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"It feels like being trapped in an abusive relationship": bullying prevalence and consequences in the New Zealand senior medical workforce, a cross-sectional study

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Complete List of Authors:	Chambers, Charlotte; The Association of Salaried Medical Specialists, Frampton, Chris; University of Otago Christchurch McKee, Martin; London School of Hygiene and Tropical Medicine Barclay, Murray; University of Otago Christchurch, Gastroenterology
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Title: "It feels like being trapped in an abusive relationship": bullying prevalence and consequences in the New Zealand senior medical workforce; a cross-sectional study

Corresponding author: Charlotte N. L. Chambers, Ph.D., MSc
Principal Analyst, Association of Salaried Medical Specialists
PO Box 10763, Wellington, 6143, New Zealand
Email: CC@asms.nz
Phone: 0064 4 499 1271
Fax: 0064 4 499 4500

Co-authors: Christopher M.A. Frampton, Ph.D., BSc,
Professor, University of Otago, Christchurch, New Zealand

Martin McKee, CBE MD DSc FMedSci
Professor, London School of Hygiene and Tropical Medicine, London, United Kingdom

Murray Barclay, MD, FRACP, AGAF
Clinical Professor, University of Otago, Christchurch, New Zealand

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ABSTRACT

Objectives: To estimate prevalence of and factors contributing to bullying amongst senior doctors and dentists in New Zealand's public health system, to ascertain rates of reporting bullying behaviour, perceived barriers to reporting and the effects of bullying professionally and personally.

Design: Cross-sectional, mixed methods study.

Setting: New Zealand.

Participants: 1759 of 4307 members of the Association of Salaried Medical Specialists (40.8% response rate).

Main outcome measures: Prevalence of bullying was measured using the Negative Acts Questionnaire (revised) (NAQ-r). Workplace demands and level of peer and managerial support were measured with the Health and Safety Executive (HSE) Management Standards Analysis tool. Categories of perpetrators for self-reported and witnessed bullying and barriers to reporting bullying were obtained and qualitative data detailing the consequence of bullying were analysed thematically.

Results: The overall prevalence of bullying, measured by the NAQ-r, was 38% (at least 1 negative act on a weekly or daily basis), 37.2% self-reported and 67.5% witnessed. There were significant differences in rates of bullying by specialty (p=0.001) with emergency medicine reporting the highest bullying prevalence (47.9%). The most commonly cited perpetrators were other senior medical or dental specialists. 69.6% declined to report their bullying. Bullying across all measures was significantly associated with increasing work demands and lower peer and managerial support (p=0.001). Consequences of bullying were wide ranging, affecting workplace environments, personal well-being and subjective quality of patient care.

Conclusions: Bullying is prevalent in New Zealand's senior medical workforce and is associated with high workloads and low peer and managerial support. These findings help identify conditions and pressures that may encourage bullying and highlight the significant risk of bullying for individuals and their patients.

ARTICLE SUMMARY

Strengths and limitations of the study:

- This is the first study to report prevalence of bullying through an analysis of the NAQ-r in a multi-specialty nationwide survey of medical specialists in any country.
- It contributes to the scant literature on senior medical professionals as victims of bullying.
- The strong association between bullying, increasing work demands and low peer and managerial support extends the understanding of bullying as a multicausal phenomenon as well as suggesting opportunities for mitigation.
- The limitations of this study include a moderate participation rate, self-reported data and the cross-sectional design with its limitations for causal inference.

INTRODUCTION

Workplace bullying in medicine is a cause of on-going concern in several countries. Described as the most 'destructive phenomenon plaguing medical culture'[1] it poses significant risks to patient safety and quality of patient care[2], staff morale and job satisfaction[3] and the physical and psychological wellbeing of doctors and their co-workers[4,5].

Workplace bullying is defined as an escalating process where individuals repeatedly and over a period of time experience negative actions and behaviours from the people they encounter at work[6,7]. Bullying behaviours may range from overt aggression and violence to subtle and indirect acts. The intent of the behaviour(s) is not the primary consideration; it is the impact on and perception of the victim that is key in determining whether or not bullying has occurred[8,9].

The antecedents of workplace bullying are many and complex. The high rates of bullying experienced by junior doctors and trainees, for example, have been ascribed to the hierarchical model of medical training with bullying described as a necessary but unpleasant 'rite of passage'[1,10]. Factors known to encourage bullying include stressful and demanding work environments[11] competitive and unsupportive workplace cultures [8] and normalisation of incivility and rudeness in common conduct[12].

Research commissioned by the Royal Australasian College of Surgeons (RACS) in 2015 found almost half of all surgeons in New Zealand and Australia had experienced some form of inappropriate behaviour, with trainees reporting the highest reported levels of bullying amongst those surveyed[13]. Surgical directors or consultants were found to be the main perpetrators. Much less is known about the prevalence and consequences of bullying experienced by consultants and specialists in other specialities. In the New Zealand context, specialists are defined as any medical practitioner who is vocationally registered by the Medical Council of New Zealand in an approved branch of medicine. Of the known studies that have focussed on senior doctors, the focus has been on bullying prevalence in specific medical specialties for example, Australian general surgery consultants[14], Australasian fellows of the college of intensive care medicine[15] or obstetrics and gynaecology consultants working in the British National Health Service (NHS)[16].

To the best of the authors' knowledge, no studies to date have specifically assessed the prevalence of bullying in medical specialists in a multispecialty, multicentre nationwide survey. This study addresses this knowledge gap by investigating the prevalence of bullying amongst senior doctors and dentists of different specialties working in New Zealand's public health system. The study also explores correlates of experiencing negative behaviours, including medical specialty, gender and ethnicity as well as perceived levels of workplace demands and support from peers and non-clinical managers. Finally, the study examines the nature and extent of barriers to formally reporting bullying behaviour as well as the consequences of bullying on the professional and personal lives of respondents.

METHODS

Participants

Participants were members of the Association of Salaried Medical Specialists (ASMS) who are medical and dental specialists, and other non-specialist registered medical officers, employed by New Zealand's 20 District Health Boards (DHBs) and other medical employers around the country such as the national blood service and community health providers. DHBs provide inpatient and outpatient healthcare for geographically defined populations within New Zealand's health system and are the main employers of health professionals working in the public sector. The ASMS is the professional association and union for senior doctors and dentists in New Zealand. For ease of description, these ASMS members are referred to as medical specialists or as the senior medical workforce. At the time of the survey the ASMS represented over 90% of all senior doctors and dentists and other non-vocationally registered medical specialists employed within New Zealand's DHBs and approximately 77% of non-DHB employers.

The entire ASMS membership (4307 individuals) was invited by email to participate voluntarily in an anonymous electronic survey in June 2017. The survey was open for 1-month and 4 reminders were sent out to encourage participation. Demographic information, including age, gender, main place of work, ethnicity, and country of primary medical qualification, was requested, summarised and described.

Measures

Prevalence of workplace bullying was measured with the negative acts questionnaire (revised) (NAQ-r), developed by Einarsen, et al. [17]. The NAQ-r is accepted as a robust tool to quantify bullying in international contexts as it combines both an operational approach to establishing bullying prevalence as well as a single item measure of perceived victimisation[18]. The first part of the NAQ-r scores how often respondents have experienced 22 types of behaviours over the past 6 months (never=1, now and then=2, monthly=3, weekly=4, daily=5). Overall scores were computed with a possible range of 22 (never experienced any behaviours) to 110 (experiencing all behaviours on a daily basis). The NAQ-r comprises three interrelated subscales of bullying; work-related, person-related and physically intimidating bullying, which enables an analysis of the prevalence of the different types of negative behaviours.

After the NAQ-r questions had been answered, a definition of workplace bullying was provided: '*bullying at work refers to situations where one or more persons feel subjected to negative and/or aggressive behaviour from others in the workplace over a period of time and in a situation where they for different reasons are unable to defend themselves against these actions'[adapted from 19]*. On the basis of this definition, respondents were asked whether they had witnessed bullying of other staff or colleagues and whether they had been subjected to bullying over the past 6 months. Responses were on a 5-point Likert scale (never; yes, rarely; yes, now and then; yes, several times per week; and yes, almost daily).

Bullying prevalence from the NAQ-r was established according to Leymann's criteria as experiencing at least one negative act on a daily or weekly basis over a 6 month period[20]. For both witnessed and self-report responses, bullying was identified if any of the affirmative responses, i.e., very rarely, now and then, several times a week and almost daily, were endorsed.

Those respondents who reported either witnessing or self-reporting bullying were asked to select the main categories of perpetrators of the bullying and those who self-reported were asked whether they had reported the behaviours, what the outcomes of reporting were and if they had not reported them, the main reasons why.

Levels of workplace demand (including factors such as workload and the work environment) and support from colleagues and non-clinical managers were measured using 17 items from the Health and Safety Executive Management standards analysis tool[21] asking about experiences at work over the past six months (never=1 to always =5 and work demands never = 5 to always = 1). Total scores for each of these three subscales were calculated and the scores for workplace demands reversed, so that higher scores reflected higher demands.

