On physician well being—You’ll get by with a little help from your friends

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Abstract

This study identifies positive and negative factors associated with physician well being. We collected two sets of data from physicians at a university-based Department of Medicine in Western Canada. First, we conducted exploratory, in-depth interviews with 54 physicians to identify factors associated with their well being. Participants explained that certain aspects of their work are demanding and negatively related to their well being, whereas other 5 factors are more enabling and contribute positively. Second, we mailed a structured questionnaire including measures of the key factors identified in the physician interviews to all physicians in the same Department of Medicine. Multivariate analysis was used to assess the extent to which the factors identified in the interviews are significantly related to physicians’ well being. The findings show the importance of co-worker support, both in terms of being directly related to physician well being as well as buffering the negative effects of work demands. We discuss several important implications for physicians and the organizations that employ them in understanding the factors related to physician well being. In addition, patient interactions appear to be both a key source of stress and a major source of satisfaction in physicians’ daily work lives.

Keywords: Canada; Physicians; Well being; Job stress; Coping strategies; Employment

Introduction

Recent studies suggest that almost half of practicing physicians find medical practice very or extremely stressful (Henry, 2004) and almost half are in the advanced stages of burnout (Robertson, 2002; Shanafelt, Sloan, & Habermann, 2003). Physicians are also twice as likely than the general population to report that their mental health is fair or poor (Cohen & Patten, 2005). As MacDonald and Davidson (2000) note:

Suicide, alcohol abuse, drug abuse and marital discord can be the unfortunate outcomes of workplace distress. The medical profession is not immune. Researchers have long recognized that physicians may have even higher risks for these problems than nonphysicians (2000, p. 735).

One reason that stress and burnout may be extraordinarily high among physicians is that doctors are not very good at looking after themselves or seeking help from others (Arnetz, 2001; Firth-Cozens, 2001; Pullen, Lonie, Lyle, Cam, & Doughty, 1995). Moreover, doctors often rely on...
denial and avoidance as coping strategies, which are not particularly effective (Firth-Cozens, 2001). While 18% of Canadian physicians were identified as depressed, only 25% of them consider getting help and only 2% actually do (Canadian Medical Association, 2003). Arnetz (2001) refers to the “‘ignorance, indifference and carelessness’ of physicians towards their own health” (p. 204) as evidenced by their negligence in having physical examinations, procrastination in seeking medical treatment and higher than average suicide and cardiovascular mortality rates. Also related to denial and avoidance is the perceived stigma doctors associate with seeking help:

An important obstacle in studying successful coping is the conspiracy of silence, that is, physicians might be reluctant to recognize or talk openly about psychological problems resulting from their professional experiences (Arnetz, 2001, p. 208).

Furthermore, the cultural values and norms associated with hospitals and certain specialties appear to counteract supportive communication, which is usually necessary for learning and coping in the health care system.

While many studies examine physician distress, burnout and depression, significantly less is known about physician well being (Arnetz, 2001; Shanafelt et al., 2005; Weiner, Swain, Wolf, Gottlieb, & Spickard, 2001). Moreover, much of the literature on physician well being is based on opinion rather than empirical data (Shanafelt et al., 2005). The notable dearth of empirical data on physician well being offers an important research opportunity that has critical practical implications for today’s practicing physicians, their patients and the organizations that employ them.

The purpose of this study is to identify positive and negative factors associated with physician well being. Well being reflects the extent to which an individual finds meaning, and is authentically expressive of their self, in their life and work (Suchman & Zeldin, 2001), which may be indicated by an overall sense of satisfaction and balance in one’s life. In addition, we explore whether receiving supportive resources from others significantly buffers the detrimental effects of factors that are negatively related to physician well being. In examining both questions, we rely on two cross-sectional data sets collected from practicing physicians.

The Study

We collected two sets of data from staff doctors and residents at a single university and health-region-based Department of Medicine in a large, metropolitan city in Western Canada. Ethical approval was obtained for conducting the interviews and circulating surveys to members of the Department of Medicine from the Conjoint Health Research Ethics Board (CHREB), which is also the review board for the University of Calgary. All participants were guaranteed confidentiality and that their responses would be presented in such a way that they could not be identified.

First, we conducted exploratory, in-depth interviews to identify key factors related to physician well being. In the interviews, physicians described their work experiences and how these experiences influence their quality of life. They explained that certain aspects of work are demanding and are negatively related to their well being, whereas other factors are more enabling and positively related. From the interviews, we identified key factors that we hypothesize are associated with physician well being.

The second data set was gathered using a questionnaire sent to all of the physicians in the same Department of Medicine. This larger, more representative sample allows us to use multivariate analyses to assess whether the factors identified in the interviews are statistically significant in their associations with physician well being. The questionnaire was designed to include measures of the key factors identified in the physicians’ interviews (i.e., work demands and work resources).

The remainder of this paper is organized as follows. First, a more detailed description of the interviews conducted in the first stage of this study is provided. Second, the results of the interviews are discussed and the key factors identified by physicians are described. The themes participants voiced are presented in conjunction with a review of the literature as a strategy for developing a grounded model of physician well being that is tested with the questionnaire data. The specific variables used to test the hypotheses are also identified. Third, the methods used in collecting the questionnaire data are presented. Next, using multiple regression techniques, the hypotheses generated from the interview results are tested with the questionnaire data. Lastly, this paper closes with a discussion of the findings and the conclusions drawn from this study.
Interview data and methods

Sample

We invited 59 staff doctors and residents to participate in the interviews and 54 agreed to take part (response rate = 91%). The five who declined stated concerns over lack of time, confidentiality, and inability to represent department views because of their type of practice. A quota sampling strategy was used to select potential participants based on gender, division, rank, site/hospital affiliation, scholarly activity and family status.

Half (52%) of the interview participants are male, 87% are married and 69% are parents. Participants have worked approximately 9.1 years in the Department of Medicine (range = less than 1–27 years) and work almost 70 h a week in total at the office/hospital and at home (range = 33–103 h). Eleven percent of the interview participants were residents at the time of the study and the remaining participants were staff physicians.

Most members of this department are involved primarily in clinical work and many are also part of the teaching and research programs sponsored by the university. Staff physicians usually function as independent professionals with their work patterns cast by the patient-care centered, teaching and/or research responsibilities and expectations of their division. In contrast, residents have less flexibility in their work as their educational curriculum is based on national objectives of training, which must be completed by the end of the training period. A large percentage of a resident’s work time consists of caring directly for patients in a hospital or outpatient setting, and includes after hours on call work. The patients referred to this university-based health care setting are typically more complex and have a higher likelihood of negative outcomes than those treated in other settings in this health care region.

Data collection

Interviews were conducted at the participant’s convenience, usually during work hours at their office. The interview questions were mostly open-ended. Interviews generally lasted 1 h, although they ranged in duration from 30 to 95 min. The interviewer typed participants’ responses into a notebook computer during the interview and reviewed her notes immediately after to correct any typographical errors or omissions. The relevant questions for this paper are: (1) What constitutes “quality of life” in general for you on a personal basis? What does this mean for you, ideally? (2) What parts of your job do you like or enjoy the most, that give you the greatest sense of satisfaction? (3) What do you find to be the most stressful aspects of your job? (4) What do you do after a bad or hard day at work? How do you respond or how do you cope? and (5) What one thing do you think your family (e.g., spouse, parents, children, siblings) would change about your job if they could?

Data analysis

We used HyperResearch, a software package for qualitative data analysis, to analyze the interview responses. This software enables researchers to code and retrieve data and cases for analysis. The authors independently reviewed participants’ responses to the interview questions. We did not use pre-established categories for analyzing the interview data. Rather, we used an inductive strategy through open and selective coding to derive the predominant themes reflected in the interview transcripts. We then went back to the original data and coded each response so as to compute frequencies for the number of participants who mentioned each theme. The percentages in brackets represent how many participants mentioned a particular theme. Participants often raised more than one theme.

Interview results: conceptual domains and hypotheses

The interview results are divided into three sections. The first section outlines physicians’ perceptions of well being, which is used as the basis for our conceptualization and operationalization of this variable in the questionnaire. In the next two sections, we present the interview findings related to the two conceptual domains reflecting physicians’ work demands and work resources. According to the doctors interviewed, excessive work demands are negatively related to their sense of job satisfaction, well being and quality of life, whereas different groups of people provide work-related resources and/or support that have more positive effects. These two conceptual domains are discussed in greater detail below by integrating illustrative quotes from the interviews with the relevant literature. We also explicitly identify the variables
and hypotheses that are empirically assessed using the questionnaire data.

**What constitutes well being for practicing physicians?**

In conceptualizing and operationalizing well being for this paper, we rely on physicians’ responses to the question asking what “quality of life” means to them. Many emphasized the importance of having time for interests outside of medicine (46%), their family (48%), themselves (24%) and enough time to maintain a healthy and active lifestyle (20%). The following quote illustrates the importance of having a balanced life and time for interests outside of medicine:

> It’s all kind of about balance, you know. And I think it’s healthy to have some time away from work. It’s probably healthy to have time for oneself as well, which means getting away from everybody.

