

Original Article

Wellness in Canadian paediatric residents and their program directors

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Abstract

Purpose: This study aimed to explore the prevalence of and identify risk factors for depression and burnout in paediatric residents and paediatric program directors (PDs) in Canada.

Methods: Residents and PDs completed separate anonymous online surveys consisting of demographic questions, the Maslach Burnout Inventory and the Patient Health Questionnaire-2, which screens for risk of depression.

Results: A total of 166 paediatric residents completed the survey representing 14/17 Canadian paediatric residency programs. Participants were 74% female. Twenty-four (14%) were at risk of depression and 69 (42%) met criteria for burnout. Burnout was associated with year of residency ($P=0.03$), with third year residents at highest risk. Residents who reported unhelpful wellness curricula were at risk of burnout (81.3%) compared with those with no wellness curricula (51.1%) or curricula reported as helpful (29.1%, $P=0.01$). More than 79% of residents at risk of depression also met criteria for burnout ($P=0.01$). No associations were identified for risk of depression.

Seventeen of 21 Canadian PDs completed the survey. No PDs were identified as at risk for depression. Five PDs (29%) met criteria for burnout.

Conclusions: Paediatric PDs in Canada have relatively low rates of burnout and depression. In contrast, a large number of Canadian paediatric residents met criteria for burnout. Residents in programs with wellness curricula described as helpful are at lowest risk of burnout. Future research should include identifying features that define helpful wellness curricula and exploring interventions to help residents at risk of burnout and depression.

Keywords: *Burnout; Depression; Internship and residency; Professional; Wellness.*

The physical and mental well-being of physicians has become an increasingly important issue in recent years. Provincial and national restrictions on resident work-hours have been implemented in the hopes of increasing resident wellness and patient safety. The importance of physician wellness has been identified in the 2015 CanMEDS Milestone guide, which suggests that physicians should contribute to a positive work environment by promoting a culture of wellness (1). Many residency programs have introduced mental health and wellness teaching into their regular curriculum to address these concerns.

The term burnout can be defined as a state of mental and physical exhaustion related to work or, for the medical profession, to caregiving activities (2). It is characterized by the triad of emotional exhaustion, depersonalization and reduced personal accomplishment (3). Depression is a psychiatric diagnosis described in the Diagnostic and Statistical

Manual of Mental Disorders, Fifth Edition (DSM-V) (4). Affected individuals display a number of symptoms including depressed mood and loss of interest or pleasure.

Burnout and depression negatively impact both individual physicians and the patients for whom they care. Burnout states increase the risk for depression and suicidal ideation, plans and attempts (6,7) and may also lead to increased alcohol and drug use (8,9). Patients cared for by burnt out physicians report lower satisfaction and have longer postdischarge recovery times (10). Additionally, studies have found a link between burnout or depression states and medical errors (11–13).

The prevalence of burnout and depression in resident physicians in various specialties has been investigated in several studies. Burnout prevalence rates range from 4.3% (14) to 76% (15). Rates of depression are similarly wide-ranging, between 7% and 56% (16–18).

Few studies have addressed well-being in medical educational leaders. Results have been conflicting, with some studies finding high rates of burnout and depression (19–21) and others finding similar or lower rates compared with other medical professionals (22,23).

There are few studies addressing wellness in paediatric residents and none targeting Canadian paediatric residents. As well, no studies have used validated tools to assess wellness in paediatric program directors (PDs). This study aimed to explore the prevalence and identify risk factors for depression and burnout in paediatric residents and paediatric PDs in Canada.

METHODS

Residents and PDs were recruited through the Canadian Pediatric Program Directors Research Group. PDs of all 17 Canadian paediatric postgraduate programs were contacted and asked to forward to their residents an introductory letter and link to an anonymous online survey. PDs and associate PDs were recruited via a separate email including an introductory letter and link to a separate anonymous online survey. PD surveys were completed in December 2013 and resident surveys in January 2014.

Surveys for both groups were in English and consisted of demographic questions, and questions to assess risk of depression and burnout. Residents were asked to identify whether or not their residency program had a formal wellness curriculum and, if so, whether they found this to be helpful. Surveys took approximately 15 min to complete.

