

# Workplace aggression in clinical medical practice: associations with job satisfaction, life satisfaction and self-rated health

**Danny Hills**

BN, MN(Hons), PhD  
Assistant Professor in Nursing<sup>1</sup>

**Catherine M Joyce**

BA(Hons), MPsych, PhD  
Head, Health Services  
Research Unit<sup>2</sup>

<sup>1</sup>Faculty of Health,  
University of Canberra,  
Canberra, ACT.

<sup>2</sup>Department of  
Epidemiology and  
Preventive Medicine,  
Monash University,  
Melbourne, VIC.

danny.hills@  
canberra.edu.au

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**W**orkplace aggression is a prevalent phenomenon, particularly in health care work.<sup>1,2</sup> In clinical medical practice, aggression prevalence rates of up to 75% for non-physical forms and 33% for physical forms in the previous 6, 12 or 24 months have been reported.<sup>3,4</sup> In our earlier Australian research, workplace aggression was found to be most prevalent among the younger and primarily hospital-based non-specialists and specialists in training.<sup>4</sup> Additionally, it was found to be associated with clinicians who have a greater external control orientation, work a greater number of and more unpredictable hours, feel they have a poor support network of other doctors like them, and consider most of their patients to have complex health and social problems and unrealistic expectations of how the clinician can help them.<sup>5</sup>

Few studies have investigated the likely consequences of workplace aggression for medical clinicians, mostly related to patient aggression.<sup>3</sup> Clinicians who have been exposed to such aggression have reported experiencing feelings of vulnerability or inadequacy,<sup>6</sup> diminished confidence or enthusiasm for treating patients,<sup>7,8</sup> and lower job satisfaction and higher psychological stress<sup>9</sup> than those not exposed. Aggression-related apprehension has been reported as resulting in general practitioners restricting patient access to services, including by raising consultation fees or refusing to take new patients, and through partial or complete withdrawal of after-hours services.<sup>10,11</sup> There has been little research investigating the differential impact of aggression from internal sources (co-workers) as compared with external sources (patients, patients' relatives or carers and others).

One approach to understanding the likely effects of workplace aggression on clinicians is to consider aggressive behaviour as the stressor,

## Abstract

**Objective:** To determine the likely impact of aggression from internal sources (co-workers) and external sources (patients, patients' relatives or carers and others) on Australian medical clinicians in the previous 12 months.

**Design and setting:** An exploratory, descriptive study using cross-sectional survey design, conducted in the third wave of the Medicine in Australia: Balancing Employment and Life longitudinal survey (1 March 2010 to 30 June 2011).

**Participants:** 9449 Australian clinical medical practitioners, comprising 3515 general practitioners and GP registrars, 3875 specialists, 1171 hospital non-specialists and 888 specialists in training.

**Main outcome measures:** Logistic regression was used to determine associations between workplace aggression exposure and intrinsic job satisfaction, satisfaction with life and self-rated health.

**Results:** In fully adjusted models, exposure to internal aggression was negatively associated with intrinsic job satisfaction (odds ratio [OR], 0.59; 95% CI, 0.53–0.66), satisfaction with life (OR, 0.67; 95% CI, 0.60–0.76) and self-rated health (OR, 0.86; 95% CI, 0.77–0.96). Exposure to external aggression was also negatively associated with intrinsic job satisfaction (OR, 0.75; 95% CI, 0.67–0.84), satisfaction with life (OR, 0.87; 95% CI, 0.78–0.98) and self-rated health (OR, 0.83; 95% CI, 0.74–0.92).

**Conclusions:** The likely impact of workplace aggression on clinician wellbeing may extend to adverse consequences for care quality, safety and access. More concerted efforts to prevent and minimise workplace aggression are required.

the immediate physiological and psychological reactions as the stress, and the medium- and longer-term consequences as the strain.<sup>12</sup> From this perspective, exposure to workplace aggression increases role strains and, as a consequence, individual vulnerabilities to poorer health, wellbeing and functioning. In this study, therefore, we aimed to determine the extent to which workplace aggression from internal and external sources was associated with job satisfaction, health status and life satisfaction in a large sample of medical practitioners providing clinical services in Australia.