A number of participants mentioned how important it is to be satisfied with their life and work (41%), as well as finding it meaningful and challenging (24%). The following quote illustrates these themes:

> I think quality of life is being happy both in your work and your home, being able to, being allowed to do what you enjoy to do in both places, to the quality and standards to which you want to do them.

Based on the themes raised by interview participants, we define well being as an overall sense of satisfaction and balance in one’s life. The measure of well being used in the subsequent quantitative analysis is described in the Data and Methods section below relevant to the questionnaire stage of this study.

**What factors are negatively related to physician well being?**

Interview participants identified several work demands negatively related to their well being. Approximately, half (43%) indicated that the most stressful aspect of their job was feeling overwhelmed with their workload, which is often due to the sheer number of patients that need to be seen, perceived time limitations in seeing patients and the lack of control over these factors. For example:

> Chaos at work, so feeling like all the demands of the hospital and everybody else, that there’s no way of controlling it, that is very stressful for me. Six consults in, eight patients to see on the ward, feeling like I need to somehow manage that on my own is stressful.

On a similar theme, one quarter (26%) identified the sheer amount of work or work volume as the most stressful part of their work and 22% indicated that time pressures and deadlines were the most stressful. In addition, some often found it difficult to multi-task and juggle different work-related responsibilities. Other physicians report the inability to leave the office on time because of excessive work demands. The following quote illustrates these concepts:

> Oh, being at three places at once, so the time pressure of, you know, being late in clinic, having patients waiting. You’re an hour behind, they’re getting grumpy, you have to take a phone call, you can’t stay on schedule. Then the unpredictability of the workday, on the ends, so getting home on time, I find that most stressful.

Participants also described how trying to work under such conditions contributed to feelings of exhaustion, fatigue and guilt.

Work volume, work overload... it’s not just the time crunch, but because of that, I’m not doing the kind of job I’d be proud of, the kind of job I’d hope someone would do for me or my family.

Throughout the literature, workload has been consistently identified as the number one factor related to job stress and burnout (Wallace, 2005). This finding is no different for doctors (Jagsi & Surender, 2004; Li, Yang, & Cho, 2006; Linn, Yager, Cope, & Leake, 1985):

> One of the commonest and most strongly perceived causes of stress at work is to do with high demands or overload. This area concerns a fast, hectic pace, conflicting demands, too little resource or support, too long hours of work and, conversely, too little sleep (Firth-Cozens, 2001, p. 218).

In addition, rapid and recent changes to the practice of medicine, such as increased patient care demands, the introduction and frequent updating of information technology, reimbursement issues, growing bureaucratization of medical practice,
increased accountability, declining autonomy, and conflict between the needs of the organization and patients are all potential threats to physician well being (Bartell & Smith, 2004; Dunstone & Reames, 2001; Edwards, Kornacki, & Silversin, 2000; Freeman, Schmoldt, Klevit, & Marton, 2001; McMurray et al., 1997; Menachemi & Brooks, 2006; Shanafelt et al., 2005; Visser, Smets, Oort, & de Haes, 2003). These mounting trends have been characterized as evidence of “hamster health care” where “across the globe doctors are miserable because they feel like hamsters on a treadmill” (Morrison, 2000, p. 1541).

Based on these themes identified in the interviews and a review of the relevant literature, we included two different measures of workload in the questionnaire: work hours and work overload. Work hours reflect the total number of hours physicians work per week at the office and at home. Work overload refers to the extent to which the demands of the job are felt to be excessive (Wallace, 1999).

In addition to workload, about half (43%) of the interview participants described how the acuity, severity and/or chronic conditions of patients is particularly stressful for them, as illustrated in the following quotes:

I think patient care, although it can be very satisfying, it can be a source of enormous stress… And I think people are very unrealistic about the limitations of medical science.

So patient care I think can be very stressful. And if you’re a conscientious doctor, it’s stressful—have I made the right decision? The right diagnosis? The right treatment? And there’s always the guilt when people get a side effect.

The literature supports the notion that the patient–physician relationship can provide the most gratifying experiences in medicine, but also the most severe emotional stresses as well (Arnetz, 2001; McMurray et al., 1997). Interactions with patients and their families are often emotionally charged and stressful. Emotional stressors specific to medicine include working with psychologically intense issues that involve suffering, fear, failures and death (Arnetz, 2001). Based on themes identified in the interview data, we examined the emotional demands associated with practicing medicine in the questionnaire by the extent to which they are overwhelming or all encompassing.

Many of the physicians we interviewed indicated that having a good quality of life meant having time for their family, interests outside of medicine and for themselves. When asked what they think their families would change about their jobs, the resounding response was “spend less time at work and more time at home” (70%). Interview participants aspire to have a better quality of life by bringing less work and work-related stress home and by having more predictable work hours. This idea of work overflowing into one’s non-work time reflects the work-to-family conflict concept identified in the literature. It illustrates how the emotional demands of being a doctor are not easily switched on and off when they enter or leave work. Two participants reflected as follows:

That I spend more time at home and when I’m at home be less stressed. You go home feeling drained and can’t spend quality time with the family.

The hours. My youngest son when he was about three-years old, he said to me one day “Mommy, I wish you were just a mommy and not a doctor”.

Doctors tend to prioritize their professional careers at the expense of their personal lives (Dumelow, Littlejohns, & Griffiths, 2000). Reports abound of physicians’ work interfering with their home and/or family life and the difficulties they experience in attempting to balance their professional and personal lives (Linn et al., 1985; Visser et al., 2003; Shanafelt et al., 2005). Work-to-family conflict was included in the questionnaire reflecting the extent to which the demands associated with work interfere with physicians’ home and family life.

Based on the interview results, in combination with the review of the literature, we hypothesize:

**H1.** Greater work demands (work hours, work overload, emotional demands, work-to-family conflict) will be negatively related to physician well being.

What factors are positively related to physician well being?

Interview participants identified different groups of people who provide work-related resources and/or support that they felt were positively related to their well being. In coping with work stress, one
third (33%) of the participants talk to their spouse (who may or may not be a physician) and 15% talk to other doctors or colleagues. For example, one interview participant told us:

I talk to my husband. He’s a good person to talk to. If it’s still at work, I’ll talk to colleagues. We’ve got a really good group, three individual colleagues are good sources there, and then at home, my husband is a good source.

Social support is an interpersonal coping resource where one person helps another and it often involves talking to someone who is supportive and understanding (Ross & Mirowsky, 1989). In the questionnaire, we assessed social support from two different sources — co-workers and spouses. Co-worker support is the extent to which colleagues are helpful in actually dealing with the stresses of the job, which is referred to as instrumental support in the stress literature. Instrumental support involves providing material or concrete assistance in response to the individual’s specific needs, such as information or help with one’s work (House, 1981; Wallace, 2005). Spouse support is the extent to which their partner empathizes with the stresses of their job, which is described as emotional support in the stress literature. Emotional support may involve the provision of affection, sympathy and understanding so that the individual feels cared for and supported (House, 1981; Wallace, 2005).

While the medical profession has a poor reputation for providing mutual support or giving and receiving feedback (Edwards et al., 2000), social support from colleagues has been found important in contributing to physicians’ job satisfaction and well being and reducing job stress (Freeborn et al., 2001; Horowitz, Suchman, Branch, & Frankel, 2003; Li et al., 2006; Visser et al., 2003). Similarly, the literature suggests that physicians who have a supportive spouse are less likely to suffer from burnout, report greater marital satisfaction and spend more time with their family, which are also positively related to work satisfaction and well being (Dunstone & Reames, 2001; Marchand, Demers, & Durand, 2005; Sotile & Sotile, 2004; Shanafelt et al., 2005).

Almost half of the interview participants (44%) identified caring for, having contact with, or interacting with patients as the most satisfying aspect of their job. Thirty-nine percent reported that having a positive impact on patients and successful patient outcomes are the most gratifying parts of their work. The following two quotes illustrate the positive aspects of patient care.

Seeing a patient do well, that is the single most important thing...Getting positive feedback is icing on the cake.

I think when I meet a sick patient, they are on the verge of life and death, at the end, from the work I do, I can discharge them home, they are happy and healthy. That’s like the happiest time in the job, in my professional life.

In the questionnaire, we measure the extent to which physicians feel they are positively influencing others in terms of positive patient interactions. While certain aspects of patient relationships may be stressful for physicians, other aspects are vital to having a satisfying and challenging medical career. A key motivation for going into medicine is the desire to help others and positive patient interactions offer important personal rewards to physicians (Arnetz, 2001). According to the literature, connecting with patients, satisfying physician–patient relations and feeling they are making a difference in someone’s life are all important predictors of physician well being (Dunstone & Reames, 2001; Horowitz et al., 2003; McMurray et al., 1997). Taken together, support from one’s co-workers and spouse and positive patient interactions may be classified as work resources.

H2. More work resources (from co-workers, spouse and patients) will be positively related to physician well being.