A chi-square goodness of fit test was used to compare the mixture of gender and DHB groups in the respondent group with the known distributions for the full ASMS. Differences in mean scores for the individual questions in the NAQ-r and the health and safety executive management scales between demographic, specialty and country of training (NZ v IMG) groups were tested using 1-way Analysis of variance (ANOVA). The differences in the percentages experiencing the different types of bullying were compared amongst the groups using chi-square tests. Spearman's correlation coefficients were used to test the associations between HSE scales and the NAQ-r scales and the frequency of witnessed and respondent's self-reporting of being bullied. ANOVA was used to test construct validity between those scoring as a victim of bullying using self-report data and those with higher total sum scores on the NAQ-r. A two-tailed p-value <0.05 was used to define statistical significance.

Qualitative data were extracted from comments from respondents who self-identified as bullied. These respondents were asked to describe the impact of bullying on their personal and professional lives. Data from the comments section were imported into NVivo pro (V.11), read through in detail and open coded. This coding resulted in 23 recurring themes that were grouped into 3 umbrella categories pertaining to the severity of the consequences of the bullying behaviour, namely significantly, moderately and little effects/managing , consistent with a study by Shabazz, et al. [16]. This process followed the broad tenets of grounded theory where qualitative data is organised into emergent themes through iterative coding with the resultant themes understood to reflect the perspectives of the research participants[22]. Comments selected for inclusion were those that best expressed the various themes. Comments were transcribed directly, and where sections were omitted, ellipses ('…') signify the break. Any words replaced or altered to preserve anonymity, tense or sense are noted within square brackets ('[ ]').

RESULTS

Responses were received from 40.8% (n=1759) of the ASMS membership. 56.8% (n=862) were male and 43.2% (n=655) female. 242 respondents did not disclose their gender and occasionally other items were not completed. The majority of respondents were New Zealand trained (58.1%) and identified as New Zealand European (Pākehā) (59.4%). 59 specialty and sub-specialties were represented in the study which were grouped into 26 major specialty categories for analyses (see Appendix 1). Some comments left in open text boxes expressed fear of identification and this was also raised in 4 emails. Analysis was undertaken on the most complete data available for each summary or comparison and the actual numbers available are specified throughout. A full demographic summary of respondents is provided in Table 1.

The chi-square goodness of fit tests indicated a slight overrepresentation of females in the sample, (43% compared with 38% in the ASMS) and the overrepresentation of a single DHB in the sample (6% compared with 4%). Apart from these two examples, the respondents were generally representative of the full ASMS membership.

Table 1: Demographic composition of survey respondents

Gender	**N**	**%**
Females	862	56.8
Males	655	43.2
Not disclosed	*242*	
Age bracket	**n**	**%**
30-39	182	11.6
40-49	577	36.8
50-59	545	34.8
60-69	235	15.0
70 and over	29	1.8
Not disclosed	*191*	
Ethnicity categories	**n**	**%**
NZ European/Pākehā	919	59.4
Māori/Pasifika (Samoan, Cook Island Māori, Tongan, Fijian)	31	2.0
Asian/Indian (Southeast Asian, Chinese, Indian, Other Asian)	165	10.7
European/other European	315	20.4
Other (Middle Eastern, Latin American/Hispanic, African, 'other')	117	7.6
Not disclosed	*212*	
Country of primary medical qualification	**n**	**%**
New Zealand	888	58.1
International medical graduate	638	41.9
Not disclosed	*230*	
Medical specialty	**n**	**%**
Anaesthesia	199	14.3
Cardiology	30	2.1
Dentistry	31	2.2
Emergency medicine	94	6.7
General medicine	73	5.2
General practice	35	2.5
General surgery	48	3.4
Geriatric medicine	38	2.7
Intensive care medicine	31	2.2
Nephrology	18	1.3
Obstetrics/Gynaecology	56	4.0
Occupational and public health medicine	18	1.3
Oncology	28	2.0
Ophthalmology	27	1.9
Orthopaedic surgery	48	3.4
Other	30	2.1
Otolaryngology	21	1.5
Paediatrics	113	8.1
Palliative medicine	24	1.7
Pathology	29	2.1
Psychiatry	178	12.8
Radiology	75	5.4
Respiratory medicine	19	1.4
Rural hospital medicine	18	1.3
Specialist internal medicine other	71	5.1
Specialist surgery other	44	3.2
Not disclosed	*363*	

Prevalence of negative behaviours

The overall mean NAQ-r score was 31.4, with a maximum score of 102. Based on the NAQ-r, 93% (n=1575) of respondents had experienced at least one negative behaviour at least once over the last 6 months and 38.1% (n=645) had experienced at least one negative behaviour on a daily or weekly basis. 24.9% had experienced two negative behaviours on a weekly or daily basis and 6.7% (n=114) had experienced at least 5 on a daily or weekly basis.

Analysis of the NAQ-r subscales revealed negative work-related behaviours (49.9%) were more prevalent and occurred on a more regular basis than negative person-related (25.3%) or physically intimidating behaviours (16.7%). The most prevalent work-related behaviours experienced on a daily or weekly basis were being exposed to an unmanageable workload (21.2%) and being ordered to do work below your level of competence (14.4%). Being ignored or excluded and having key areas of responsibility removed or replaced with more trivial or unpleasant tasks were the most frequently experienced negative person-related behaviours occurring on a weekly or daily basis (9% and 7.3% respectively). While infrequent, 24 respondents (1.4%) had experienced being shouted at or spontaneous anger on a weekly or daily basis and 11 (0.7%) had experienced threats of violence or actual abuse at the same frequency. Detailed scores for all 22 NAQ-r behaviours are presented in Figure 1.

There was no significant difference in the overall mean NAQ-r score by gender (female mean=32.7, male mean=32.3) although women (mean 3.72) had a significantly higher mean NAQ-r sub-scale score for physically intimidating behaviour than men (mean 3.55), p=0.011. A higher proportion of female respondents experienced at least one or more negative behaviours than their male counterparts (94.8% vs. 91%, p=0.004). Specific questions in the NAQ-r for which women had a higher mean score are noted with # in Figure 1.

There were significant differences in mean scores by age-group (p<0.001). Respondents aged 40-49 and 50-59 had higher than average NAQ-r scores and further analysis of frequency scores found respondents aged 40-49 and 50-59 also experienced significantly higher prevalence of bullying behaviours than other age groups. Specific questions in the NAQ-r for which there was significant variance by age group are noted with * in Figure 1.

Ethnicity was significantly associated with experiencing one or more negative behaviours (p=0.037) with Asian ethnicities reporting the lowest prevalence (89.1%) overall. There were no significant associations of ethnicity with overall or sub-scale mean scores but some ethnicities experienced higher levels of some behaviours noted by $ in Figure 1. International medical graduates (IMGs) reported significantly higher mean scores for person-related bullying than New Zealand trained specialists (16.7 vs. 15.9, p= 0.012) and reported higher levels of experiencing 5 behaviours (noted with @ in Figure 1) than New Zealand trained specialists.

There were significant differences amongst the medical specialties in the NAQ-r overall mean (p=0.032) and subscale scores as well as prevalence of negative behaviours (p=0.006). Specialists in emergency medicine and general surgery reported the two highest mean overall NAQ-r scores (35.8 and 35.7 respectively). Respondents from emergency medicine had the highest mean sub-scale scores for work-related and physically intimidating bullying behaviour (14.4 and 4.2 respectively) as

well as the highest prevalence of bullying behaviours experienced on a weekly or daily basis (55.7%). Behaviours with significant effects of medical specialty are noted with ∞ in Figure 1. Prevalence of experiencing at least one negative behaviour (NAQ-r) by medical specialty is summarised in Figure 2.

Figure 1: Frequency and percentage of respondents experiencing negative behaviours over the past 6 months (NAQ-r) Sub-scale questions: 1= Work-related bullying 2=person-related bullying 3=physically intimidating bullying.
^ = collapsed frequencies of 'now and then' and monthly
* behaviours with significant variance by age group
# behaviours with a significantly higher prevalence for female respondents compared to male respondents
$ behaviours with significant variance by ethnicity
@ behaviours with significantly higher prevalence for IMG respondents compared to NZ-trained respondents
∞behaviours with significant variance by medical specialty

Figure 2: Prevalence of experiencing at least one negative behaviour (NAQ-r) by medical specialty.

Overall prevalence of self-report and witnessed bullying

37.2% (n=606) self-reported having been bullied 'to some degree' (i.e. from very rarely to almost daily) over the last 6 months. 2.5% (n=40) reported that they had been bullied either several times a week or almost daily. The corresponding figures for witnessing bullying were almost twice as high with 67.5% (n=1109) reporting that they had witnessed colleagues being bullied to some degree (i.e. from very rarely to almost daily) over the last 6 months. 4.7% (n=78) reported that they had witnessed bullying either several times a week or almost daily. Women were significantly more likely to self-report bullying compared with their male counterparts (39.9% vs 32.3%, p=0.002). There were also significant differences in rates of self-report 'to some degree' (p=0.033) and significant differences in frequency of witnessing bullying (p=0.001 'to some degree' and 'weekly or daily') by medical specialty (supplementary figures a and b). There were no other significant differences in rates of self-report or witnessed bullying rates by other demographic variables. Prevalence data for self-report and witnessed bullying is summarised overall and by gender in Table 2.