## Methods

This exploratory, cross-sectional study of workplace aggression in Australian clinical medical practice was conducted in the third wave of the annual Medicine in Australia: Balancing Employment and Life (MABEL) longitudinal survey, between 1 March 2010 and 30 June 2011. As previously reported, 16327 GPs and GP registrars, specialists,

specialists in training and hospital non-specialists were surveyed in accordance with the MABEL study protocol.<sup>4,5,13</sup> The sample comprised 12068 contactable respondents from previous waves of the MABEL survey and 4259 clinicians new to, or re-entering, the Medical Directory of Australia by May 2010.<sup>5</sup> Of the total sample, 9449 (57.9%) responded and indicated that they worked in clinical practice in Australia.<sup>4,5,13</sup> Comprising 16% of the Australian clinical medical workforce, the profile of respondents was broadly representative of Australian clinical medical practitioners.<sup>4</sup> The University of Melbourne Faculty of Business and Economics Human Ethics Advisory Group and the Monash University Standing Committee on Ethics in Research Involving Humans approved the conduct of the study.

## Variables employed

The MABEL questionnaires were tailored for each of the four subpopulations (doctor types). Demographic and other profile variables included sex, age, international medical

## 1 Respondent profile variables\*

Variable	Frequency (%)
Doctor type	
GPs and GP registrars	3515 (37.2%)
Specialists	3875 (41.0%)
Hospital non-specialists	1171 (12.4%)
Specialists in training	888 (9.4%)
Total	9449
Sex	
Female	4040 (42.8%)
Total	9438
State or territory	
ACT	177 (1.9%)
NSW	2550 (27.0%)
NT	102 (1.1%)
Qld	1707 (18.1%)
SA	748 (7.9%)
Tas	309 (3.3%)
Vic	2882 (30.5%)
WA	974 (10.3%)
Total	9449
ASGC of remoteness	
Major city	7142 (76.0%)
Inner regional	1493 (15.9%)
Outer regional	542 (5.8%)
Remote and very remote	222 (2.4%)
Total	9399
International medical graduate	
Yes	1878 (20.0%)
Total	9389

ACT = Australian Capital Territory.  
 ASGC = Australian Standard Geographical Classification. GP = general practitioner.  
 NSW = New South Wales. NT = Northern Territory. Qld = Queensland. SA = South Australia. Tas = Tasmania. Vic = Victoria.  
 WA = Western Australia. \* Subject to rounding error. ◆

graduate (IMG) status, and location by state or territory and Australian Standard Geographical Classification (ASGC) of remoteness.<sup>14</sup> Personal control orientation, “the extent to which one regards one’s life-chances as being under one’s own control in contrast to being fatalistically ruled”,<sup>15</sup> was measured with a revalidated, four-item version of the Pearlin Mastery Scale, scored from 1 to 7 on a continuous scale, with higher scores indicating greater external control orientation.<sup>5</sup>

As we have previously described, workplace aggression was defined as:

Any workplace aggression directed toward you in the last 12 months while you were working in medicine (ie, any circumstance or location in which you performed your role as a medical practitioner), including:

- *verbal or written abuse, threats, intimidation or harassment* — such as ridicule, abusive email, racism, bullying, contemptuous treatment and non-physical threats or intimidation; and
- *physical threats, intimidation, harassment or violence* — such as a raised hand or object, unwanted touching, damage to property and sexual or other physical assault.<sup>4,5,13</sup>

Estimates of the frequency of verbal or written and physical aggression experienced from co-workers, patients, patients’ relatives or carers, and others external to the workplace in the previous 12 months were elicited with ordinal response scales, from “not at all” to “frequently (once or more each week)”, with most clinicians indicating that they had experienced aggression “infrequently (a few times in 12 months)” or “not at all”.<sup>4</sup> The aggression prevalence variables were subsequently transformed into binary variables (0 = no, 1 = yes), indicating whether or not respondents had experienced any workplace aggression from internal sources (co-workers) or from external sources (patients, patients’ relatives or carers and others external to the workplace) in the previous 12 months.