In the stress literature, there are two basic hypotheses regarding the role of social support. The “main effect” hypothesis suggests that support exerts a direct effect on outcomes regardless of the amount of stress a person experiences. That is, social support and positive patient interactions simply improve one’s health and well being. This argument is reflected in Hypothesis 2 above. The “buffer”, or interaction, effect hypothesis suggests that social support moderates the negative effects of stress on well being (House, 1981). That is, individuals experiencing highly demanding work conditions, in combination with high levels of work resources, will report a better sense of well being compared to those working under similarly demanding work conditions but who receive fewer resources from others.
H3. Work resources (from co-workers, spouse, or patients) will moderate the relationships of work demands on well being. More specifically, the negative relationship between work demands and well being will be stronger for physicians with fewer work resources.

**Questionnaire data and methods**

**Sample**

We sent 275 questionnaires to all physicians and residents in the same Department of Medicine where the interviews were conducted. Six weeks later, a reminder letter accompanied by a second copy of the survey were set out to all those who had not yet responded. We received 182 completed surveys, yielding a 66% response rate.

To assess the representativeness of the survey participants, the questionnaire sample data can be compared with data available on all 275 members’ sex and division in the Department of Medicine. At the time of the survey, of the 226 staff physicians in the Department, 75% were male and 25% were female and in the sample, 74% are male and 26% are female. In addition, 39% of the 49 resident physicians were male and 61% were female in the Department, and in the sample 44% are male and 56% are female. The \( \chi^2 \) results indicate that there are no statistically significant differences between the gender distributions in the Department of Medicine for staff and resident physicians and those in the sample \( (\chi^2 = 0.037 \text{ (1)}, \text{n.s.}) \) and \( \chi^2 = 0.231 \text{ (1)}, \text{n.s.,} \text{ respectively}) \). In addition, comparisons were made between the percentage of members in the Department’s 11 divisions and those in the sample (results available from authors) and the \( \chi^2 \) results again indicate no statistically significant difference in this regard \( (\chi^2 = 1.752 \text{ (10), n.s.}) \). Based on the results of these comparisons, the sample data appear representative of the Department along these two characteristics.

Table 1 presents descriptive statistics for the doctors who completed the questionnaire.

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<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean (SD)</th>
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<tbody>
<tr>
<td>Well being</td>
<td>2.26 (0.67)</td>
</tr>
<tr>
<td>Work demands</td>
<td></td>
</tr>
<tr>
<td>Total work hours</td>
<td>64.15 (16.77)</td>
</tr>
<tr>
<td>Work overload</td>
<td>2.31 (0.82)</td>
</tr>
<tr>
<td>Emotional demands</td>
<td>3.06 (0.94)</td>
</tr>
<tr>
<td>Work-to-family conflict</td>
<td>2.45 (0.93)</td>
</tr>
<tr>
<td>Work resources</td>
<td></td>
</tr>
<tr>
<td>Co-worker support</td>
<td>2.63 (1.03)</td>
</tr>
<tr>
<td>Spouse support</td>
<td>2.01 (0.98)</td>
</tr>
<tr>
<td>Positive patient interactions</td>
<td>1.86 (0.62)</td>
</tr>
<tr>
<td>Control variables</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>68%</td>
</tr>
<tr>
<td>Female</td>
<td>32%</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>88%</td>
</tr>
<tr>
<td>Not married</td>
<td>12%</td>
</tr>
<tr>
<td>Parental status</td>
<td></td>
</tr>
<tr>
<td>Parent</td>
<td>60%</td>
</tr>
<tr>
<td>Not a parent</td>
<td>40%</td>
</tr>
<tr>
<td>Department tenure</td>
<td>11.79 (10.61)</td>
</tr>
<tr>
<td>Resident status</td>
<td></td>
</tr>
<tr>
<td>Resident</td>
<td>15%</td>
</tr>
<tr>
<td>Staff physician</td>
<td>85%</td>
</tr>
</tbody>
</table>

**Data collection**

A mail-out questionnaire was constructed that measured themes raised in the interviews. Upon identifying the interview themes, we then turned to established measures in the literature to operationalize those concepts, usually in the form of closed-ended, Likert items. Unless otherwise indicated, the response categories are between 1 (“Strongly Disagree”) and 5 (“Strongly Agree”). Cronbach’s alpha coefficients \( (\alpha) \) are reported for all multiple-item measures.

**Well being** was measured by four Likert items that tap the extent to which physicians feel they have a balanced life (Marks & MacDermid, 1996), and the degree to which they are satisfied with their life (Diener, Emmons, Larsen, & Griffin, 1985), their job (Brayfield & Rothe, 1951), and the way their career is going (Greenhaus, Parasuraman, & Wormley, 1990) \( (\alpha = 0.76) \).

Four variables reflect physicians’ work demands: total work hours, work overload, emotional demands and work-to-family conflict. **Total work hours** was measured by the question: “On average, in a typical week, how many hours do you work in total
Respondents estimated how many hours they worked at the office and how many hours at home. Given the nature of their jobs, “at the office” may include a variety of locations, such as a hospital, clinic or the university. We computed the total average number of hours they work per week by summing their estimates of their weekly work hours at the office and at home. Work overload was measured by three Likert items from Caplan, Cobb, and French (1975) that reflect the extent to which physicians feel their workload is too heavy, they do not have enough time to get everything done in their job and they find it difficult to meet the demands of their patients, colleagues, hospital and university ($\alpha = .76$). Emotional demands were measured by two Likert items from Fimian, Fastenau, and Thomas (1988) that tap the degree to which respondents feel emotionally drained from work and find it takes a long to relax after they leave work ($\alpha = .70$). Work-to-family conflict was measured by a single item from Netemeyer, Boles, & McMurrian (1996) that assesses the extent to which work demands interfere with physicians’ home and family life.

Co-worker support was measured by a single item from Thomas and Ganster (1995) that indicates the degree to which physicians’ colleagues are good at helping them resolve work-related problems. Spouse support was measured by a single item from Thomas and Ganster (1995) tapping the degree to which their partner empathizes with the stresses of their job. Positive patient interactions was assessed by a single item asking about the extent to which physicians feel they are positively influencing other people’s lives through their work.

Five control variables were included in the analysis: physician’s sex, marital status, parental status, tenure in the Department of Medicine and university (resident or staff physician. Sex (male) was coded 1 for men and 0 for women. Marital status was coded 1 for married or living common law and 0 if not. Parental status was coded 1 if respondents had any children were currently living at home and 0 if not. Tenure was calculated by subtracting the year they began working in the Department of Medicine from the year of the survey. Resident was coded 1 for resident physicians and 0 for staff physicians.

Data analysis

Ordinary least squares (OLS) regression was used to estimate the magnitude of relationships between work demands and work resources and physicians’ well being. The regression results are presented as standardized coefficients in Table 2. The two main effect hypothesis (H1 and H2) are tested in Equation 1. In addition, the buffer hypothesis (H3) was tested by determining whether the cross-product interaction terms between work demands and work resources have statistically significant relationships with well being. To do this, four models were estimated, one for each work demand variable (Equations 2–5). In each equation, the specific work demand (e.g., total work hours) and its three cross-product terms (i.e., by co-worker support, by spouse support and by patient interactions) were entered simultaneously into the equation. Empirical support for the buffer hypothesis is indicated by statistically significant negative, cross-product interaction coefficients.

Questionnaire results

Table 2 presents the regression results. The findings reported in Equation 1 provide partial support for Hypothesis 1. Work overload and emotional demands are negatively related to physician well being as predicted, whereas work hours and work-to-family conflict are not. That is, the greater work overload and the more emotional demands physicians experience from work, the poorer their well being. Emotional demands from work have the strongest negative relationship with physicians’ well being.

Some literature suggests that work-to-family conflict might be more relevant to women with children (e.g., Li et al., 2006). Further analyses were conducted (results not shown) to see whether this variable was moderated by physician’s gender and/or parental status. A statistically significant three-way interaction was found for work-to-family conflict by gender and parental status. Due to the small sub-sample sizes, subgroup regression analyses (e.g., for mothers compared to fathers) were not possible. Comparisons of the zero-order correlations between work-to-family conflict and well being, however, show that the relationship is considerably stronger for mothers ($r = -.60$) compared to other gender and parental categories (i.e., they range from $-.33$ to $-.42$). Moreover, 86% of mother physicians report work-to-family conflict compared to 62% of fathers and lesser degrees for non-parents. That is, work-to-family conflict is more highly related to well being for mothers than
Corroboration is provided for Hypothesis 2 where support from one’s co-workers and spouse and feeling one has a positive influence through their work are all important work resources related to physician well being. It is interesting to note that the psychological rewards associated with positive patient impact is most strongly related to physicians’ well being. None of the control variables are statistically significant.

Turning next to the tests of the buffer hypothesis (H3), none of the work resources buffered the relationship between work hours and physician well being and their addition to the model did not yield a significant increment in the $R^2$ (Equation 2). This means regardless of the amount of work resources physicians receive, their total work hours are simply unrelated to their well being. The results are quite different, however, for the other three work demand variables. We see that for all three, co-worker and spouse support are significant buffers. Patient interactions significantly buffers the relationship between emotional demands and physician well being. These findings suggest that if doctors receive more enabling resources from their co-workers and spouse, the negative relationships between work overload (Equation 3), emotional demands (Equation 4) and work-to-family conflict (Equation 5) and well being are reduced more than if they do not have fathers or male or female physicians who are not parents.