Table 2: Prevalence of self-report and witnessed bullying with significant variance by demographic variable

	Self-report as bullied						Witnessed bullying of other staff or colleagues					
	No		Yes, to some degree		Yes, weekly or daily		No		Yes, to some degree		Yes, weekly or daily	
	n	%	n	%	n	%	n	%	n	%	n	%
Overall	1022	62.8	606	37.2	40	2.5	535	32.5	1109	67.5	78	4.7
Females	392	60.1	260	39.9*	17	2.6	199	30.4	455	69.6	34	5.2
Males	583	67.7	278	32.3*	21	2.4	299	34.8	561	65.2	40	4.7

*p<0.001

Note: totals for each block differ because of missing data

Associations with bullying, workplace demands, peer and non-clinical manager support

Non-parametric Spearman's correlations revealed significant associations between the three HSE sub-scales, with levels of workplace demands increasing with decreasing levels of peer and managerial support (all correlations >0.28). There was a strong association between being exposed to higher workplace demands and increasing overall NAQ-r and NAQ-r sub-scale scores. Low levels of peer-support were also strongly associated with higher overall NAQ-r and person-related bullying

scores. Similarly, high levels of workplace demands were associated with higher levels of work-related bullying. Witnessing and self-reporting bullying were also associated with high workplace demands, low levels of peer support and low levels of managerial support as detailed in Table 3.

Table 3: Correlations between bullying measures and levels of workplace demands, peer and managerial support

Correlations (Pearson correlation)	**Level of workplace demands**	**Level of peer support**	**Level of non-clinical managers' support**
NAQ-r score	0.464**	-0.574**	-0.463**
Physically intimidating bullying sub-scale score	0.246**	-0.319**	-0.214**
Person-related bullying sub-scale score	0.284**	-0.565**	-0.408**
Work-related bullying sub-scale score	0.608**	-0.491**	-0.464**
Frequency of witnessing bullying	0.229**	-0.315**	-0.253**
Frequency of self-reporting as bullied	0.379**	-0.461**	-0.379**

**All correlations are statistically significant at p<0.001

Perpetrators and reporting of bullying behaviour

Of the 606 respondents who self-reported as bullied, other senior medical or dental staff were the most commonly cited perpetrators (52.5%) followed by non-clinical managers (31.8%) and clinical leaders (24.9%). The largest share of respondents reported that perpetrators were mainly male (36.8%) followed by those reporting equal numbers of male and female (35.5%).

30.4% (n=182) of those who self-reported as bullied formally reported the behaviour experienced. Of the 415 who did not report it, 407 provided reasons why. Table 1 details the most common reasons for not reporting. Notably, 43.5% felt that they would not be supported and 42% felt that reporting would make the situation worse.

Table 1: Summary of reasons for not reporting bullying behavior

Why did you not report this behaviour?*	**n**	**%**
I was concerned that reporting the issue would make the situation worse	171	42.0
I did not know who to report the issue to	45	11.1
I felt I would not be supported if I reported the issue	177	43.5
I was concerned about the impact that reporting the issue would have on my career	112	27.5
The behaviour stopped and has not recurred	26	6.4
The person I would normally report the issue to is the perpetrator	115	28.3
Other (please specify)	127	31.2

*respondents could select more than one reason

Explanations in the 'other' section expressed choosing not to report due to the behaviours being normalised: *"I have come to accept this as the culture of the institution I feel I cannot trust the people who I could report".* Others noted that the behaviour was something that they accepted as simply part of the job *"[aggressive] behaviour from upset parents has always been part of my job. It makes me feel shaken and I generally would have a cup of tea with a colleague afterwards. Never considered a formal report"*. Some simply stated that *"I have more important things to worry about".*

Of the 182 who reported their bullying experience, 30.8% noted that the issue was not addressed and the behaviour continued, while 20.9% stated that the issue was addressed but not resolved and the behaviour continued. 'Other' outcomes (28.6%) included the issue being currently under review as well as people noting either a dismissal of the reporting *"I mentioned to head of department and he said, 'yes they can be difficult sometimes' ""* as well as extreme consequences such as resigning or

changing roles *"[eventually] I resigned and moved to be as far away from possible from the person. Restructuring later occurred and that person has now left. The service has been traumatised and is still healing from his 2 years of reign".*

Consequences of bullying on professional and personal lives

The effects of bullying, as reported by those who self-identified as having been bullied (n=563), were many and varied with 'moderate' consequences the most frequently reported. Respondents described feeling disillusioned, isolated, fearful, and lacking in trust. Others detailed the significant personal and professional costs of bullying including depressive episodes and feelings of burnout. Some detailed feelings of distress and upset when their stress and frustration spilled over from work into their interactions with partners or children. Thirty one comments described bullying as significantly circumscribing their ability to innovate or improve clinical service delivery due to poor communication and a tendency to resort to defensive medical practice. Some felt that this ultimately affected the timeliness and quality of patient care: *"[it] makes you reluctant to engage a second time to discuss patient management. A delay in or wrong decision to discharge is then made. Over-monitoring by a non-clinical [manager] then has you working defensively. Add abuse from patients for not meeting expectations and weekly passive aggressive reminders that targets are not being met...".* A full summary of themes and illustrative comments is detailed in Table 5.

Table 5: Summary of themes and illustrative comments

Themes: (NB: comments could reference multiple themes simultaneously)	**Illustrative comments:**
Minor consequence/coping • Dealt with bully personally (n=3) • Coping by acquiescence, retreat, keeping head down (n=21) • Little effect or no significant impact (n=49)	"Recognise the behaviour and dismiss it and remain calm... Does not affect me and I do not try to defend against allegations made. Have had many years of practice."
Moderate consequences: • Defamation, character attacks, unfounded gossip or rumours (n=12) • Not wanting to go to work (n=20) • Undermining of abilities or professional standing (n=20) • Feeling unappreciated and/or unacknowledged (n=20) • Affected sleep (n=26) • Reduced hours and level of involvement (n=28) • Impeded ability to innovate or improve clinically (n=31) • Anger, irritation, frustration (n=42) • Loss of self-confidence and faith in abilities (n=42) • Affected personal life or home dynamic (n=49) • Compromised ability to work or perform to usual standards (n=51) • Negative work dynamic resulted (n=52) • Affected collegiality and willingness to collaborate (n=59) • Anxiety, loss of trust, faith in system, feeling isolated (n=66) • Disillusionment loss of enjoyment or love of job (n=76)	"For the first time in 19 years working as a doctor, I dislike coming to work. I am anxious and sleep poorly. I am struggling in my personal relationships because I feel like I should be able to cope but don't seem to be able to…I often feel unsafe now at work, and I worry that my experience here will have a negative impact on future positions I apply for. I am considering leaving the field of medicine because of my experience at this particular DHB." "As the person doesn't speak, communicate or interact with [me] and hasn't for 2.5 years. I am at a loss as to how to fulfil my role...[I'm] basically guessing what to do. Plus [I] have been undermined and humiliated and disenfranchised and the staff I give clinical guidance to know it. I have lost confidence in myself and in my professional abilities." "… Bullying wrecks a whole week. It leads to self-doubt and second guessing. It takes a long time to recover from. It is poorly recognised. It is difficult as an SMO to call out on bullying as it is a sign of weakness. Therefore, many of us put up with it especially in a system where we are overworked with unrealistic schedules and no hope of making an improvement." "You pull back and do the bare minimum to keep a service running. Bringing the behaviour to the attention of managers further up the pecking order has made no difference. Patient health is at risk." Professionally it has affected my enjoyment of my job and I am considering moving to another DHB as I feel that I am so intimidated at times that I am unable to do my job to the best of my abilities. At times it is intolerable. The behaviour has caused me stress which has spilled over into my personal life too.
Significant consequences • Taken leave (n=7) • Burnout, mental health issues, depression (n=25) • Significant stress (n=58) • Contemplating leaving, early retirement, quitting medicine (n=64)	"I fear going to work. I feel as if I am being watched the whole time. I feel as though it doesn't matter how good my clinical work is, that my manager and [clinical director] will find a way to put a negative spin on it… I have lost confidence in myself as a doctor and a person. I feel disempowered... I am very anxious about work. This affects my sleep, which makes me worry more… I find it harder to trust people in general, and am more defensive…I am less patient with my children, as I feel so stressed. It feels like being trapped in an abusive relationship… I often dream of leaving. I often feel I have wasted my life, investing so much of myself in my work, when it is not valued by my seniors, even though patients value what I do. …I see patient care compromised, and the quality of the service being eroded. …I feel ethically compromised every day"

DISCUSSION

This study reports the first multicentre multispecialty study into the prevalence of workplace bullying in a senior medical workforce across an entire country, including the sources of such behaviour and rates of and barriers to reporting. It extends existing research by examining associations between bullying prevalence and perceptions of workload and peer and managerial support. It addresses the extensive methodological debate about how to measure workplace bullying, including both 'inside', or self-report measures and 'outside', or peer report methods[23]. It also combines quantitative and qualitative data, with analysis of the latter, describing personal and professional impacts of bullying, further adding to the strengths of this study. Other approaches, such as focus group discussions, or critical incident analysis would not be feasible on a large scale.

Over a third of this sample of senior doctors and dentists working in New Zealand's public health system are regularly exposed to a wide range of negative behaviours at work. Over a third self-report as being bullied and over two thirds report witnessing bullying of colleagues. The results overall suggest exposure to some degree of negative behaviour is ubiquitous in this senior medical workforce, with work-related bullying especially common.