Items relating to work hours, conditions and resources, and perceived patient population characteristics have previously been found to be associated with workplace aggression exposure in the previous 12 months.<sup>5</sup> Respondents were asked to indicate the extent to which they agreed or disagreed with four work and patient items (“I have a poor support network of other doctors like me”, “It is difficult to take time off when I want to”, “My patients have unrealistic expectations about how I can help them” and “The majority of my patients have complex health and social

problems”) on a five-point ordinal-response scale (0 = strongly disagree, 1 = disagree, 2 = neutral, 3 = agree, 4 = strongly agree). These were transformed into binary variables about the median to facilitate analysis and interpretation. Two items requested self-reported hours worked in the most recent usual week, excluding on-call work, and hours worked in the most recent usual week in 10 practice settings categories. These provided the basis for an imputed “total hours worked” variable and researcher-developed variables for total hours in the most recent usual week in “public and non-government organisation (NGO) sector work”, “private sector work”, and “residential and aged care sector work”. A small number of outliers reporting more than 120 hours worked per week were excluded from analyses.

The three outcome variables comprised measures of clinician well-being. Respondents were asked to respond to the question “All things considered, how satisfied are you with your life in general?” on a 10-point integer scale with bipolar anchor points (1 = “very dissatisfied”, 10 = “very satisfied”). Self-rated health status was measured by asking respondents “In general, would you say your health is: ‘excellent’ (0), ‘very good’ (1), ‘good’ (2), ‘fair’ (3) or ‘poor’ (4)?”, the scores of which were subsequently reverse-coded. Job satisfaction was measured with a variant of the 10-item short-form version of a 16-item job satisfaction scale,<sup>16</sup> with each item comprising a 5-point scale (0 = very dissatisfied, 1 = moderately dissatisfied, 2 = not sure, 3 = moderately satisfied, 4 = very satisfied). The scale was revalidated in confirmatory factor analysis in the MABEL Wave 3 dataset, with the specification of a latent factor of intrinsic job satisfaction, comprising four items ( $\chi^2 = 1.78$ , 2 degrees of freedom,  $P = 0.41$ ), as described in the Appendix (online at [mja.com.au](http://mja.com.au)). The three outcome variables were binarised around the mean for “intrinsic job satisfaction” (yes,  $> 3.1247$ ; no,  $\leq 3.1247$ ; range, 0–4), and about the median for “satisfaction with life in general” (yes, 8–10; no, 1–7) and “self-rated health” (yes = “excellent”, no = “very good, good, fair or poor”).

## Statistical analyses

Logistical regression modelling was performed for each of the variables of job satisfaction, life satisfaction and self-rated health to identify associations with internal and external workplace aggression exposure. Modelling was undertaken in univariate analyses (Model 1), adjusting for the profile variables only (Model 2) and additionally adjusting for the variables of work hours, conditions and resources, and patient characteristics (Model 3). All statistical analyses were conducted with Stata version 11.2 (StataCorp).

## Results

Respondent profile data are summarised in Box 1. Respondent ages ranged from 23 to 91 years ( $n=9345$ ; mean, 46.4 years; 95% CI, 46.1–46.6 years). Mastery scores ranged from 1 to 7 ( $n=9145$ ; mean, 2.55; median, 2.17; interquartile range [IQR], 1.83–3.17). Binary predictor and outcome variable data are summarised in Box 2. Overall, 2503/9208 medical practitioners (27.2%) reported experiencing internal aggression at work, and 6168/9122 (67.6%) reported experiencing aggression from external sources in the previous 12 months.

Hours worked in the most recent usual week ranged from 0 to 120 hours ( $n=9243$ ; mean, 42.6 hours; 95% CI, 42.3–42.9 hours). Hours worked in public and NGO sector services ranged from 0 to 120 hours ( $n=9126$ ; mean, 20.9 hours; 95% CI, 20.4–21.3 hours), and in private sector services ranged from 0 to 110 hours ( $n=9126$ ; mean, 19.3 hours; 95% CI, 18.9–19.7 hours). Hours worked in residential and aged care sector services ranged from 0 to 58 hours in a somewhat skewed distribution ( $n=9145$ ; mean, 0.51 hours; median, 0).