Risk of depression was assessed via the 2-item Patient Health Questionnaire-2 (PHQ-2) (5). Respondents were posed two screening questions related to their mood over the past 2 weeks and asked to respond either 'not at all' (0 points), several days (1 point), more than half the days (2 points) or nearly every day (3 points). Respondents screened positive for risk of depression if they achieved a score of three or more on the PHQ-2, based on data from one large study, which found that PHQ-2 scores of three or higher had 83% sensitivity and 92% specificity for major depression (24).

Burnout was diagnosed based on the Maslach Burnout Inventory (MBI). The MBI is scored in three subcategories: emotional exhaustion, depersonalization and personal accomplishment. Scores are compared with normative scores for health care professionals and categorized as low, medium or high. A high score in the emotional exhaustion or depersonalization subcategories is considered diagnostic of burnout (25). Survey results were entered into SPSS version 22.0 for analysis (IBM Corp., Armonk, NY) Bivariate analyses were conducted via chi-square or Fisher's exact test for categorical variables and Mann-Whitney U test for continuous variables.

After collection of these data, a separate questionnaire was sent to each paediatric PD in order to obtain baseline demographic information about the paediatric resident cohort for comparison.

This study was approved by the Queen's University Affiliated Teaching Hospitals Research Ethics Board. Participation in the survey was voluntary. Consent was implied if a resident or a PD submitted the survey.

RESULTS

One hundred and sixty-six paediatric residents completed the survey, representing 14 of the 17 paediatric residency programs in Canada. At the time of the survey, there were estimated to be 643 paediatric residents in training in Canada, although that number may not account for residents taking leaves of absence. According to these numbers, the response rate was therefore 26%. Demographic information is shown in Table 1. In order to preserve anonymity for residents in smaller residency programs, results were not analyzed by program.

Seventeen paediatric PDs and associate PDs completed the survey. Results of PDs and associate PDs were analyzed together. Surveys were sent to a total of 21 PDs or associated PDs giving a response rate of 81%. Demographic information is shown in Table 1.

Table 1. Demographic characteristics of participants

Resident data (n=166)	
Sex, n (%)	
Male	43 (26)
Female	123 (74)
Age, years, median (interquartile range)	27.5 (4.0)
Canadian medical school graduates, n (%)	143 (86)
International medical school graduates, n (%)	23 (14)
Year of residency, n (%)	
PGY-1	56 (34)
PGY-2	48 (29)
PGY-3	45 (27)
PGY-4	17 (10)
Marital status, n (%)	
Single/divorced/widowed	90 (54)
Married/common law	76 (46)
Children, n (%)	
One or more	21 (13)
No children	145 (87)
Program director data (n=17)	
Sex, n	
Male	4
Female	13
Age, years, median (range)	46 (36–55)
Marital status, n	
Single/divorced/widowed	2
Married/common law	15
Children, n	
One or more	12
No children	5
Years as program director, n (range)	3.75 (0.25–8.5)
Hours worked per week, mean (range)	54 (20–90)
Residents in program, n	
≤25	5
26–45	8
≥46	4
Residents currently undertaking remediation, n	
0	8
1	5
2	3
3	1

Sixteen out of 17 paediatric residency programs also provided baseline resident demographic information. The residents who responded to the survey were generally representative of the resident cohort as a whole. Specifically, the number of female respondents (74% versus 79%) and number of Canadian medical graduates (CMG) residents (86% versus 85%) were similar. Slightly more PGY-1 residents responded to our survey (34 versus 27%) and slightly fewer PGY-4 residents responded (10 versus 17%). PGY-2 respondents were similar (27% versus 29%) as were PGY-3 respondents (29% versus 27%).