The strong associations between decreasing peer and managerial support, increasing workplace demands and increasing frequencies of all measures of bullying are of note. These findings contribute to the literature which views bullying as a phenomenon with multiple antecedents, and emphasise the impact of stressful workplaces with poor organisational cultures where bullying may be normalised as a coping strategy[6,9,24]. Conversely, these associations suggest that having good relationships with peers and those in managerial positions might act as a buffer against bullying. It is also worth noting that even in workplaces with high stress and demands, bullying is not always an inevitable consequence[12].

The application of the NAQ-r enables both an assessment of the types of behaviours most commonly experienced as well as the frequency of the bullying experienced in a manner that provides for international comparisons as well as highlighting specific issues requiring action. Overall NAQ-r prevalence in this study is higher than the rates of bullying reported in Australasian studies applying the same methodology [14,25] The NAQ-r mean score and 37% self-report prevalence scores were also higher than in other international studies using the NAQ-r such as Carter, et al. [24]. The difference in the rates of self-reported (37%) and witnessed bullying rates (67.5%) is consistent with trends reported in other studies [3,26]. This differential may be ascribed to a reluctance by individuals to self-identify as a 'victim'[27], but it is equally possible that some respondents may witness the same person being bullied thus potentially overreporting bullying prevalence.

The statistically significant differences in NAQ-r mean scores and self-report bullying rates by age, medical specialty, and for some of the sub-scale scores, gender, ethnicity, medical specialty, and country of medical training, are concerning. They suggest that while bullying is experienced across the board, there are pockets of higher prevalence of certain behaviours for specific groups of individuals that warrant further investigation and organisational action. For example, the finding that international medical graduates are more likely to experience person-related bullying should be of concern given New Zealand's high reliance on IMGs[28]

The findings from this study confirm the impression given by the existing literature that certain medical specialties experience higher prevalence of bullying than others. The high self-report prevalence (47.9%) and NAQ-r scores for specialists in emergency medicine is, methodological differences notwithstanding, higher than the 34.5% bullying prevalence reported by the Australasian College of Emergency Medicine which surveyed all fellows of the college, including trainees[29]. At the time of both surveys, many emergency departments around the country were reporting higher than usual demands on their services over the winter period[30]. In light of broader workforce pressures including poor resourcing, staffing shortages and high levels of burnout in this workforce[31], it is not hard to conceive that negative interpersonal interactions, particularly if they are already normalised in the workplace, may escalate as a way to 'get things done' in times of significant stress[32].

Also consistent with studies was the finding that other senior medical staff were the main perpetrators of self-reported and witnessed bullying behaviour (52.5% overall). These findings highlight the significant problem of peer-to-peer bullying in this section of the medical workforce. Little research to date has revealed the extent to which other senior medical and dental staff bullying each other and this finding is, while not entirely unexpected, of great concern.

The low rates of reporting, largely due to the fear of exacerbating the situation or not receiving support, suggests that considerable effort is still required to facilitate better reporting systems and procedures for handling bullying complaints. It is of further concern that, for the majority of those who did formally report bullying behaviour, the issue was not addressed and the behaviour continued. This suggests that despite the rhetoric, much work remains to be done to improve the outcomes for those who do choose to report.

These findings have considerable relevance for those charged with improving the working conditions of this vital component of the medical workforce. Previous research has revealed a correlation with sickness absence, although the direction of causation is unclear[33]. A Finnish study found that those who experienced bullying were more likely to use sedatives and hypnotics, with potential consequences for their performance[34]. The same study found greater levels of stress in those who were the victims of bullying and those who observed it, compared with those in workplaces without bullying. However, they also have implications for those concerned for the quality of patient care[35]. As explicated in grim detail in the qualitative data, bullying has far-reaching consequences that do not stop at the individual. Working in an environment where bullying is both witnessed and experienced has clear consequences for the manner in which medical teams are able to function[16,36] and deliver the services upon which public health systems depend[2,37].

The results of this survey indicate a need for a comprehensive series of interventions not only to address problematic behaviours but to consider the broader implications of growing workloads, under-resourcing and understaffing for the health and wellbeing of this medical workforce and their patients.

It is possible that the topic of the survey may have motivated those who have experienced bullying to respond, resulting in responder bias. Nevertheless, the primary author received a number of emails from individuals who self-identified as bullied who chose not to participate in the study for a

variety of reasons including fear of identification. Thus, research in this area may contradict the common conception that responder bias favours those affected by the issue at hand. Regardless, given the moderate response rate, this study cannot be presumed to be representative of the views or experiences of the senior medical workforce in New Zealand as a whole. The cross-sectional design of the survey also means that causal relationships cannot be inferred and any discussion of the associations between demographic and other factors is not meant to imply causality or direction.

a. Contributorship statement: The research was designed and conducted by Dr Chambers, statistical analysis was performed by Prof Frampton and analysis and contributions were received from Prof Barclay and Prof McKee. All authors edited and revised the final submission and signed off on the final version.

b. Competing interests: There are no competing interests

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d. Data sharing statement: no additional data available

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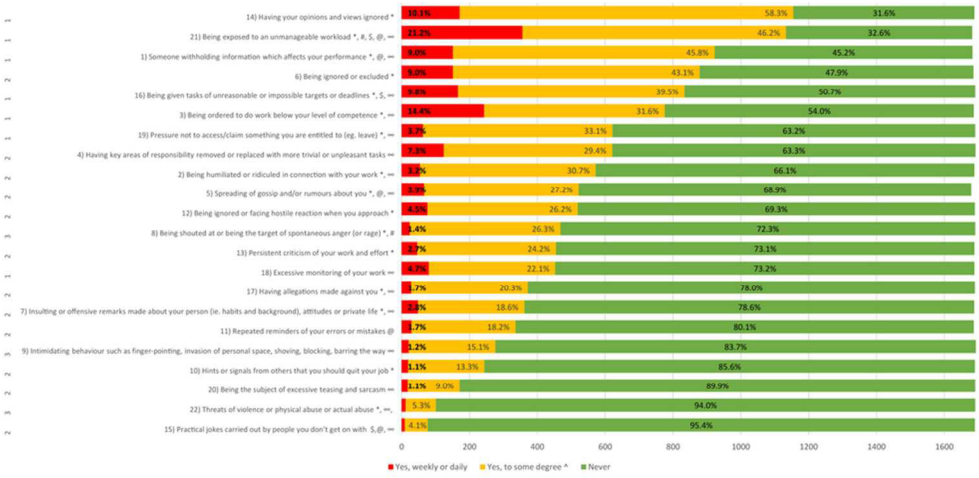


Figure 1: Frequency and percentage of respondents experiencing negative behaviours over the past 6 months (NAQ-r)

Sub-scale questions: 1= Work-related bullying 2=person-related bullying 3=physically intimidating bullying.

^ = collapsed frequencies of 'now and then' and monthly

* behaviours with significant variance by age group

behaviours with a significantly higher prevalence for female respondents compared to male respondents

$ behaviours with significant variance by ethnicity

@ behaviours with significantly higher prevalence for IMG respondents compared to NZ-trained respondents

∞behaviours with significant variance by medical specialty

85x41mm (300 x 300 DPI)

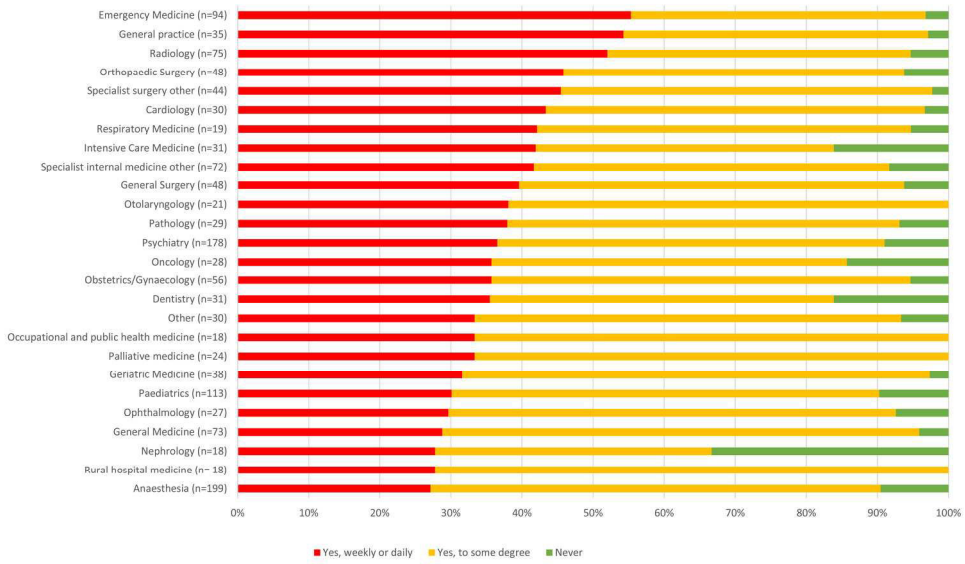
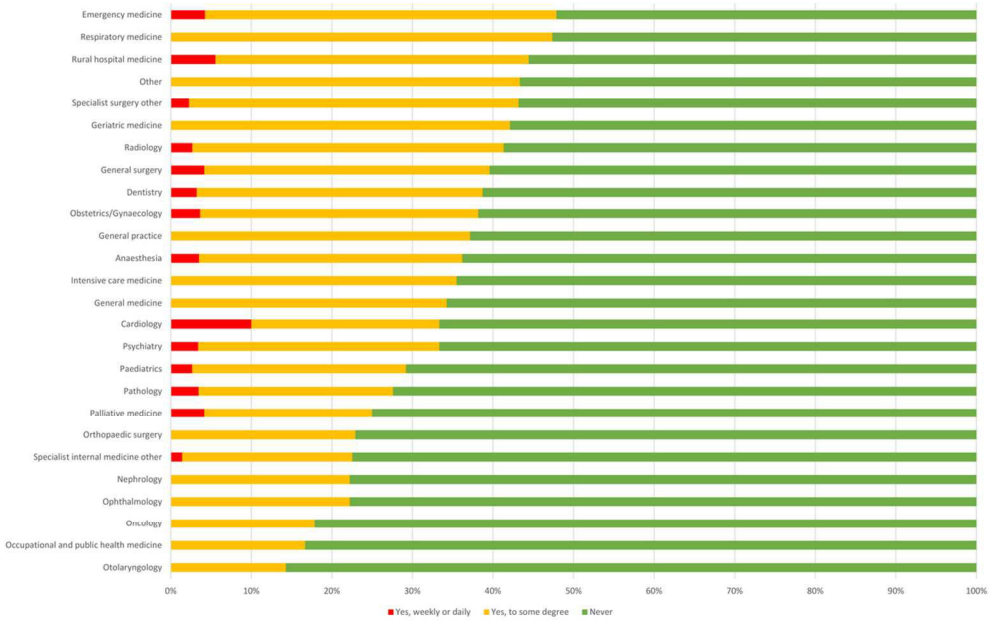