In univariate analyses (Model 1), exposure to internal aggression was negatively associated with intrinsic job satisfaction ( $n=8989$ ; odds ratio [OR], 0.39; 95% CI, 0.36–0.43), satisfaction with life in general ( $n=8963$ ; OR, 0.49; 95% CI, 0.44–0.53) and self-rated health ( $n=8988$ ; OR, 0.79; 95% CI, 0.72–0.87). Exposure to external aggression was also negatively associated with intrinsic job satisfaction ( $n=8909$ ; OR, 0.47; 95% CI, 0.43–0.51),

satisfaction with life in general ( $n=8877$ ; OR, 0.58; 95% CI, 0.52–0.63) and self-rated health ( $n=8903$ ; OR, 0.78; 95% CI, 0.71–0.85). In Model 2, adjusting for doctor type, sex, age, IMG status, mastery and ASGC of remoteness, internal aggression remained associated with intrinsic job satisfaction ( $n=8593$ ; OR, 0.52; 95% CI, 0.47–0.58), satisfaction with life in general ( $n=8759$ ; OR, 0.62; 95% CI, 0.56–0.69) and self-rated health ( $n=8775$ ; OR, 0.81; 95% CI, 0.73–0.91). In the final logistic regression analyses (Model 3), adjusting for the profile-, work- and patient-related variables, exposure to internal and external workplace aggression in the previous 12 months remained consistently negatively associated with intrinsic job satisfaction, satisfaction with life and self-rated health. Results for Model 3 are summarised in Box 3 (internal aggression) and Box 4 (external aggression).

## Discussion

This study provides important evidence that workplace aggression from internal and external sources is likely to have a negative impact on the wellbeing of clinicians, even when accounting for the effects of a range of personal, work and patient factors. In relation to internal aggression, the results reflect those of research conducted in UK nurses<sup>17</sup> and across professions.<sup>18</sup> In contrast, external aggression has been associated only with lower job satisfaction in UK nurses.<sup>17</sup> While the outcomes of this study highlight the potential risk of aggression from patients, their relatives or carers and other people outside the workplace to clinician wellbeing, the results point to an even greater likely impact of aggression from co-workers on intrinsic job satisfaction and life satisfaction, even when adjusting for all other factors.

There are several possible explanations for the relative strengths of these effects. First, co-worker aggression could be expected to have a greater negative impact because of the greater likelihood of repeated and ongoing exposure to an internal perpetrator, compared with an external perpetrator, and because they are, wholly or in part, organisational or

## 2 Binary predictor and outcome variables\*

Variable	"Yes" outcome
Any internal aggression <sup>†</sup>	2503/9208 (27.2%)
Any external aggression <sup>†</sup>	6168/9122 (67.6%)
Poor support network <sup>‡</sup>	2114/9280 (22.8%)
Difficult to take time off <sup>‡</sup>	3846/9302 (41.3%)
Unrealistic patient expectations <sup>‡</sup>	2897/9185 (31.5%)
Complex patient problems <sup>‡</sup>	6146/9190 (66.9%)
Intrinsic job satisfaction <sup>§</sup>	4646/9125 (50.9%)
Satisfaction with life in general <sup>¶</sup>	5291/9170 (57.7%)
Self-rated health <sup>**</sup>	3385/9195 (36.8%)

\* Subject to rounding error. <sup>†</sup> Yes = "infrequently", "occasionally", "often" or "frequently"; no = "not at all". <sup>‡</sup> Yes = "agree" or "strongly agree"; no = "strongly disagree", "disagree" or "neutral". <sup>§</sup> Yes = "very satisfied", > 3.2147; no = "not very satisfied", ≤ 3.2147; range, 0–4. <sup>¶</sup> Yes = "very satisfied" (8–10); no = "not very satisfied" (1–7); range, 1–10. <sup>\*\*</sup> Yes = "excellent"; no = "very good", "good", "fair" or "poor".

professional insiders.<sup>18</sup> Second, being targeted by those with whom one ostensibly shares the altruistic goals of providing the best possible care may be multiply distressing, particularly for younger and less experienced clinicians, who may not possess the skills or resources to effectively manage aggressive behaviour, especially from more experienced or more senior colleagues.<sup>5</sup>