### Table 2
Standardized regression results for physician well being ($N = 182$)

<table>
<thead>
<tr>
<th>Determinants</th>
<th>Eq. 1 Main effects model</th>
<th>Eq. 2 Work hours interactions</th>
<th>Eq. 3 Work overload interactions</th>
<th>Eq. 4 Emotional demands interactions</th>
<th>Eq. 5 Work-to-family interactions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Work Demands</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total work hours</td>
<td>0.030</td>
<td>-0.312</td>
<td>0.014</td>
<td>0.033</td>
<td>0.040</td>
</tr>
<tr>
<td>Work overload</td>
<td>-0.142**</td>
<td>-0.126*</td>
<td>0.296</td>
<td>-0.098*</td>
<td>-0.112*</td>
</tr>
<tr>
<td>Emotional demands</td>
<td>-0.242***</td>
<td>-0.346***</td>
<td>-0.325***</td>
<td>0.567***</td>
<td>-0.345***</td>
</tr>
<tr>
<td>Work-to-family conflict</td>
<td>-0.085</td>
<td>-0.075</td>
<td>-0.075</td>
<td>-0.087</td>
<td>0.461*</td>
</tr>
<tr>
<td><strong>Work Resources</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coworker support</td>
<td>0.120**</td>
<td>0.119</td>
<td>0.431***</td>
<td>0.660***</td>
<td>0.442***</td>
</tr>
<tr>
<td>Spouse support</td>
<td>0.181***</td>
<td>0.120</td>
<td>0.672***</td>
<td>0.589***</td>
<td>0.538***</td>
</tr>
<tr>
<td>Positive patient interactions</td>
<td>0.318***</td>
<td>-0.103</td>
<td>0.160</td>
<td>0.305***</td>
<td>0.299**</td>
</tr>
<tr>
<td><strong>Control Variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex (1 = Male)</td>
<td>0.021</td>
<td>-0.001</td>
<td>-0.014</td>
<td>0.018</td>
<td>0.000</td>
</tr>
<tr>
<td>Marital status (1 = Married)</td>
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<td>-0.003</td>
<td>0.013</td>
<td>-0.015</td>
<td>0.007</td>
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<tr>
<td>Parental status (1 = Parent)</td>
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<td>0.000</td>
<td>-0.012</td>
<td>0.014</td>
<td>-0.006</td>
</tr>
<tr>
<td>Department tenure</td>
<td>-0.066</td>
<td>-0.080</td>
<td>-0.040</td>
<td>-0.070</td>
<td>-0.070</td>
</tr>
<tr>
<td>Resident status (1 = Resident)</td>
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<td>0.020</td>
<td>0.049</td>
<td>0.048</td>
<td>0.053</td>
</tr>
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<td><strong>Interaction Tests</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>By coworker support</td>
<td></td>
<td>-0.006</td>
<td>-0.419*</td>
<td>-0.653***</td>
<td>-0.432**</td>
</tr>
<tr>
<td>By spouse support</td>
<td></td>
<td>-0.095</td>
<td>-0.644***</td>
<td>-0.517***</td>
<td>-0.445**</td>
</tr>
<tr>
<td>By patient interactions</td>
<td></td>
<td>0.512</td>
<td>0.274</td>
<td>-0.282*</td>
<td>0.021</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.446</td>
<td>0.458</td>
<td>0.489</td>
<td>0.499</td>
<td>0.474</td>
</tr>
<tr>
<td>$\Delta R^2$</td>
<td></td>
<td>0.012</td>
<td>0.043***</td>
<td>0.053***</td>
<td>0.028***</td>
</tr>
</tbody>
</table>

*p<0.10; **p<0.05; ***p<0.001.

The interaction tests are based on the inclusion of multiplicative interaction terms for each work demand by each work resource (e.g., in Eq.2, these terms include work hours × coworker support, work hours × spouse support and work hours × patient interactions). A statistically significant interaction coefficient indicates that the relationship between that particular work demand (refer to column title) and physician well being depends on the amount of physicians’ work resources (i.e., either coworker support, spouse support or patient interactions).
such a supportive work and home environment. Doctors with more psychologically rewarding patient interactions also experience a less severe negative association between emotional demands and their well being than those who have less rewarding patient interactions (Equation 4). This pattern of findings corroborates the buffer hypothesis for work overload, emotional demands and work-to-family conflict.

**Discussion and conclusions**

This paper set out to explore what work-related factors are important in understanding physician well being. In developing a model of well being, we analyzed in-depth qualitative interviews with physicians and reviewed the relevant literature. Using this strategy, two key concepts were identified as related to physician well being: (1) work demands; and (2) work resources. We hypothesized that work demands would be negatively related to well being and work resources would be positively related. We found partial support for our work demands hypothesis and corroboration for our work resources hypothesis. We also examined whether work resources buffer the negative relationships between work demands and physician well being, and we found considerable empirical support for this hypothesis.

The results of this study have several important implications for physicians and the organizations that employ them. First, the findings highlight the importance of co-worker support, both in terms of being directly related to physician well being as well as buffering the negative effects of work demands. This suggests that a more open and supportive work atmosphere should be beneficial to physicians (Arnetz, 1999, 2001). Team building may be one strategy to enhance communication and support amongst colleagues. Physicians feel considerably less stressed when they feel they are part of a good team and this may be due to the support that team members offer one another (Firth-Cozens, 2001). Team or co-worker relations may be strengthened by organizing retreats, team-building exercises, offering staff opportunities to provide feedback to management, working towards common goals, or social events (Arnetz, 2001; Shanafelt et al., 2003). Clearly specifying organizational or department goals may also be effective in reducing organizational stress and improving members’ overall well being (Arnetz, 2005). Unnecessary stress can be diminished if leadership increases employees’ awareness of organizational goals and involves staff in management decisions. Another related strategy may involve enhancing the management styles and skills of senior doctors who often supervise, mentor and observe those they work with. In doing so, those in leadership positions may be better able to recognize doctors at risk, provide a safe “no-blame” means of identifying and discussing concerns about oneself or one’s colleagues, and raise awareness and support of internal and external counseling services (Firth-Cozens, 2001). For example, provincial programs such as “The Physician and Family Support Programs” sponsored by the Alberta Medical Association, recognize that even good physicians sometimes need help. These programs actively promote a culture of care and concern for colleagues by offering assessment, treatment and case coordination so that physicians can achieve a successful and sustained return to work (Maier, 2004). By offering support to physician families, these programs also appreciate the importance of spousal support, which we found significantly enhances physician well being and buffers negative work demands.

A second interesting finding is that the two variables that have the strongest relationships with physician well being (refer to Equation 1) are emotional demands ($\beta = -0.24$) and positive patient interactions ($\beta = 0.32$). This supports the belief that patient interactions are both a key emotional stress for physicians as well as an essential source of satisfaction in their daily work lives. As two interview participants explained:

> The patient side, which to me is supposed to be the rewarding side, it’s what I love, but by the end of the day leaves you unsatisfied, putting out fires and no time for quality patient care. Being called to see ten patients who are dying that day, you do the clinical minimal necessary. You actually never get to take care of the whole patient.

> What really gives me the most satisfaction is really challenging clinical problems and really sick patients and being able to improve things that way... It can be the most frustrating, the most heartbreaking, but you also get the most satisfaction. You get somebody who says, even years after, they feel they have their life back.
Moreover, the results of the interaction tests (Table 2, Equation 4) show that the negative relationship between emotional demands, which is often associated with stressful patient encounters, is buffered by positive patient interactions. This suggests that although practicing medicine may be emotionally draining for physicians, the more positive influence they have on their patients, the weaker the relationship between the emotionally demanding aspects of their work and their well being. That is, having a positive impact on patients buffers the negative effect of emotionally demanding work on physician well being.

In order to better understand physician well being, future research may examine how particular aspects of patient care function in these opposing ways. For example, Linzer et al. (2000) developed questionnaire items where some tap negative aspects of patient care, such as overwhelming or adversarial patient relationships, inadequate time with patients, or patients’ demands for unnecessary treatment. Other items reflect positive aspects of patient care in terms of having a strong personal connection to patients or receiving gratitude from patients. By using more fine-grained approaches to measuring patient care and relationships, we may be able to determine which specific aspects are more stressful and which are more beneficial to physician well being.

Several unexpected findings also deserve further discussion. First, for work demands, work hours and work-to-family conflict, were unrelated to physician well being. Instead, the more subjective sense of being overwhelmed by one’s work (i.e., work overload) and emotional demands appear more detrimental to physicians’ well being. Similar findings have been reported elsewhere for other professionals (e.g., Wallace, 1999). The different relationships of working long hours, compared to work overload and emotional demands, may reflect that being overwhelmed by the demands of one’s work is not only invasive of one’s time and energy but also one’s well being long after the individual has left work. Work hours, while limiting the available time for other roles and activities, do not necessarily translate into emotional or psychological spillover beyond the hours worked.