Figure 2: Prevalence of experiencing at least one negative behaviour (NAQ-r) by medical specialty.

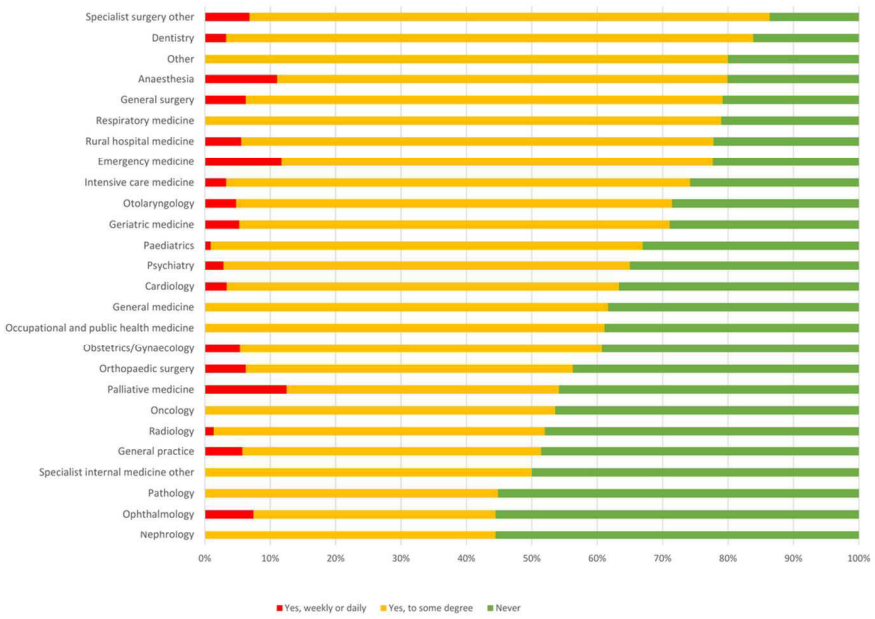
103x61mm (600 x 600 DPI)

Appendix 1

Grouped specialties:	Specialties included:	n
Psychiatry	Addiction medicine	6
	Psychiatry	162
	Psychogeriatrics	10
Specialist surgery 'other'	Cardiothoracic surgery	5
	Neurosurgery	4
	Oral & Maxillofacial Surgery	3
	Paediatric surgery	4
	Plastic & reconstructive surgery	13
	Vascular surgery	10
	Urology	5
Other	Clinical Genetics	3
	Medical Administration	3
	Other incl. requests for anonymity	20
	Rehabilitation Medicine	4
Specialist internal medicine 'other'	Dermatology	6
	Endocrinology	5
	Gastroenterology	12
	Haematology	15
	Immunology	2
	Infectious Diseases Medicine	5
	Neurology	12
	Obstetric Medicine	4
	Rheumatology	11
Paediatrics	Developmental Paediatrics	2
	Neonatology	10
	Paediatric other	15
	Paediatric oncology	6
	Paediatric haematology	1
	Paediatric cardiology	3
	Paediatrics	76
General practice	General Practice	21
	Family Planning & Reproductive Health	4
	Accident & Medical Practice	2
	Sexual Health Medicine	8
Oncology	Medical Oncology	18
	Radiation Oncology	10
Occupational and public health medicine	Occupational Medicine	3
	Public Health Medicine	15
Anaesthesia	Anaesthesia	191
	Pain Medicine	8
Palliative medicine	Paediatric palliative care	1
	Palliative Medicine	23



110x70mm (300 x 300 DPI)



113x73mm (300 x 300 DPI)

STROBE 2007 (v4) Statement—Checklist of items that should be included in reports of *cross-sectional studies*

Section/Topic	Item #	Recommendation	Reported on page #
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract	1
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	2
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	3
Objectives	3	State specific objectives, including any prespecified hypotheses	1
Methods			
Study design	4	Present key elements of study design early in the paper	4
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	1,4
Participants	6	(*a*) Give the eligibility criteria, and the sources and methods of selection of participants	4
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	4-5
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	4-5
Bias	9	Describe any efforts to address potential sources of bias	*14-15*
Study size	10	Explain how the study size was arrived at	4
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	4-5
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	4-5
		(*b*) Describe any methods used to examine subgroups and interactions	4-5
		(*c*) Explain how missing data were addressed	6
		(*d*) If applicable, describe analytical methods taking account of sampling strategy	
		(*e*) Describe any sensitivity analyses	4-5
Results			

Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	6
		(b) Give reasons for non-participation at each stage	Throughout
		(c) Consider use of a flow diagram	n/a
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	6-7
		(b) Indicate number of participants with missing data for each variable of interest	7
Outcome data	15*	Report numbers of outcome events or summary measures	8-9
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	Throughout as applicable
		(*b*) Report category boundaries when continuous variables were categorized	n/a
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	n/a
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	9-10
Discussion			
Key results	18	Summarise key results with reference to study objectives	13
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	14-15
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	13-14
Generalisability	21	Discuss the generalisability (external validity) of the study results	13-14
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	n/a

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.

BMJ Open

"It feels like being trapped in an abusive relationship": bullying prevalence and consequences in the New Zealand senior medical workforce, a cross-sectional study

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Secondary Subject Heading:	Qualitative research
Keywords:	Bullying, Medical specialists, New Zealand

Title: "It feels like being trapped in an abusive relationship": bullying prevalence and consequences in the New Zealand senior medical workforce; a cross-sectional study

Corresponding author: Charlotte N. L. Chambers, Ph.D., MSc
Principal Analyst, Association of Salaried Medical Specialists
PO Box 10763, Wellington, 6143, New Zealand
Email: CC@asms.nz
Phone: 0064 4 499 1271
Fax: 0064 4 499 4500

Co-authors: Christopher M.A. Frampton, Ph.D., BSc,
Professor, University of Otago, Christchurch, New Zealand

Martin McKee, CBE MD DSc FMedSci
Professor, London School of Hygiene and Tropical Medicine, London, United Kingdom

Murray Barclay, MD, FRACP, AGAF
Clinical Professor, University of Otago, Christchurch, New Zealand

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ABSTRACT

Objectives: To estimate prevalence of and factors contributing to bullying amongst senior doctors and dentists in New Zealand's public health system, to ascertain rates of reporting bullying behaviour, perceived barriers to reporting and the effects of bullying professionally and personally.

Design: Cross-sectional, mixed methods study.

Setting: New Zealand.

Participants: members of the Association of Salaried Medical Specialists (40.8% response rate).

Main outcome measures: Prevalence of bullying was measured using the Negative Acts Questionnaire (revised) (NAQ-r). Workplace demands and level of peer and managerial support were measured with the Health and Safety Executive (HSE) Management Standards Analysis tool. Categories of perpetrators for self-reported and witnessed bullying and barriers to reporting bullying were obtained and qualitative data detailing the consequence of bullying were analysed thematically.

Results: The overall prevalence of bullying, measured by the NAQ-r, was 38% (at least 1 negative act on a weekly or daily basis), 37.2% self-reported and 67.5% witnessed. There were significant differences in rates of bullying by specialty (p=0.001) with emergency medicine reporting the highest bullying prevalence (47.9%). The most commonly cited perpetrators were other senior medical or dental specialists. 69.6% declined to report their bullying. Bullying across all measures was significantly associated with increasing work demands and lower peer and managerial support (p=0.001). Consequences of bullying were wide ranging, affecting workplace environments, personal well-being and subjective quality of patient care.

Conclusions: Bullying is prevalent in New Zealand's senior medical workforce and is associated with high workloads and low peer and managerial support. These findings help identify conditions and pressures that may encourage bullying and highlight the significant risk of bullying for individuals and their patients.