In contrast, in relation to external aggression, even where ongoing contact with a perpetrator may occur, aggressive behaviour may, at least partially, be excused or understood in the context of the perpetrator's medical condition or psychosocial circumstances, such as in relation to the perpetrator's experience of cognitive impairment or arousal, frustration or distress. Additionally, as external aggression is a relatively common experience in medicine,<sup>4</sup> it may be considered a "normal" feature of clinical work, unwelcome though it may be.<sup>18–20</sup> Further, because aggression from external sources is more visible, individuals and organisations may be better equipped to deal with it than with aggression from co-workers.<sup>17</sup>

Within the stressor–strain framework, individual coping mechanisms and a range of social, environmental and organisational supports may be more readily mobilised to respond to and moderate the impact of external aggression, compared with internal aggression. This may include, at least in some clinical practice contexts,

## 3 Logistic regression models of clinician wellbeing in relation to experiences of internal aggression (Model 3)

Variables	Intrinsic job satisfaction* (n = 7977)		Satisfaction with life in general† (n = 8112)		Self-rated health‡ (n = 8126)	
	OR	95% CI	OR	95% CI	OR	95% CI
Any internal aggression§	0.59 <sup>¶</sup>	0.53–0.66	0.67 <sup>¶</sup>	0.60–0.76	0.86**	0.77–0.96
Doctor type <sup>††</sup>						
Specialists	1.50 <sup>¶</sup>	1.31–1.72	1.16 <sup>‡‡</sup>	1.00–1.34	1.44 <sup>¶</sup>	1.26–1.65
Hospital non-specialists	0.58 <sup>¶</sup>	0.46–0.73	1.08	0.86–1.35	1.06	0.85–1.31
Specialists in training	1.34 <sup>‡‡</sup>	1.06–1.69	0.95	0.75–1.21	1.05	0.84–1.31
Sex <sup>§§</sup>	1.26 <sup>¶</sup>	1.13–1.41	1.06	0.94–1.19	1.06	0.95–1.18
Age <sup>¶¶</sup>	1.02 <sup>¶</sup>	1.02–1.03	1.01**	1.00–1.01	0.97 <sup>¶</sup>	0.96–0.97
International medical graduates***	0.80 <sup>¶</sup>	0.70–0.90	0.83**	0.73–0.95	0.88	0.78–1.00
Mastery (0, internal, to 7, external) <sup>¶¶¶</sup>	0.68 <sup>¶</sup>	0.65–0.71	0.44 <sup>¶</sup>	0.41–0.46	0.61 <sup>¶</sup>	0.59–0.65
ASGC of remoteness <sup>†††</sup>						
Inner regional	1.18 <sup>‡‡</sup>	1.03–1.35	1.10	0.95–1.27	1.11	0.97–1.27
Outer regional	1.46**	1.18–1.82	0.96	0.77–1.20	1.06	0.86–1.31
Remote and very remote	1.29	0.93–1.80	0.95	0.67–1.35	0.83	0.59–1.15
Annual leave taken <sup>¶¶¶</sup>	1.02 <sup>‡‡</sup>	1.00–1.04	1.05 <sup>¶</sup>	1.03–1.07	1.03 <sup>¶</sup>	1.02–1.05
Hours worked in usual week <sup>¶¶¶</sup>	1.00	0.99–1.01	0.99**	0.98–1.00	1.00	1.00–1.01
Hours worked, public and NGO sector services <sup>¶¶¶</sup>	0.99**	0.98–1.00	1.00	0.99–1.01	1.00	0.99–1.00
Hours worked, private sector services <sup>¶¶¶</sup>	1.00	0.99–1.01	1.00	0.99–1.01	1.00	0.99–1.01
Hours worked, residential and aged care sector services <sup>¶¶¶</sup>	1.01	0.98–1.03	1.01	0.98–1.03	1.00	0.97–1.02
Poor support network <sup>‡‡‡</sup>	0.58 <sup>¶</sup>	0.51–0.65	0.67 <sup>¶</sup>	0.59–0.76	0.81**	0.71–0.91
Difficult to take time off <sup>‡‡‡</sup>	0.70 <sup>¶</sup>	0.63–0.78	0.71 <sup>¶</sup>	0.63–0.79	0.83**	0.74–0.92
Unrealistic patient expectations <sup>‡‡‡</sup>	0.65 <sup>¶</sup>	0.59–0.73	0.82**	0.73–0.92	0.99	0.89–1.10
Complex patient problems <sup>‡‡‡</sup>	0.92	0.83–1.03	0.89 <sup>‡‡</sup>	0.79–1.00	0.89 <sup>‡‡</sup>	0.80–0.98