Work-to-family conflict also failed to have a significant relationship with physicians’ well being. As the supplemental analyses reported above suggest, work-to-family conflict is more highly related to well being for mothers than fathers or male or female physicians who are not parents. Future research with larger samples should investigate how work demands and resources may have different effects on well being depending on physicians’ gender and parental status. It would also be interesting to examine whether there are differences in the amounts of work demands and resources these groups experience.

In closing, several limitations of this study must be noted. First, the cross-sectional nature of this study means that concerns regarding causal ordering may be raised. Some variables related to well being included in the regression analysis may be outcomes of well being. For example, physicians who have a better sense of well being may trigger more support than the reverse. A more accurate model requires a longitudinal approach to disentangle causes from outcomes, as well as document possible changes in well being over physicians’ life course and career stages. Second, this study focused on physicians working in a large university hospital setting in a large city. Future research may explore how the factors related to well being vary across different work settings. For example, different work demands and resources might be more or less relevant to physicians in other settings. Given the importance of the buffering effects of co-worker support for this particular sample of physicians, it is critical to identify alternate sources of support for doctors who work in smaller, more private settings. Lastly, the small sample size restricted comparisons among physicians with different demographic characteristics. The limited analyses that were possible suggest that relevant variables may differ significantly depending on physicians’ gender and parental status. Subsequent studies with sufficiently large samples may examine these and other factors (e.g., resident status) in greater detail in order to gain a more comprehensive understanding of physician well being.

Acknowledgments

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References


Research article

The generation and gender shifts in medicine: an exploratory survey of internal medicine physicians

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Abstract

Background: Two striking demographic shifts evident in today's workforce are also apparent in the medical profession. One is the entry of a new generation of physicians, Gen Xers, and the other is the influx of women. Both shifts are argued to have significant implications for recruitment and retention because of assumptions regarding the younger generation's and women's attitudes towards work and patient care. This paper explores two questions regarding the generations: (1) How do Baby Boomer and Generation X physicians perceive the generation shift in work attitudes and behaviours? and (2) Do Baby Boomer and Generation X physicians differ significantly in their work hours and work attitudes regarding patient care and life balance? Gen Xers include those born between 1965 and 1980; Baby Boomers are those born between 1945 and 1964. We also ask: Do female and male Generation X physicians differ significantly in their work hours and work attitudes regarding patient care and life balance?

Methods: We conducted exploratory interviews with 54 physicians and residents from the Department of Medicine (response rate 91%) and asked about their perceptions regarding the generation and gender shifts in medicine. We limit the analyses to interview responses of 34 Baby Boomers and 18 Generation Xers. We also sent questionnaires to Department members (response rate 66%), and this analysis is limited to 87 Baby Boomers' and 65 Generation Xers' responses.

Results: The qualitative interview data suggest significant generation and gender shifts in physicians' attitudes. Baby Boomers generally view Gen Xer physicians as less committed to their medical careers. The quantitative questionnaire data suggest that there are few significant differences in the generations' and genders' reports of work-life balance, work hours and attitudes towards patient care.

Conclusion: A combined qualitative and quantitative approach to the generation shift and gender shift in medicine is helpful in revealing that the widely held assumptions are not necessarily reflective of any significant differences in actual work attitudes or behaviours of Boomers and Gen X physicians or of the younger generation of women entering medicine.
Background

Two striking demographic shifts, evident in today’s workforce in general, are also apparent in the medical profession. One is the entry of a new generation of physicians, Generation Xers, and the other is the influx of women into the medical profession. Gen Xers include the twenty- and thirty-something women and men who were born between 1965 and 1980. In contrast, the Baby Boomer generation refers to the large cohort born between 1945 and 1964. Growing attention is being paid to generation and gender shifts in the work orientations of practicing physicians. Titles such as “Are You Ready for Generation X?” [1], “Bridging the Generation Gap(s)” [2], and “Managing Gen Xers Strategically” [3] illustrate concerns being raised in the literature with regard to the latest cohort of young professionals. Similarly, titles such as “When Most Doctors are Women: What Lies Ahead?” [4] and “A Force to Contend With: The Gender Gap Closes in Medical Schools” [5] reflect the growing attention to the entry of more women into medicine.

Why is it important to examine generation and gender shifts in physicians’ attitudes and experiences? First, as Shields and Shields [6] note in their paper on working with Generation X physicians, most of the assumptions about generation and gender shifts are supported at best by anecdotal evidence rather than empirical data. We need more research to understand and substantiate existing conceptions about the generations and genders. Douglas Coupland popularized the term “Generation X” in his 1991 novel, where he characterized the generation as cynical, naïve, and disillusioned about the world and materialism, respecting no one and valuing nothing [7].

In review articles, we see a number of commonly identified characteristics of Generation Xers that include: a desire for autonomy and flexible schedules; preference for the latest technology; emphasis on close friends or family more than material success; emphasis on personal growth, expressing creativity and developing new and portable skills; insecurity and cynicism about organizations; and more open attitudes towards diversity [1,3,6]. In contrast, Baby Boomers are described as holding an exceptionally strong work ethic, characterized by hard work, long hours and loyalty to their employers [8,9]. Gen Xers criticize Boomers as overly cautious, competitive, blindly loyal and hierarchy worshipping [10]. Boomers criticize the younger generation for their lack of involvement in their jobs, lack of commitment to their careers and overall lack of work ethic. They describe Gen Xers as a generation who “couldn’t care less” [10]. It has been suggested that the most rigid generational differences are related to the role that work plays in one’s life [11].

Whereas it seems members of the Baby Boomer generation define themselves as doctors first, the younger physicians see practicing medicine as only one part of their identity, and perhaps not even the most important part. The Baby Boomer generation is totally committed to medicine – it is who and what they are, whereas the Gen Xers might define themselves as perhaps a physician, gardener, marathon runner and Cub Scout leader. This fundamental difference in how the generations define themselves results in Gen Xers placing greater emphasis on lifestyle choices and making sure they have more time for family and leisure.

Second, it is also important to examine generation and gender shifts in medicine because physician shortages in many medical specialties are driving recruitment and retention [1,6,12]. As the Boomer generation ages and retires, Generation Xers will be expected to fill these positions, despite a relative deficiency in manpower, compared with the preceding generation. The literature suggests that both Gen Xers and women are more concerned about work-life balance and quality of life than the Boomers in general. This is partly evidenced by women working and preferring to work fewer hours per than men, and an increasing number of younger men also preferring to work less than the traditional 50 to 60 hours a week in order to spend more time with their family [13]. As Washburn notes, “Work your butt off and make a lot of money” may not attract applicants as it once did. Family time and balance between work and play may mean more to Gen-X physicians than large incomes” [1]. As another author suggests: “Younger physicians know (the current economic slump notwithstanding) there’s a coming shortage of doctors and they’re not about to be exploited – work longer hours, be loyal as dogs – as the boomers were” [11].

Third, it is important to examine these shifts because increasing numbers of women are entering medicine, and Canada is no exception in this regard. For example, in 1981 women represented 13% of Canadian practicing physicians [14], and by 2005, they represented 31.3% [15]. These numbers are comparable to those reported for the United States [16] and several European countries, such as the Netherlands [17], the United Kingdom [18] and the Nordic countries [19]. Researchers have referred to the growing representation of female doctors as the "feminization of medicine" [4], and are asking how this demographic trend will affect patient care, health care systems and physician careers. Some research suggests that female doctors are more likely than their male counterparts to engage patients as active partners in their care and to meet the challenges of the trend towards multidisciplinary team approaches to patient care [4]. Research also shows that women and men tend to enter into different areas of specialization and types of practice [4]. For decades, sociologists have examined the gendered segregation of occupations, and they suggest that gender
differences in occupations, specialties and work settings may be linked to differences in work and family values that lead women to select jobs and fields that best facilitate work-family balance [19,20]. Much of this research frames the question of why men and women end up in different jobs as hinging on two competing theoretical frameworks that reflect gendered choices or constraints. Basically, the choice or supply-side explanation suggests that gender differences in careers are due to the choices of individual women. That is, women tend to choose different occupations, specialties and work settings than men because women hold different work and family values and interests that lead them to select jobs and fields that best facilitate work-family balance [20]. The constraint or demand-side explanation focuses on the choices and behaviors of employers rather than employees. These explanations emphasize how institutional barriers or discrimination make it difficult for workers, particularly women, to balance work and family responsibilities, which may then lead to gender inequalities at work. For example in medicine, different working conditions, career structures and career orientations and different opportunities for combining a medical career and family life are associated with various medical specialties [21,22]. Based on the results of her study, Gjerberg [23] suggests that both individual choice and the constraints associated with different specialties are responsible for variations in the work-family interface for physicians, which is also consistent with the broader literature in this area [24].

In general, women's entry into medicine has had a major influence on issues of work-life balance and quality of work life: "Women in medicine have forged new pathways to allow physicians to balance career and family responsibilities" [4]. Compared to men, women work fewer hours per week, see fewer patients (and provide fewer services), take time off to have children, are likely to leave the profession sooner, and are less inclined to join professional organizations [5,13]. Women in medicine will continue to pressure policy makers to foster flexibility and enable balance between professional and personal life, helping both women and men in medicine to meet responsibilities to their children, their parents and themselves. As a result, the gender shift will influence health care systems, as maternity leaves, leaves of absence to raise small children or care for aging parents, and part-time practices significantly reduce physicians' work hours and affect where and how they practice medicine.