Among the respondents, 24 residents (14%) were identified as being at risk for depression. Sixty-nine residents (42%) met criteria for burnout (Table 2). Females had a trend toward a higher rate of burnout, although this was not statistically significant ($P=0.08$). Burnout was associated with year of residency, with post hoc analysis revealing PGY-3 residents reporting statistically significantly higher rates of burnout than residents in any other year. Residents who identified

Table 2. Bivariate associations between resident demographic characteristics and burnout

Demographic characteristic	Meets criteria for clinical burnout		
	Yes n=69	No n=97	P value
Sex			
Female	56 (46)	67 (54)	0.08
Male	13 (30)	30 (70)	
Year of residency*			
1	16 (29)	40 (71)	0.00004
2	19 (40)	29 (60)	0.01
3	26 (58)	19 (42)	Reference
4	7 (42)	10 (58)	0.02
Perceived presence of and helpfulness of formal resident wellness curriculum			
Program has wellness curriculum and has been helpful	18 (29)	44 (71)	0.001
Program has wellness curriculum but has not been helpful	25 (81)	6 (19)	
Program does not have wellness curriculum	23 (51)	22 (49)	
Unsure if program has a wellness curriculum	17 (34)	33 (66)	
Meets screening cut-off for depression			
Yes	19 (79)	5 (21)	<0.0001
No	50 (35)	92 (65)	
Feels stressed over current financial situation			
Yes	34 (43)	45 (57)	0.71
No	35 (40)	52 (60)	
Median length of daily commute, minutes			
15	15		0.64
Residency program has alternative call system			
Yes	43 (45)	52 (55)	0.26
No	26 (37)	45 (63)	
Average call frequency			
Once every 4 nights	17 (35)	31 (65)	0.61
Once every 5 nights	24 (45)	29 (55)	
Once every 6 nights	14 (38)	23 (62)	
Once every 7 nights	9 (56)	7 (44)	
Less than once every 7 nights	5 (42)	7 (58)	
Number of months in past year spent on mandatory rotations away from city/town of residence			
0	29 (40)	43 (60)	0.63
1	21 (38)	35 (62)	
2	14 (52)	13 (48)	
≥3	5 (46)	6 (54)	

Data presented as n (%) unless otherwise indicated.

*Post hoc analysis.

that their residency program had a wellness curriculum in place but described the curriculum as 'unhelpful' were more likely to meet criteria for burnout, compared with those who reported their program had no formal wellness curriculum or those who described formal wellness curricula as being 'helpful'. Burnout was highly associated with risk of depression, with 79.2% of respondents who were identified as at risk for depression also meeting criteria for burnout ($P < 0.0001$). The following factors were not associated with burnout: marital status, children, being an international medical graduate, stress over finances, median length of daily commute, presence of an alternative call system, average call frequency and number of months spent on mandatory away rotations.

No associations were identified for residents at risk for depression, possibly due to low prevalence.

No PDs were identified as being at risk for depression. Five PDs (29%) met criteria for burnout. No associations were identified via bivariate analysis for PDs who met criteria for burnout.

DISCUSSION

To our knowledge, this is the first study addressing burnout and depression in Canadian paediatric residents and paediatric residency PDs.

We found that 42% of residents in our study met criteria for burnout. This prevalence is similar to a recent study of US paediatric residents, where 46% of participating residents met criteria for burnout by midway through their first year of residency (26). Fahrenkopf et al. found much higher rates of burnout in American paediatric residents in 2008, with 76% of residents meeting criteria for burnout (13). The reason for this discrepancy is unclear. It is possible that Canadian paediatric residents are generally less burnt out than their American counterparts. Although our sample was similar to the resident cohort as a whole, PGY-4 residents were under-represented. It is possible that PGY-4 residents are more burnt out, thus leading to under-estimation of burnout prevalence in our sample. A 2004 study by Martini et al. compared burnout rates among different specialties. The overall prevalence of burnout in this study was 50%, a rate similar to our finding of 42%. Burnout rates ranged from 27% in family medicine to 75% in obstetrics and gynecology (27).

Depression in resident physicians has not been as rigorously studied as burnout. We found that 14% of residents who responded to our survey were at risk for depression based on the PHQ-2 screening questionnaire. Fahrenkopf et al. in 2008 found 25% of American paediatric residents were at risk for depression. Studies of other specialties have found risks of depression ranging from 7 to 56% (16–18).

