in total workload and worklife balance ($p < .001$). They are also slightly more likely to report an intent to leave medical practice in the next two years ($p < .05$).

Table 3 Physician Characteristics by Controllability of Medical Specialty

For Fee-for-Service Physicians

	Controllable Lifestyle Medical Specialties (<i>n</i>=136)		Uncontrollable Lifestyle Medical Specialties (<i>n</i>=249)	
	Mean	SD	Mean	SD
Hours worked per week	42.58	17.40	32.40	23.70
Workload Efficacy score	4.03	1.02	3.73	1.13
Satisfaction with total workload	4.00	1.03	3.52	1.31
Satisfaction with medical career	4.75	0.95	4.33	1.24
Satisfaction with work-life balance	4.08	1.06	3.56	1.32
Work stress/burnout score	3.36	1.08	3.51	1.14
Intent to leave practice	2.01	1.19	2.35	1.50
Female gender	0.21	0.41	0.29	0.45
Physician age	47.31	9.42	49.39	10.35

Table 4 presents physician characteristics by the controllability of their medical specialty for part-time, full-time and over-loaded physicians. Two trends can be seen here. First, as we examine the study variables for physicians in part-time versus full-time versus over-load practices, we can see that workload efficacy and job satisfaction facets fall in lock-step as workload increases. Indeed, physicians in over-load practices are much more likely to report lower levels of work efficacy and to be much less satisfied in their jobs than physicians engaged in part-time practice. Physicians working more than 60 hours per week are also much more likely to report high levels of job stress and burnout and are much more likely to contemplate leaving their medical practice than physician working part-time. Second, within each workload category, we can see that physicians who work in lifestyle uncontrollable practices tend to report lower workload efficacy scores, and lower levels of satisfaction with their total workload, medicine as a career, and work-life balance (although these differences may not attain statistical significance because of low number of respondents for each category). Physicians toiling in lifestyle uncontrollable specialties also generally report higher work stress and burnout scores and indicate a greater intent to leave their practice in the next two years. Again, although these differences may not attain statistical significance because of the low number of respondents in each category, it is important to recognize the overall trend.

Table 4 Physician Characteristics by Work hours and Controllability of Medical Specialty**A. For Fee-for-Service Physicians****For Part-timers:**

	Controllable Lifestyle Medical Specialties (n=42)		Uncontrollable Lifestyle Medical Specialties (n=126)	
	Mean	SD	Mean	SD
Hours worked per week	22.17	9.82	14.33	11.00
Workload Efficacy score	4.23	1.12	3.79	1.08
Satisfaction with total workload	4.34	1.06	3.73	1.25
Satisfaction with medical career	4.95	0.86	4.47	1.09
Satisfaction with work-life balance	4.54	1.26	3.82	1.29
Work stress/burnout score	2.99	1.18	3.26	1.15
Intent to leave practice	1.81	1.15	2.16	1.46
Female gender	0.26	0.45	0.37	0.49
Physician age	48.48	10.23	48.63	10.53

B. For Fee-for-Service Physicians**For Full-timers:**

	Controllable Lifestyle Medical Specialties (n=64)		Uncontrollable Lifestyle Medical Specialties (n=60)	
	Mean	SD	Mean	SD
Hours worked per week	47.28	5.54	46.97	5.01
Workload Efficacy score	4.08	0.97	4.11	1.04
Satisfaction with total workload	4.06	0.82	3.53	1.29
Satisfaction with medical career	4.75	0.93	4.29	1.15
Satisfaction with work-life balance	4.11	0.89	3.58	1.03
Work stress/burnout score	3.24	1.18	3.58	1.08
Intent to leave practice	1.98	1.15	2.37	1.40
Female gender	0.16	0.37	0.25	0.44
Physician age	47.03	9.44	50.48	10.47

**C. For Fee-for-Service Physicians
For Over-timers:**

	Controllable Lifestyle Medical Specialties (n=25)		Uncontrollable Lifestyle Medical Specialties (n=38)	
	Mean	SD	Mean	SD
Hours worked per week	64.84	9.46	69.29	9.28
Workload Efficacy score	3.57	0.91	3.21	1.24
Satisfaction with total workload	3.32	1.22	2.82	1.41
Satisfaction with medical career	4.48	1.12	3.89	1.64
Satisfaction with work-life balance	3.33	1.20	2.68	1.42
Work stress/burnout score	4.26	0.92	4.05	1.10
Intent to leave practice	2.28	1.37	2.68	1.72
Female gender	0.24	0.44	0.16	0.37
Physician age	45.08	6.99	49.18	9.48