Methods

Aim

In light of the issues raised above, the aim of this paper is to answer three questions: (1) How do Baby Boomer and Generation X physicians perceive the generation shift in physicians' work attitudes and behaviours? Finding that they indicate a shift in perception, we then ask (2) Do Baby Boomer and Generation X physicians differ significantly in their work hours and work attitudes regarding patient care and life balance? and (3) Do female and male Generation X physicians differ significantly in their work hours and work attitudes regarding patient care and life balance?

Setting

Data for this study were collected from doctors and residents from a university and health region based Department of Medicine in a large, metropolitan city in Western Canada. Most are involved primarily in clinical work and many are also part of the teaching and research programs sponsored by the university. Staff physicians usually function as independent professionals with their work patterns cast by the patient-care centered, academic and/or scholarly responsibilities and expectations of their division. In contrast, residents have little control over their work environment as their educational curriculum is based on national objectives of training, which must be completed by the end of the training period. A large percentage of a resident's work time consists of caring directly for patients in a hospital or outpatient setting and includes after hours on call work. In this particular Department of Medicine, 23.6% of the physicians are women, and in Canada, women represent 25.2% of internal medicine physicians [15].

Design

Two data collection strategies were used in this study: (1) semi-structured interviews with a quota sample of 54 physicians and residents; and (2) a short, structured mail-out questionnaire sent to all 275 physicians and residents in the department. The qualitative interview data are used to answer the first research question posed in this paper. The questionnaire data are used to answer Question 2 and Question 3.

Semi-structured interviews (qualitative analysis)

Sample

We invited 59 physicians and residents to participate in the interviews and 54 agreed to take part (response rate 91%). Those who declined stated concerns over lack of time (n = 2), confidentiality (n = 2) or inability to represent department views because of type of practice (n = 1). A quota sampling strategy was used to select potential participants based on gender, division, rank, site/hospital affiliation, scholarly activity and family status. For this paper, we limit the analysis to the responses of 34 Baby Boomer and 18 Generation X physicians and residents who participated in the interviews. The two participants excluded from the analysis do not fall into either generation being examined in this study. Table 1 provides a
demographic profile of the Baby Boomer and Generation X doctors who participated in the interviews.

**Data collection**

Interviews were conducted at the participant’s convenience, usually during work hours and at their place of employment. The interview questions were mostly open-ended and exploratory in nature, allowing respondents to describe their work experiences and attitudes in their own words. Interviews generally lasted approximately one hour although they ranged in length from 30 to 95 minutes. The interviewer typed participants’ responses in a word processing program on a notebook computer during the interview and reviewed her notes immediately after to correct any typographical errors or omissions. The particularly relevant questions for this paper are: (1) “As the demographics of the medical profession changes, what effects do you think the younger generation of physicians will have on the profession and/or the way things currently work in your department? Do you think this change in a positive or negative direction?” and (2) “What about the increasing number of women in medicine? How do you think that will impact the profession and your department? Positive or negative?”

**Data analysis**

We used HyperResearch, a software package for qualitative data analysis, to analyze the interview responses. This software enables researchers to code and retrieve data and cases for analysis. The authors of this article independently reviewed the responses to the questions posed to participants about their attitudes towards the influx of the younger generation of physicians and women into the medical profession. We did not use pre-established categories for analyzing the interview data. Rather, we used an inductive strategy through open and selective coding to derive the predominant themes reflected in the interview transcripts. We then went back to the original data and coded each response so as to compute frequencies for the number of participants who mentioned each theme.

**Questionnaires (quantitative analyses)**

**Sample**

In December 2004, 275 questionnaires were sent to all physicians and residents in the Department of Medicine and 182 surveys were returned yielding a 66% response rate. For this paper, we limit the quantitative analysis to 87 Baby Boomer and 65 Gen X physicians. The remaining 30 respondents are excluded from this analysis because they were born prior to 1945. Table 2 presents demo-

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**Table 1: Characteristics of interview participants**

<table>
<thead>
<tr>
<th></th>
<th>Baby Boomers (N = 34)</th>
<th>Generation X (N = 18)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male n = 18 (53%)</td>
<td>Male n = 8 (44%)</td>
<td></td>
</tr>
<tr>
<td>Female n = 16 (47%)</td>
<td>Female n = 10 (56%)</td>
<td></td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean = 48.15 (SD = 4.58)</td>
<td>Mean = 35.06 (SD = 3.69)</td>
<td></td>
</tr>
<tr>
<td><strong>Years in department</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean = 11.12 (SD = 7.00)</td>
<td>Mean = 3.79 (SD = 2.04)</td>
<td></td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lives alone n = 4 (12%)</td>
<td>Lives alone n = 3 (17%)</td>
<td></td>
</tr>
<tr>
<td>Lives with partner n = 30 (88%)</td>
<td>Lives with partner n = 15 (83%)</td>
<td></td>
</tr>
<tr>
<td><strong>Parental status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has no children n = 5 (15%)</td>
<td>Has no children n = 12 (67%)</td>
<td></td>
</tr>
<tr>
<td>Has children n = 29 (85%)</td>
<td>Has children n = 6 (33%)</td>
<td></td>
</tr>
<tr>
<td><strong>% Residents</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resident n = 2 (6%)</td>
<td>Resident n = 4 (22%)</td>
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</tr>
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</table>

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**Table 2: Characteristics of questionnaire participants**

<table>
<thead>
<tr>
<th></th>
<th>Baby Boomers (N = 87)</th>
<th>Generation X (N = 65)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male n = 64 (74%)</td>
<td>Male n = 32 (49%)</td>
<td></td>
</tr>
<tr>
<td>Female n = 23 (26%)</td>
<td>Female n = 33 (51%)</td>
<td></td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean = 49.3 (SD = 5.5)</td>
<td>Mean = 34.5 (SD = 3.5)</td>
<td></td>
</tr>
<tr>
<td><strong>Years in department</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean = 12.4 (SD = 8.4)</td>
<td>Mean = 3.5 (SD = 2.3)</td>
<td></td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lives alone n = 8 (9%)</td>
<td>Lives alone n = 9 (14%)</td>
<td></td>
</tr>
<tr>
<td>Lives with partner n = 78 (91%)</td>
<td>Lives with partner n = 55 (86%)</td>
<td></td>
</tr>
<tr>
<td>Missing n = 1</td>
<td>Missing n = 1</td>
<td></td>
</tr>
<tr>
<td><strong>Parental status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has no children n = 14 (16%)</td>
<td>Has no children n = 38 (60%)</td>
<td></td>
</tr>
<tr>
<td>Has children n = 72 (84%)</td>
<td>Has children n = 25 (40%)</td>
<td></td>
</tr>
<tr>
<td>Missing n = 1</td>
<td>Missing n = 2</td>
<td></td>
</tr>
<tr>
<td><strong>% Residents</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resident n = 3 (3%)</td>
<td>Resident n = 24 (38%)</td>
<td></td>
</tr>
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</table>
graphic information for the Baby Boomer and Generation X doctors who completed the questionnaire.

Data collection
Most items in the questionnaire were closed-ended, Likert items from established measures in the field. We coded the responses such that "Strongly Agree" and "Agree" were coded 1 and all other responses were coded 0. This allows us to present the findings as the percentage of respondents agreeing with a particular response. This coding scheme generates more easily interpretable results than reporting a value between 1 ("Strongly Disagree") and 5 ("Strongly Agree").

Work hours were measured by a single question that asked, "On average, in a typical week, how many hours do you work in total (including evenings and weekends)?" Respondents estimated how many hours a week they worked at the office and how many hours a week at home. Given the nature of their jobs, "at the office" may include a variety of locations, such as a hospital, clinic or the university. We computed the total average number of hours they work per week by summing their estimates of their weekly work hours at the office and at home. Patient care was measured using two Likert items: "I really care what happens to my patients" and "I feel I am positively influencing other people's lives through my work" [25]. Respondents indicated the extent to which they agreed with the statements and their responses were coded 1 if they agreed or strongly agreed and 0 otherwise. These items are used as proxies for elements of physicians' commitment to medicine. They are consistent with items used in classic measures of affective work commitment and involvement (e.g., [26,27]) with regard to caring about or being involved with aspects of one's work.

Work-life balance was measured using four different Likert items: "I feel I have a pretty balanced life" [28]; "The demands of my work interfere with my home and family life" [29]; "My family responsibilities interfere with my work" [29], and; "I feel I have enough time to do the things I want to do" [30]. Respondents indicated the extent to which they agreed with the statements, which were coded 1 if they agreed or strongly agreed and 0 otherwise.

Data analysis
We analyzed the quantitative data using SPSS 13.0. We computed t-tests to assess the statistical significance of differences in the attitudes and work experiences of Boomers versus Gen Xers and female versus male Gen Xers. Because of the relatively small sample size for some of the comparisons, statistically significant results at the .10 level (one-tailed tests) are presented (see Cohen [31]).