Our study found a trend toward a higher rate of burnout in females as compared with males, although this was not statistically significant. Previous studies on the effect of gender on burnout have shown conflicting results, with some studies finding higher rates in males and others finding higher rates in females (11,15). Females make up the large majority of paediatric residents in Canada and it is interesting to consider whether the over-representation of females in paediatrics residency programs has any effect of rates of burnout in males and females. Further research is required in this regard.

We found that burnout was associated with year of residency, with third year paediatric residents having the highest rate of burnout. Pantaleoni et al.'s longitudinal study of American paediatric residents, found that burnout prevalence increased significantly from the start of residency to midway through the first year, with rates remaining relatively steady after that time (26). Other studies have found higher rates of burnout in first year residents as compared with upper year residents (15). The reason for increased burnout in third year residents in our study is unclear. We hypothesize that the reasons are multifactorial and may include cumulative years of onerous call schedules, stress regarding starting subspecialty fellowships after PGY-3 year and realization that their examinations are upcoming. Residents in third year may also be feeling burdened by a perception of increased expectations from coworkers and attending physicians and may be experiencing personal stresses with regards to career and family planning.

A unique finding of our study was the association of burnout with the perceived presence and helpfulness of a formal resident wellness curriculum within the residency program. To our knowledge, this has not been investigated previously. We found that residents who identified the presence of a helpful wellness curriculum had the lowest rates of burnout. In contrast, residents who identified an unhelpful wellness curriculum had the highest rates of burnout. We hypothesize that residents who are feeling most burnt out might have more difficulty identifying helpful resources, and/or fail to appreciate their benefit, thus perceive the formal wellness curricula to be unhelpful. More research is needed to ascertain how these at risk individuals can be identified and helped.

Our study confirmed previous research showing an association between burnout and other mental health problems (11,15,28). Burnout was highly

associated with risk of depression with almost 80% of residents at risk for depression also meeting criteria for burnout. This is an important association, as those trying to help at-risk residents should be aware that they may be struggling with impairments beyond those caused solely by burnout syndrome.

In general, our study found lower rates of burnout and depression in Canadian paediatric PDs as compared with other educational leaders. Twenty-nine per cent of participants met criteria for burnout, as compared with 62% of internal medicine clerkship directors (7), 47% of medical school deans (20) and 52% of anesthesiology PDs (21). This is the first study using validated screening questionnaires to assess paediatric PDs specifically. The lower rate of burnout and depression in our study could be explained in several ways. First, it is possible that paediatric PDs experience lower rates of burnout than other educational leaders. One might presume that paediatric clinical work, which is characterized by generally favourable clinical outcomes and lower rates of morbidity and mortality, might be associated with less burnout and depression than other specialties. Additionally, the majority of research on wellness in medical educational leaders has been US-based. It is possible that medical education leaders in Canada have lower rates of burnout. Finally, our population included a small sample size, so data may not be reliable. Further research is needed to confirm the prevalence of burnout and risk of depression in paediatric PDs and Canadian medical educational leaders.

Our study has a number of important limitations. Our resident response rate was relatively low at 26% and it is possible that those at most significant risk for burnout or depression may have been over- or under-represented in our sample. The cross-sectional design of this study is a limitation, and does not allow us to make firm conclusions regarding the rates of burnout and depression over time. The instruments themselves pose limitations. The MBI is the standard instrument for diagnosing burnout, however the definition of burnout varies from study to study. The PHQ-2 is not diagnostic of depression but identifies those individuals at highest risk. Thus it is possible that our study over or underestimated the true prevalence of major depression.

Despite these limitations, our study benefited from a relatively large sample size of paediatric residents from across Canada, making our data more generalizable than a single-institution study. Our study offers new insights into the prevalence and associations of burnout and estimated risk of depression in Canadian paediatric residents. There is a need for additional research to assess depression and burnout in paediatric residents longitudinally to further elucidate risk factors so that at-risk residents can be more readily identified. More importantly, it is crucial to investigate the most effective ways to help these residents, including evaluation of interventions aimed to improve resident wellness.

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