When both factors are taken together, part-time physicians working in lifestyle controllable practices, such as emergency medicine, psychiatry, and anesthesiology, are much more likely to report higher levels of workload efficacy and job facet satisfaction, and much less likely to report work stress and burnout than over-loaded physicians working in lifestyle uncontrollable practices. Our findings are also consistent with an interpretation that medical practices such as family medicine (classified as a lifestyle uncontrollable practice) may provide a means whereby physician employed there can more easily reduce their hours as a means of maintaining or enhancing their job satisfaction. There has been significant evidence from a variety of studies that suggest female physicians work in many lifestyle uncontrollable specialties (ie. family medicine, pediatrics), and enter them because they are able to work part-time, ostensibly because of family responsibilities and perhaps because they are secondary wage earners in their families. In recent years, however, the number of physicians pursuing residency training in primary care practice and in other lifestyle uncontrollable practices is falling in many western industrialized countries, not only for women physicians [14, 15, 23]. Indeed it would seem that physicians of both genders are increasingly preferring medical practice structures that can give them work-life balance, while enhancing their sense of being effective at work and job satisfaction. The search for worklife balance may be particularly problematic for both male and female physicians who are compensated through fee-for-service arrangements and who, for a variety of reasons, are unable or choose not to work reduced hours. In the future, uncontrollable lifestyle practices, such as family medicine and general surgery, may become increasingly unattractive options for medical residents.

Table 5 presents results of ordinary least squares (OLS) regression for workload efficacy for physicians working in lifestyle controllable and uncontrollable medical practices, while controlling for the number of hours worked. After controlling for the number of hours worked, for both lifestyle controllable and lifestyle uncontrollable practices, satisfaction with total workload and work stress and burnout were found to be statistically significantly related to physician workload efficacy. For physicians in lifestyle uncontrollable practices, the intent to

leave medical practice was found to be statistically significant in physician perceptions of how effective they were in their ability to manage their daily workloads

Table 5 OLS Regression Results for Physician Perceptions of Workload Efficacy

	Controllable Lifestyle Medical Specialties	Uncontrollable Lifestyle Medical Specialties
Independent Variables		
Satisfaction with total workload	.507*** (.106)	.274*** (.076)
Satisfaction with medical career	.007 (.086)	.026 (.056)
Satisfaction with work-life balance	-.032 (.108)	.136 (.070)
Work stress/burnout score	-.349*** (.089)	-.189* (.077)
Intent to leave practice	.053 (.062)	-.114** (.044)
Control Variables		
Hours worked per week	.007 (.004)	.002 (.002)
Female gender	.008 (.165)	-.019 (.134)
Physician age	.002 (.007)	.013* (.006)
Constant	2.789*** (.768)	2.436*** (.584)
Adjusted R-square	51.85	48.16
F-statistic	17.694***	25.150***

*p<.05; **p<.01; ***p<.001

Table 5 presents results of ordinary least squares (OLS) regression for workload efficacy for physicians working in lifestyle controllable and uncontrollable medical practices. After controlling for the number of hours worked, for both lifestyle controllable and lifestyle uncontrollable practices, satisfaction with total workload and work stress and burnout were found to be statistically significantly related to physician workload efficacy. For physicians in lifestyle

uncontrollable practices, the intent to leave medical practice was found to be statistically significant in physician perceptions of how effective they were in their ability to manage their daily workloads. After adjusting for the number of hours worked, satisfaction with worklife balance was not found to be associated with perceptions of workload efficacy (for both lifestyle controlled and lifestyle uncontrollable practices), suggesting that perceptions of being effective at work are associated with the number of hours worked.

Discussion and Conclusion

The results of this study suggest that Canadian physicians that work long-hours report they are feeling a diminished sense of effectiveness in the performance of their duties. Long-work hours are also associated with diminished job and career satisfaction. These physicians are also susceptible to job burnout and work-related stress, and demonstrate a higher level of interest in leaving the profession than physicians who work fewer hours. The negative impact on the ability of physicians to choose medical specialties that allow them to better balance work and family responsibilities is exacerbated by the choice of medical specialty. Physicians in lifestyle uncontrollable specialties are found to report being less effective in their work and to have lower work-related satisfaction than physicians in lifestyle controllable specialties. However, in some lifestyle uncontrollable professions, such as family medicine and general practice, physicians have the potential to reduce their total work hours as a way of mitigating the work stress and burnout. This may have greater consequence for physicians who want to be able to better balance their work and family responsibilities, or who feel they do not need to earn a high target income.

This study has a number of limitations that need to be cited. First, our study design is retrospective, so we are unable to show causal relationships between hours worked (workload), workload efficacy, job and career satisfaction, and with burnout, stress and intent to leave practice. Second, our study suffers from mono-method bias as all datasets is generated by a single respondent. Third, our measure of hours worked may not have sufficiently accounted for the diverse array of activities that physicians spend their time—from seeing patients and charting their progress to overseeing the work of others while managing their busy practices or attending countless meetings. Indeed, physicians may prefer spending more time with their patients, and less time on onerous paperwork or administrative chores. Fourth, we are unable to establish if our study findings are true for physicians in other jurisdictions, are appropriate for physicians who receive their remuneration by salary or through capitated arrangements, or are generalizable for physicians who work in non-urban settings. Finally, we are unable to say much about the nature of the underlying mechanism about how perceptions of workload effectiveness and hours of work impact work stress and burnout and intent to leave their medical practices, or to more fully elucidate the specific mechanism by which the structural arrangements that characterize any particular medical practice impact these factors. Young physician residents will increasingly consider these structural factors when they choose their medical specialty—a critical decision that impacts their ability to attain an appropriate worklife balance, while enhancing their feelings of being effective in their work.

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