ASGC = Australian Standard Geographical Classification. NGO = non-government organisation. OR = odds ratio. \* > 3.1247 v ≤ 3.2147 (range 0–4). † 8–10 v 1–7 (range, 1–10; 1 = completely dissatisfied, 10 = completely satisfied). ‡ “Excellent” v “very good”, “good”, “fair” and “poor”. § Reference group – “not at all”. ¶ *P* < 0.001. \*\* *P* < 0.01. †† Reference group – “GPs and GP registrars”. ‡‡ *P* < 0.05. §§ Reference group – “male”. ¶¶ Continuous variable. \*\*\* Reference group – “Australian medical graduates”. ††† Reference group – “major city”. ‡‡‡ Reference group – “strongly disagree”, “disagree” and “neutral”. ◆

perpetrators being referred to another clinician or service, or having their service access modified or restricted, such as within the framework of a tailored management plan, or having their service access withdrawn.<sup>10,11</sup> Equivalent options are likely to be less available for the targets of internal aggression.

Although not investigated directly in our study, clinician exposure to workplace aggression may also present a risk to the quality and safety of patient care. There is some evidence of health worker experiences of aggression being associated with lower patient-rated quality of care,<sup>21</sup> self-reported medical errors<sup>22</sup> and diminished work productivity, efficiency and effectiveness.<sup>23,24</sup> There is also some evidence of associations between workplace aggression exposure and decisions to reduce

or terminate workforce participation,<sup>8,17,20</sup> which may ultimately restrict community access to quality medical care. In totality, the extent to which workplace aggression may impact on individual clinicians and medical outcomes highlights the need to implement and evaluate strategies to more effectively prevent and minimise workplace aggression in clinical practice settings.<sup>13</sup>

There were several limitations to this study. Self-reported data were obtained from a cross-section of medical practitioners, which may have limited the reliability of some responses. Additionally, the attribution or direction of causality could not be determined. For example, reverse causality, whereby clinicians experiencing diminished wellbeing may be more likely to attribute the behaviours of others as aggressive or

provoke aggressive responses from others, cannot be ruled out. Further, other factors not included in the modelling may also be associated with wellbeing, such as workplace characteristics. While a definition of workplace aggression was provided, survey responses were subject to clinicians' perceptions of their experiences.

The strengths of this study are that data were drawn from a large sample of clinical practitioners in Australia, sampling biases were minimal and the profile of respondents was broadly representative of the national population. In relation to the survey instrument, the workplace aggression items were a small component of the MABEL questionnaires, limiting self-selection bias by those who had experienced aggression. In addition, aggression questionnaire items