Results
How do Baby Boomers and Generation X physicians perceive the generation shift in physicians' work attitudes and behaviors?

In the analysis of the interviews, three key themes emerged: work-life balance, work ethic (hours) and commitment to medicine. The percentages in brackets represent how many participants mentioned this particular theme and participants often mentioned more than one theme.

The predominant theme raised repeatedly by both Baby Boomer (64%) and Generation X doctors (67%) is the greater emphasis placed on work-family balance and lifestyle by both female and male Gen Xer physicians. Both Boomers (53%) and Gen Xers (61%) suggest the push for more life balance is linked to the growing numbers of women entering medical school and their desire for flexibility and a more manageable workload because of greater family responsibilities. Upon completing increasingly lengthy medical training, many women are at a crux in terms of contemplating the time to have a family. A female Gen Xer physician with an infant explains: "When we come out of training, it takes so long, there's only a small window to have our babies." Thus, in the early years of their medical careers, some women may work less than full time to accommodate their young children's needs. Nonetheless, many participants acknowledge that the current trend does not only involve women. For example, a female Boomer suggests: "It's the men that are equally as interested in having a life and knowing their family and participation in their family life, even if it means that their work has to take up less of their time. It's a delightful change." In contrast, the older generation of doctors is viewed as extremely committed to and involved in their careers, often at the expense of their family and personal lives. A male Boomer doctor felt there were changes in the profession resulting from more emphasis being placed on life balance: "We're no longer these egotistical, godlike, you know, revered people. Now we're human beings".

Both groups of doctors recognize a generational divide in perceptions of attitudes toward the practice of medicine and the work ethic. Half of the Boomers (50%) and two-thirds (67%) of the Gen Xers mentioned how the younger generation tends to work fewer hours and is perceived as not working as hard as previous generations. Generation Xers suggest that Baby Boomer doctors place their career front and center in their identities and they hold a work ethic to match: "I think the older generation, if I can say that, medicine was who they were... So there was a very different mentality as far as work was concerned. They were going to work 8 to 8 every day, be on call as much as they had to." One Gen Xer describes this as an artifact of the Boomers' personal circumstances as follows: "the model of the male phy-
sician and the stay-at-home wife who looked after kids and ran the household, and said physician was able to work really long hours, 7 days a week, and provided a lot of continuity of care. Conversely, while Gen Xer physicians feel their medical careers are important, they do not necessarily place it at the forefront as the only aspect of who they are. As a Gen Xer explains: "You don’t have to be defined by the job you do. Being a parent is good; being able to balance is good. ... I’m not working 365 days a year. I don’t need to do that to be a better doctor." The long work hours, expected as simply part of medical practice by previous generations’ doctors, no longer holds in the view of the younger generation. A Gen Xer puts it simply: "Everyone in general is just not willing to devote 100 percent of their life to medicine anymore."

Conversely, while Gen Xer physicians feel their medical careers are important, they do not necessarily place it at the forefront as the only aspect of who they are. As a Gen Xer explains: "You don’t have to be defined by the job you do. Being a parent is good; being able to balance is good. ... I’m not working 365 days a year. I don’t need to do that to be a better doctor." The long work hours, expected as simply part of medical practice by previous generations’ doctors, no longer holds in the view of the younger generation. A Gen Xer puts it simply: "Everyone in general is just not willing to devote 100 percent of their life to medicine anymore."

The emphasis Generation Xers place on achieving a more balanced life is often interpreted by Boomers (64%) as an indicator of their lack of commitment and unwillingness to work. Boomers generally believe that the work ethic has eroded and there has been a significant decline in the value and importance of work, as indicated by the attitudes and behaviors of the Gen Xers.

Nearly one third of the Gen Xers (28%) mention that they believe they are viewed as less committed to their careers or that their careers are less important because they strive for a balanced life. A Boomer commented: "What I’m seeing is a lot of the upcoming fellows and students don’t work as hard as my cohort did in order to get the career they want. There may be benefits to that … but it appears they are not working as hard." This seeming disinterest in working "hard" (i.e., long hours) translates into a perceived lack of commitment to work and to medicine, as this Boomer explains: "At the training level, you’re a bit frustrated because you get the impression that they’re not as devoted. I’m not sure ‘devoted’ is the right word, committed … to learning medicine." However, a Gen Xer defends their position, stating: "I think they [the younger generation] are just as committed, but believe more in the importance of being well-rounded and having an outside life." Gen Xer doctors suggest that Baby Boomers work, or have worked, too many hours, sometimes at the expense of their families and personal lives, and that sort of lifestyle is simply not for them. Thus, from the Baby Boomer perspective, working long hours is tied to commitment to medicine, perhaps reflecting the centrality of "being a doctor" to their self-perception, whereas for Gen Xers, these links do not appear to be as strong.

Do Baby Boomer and Generation X physicians differ significantly in their work hours and work attitudes regarding patient care and life balance?

Given the qualitative interview results suggest a notable generation shift in the work attitudes of Baby Boomer and Generation X physicians, we compared their self-reports of work hours, patient care and work-life balance. First, regarding work hours, Table 3 shows that Boomers (mean = 51.2 hours) report working nearly 10 hours less each

<table>
<thead>
<tr>
<th>Survey Items</th>
<th>Boomers (n = 87)</th>
<th>Gen Xers (n = 65)</th>
<th>Gen X women (n = 33)</th>
<th>Gen X men (n = 32)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work hours (including residents)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hours per week at office</td>
<td>51.2</td>
<td>60.7*</td>
<td>61.3</td>
<td>60.2</td>
</tr>
<tr>
<td>Hours per week at home</td>
<td>9.9</td>
<td>8.3*</td>
<td>9.0</td>
<td>7.6</td>
</tr>
<tr>
<td>Hours per week total</td>
<td>61.1</td>
<td>69.1*</td>
<td>70.3</td>
<td>67.8</td>
</tr>
<tr>
<td>Work hours (excluding residents)a</td>
<td></td>
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<tr>
<td>Hours per week at office</td>
<td>50.9</td>
<td>53.8</td>
<td>51.9</td>
<td>55.3</td>
</tr>
<tr>
<td>Hours per week at home</td>
<td>9.9</td>
<td>7.6</td>
<td>8.3</td>
<td>7.1</td>
</tr>
<tr>
<td>Hours per week total</td>
<td>60.8</td>
<td>61.4</td>
<td>60.2</td>
<td>62.4†</td>
</tr>
<tr>
<td>Patient care</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I really care what happens to my patients.</td>
<td>88%</td>
<td>94%</td>
<td>94%</td>
<td>94%</td>
</tr>
<tr>
<td>I feel I am positively influencing other</td>
<td>91%</td>
<td>92%</td>
<td>91%</td>
<td>94%</td>
</tr>
<tr>
<td>Life balance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel I have a pretty balanced life.</td>
<td>42%</td>
<td>49%</td>
<td>48%</td>
<td>50%</td>
</tr>
<tr>
<td>The demands of my work interfere with my</td>
<td>65%</td>
<td>65%</td>
<td>67%</td>
<td>63%</td>
</tr>
<tr>
<td>Our family and my family life.</td>
<td>29%</td>
<td>12%*</td>
<td>21%</td>
<td>3%†</td>
</tr>
<tr>
<td>My family responsibilities interfere with</td>
<td>19%</td>
<td>20%</td>
<td>12%</td>
<td>28%†</td>
</tr>
</tbody>
</table>

* indicates a statistically significant difference at the .10 level between Baby Boomer and Generation X physicians
† indicates a statistically significant difference at the .10 level between Generation X women and Generation X men
* The following are excluded from these results: 3 Boomer residents; 24 Gen X residents; 14 Gen X female residents and 10 Gen X male residents.
week at work than Gen Xers (mean = 60.7 hours). Boomers report working about an hour and a half more at home each week than Gen Xers. However, overall, Gen Xers actually work nearly an additional full work day (7.95 hours) each week. This significant difference may be capturing different career stages, rather than generational differences. The Gen X group includes residents, who work notoriously long hours (though supposedly fewer hours than Boomers did at that stage), as well as physicians just establishing their practices. In order to explore whether the younger residents are inflating Generation Xer hours, we ran the analysis without them. When residents are excluded from the analysis, both generations work an average of 61 hours a week.

The results in Table 3 also show that there are no significant differences between Boomers’ and Gen Xers’ attitudes towards patient care. Both groups of physicians have similarly strong, positive orientations toward patient care. Lastly, Boomers and Gen Xers generally report similar amounts of balance, or lack thereof. Less than half of the respondents (42% for Boomers and 49% for Gen Xers) feel they have balanced lives. Moreover, nearly two-thirds (65%) of both groups feel that their work interferes with their home and family life. Only 20% of respondents report they have enough time to do the things they want to do. Nearly one-third (29%) of the Boomer respondents report family responsibilities interfere with their work, whereas only 12% of the Gen Xers feel that way.

**Do female and male Generation X physicians differ significantly in their work hours and work attitudes regarding patient care and life balance?**

The literature contains results for the same nine items from the generational analysis for physicians’ work hours, patient care and work-life balance with comparisons by gender. Overall, there are very few significant gender differences.