ARTICLE SUMMARY

Strengths and limitations of the study:

- Strengths include being the first study to report prevalence of bullying using the NAQ-r in a multi-specialty nationwide survey of medical specialists in any country.
- It fills a gap in the otherwise scant literature on senior medical professionals as victims of bullying.
- It extends the understanding of bullying as a multicausal phenomenon, demonstrating the roles of increasing work demands and low peer and managerial support, as well as suggesting opportunities for mitigation.
- Limitations include a moderate participation rate and use of self-reported data
- The cross-sectional design limits the scope for causal inference.

INTRODUCTION

Workplace bullying in medicine is a cause of on-going concern in several countries. Described as the most 'destructive phenomenon plaguing medical culture'[1] it poses significant risks to patient safety and quality of patient care[2], staff morale and job satisfaction[3] and the physical and psychological wellbeing of doctors and their co-workers[4,5].

Workplace bullying is defined as an escalating process where individuals repeatedly and over a period of time experience negative actions and behaviours from the people they encounter at work[6,7]. Bullying behaviours may range from overt aggression and violence to subtle and indirect acts. The intent of the behaviour(s) is not the primary consideration; it is the impact on and perception of the victim that is key in determining whether or not bullying has occurred[8,9].

The antecedents of workplace bullying are many and complex. The high rates of bullying experienced by junior doctors and trainees, for example, have been ascribed to the hierarchical model of medical training with bullying described as a necessary but unpleasant 'rite of passage'[1,10]. Factors known to encourage bullying include stressful and demanding work environments[11] competitive and unsupportive workplace cultures [8] and normalisation of incivility and rudeness in common conduct[12].

Research commissioned by the Royal Australasian College of Surgeons (RACS) in 2015 found almost half of all surgeons in New Zealand and Australia had experienced some form of inappropriate behaviour, with trainees reporting the highest reported levels of bullying amongst those surveyed[13]. Surgical directors or consultants were found to be the main perpetrators. Much less is known about the prevalence and consequences of bullying experienced by consultants and specialists in other specialities. In the New Zealand context, specialists are defined as any medical practitioner who is vocationally registered by the Medical Council of New Zealand in an approved branch of medicine. Of the known studies that have focussed on senior doctors, the focus has been on bullying prevalence in specific medical specialties for example, Australian general surgery consultants[14], Australasian fellows of the college of intensive care medicine[15] or obstetrics and gynaecology consultants working in the British National Health Service (NHS)[16].

To the best of the authors' knowledge, no studies to date have specifically assessed the prevalence of bullying in medical specialists in a multispecialty, multicentre nationwide survey. This study addresses this knowledge gap by investigating the prevalence of bullying amongst senior doctors and dentists of different specialties working in New Zealand's public health system. The study also explores correlates of experiencing negative behaviours, including medical specialty, gender and ethnicity as well as perceived levels of workplace demands and support from peers and non-clinical managers. Finally, the study examines the nature and extent of barriers to formally reporting bullying behaviour as well as the consequences of bullying on the professional and personal lives of respondents.

METHODS

Participants

Participants were members of the Association of Salaried Medical Specialists (ASMS) who are medical and dental specialists, and other non-specialist registered medical officers, employed by New Zealand's 20 District Health Boards (DHBs) and other medical employers around the country such as the national blood service and community health providers. DHBs provide inpatient and outpatient healthcare for geographically defined populations within New Zealand's health system and are the main employers of health professionals working in the public sector. The ASMS is the professional association and union for senior doctors and dentists in New Zealand. For ease of description, these ASMS members are referred to as medical specialists or as the senior medical workforce. At the time of the survey the ASMS represented over 90% of all senior doctors and dentists and other non-vocationally registered medical specialists employed within New Zealand's DHBs and approximately 77% of non-DHB employers.

The entire ASMS membership (4307 individuals) was invited by email to participate voluntarily in an anonymous electronic survey in June 2017. The invitation emphasised the anonymous nature of the survey and noted that analysis would not be undertaken on a line-by-line basis to encourage participation. The survey was deemed outside of scope for ethical review by the New Zealand Health and Disability Ethics Committee (HDEC) due to the anonymous nature of the survey and the type of data requested. The survey was open for 1-month and 4 reminders were sent out to encourage participation. Demographic information, including age, gender, main place of work, ethnicity, and country of primary medical qualification, was requested, summarised and described.

Measures

Prevalence of workplace bullying was measured with the negative acts questionnaire (revised) (NAQ-r), developed by Einarsen, et al. [17]. The NAQ-r is accepted as a robust tool to quantify bullying in international contexts as it combines both an operational approach to establishing bullying prevalence as well as a single item measure of perceived victimisation[18]. The first part of the NAQ-r scores how often respondents have experienced 22 types of behaviours over the past 6 months (never=1, now and then=2, monthly=3, weekly=4, daily=5). Overall scores were computed with a possible range of 22 (never experienced any behaviours) to 110 (experiencing all behaviours on a daily basis). The NAQ-r comprises three interrelated subscales of bullying; work-related, person-related and physically intimidating bullying, which enables an analysis of the prevalence of the different types of negative behaviours.

After the NAQ-r questions had been answered, a definition of workplace bullying was provided: '*bullying at work refers to situations where one or more persons feel subjected to negative and/or aggressive behaviour from others in the workplace over a period of time and in a situation where they for different reasons are unable to defend themselves against these actions'[adapted from 19]*. On the basis of this definition, respondents were asked whether they had witnessed bullying of other staff or colleagues and whether they had been subjected to bullying over the past 6 months. Responses were on a 5-point Likert scale (never; yes, rarely; yes, now and then; yes, several times per week; and yes, almost daily).

Bullying prevalence from the NAQ-r was established according to Leymann's criteria as experiencing at least one negative act on a daily or weekly basis over a 6 month period[20]. For both witnessed and self-report responses, bullying was identified if any of the affirmative responses, i.e., very rarely, now and then, several times a week and almost daily, were endorsed.

Those respondents who reported either witnessing or self-reporting bullying were asked to select the main categories of perpetrators of the bullying and those who self-reported were asked whether they had reported the behaviours, what the outcomes of reporting were and if they had not reported them, the main reasons why.

Levels of workplace demand (including factors such as workload and the work environment) and support from colleagues and non-clinical managers were measured using 17 items from the Health and Safety Executive Management standards analysis tool[21] asking about experiences at work over the past six months (never=1 to always =5 and work demands never = 5 to always = 1). Total scores for each of these three subscales were calculated and the scores for workplace demands reversed, so that higher scores reflected higher demands.

A chi-square goodness of fit test was used to compare the mixture of gender and DHB groups in the respondent group with the known distributions for the full ASMS. Differences in mean scores for the individual questions in the NAQ-r and the health and safety executive management scales between demographic, specialty and country of training (NZ v IMG) groups were tested using 1-way Analysis of variance (ANOVA). The differences in the percentages experiencing the different types of bullying were compared amongst the groups using chi-square tests. Spearman's correlation coefficients were used to test the associations between HSE scales and the NAQ-r scales and the frequency of witnessed and respondent's self-reporting of being bullied. ANOVA was used to test construct validity between those scoring as a victim of bullying using self-report data and those with higher total sum scores on the NAQ-r. A two-tailed p-value <0.05 was used to define statistical significance.

Qualitative data were extracted from comments from respondents who self-identified as bullied. These respondents were asked to describe the impact of bullying on their personal and professional lives. Data from the comments section were imported into NVivo pro (V.11), read through in detail and open coded. This coding resulted in 23 recurring themes that were grouped into 3 umbrella categories pertaining to the severity of the consequences of the bullying behaviour, namely significantly, moderately and little effects/managing , consistent with a study by Shabazz, et al. [16]. This process followed the broad tenets of grounded theory where qualitative data is organised into emergent themes through iterative coding with the resultant themes understood to reflect the perspectives of the research participants[22]. Comments selected for inclusion were those that best expressed the various themes. Comments were transcribed directly, and where sections were omitted, ellipses ('…') signify the break. Any words replaced or altered to preserve anonymity, tense or sense are noted within square brackets ('[ ]').

RESULTS

Responses were received from 40.8% (n=1759) of the ASMS membership. 56.8% (n=862) were male and 43.2% (n=655) female. 242 respondents did not disclose their gender and occasionally other items were not completed. The majority of respondents were New Zealand trained (58.1%) and identified as New Zealand European (Pākehā) (59.4%). 59 specialty and sub-specialties were represented in the study which were grouped into 26 major specialty categories for analyses (see Appendix 1). Some comments left in open text boxes expressed fear of identification and this was also raised in 4 emails despite reassurances in the invitations to participate in the research as to the anonymous nature of the survey. Analysis was undertaken on the most complete data available for each summary or comparison and the actual numbers available are specified throughout. A full demographic summary of respondents is provided in Table 1.