## 4 Logistic regression models of clinician wellbeing in relation to experiences of external aggression (Model 3)

Variables	Intrinsic job satisfaction* (n = 7912)		Satisfaction with life in general† (n = 8044)		Self-rated health‡ (n = 8059)	
	OR	95% CI	OR	95% CI	OR	95% CI
Any external aggression <sup>§</sup>	0.75 <sup>¶</sup>	0.67–0.84	0.87**	0.78–0.98	0.83 <sup>¶</sup>	0.74–0.92
Doctor type <sup>††</sup>						
Specialists	1.39 <sup>¶</sup>	1.21–1.59	1.12	0.97–1.29	1.41 <sup>¶</sup>	1.23–1.61
Hospital non-specialists	0.55 <sup>¶</sup>	0.44–0.69	1.05	0.83–1.31	1.03	0.83–1.28
Specialists in training	1.25	0.99–1.57	0.92	0.73–1.17	1.02	0.81–1.28
Sex <sup>††</sup>	1.23 <sup>¶</sup>	1.10–1.38	1.04	0.93–1.17	1.06	0.95–1.18
Age <sup>§§</sup>	1.02 <sup>¶</sup>	1.01–1.03	1.01 <sup>¶¶</sup>	1.00–1.02	0.97 <sup>¶</sup>	0.96–0.97
International medical graduate <sup>***</sup>	0.80 <sup>¶¶</sup>	0.71–0.91	0.84 <sup>¶¶</sup>	0.73–0.95	0.88**	0.78–1.00
Mastery (0, internal, to 7, external) <sup>§§</sup>	0.67 <sup>¶</sup>	0.64–0.70	0.43 <sup>¶</sup>	0.41–0.46	0.62 <sup>¶</sup>	0.59–0.65
ASGC of remoteness <sup>†††</sup>						
Inner regional	1.14	0.99–1.30	1.09	0.94–1.26	1.10	0.96–1.26
Outer regional	1.43 <sup>¶¶</sup>	1.15–1.77	0.97	0.77–1.21	1.04	0.84–1.29
Remote and very remote	1.27	0.91–1.77	0.95	0.67–1.35	0.85	0.61–1.20
Annual leave taken <sup>§§</sup>	1.02	1.00–1.03	1.04 <sup>¶</sup>	1.02–1.06	1.04 <sup>¶</sup>	1.02–1.05
Hours worked in usual week <sup>§§</sup>	1.00	0.99–1.01	0.99 <sup>¶¶</sup>	0.98–1.00	1.00	1.00–1.01
Hours worked public and NGO sector services <sup>§§</sup>	0.99 <sup>¶¶</sup>	0.98–1.00	1.00	0.99–1.01	1.00	0.99–1.00
Hours worked private sector services <sup>§§</sup>	1.00	1.00–1.01	1.00	0.99–1.01	1.00	0.99–1.01
Hours worked, residential and aged care sector services <sup>§§</sup>	1.00	0.98–1.03	1.01	0.98–1.03	1.00	0.97–1.02
Poor support network <sup>†††</sup>	0.58 <sup>¶</sup>	0.51–0.65	0.67 <sup>¶</sup>	0.59–0.76	0.80 <sup>¶¶</sup>	0.71–0.91
Difficult to take time off <sup>†††</sup>	0.69 <sup>¶</sup>	0.62–0.77	0.71 <sup>¶</sup>	0.63–0.79	0.84 <sup>¶¶</sup>	0.75–0.93
Unrealistic patient expectations <sup>†††</sup>	0.68 <sup>¶</sup>	0.61–0.76	0.82 <sup>¶¶</sup>	0.73–0.92	0.99	0.89–1.11
Complex patient problems <sup>†††</sup>	0.94	0.84–1.05	0.89	0.80–1.00	0.91	0.82–1.01

ASGC = Australian Standard Geographical Classification. NGO = non-government organisation. OR = odds ratio. \* > 3.1247 v ≤ 3.2147 (range, 0–4). † 8–10 v 1–7 (range, 1–10; 1 = “completely dissatisfied”, 10 = “completely satisfied”). ‡ “Excellent” v “very good”, “good”, “fair” or “poor”. § Reference group — “not at all”. ¶ P < 0.001. \*\* P < 0.05. †† Reference group — “GPs and GP registrars”. ††† Reference group — “male”. §§ Continuous variable. ¶¶ P < 0.01. \*\*\* Reference group — “Australian medical graduates”. †††† Reference group — “major city”. ††††† Reference group — “strongly disagree”, “disagree” and “neutral”. ◆

elicited estimates of exposure in an explicit frequency range, minimising recall bias and maximising response accuracy.<sup>25</sup> All other questionnaire items represented perceptions or estimates of frequency.

Workplace aggression is a prevalent problem in clinical medical practice and the consequences may be considerable. It is a major professional and health workforce policy concern, in terms of occupational health and safety, and the potential impact on care quality, safety and access. The results of this research provide further evidence to support more concerted efforts to prevent and minimise workplace aggression, and its impact, in medical practice settings. Additionally, the results provide a baseline for further research on the consequences of workplace

aggression in Australian clinical medical practice.

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