The results in Table 3 show that female Gen Xers (mean = 70.25) report working slightly more hours a week than male Gen Xers (mean = 67.81), although this difference is not statistically significant. There also appears to be no significant gender differences in how Gen X physicians approach patient care on two fronts, caring for patients and feeling they are positively influencing other peoples’ lives. Lastly, the results suggest that women and men report similar amounts of balance. It should be noted, however, that only about half feel they have balanced lives, and about two-thirds (67% of the women and 63% of the men) feel their work interferes with family. A much greater proportion of the women (21%) than men (3%) feel that their family responsibilities interfere with work. This is a statistically significant difference. When we only examine the results for parents, we see that 67% of the nine mothers, compared to none of the 17 fathers, report family-to-work conflict. Finally, most of the respondents report they simply do not have enough time to do all of the things they want to do. Again, more women (88%) than men (72%) feel this way, which is in line with the literature [32,33].

**Discussion**

The tenor of the literature and the ways of thinking reported in the workplace suggest that there are growing concerns about the assumed dissimilarities and potential tensions between the generations and the genders. We set out to explore whether the generations themselves perceive such a shift in their work attitudes and whether they report significant differences in their actual work attitudes and experiences. From the interview data, we find that Baby Boomer physicians, consistent with the literature, believe that the younger generation of doctors is more concerned about having a balanced life and a lifestyle, is less committed to medicine and does not work as hard as previous generations. In contrast, Generation X physicians feel they are just as committed to their medical careers as previous generations. They do not believe, however, that working long hours is a necessarily valid indicator of their work ethic or commitment. Other aspects of their lives are also important in how they define themselves and spend their time.

Through the Gen Xers’ emphasis and attempts to achieve a balanced life, Boomers believe the younger generation is less committed to their careers. Boomers seem to view the relationship between the work and family domains as zero-sum, or independent, where greater commitment to one means less commitment to the other. This does not appear to be the case for Gen Xers who instead see both domains as interdependent, converging and important in contributing to their overall well-being and sense of life balance [34]. As a result, Gen Xers feel they can be committed to both simultaneously, whereas Boomers experience greater role conflict between work and family.

Despite perceptions of a generational shift, the quantitative analysis suggests that Baby Boomers and Generation Xers report similar attitudes and experiences with respect to patient care and work-life balance. And, when residents are excluded from the analysis, both generations average 61 work hours a week. These findings suggest that, regardless of differences in perceptions about the two generations, they are more similar in certain ways than they realize. These similarities may reflect the extensive professional socialization that physicians receive throughout their medical training that promotes the internalization of the same core work values and behaviors associated with practicing medicine, regardless of which generation they belong to. Throughout this training, a common under-
standing of occupational knowledge and norms are formed that likely lead to a convergence of values and practice styles amongst physicians [35-37]. These findings have important implications for "bridging the generation gap." Through knowledge translation of the results of studies such as this one, it is possible to educate the generations about their similar work habits and attitudes.

The influx of women into medicine has brought issues such as work-life balance to the forefront, since women must often juggle their medical careers alongside family responsibilities. In addition, the literature suggests potential differences between female and male physicians' orientations towards their patients, such that women may show more empathy and concern for the well-being of their patients than men [4,16]. We therefore compared the work attitudes and experiences of women and men from Generation X. From this analysis, it appears that female and male Gen X physicians do not differ significantly in their work hours or orientations toward patient care, contrary to some of the anecdotal assumptions in the literature and the workplace [4].

The literature clearly shows that female physicians are far more likely than male physicians to work part-time [5,18,36], which makes it even more surprising that their work hours should be as similar as they are. For example, further analysis of the data in this study show that 15% of the women worked less than 40 hours a week at the office compared to 6% of the men. In other studies, reports as high as 50% of women practice medicine part time (less than 40 hours a week), depending on their specialization and work setting, compared to less than 10% of men [18,36,38]. McMurray et al. [36] report, however, that despite the significant difference in the number of hours worked, they found no gender differences in the proportions of time women and men spend in patient-related or other work-related activities, such as administration or teaching. More importantly, perhaps, are findings that suggest that part-time, primary-care physicians are more productive compared to their full-time counterparts and provide at least the same quality of patient care or better, with similar reports of patient satisfaction [38,39]. The literature suggests there is a growing decline in full-time equivalents of physician services, especially in areas where women are entering in greater numbers (e.g., family practice, obstetrics and gynaecology) and a sustained decline in the number of applicants where women do not apply (e.g., surgery) [5]. While the trend toward part-time clinical practice may not harm patient outcomes, it is occurring in the midst of a growing physician shortage in North America.

In professional work, work hours are often equated with commitment and worth, where longer hours mean a more dedicated professional [17,23] who provides better quality and continuity of care [13]. The lack of part-time options in combination with the expectation of long work hours calls for a fundamental change in medical culture so that doctors, women and men alike, can be more involved with their families without it being detrimental to their careers. Heiligers and Hingstman [13] found that 50% of all specialists in their study preferred a part-time working arrangement and similar results have been reported elsewhere (e.g., [40,41]). They conclude that a large proportion of physicians feel a need for a reduction in work hours and this need is not restricted to female doctors. An obvious consequence of reducing work hours would necessitate increasing the intake of medical students and a greater degree of flexibility in employment settings in order to optimize efficiency in the use of their human resources.

It is also interesting to note that the survey data indicate neither women nor men of Generation X are experiencing large amounts of balance in their lives, despite Baby Boomer perceptions to the contrary. Moreover, similar proportions of Gen X women and Baby Boomers report that their family responsibilities interfere with their work. Further analysis (results not shown) shows that approximately one-third of both women and men Boomers, and one quarter of Gen X women report family-to-work conflict, whereas virtually none of the Gen X men do. One interpretation of these results may be that Boomer parents are more likely to perceive and perhaps even resent non-work responsibilities interfering with their careers and career success. In contrast, Gen Xers may welcome the integration of their work and family lives and may be less likely to perceive the interaction between the two as a negative "interference". Further research should examine the extent to which the two generations have positive or negative attitudes towards the work-family interface and the interaction between their two life domains.

The results also suggest that young female physicians are experiencing slightly greater challenges in terms of balancing their lives, particularly with respect to family responsibilities interfering with work and having the time to do the things they want. There are several reasons why becoming a mother can make combining a balanced life with a satisfying career very difficult for professional women. One is that women professionals generally, and women doctors specifically, are more likely to have a spouse with a similarly demanding professional career, whereas male professionals and doctors are more likely to have spouses with less demanding jobs [23,42]. This results in greater work-family conflict for professional women because they still retain a majority of the responsibility for household and family demands, even when they work comparable hours as their husbands.
[23,40,42]. For example, a recent study shows that male physicians perform only 19% of childcare duties and 26% of household duties whereas female physicians perform two-thirds of both [43]. These findings are consistent with those reported elsewhere [44,45]. In addition, women are still expected to put family before career, while society does not place the same expectations on men [17]. On the contrary, men in professional careers are expected to place their priority on their careers as they fulfill the "male breadwinner role" and their wives, regardless of whether they are professionals or not, primarily care for the household and family.

Women in medicine make different adjustments to manage the challenges of combining family life and a medical career [19,23]. Some mothers strive to "have it all" or "satisfice" [46] by attempting to achieve success in both their careers and family, without choosing one over the other. This often results in feelings of role overload, conflict and a general sense of imbalance as mothers attempt to satisfy two competing sets of demands and responsibilities. Other mothers "scale back" [47] their careers by significantly reducing their work hours and responsibilities. As indicated above, women are more likely to work part-time than men and the primary reason is in order to better balance work and family. As Budig and England [48] suggest, however, following the theory of compensating differentials, mothers may trade off certain job rewards, such as higher wages or career advancements, for jobs that make it easier to combine work and family. Thus, work-life balance for women often has economic and career costs that may take the form of forgone wages and delayed career advancement [49]. Those who work full time and sacrifice their family life are generally viewed as committed to their careers, and those who work part time and give priority to their family are seen to be less committed [21]. Whereas men and members of the earlier generations tended to do the former, women and members of the younger generations tend to do the latter, thereby confounding the shift in generational attitudes with gender and contributing to the attitudinal rift between the generations [50,51].

**Conclusion**

In this paper, we empirically investigated two recent generations of physicians' and both genders' attitudes towards patient care and work-life balance, and this is an important contribution. By combining qualitative and quantitative data to study the generation shift and gender shift in medicine, we demonstrated that typical, widely held assumptions are not necessarily accurate or reflective of any significant differences in the actual work attitudes or behaviours of physicians from these groups. Future research should examine a broader range of work attitudes and experiences (e.g., career commitment, sense of job security, attitudes and use of technology). As well, it would be interesting to explore whether similar patterns observed between the current generations are repeated as the new Generation Y begins to enter the workforce in larger numbers.

**Competing interests**

The author(s) declare that they have no competing interests.

**Authors’ contributions**

EJ, JW and JL contributed equally to the writing of this paper.

JL and JW jointly conceived the idea for the study and drafted the measurement instruments.

EJ collected and analysed the interview data and did the quantitative analysis.

JW collected the quantitative data and was responsible for data entry.

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