The chi-square goodness of fit tests indicated a slight overrepresentation of females in the sample, (43% compared with 38% in the ASMS) and the overrepresentation of a single DHB in the sample (6% compared with 4%). Apart from these two examples, the respondents were generally representative of the full ASMS membership

Table 1: Demographic composition of survey respondents

Gender	**N**	**%**
Females	862	56.8
Males	655	43.2
Not disclosed	*242*	
Age bracket	**n**	**%**
30-39	182	11.6
40-49	577	36.8
50-59	545	34.8
60-69	235	15.0
70 and over	29	1.8
Not disclosed	*191*	
Ethnicity categories	**n**	**%**
NZ European/Pākehā	919	59.4
Māori/Pasifika (Samoan, Cook Island Māori, Tongan, Fijian)	31	2.0
Asian/Indian (Southeast Asian, Chinese, Indian, Other Asian)	165	10.7
European/other European	315	20.4
Other (Middle Eastern, Latin American/Hispanic, African, 'other')	117	7.6
Not disclosed	*212*	
Country of primary medical qualification	**n**	**%**
New Zealand	888	58.1
International medical graduate	638	41.9
Not disclosed	*230*	
Medical specialty	**n**	**%**
Anaesthesia	199	14.3
Cardiology	30	2.1
Dentistry	31	2.2
Emergency medicine	94	6.7
General medicine	73	5.2
General practice	35	2.5
General surgery	48	3.4
Geriatric medicine	38	2.7
Intensive care medicine	31	2.2
Nephrology	18	1.3
Obstetrics/Gynaecology	56	4.0
Occupational and public health medicine	18	1.3
Oncology	28	2.0
Ophthalmology	27	1.9
Orthopaedic surgery	48	3.4
Other	30	2.1
Otolaryngology	21	1.5
Paediatrics	113	8.1
Palliative medicine	24	1.7
Pathology	29	2.1
Psychiatry	178	12.8
Radiology	75	5.4
Respiratory medicine	19	1.4
Rural hospital medicine	18	1.3
Specialist internal medicine other	71	5.1
Specialist surgery other	44	3.2
Not disclosed	*363*	

Prevalence of negative behaviours

The overall mean NAQ-r score was 31.4, with a maximum score of 102. Based on the NAQ-r, 93% (n=1575) of respondents had experienced at least one negative behaviour at least once over the last 6 months and 38.1% (n=645) had experienced at least one negative behaviour on a daily or weekly basis. 24.9% had experienced two negative behaviours on a weekly or daily basis and 6.7% (n=114) had experienced at least 5 on a daily or weekly basis.

Analysis of the NAQ-r subscales revealed negative work-related behaviours (49.9%) were more prevalent and occurred on a more regular basis than negative person-related (25.3%) or physically intimidating behaviours (16.7%). The most prevalent work-related behaviours experienced on a daily or weekly basis were being exposed to an unmanageable workload (21.2%) and being ordered to do work below your level of competence (14.4%). Being ignored or excluded and having key areas of responsibility removed or replaced with more trivial or unpleasant tasks were the most frequently experienced negative person-related behaviours occurring on a weekly or daily basis (9% and 7.3% respectively). While infrequent, 24 respondents (1.4%) had experienced being shouted at or spontaneous anger on a weekly or daily basis and 11 (0.7%) had experienced threats of violence or actual abuse at the same frequency. Detailed scores for all 22 NAQ-r behaviours are presented in Figure 1.

There was no significant difference in the overall mean NAQ-r score by gender (female mean=32.7, male mean=32.3) although women (mean 3.72) had a significantly higher mean NAQ-r sub-scale score for physically intimidating behaviour than men (mean 3.55), p=0.011. A higher proportion of female respondents experienced at least one or more negative behaviours than their male counterparts (94.8% vs. 91%, p=0.004). Specific questions in the NAQ-r for which women had a higher mean score are noted with # in Figure 1.

There were significant differences in mean scores by age-group (p<0.001). Respondents aged 40-49 and 50-59 had higher than average NAQ-r scores and further analysis of frequency scores found respondents aged 40-49 and 50-59 also experienced significantly higher prevalence of bullying behaviours than other age groups. Specific questions in the NAQ-r for which there was significant variance by age group are noted with * in Figure 1.

Ethnicity was significantly associated with experiencing one or more negative behaviours (p=0.037) with Asian ethnicities reporting the lowest prevalence (89.1%) overall. There were no significant associations of ethnicity with overall or sub-scale mean scores but some ethnicities experienced higher levels of some behaviours noted by $ in Figure 1. International medical graduates (IMGs) reported significantly higher mean scores for person-related bullying than New Zealand trained specialists (16.7 vs. 15.9, p= 0.012) and reported higher levels of experiencing 5 behaviours (noted with @ in Figure 1) than New Zealand trained specialists.

There were significant differences amongst the medical specialties in the NAQ-r overall mean (p=0.032) and subscale scores as well as prevalence of negative behaviours (p=0.006). Specialists in emergency medicine and general surgery reported the two highest mean overall NAQ-r scores (35.8 and 35.7 respectively). Respondents from emergency medicine had the highest mean sub-scale scores for work-related and physically intimidating bullying behaviour (14.4 and 4.2 respectively) as

well as the highest prevalence of bullying behaviours experienced on a weekly or daily basis (55.7%). Behaviours with significant effects of medical specialty are noted with ∞ in Figure 1. Prevalence of experiencing at least one negative behaviour (NAQ-r) by medical specialty is summarised in Figure 2.

Figure 1: Frequency and percentage of respondents experiencing negative behaviours over the past 6 months (NAQ-r) Sub-scale questions: 1= Work-related bullying 2=person-related bullying 3=physically intimidating bullying.
^ = collapsed frequencies of 'now and then' and monthly
* behaviours with significant variance by age group
# behaviours with a significantly higher prevalence for female respondents compared to male respondents
$ behaviours with significant variance by ethnicity
@ behaviours with significantly higher prevalence for IMG respondents compared to NZ-trained respondents
∞behaviours with significant variance by medical specialty

Figure 2: Prevalence of experiencing at least one negative behaviour (NAQ-r) by medical specialty.

Overall prevalence of self-report and witnessed bullying

37.2% (n=606) self-reported having been bullied 'to some degree' (i.e. from very rarely to almost daily) over the last 6 months. 2.5% (n=40) reported that they had been bullied either several times a week or almost daily. The corresponding figures for witnessing bullying were almost twice as high with 67.5% (n=1109) reporting that they had witnessed colleagues being bullied to some degree (i.e. from very rarely to almost daily) over the last 6 months. 4.7% (n=78) reported that they had witnessed bullying either several times a week or almost daily. Women were significantly more likely to self-report bullying compared with their male counterparts (39.9% vs 32.3%, p=0.002). There were also significant differences in rates of self-report 'to some degree' (p=0.033) and significant differences in frequency of witnessing bullying (p=0.001 'to some degree' and 'weekly or daily') by medical specialty (supplementary figures a and b). There were no other significant differences in rates of self-report or witnessed bullying rates by other demographic variables. Prevalence data for self-report and witnessed bullying is summarised overall and by gender in Table 2.

Table 2: Prevalence of self-report and witnessed bullying with significant variance by demographic variable

	Self-report as bullied						Witnessed bullying of other staff or colleagues					
	No		Yes, to some degree		Yes, weekly or daily		No		Yes, to some degree		Yes, weekly or daily	
	n	%	n	%	n	%	n	%	n	%	n	%
Overall	1022	62.8	606	37.2	40	2.5	535	32.5	1109	67.5	78	4.7
Females	392	60.1	260	39.9*	17	2.6	199	30.4	455	69.6	34	5.2
Males	583	67.7	278	32.3*	21	2.4	299	34.8	561	65.2	40	4.7

*p<0.001

Note: totals for each block differ because of missing data

Associations with bullying, workplace demands, peer and non-clinical manager support

Non-parametric Spearman's correlations revealed significant associations between the three HSE sub-scales, with levels of workplace demands increasing with decreasing levels of peer and managerial support (all correlations >0.28). There was a strong association between being exposed to higher workplace demands and increasing overall NAQ-r and NAQ-r sub-scale scores. Low levels of peer-support were also strongly associated with higher overall NAQ-r and person-related bullying

scores. Similarly, high levels of workplace demands were associated with higher levels of work-related bullying. Witnessing and self-reporting bullying were also associated with high workplace demands, low levels of peer support and low levels of managerial support as detailed in Table 3.

Table 3: Correlations between bullying measures and levels of workplace demands, peer and managerial support

Correlations (Pearson correlation)	**Level of workplace demands**	**Level of peer support**	**Level of non-clinical managers' support**
NAQ-r score	0.464**	-0.574**	-0.463**
Physically intimidating bullying sub-scale score	0.246**	-0.319**	-0.214**
Person-related bullying sub-scale score	0.284**	-0.565**	-0.408**
Work-related bullying sub-scale score	0.608**	-0.491**	-0.464**
Frequency of witnessing bullying	0.229**	-0.315**	-0.253**
Frequency of self-reporting as bullied	0.379**	-0.461**	-0.379**

**All correlations are statistically significant at p<0.001

Perpetrators and reporting of bullying behaviour

Of the 606 respondents who self-reported as bullied, other senior medical or dental staff were the most commonly cited perpetrators (52.5%) followed by non-clinical managers (31.8%) and clinical leaders (24.9%). The largest share of respondents reported that perpetrators were mainly male (36.8%) followed by those reporting equal numbers of male and female (35.5%).

30.4% (n=182) of those who self-reported as bullied formally reported the behaviour experienced. Of the 415 who did not report it, 407 provided reasons why. Table 4 details the most common reasons for not reporting. Notably, 43.5% felt that they would not be supported and 42% felt that reporting would make the situation worse.

Table 4: Summary of reasons for not reporting bullying behavior

Why did you not report this behaviour?*	**n**	**%**
I was concerned that reporting the issue would make the situation worse	171	42.0
I did not know who to report the issue to	45	11.1
I felt I would not be supported if I reported the issue	177	43.5
I was concerned about the impact that reporting the issue would have on my career	112	27.5
The behaviour stopped and has not recurred	26	6.4
The person I would normally report the issue to is the perpetrator	115	28.3
Other (please specify)	127	31.2

*respondents could select more than one reason

Explanations in the 'other' section expressed choosing not to report due to the behaviours being normalised: *"I have come to accept this as the culture of the institution I feel I cannot trust the people who I could report".* Others noted that the behaviour was something that they accepted as simply part of the job *"[aggressive] behaviour from upset parents has always been part of my job. It makes me feel shaken and I generally would have a cup of tea with a colleague afterwards. Never considered a formal report"*. Some simply stated that *"I have more important things to worry about".*

Of the 182 who reported their bullying experience, 30.8% noted that the issue was not addressed and the behaviour continued, while 20.9% stated that the issue was addressed but not resolved and the behaviour continued. 'Other' outcomes (28.6%) included the issue being currently under review as well as people noting either a dismissal of the reporting *"I mentioned to head of department and he said, 'yes they can be difficult sometimes' ""* as well as extreme consequences such as resigning or

changing roles *"[eventually] I resigned and moved to be as far away from possible from the person. Restructuring later occurred and that person has now left. The service has been traumatised and is still healing from his 2 years of reign".*

Consequences of bullying on professional and personal lives

The effects of bullying, as reported by those who self-identified as having been bullied and chose to leave comments (n=563), were many and varied with 'moderate' consequences the most frequently reported. Respondents described feeling disillusioned, isolated, fearful, and lacking in trust. Others detailed the significant personal and professional costs of bullying including depressive episodes and feelings of burnout. Some detailed feelings of distress and upset when their stress and frustration spilled over from work into their interactions with partners or children. Thirty one comments described bullying as significantly circumscribing their ability to innovate or improve clinical service delivery due to poor communication and a tendency to resort to defensive medical practice. Some felt that this ultimately affected the timeliness and quality of patient care: *"[it] makes you reluctant to engage a second time to discuss patient management. A delay in or wrong decision to discharge is then made. Over-monitoring by a non-clinical [manager] then has you working defensively. Add abuse from patients for not meeting expectations and weekly passive aggressive reminders that targets are not being met...".* A full summary of themes and illustrative comments is detailed in Table 5.

Table 5: Summary of themes and illustrative comments

Themes: (NB: comments could reference multiple themes simultaneously)	**Illustrative comments:**
Minor consequence/coping • Dealt with bully personally (n=3) • Coping by acquiescence, retreat, keeping head down (n=21) • Little effect or no significant impact (n=49)	"Recognise the behaviour and dismiss it and remain calm... Does not affect me and I do not try to defend against allegations made. Have had many years of practice."
Moderate consequences: • Defamation, character attacks, unfounded gossip or rumours (n=12) • Not wanting to go to work (n=20) • Undermining of abilities or professional standing (n=20) • Feeling unappreciated and/or unacknowledged (n=20) • Affected sleep (n=26) • Reduced hours and level of involvement (n=28) • Impeded ability to innovate or improve clinically (n=31) • Anger, irritation, frustration (n=42) • Loss of self-confidence and faith in abilities (n=42) • Affected personal life or home dynamic (n=49) • Compromised ability to work or perform to usual standards (n=51) • Negative work dynamic resulted (n=52) • Affected collegiality and willingness to collaborate (n=59) • Anxiety, loss of trust, faith in system, feeling isolated (n=66) • Disillusionment loss of enjoyment or love of job (n=76)	"For the first time in 19 years working as a doctor, I dislike coming to work. I am anxious and sleep poorly. I am struggling in my personal relationships because I feel like I should be able to cope but don't seem to be able to…I often feel unsafe now at work, and I worry that my experience here will have a negative impact on future positions I apply for. I am considering leaving the field of medicine because of my experience at this particular DHB." "As the person doesn't speak, communicate or interact with [me] and hasn't for 2.5 years. I am at a loss as to how to fulfil my role...[I'm] basically guessing what to do. Plus [I] have been undermined and humiliated and disenfranchised and the staff I give clinical guidance to know it. I have lost confidence in myself and in my professional abilities." "… Bullying wrecks a whole week. It leads to self-doubt and second guessing. It takes a long time to recover from. It is poorly recognised. It is difficult as an SMO to call out on bullying as it is a sign of weakness. Therefore, many of us put up with it especially in a system where we are overworked with unrealistic schedules and no hope of making an improvement." "You pull back and do the bare minimum to keep a service running. Bringing the behaviour to the attention of managers further up the pecking order has made no difference. Patient health is at risk." Professionally it has affected my enjoyment of my job and I am considering moving to another DHB as I feel that I am so intimidated at times that I am unable to do my job to the best of my abilities. At times it is intolerable. The behaviour has caused me stress which has spilled over into my personal life too.
Significant consequences • Taken leave (n=7) • Burnout, mental health issues, depression (n=25) • Significant stress (n=58) • Contemplating leaving, early retirement, quitting medicine (n=64)	"I fear going to work. I feel as if I am being watched the whole time. I feel as though it doesn't matter how good my clinical work is, that my manager and [clinical director] will find a way to put a negative spin on it… I have lost confidence in myself as a doctor and a person. I feel disempowered... I am very anxious about work. This affects my sleep, which makes me worry more… I find it harder to trust people in general, and am more defensive…I am less patient with my children, as I feel so stressed. It feels like being trapped in an abusive relationship… I often dream of leaving. I often feel I have wasted my life, investing so much of myself in my work, when it is not valued by my seniors, even though patients value what I do. …I see patient care compromised, and the quality of the service being eroded. …I feel ethically compromised every day"

DISCUSSION

This study reports the first multicentre multispecialty study into the prevalence of workplace bullying in a senior medical workforce across an entire country, including the sources of such behaviour and rates of and barriers to reporting. It extends existing research by examining associations between bullying prevalence and perceptions of workload and peer and managerial support. It addresses the extensive methodological debate about how to measure workplace bullying, including both 'inside', or self-report measures and 'outside', or peer report methods[23]. It also combines quantitative and qualitative data, with analysis of the latter, describing personal and professional impacts of bullying, further adding to the strengths of this study. Other approaches, such as focus group discussions, or critical incident analysis would not be feasible on a large scale.

Over a third of this sample of senior doctors and dentists working in New Zealand's public health system are regularly exposed to a wide range of negative behaviours at work. Over a third self-report as being bullied and over two thirds report witnessing bullying of colleagues. The results overall suggest exposure to some degree of negative behaviour is ubiquitous in this senior medical workforce, with work-related bullying especially common.

The strong associations between decreasing peer and managerial support, increasing workplace demands and increasing frequencies of all measures of bullying are of note. These findings contribute to the literature which views bullying as a phenomenon with multiple antecedents, and emphasise the impact of stressful workplaces with poor organisational cultures where bullying may be normalised as a coping strategy[6,9,24]. Conversely, these associations suggest that having good relationships with peers and those in managerial positions might act as a buffer against bullying. It is also worth noting that even in workplaces with high stress and demands, bullying is not always an inevitable consequence[12].

The application of the NAQ-r enables both an assessment of the types of behaviours most commonly experienced as well as the frequency of the bullying experienced in a manner that provides for international comparisons as well as highlighting specific issues requiring action. Overall NAQ-r prevalence in this study is higher than the rates of bullying reported in Australasian studies applying the same methodology [14,25] The NAQ-r mean score and 37% self-report prevalence scores were also higher than in other international studies using the NAQ-r such as Carter, et al. [24]. The difference in the rates of self-reported (37%) and witnessed bullying rates (67.5%) is consistent with trends reported in other studies [3,26]. This differential may be ascribed to a reluctance by individuals to self-identify as a 'victim'[27], but it is equally possible that some respondents may witness the same person being bullied thus potentially overreporting bullying prevalence.

The statistically significant differences in NAQ-r mean scores and self-report bullying rates by age, medical specialty, and for some of the sub-scale scores, gender, ethnicity, medical specialty, and country of medical training, are concerning. They suggest that while bullying is experienced across the board, there are pockets of higher prevalence of certain behaviours for specific groups of individuals that warrant further investigation and organisational action. For example, the finding that international medical graduates are more likely to experience person-related bullying should be of concern given New Zealand's high reliance on IMGs[28]

The findings from this study confirm the impression given by the existing literature that certain medical specialties experience higher prevalence of bullying than others. The high self-report prevalence (47.9%) and NAQ-r scores for specialists in emergency medicine is, methodological differences notwithstanding, higher than the 34.5% bullying prevalence reported by the Australasian College of Emergency Medicine which surveyed all fellows of the college, including trainees[29]. At the time of both surveys, many emergency departments around the country were reporting higher than usual demands on their services over the winter period[30]. In light of broader workforce pressures including poor resourcing, staffing shortages and high levels of burnout in this workforce[31], it is not hard to conceive that negative interpersonal interactions, particularly if they are already normalised in the workplace, may escalate as a way to 'get things done' in times of significant stress[32].

Also consistent with studies was the finding that other senior medical staff were the main perpetrators of self-reported and witnessed bullying behaviour (52.5% overall). These findings highlight the significant problem of peer-to-peer bullying in this section of the medical workforce. Little research to date has revealed the extent to which other senior medical and dental staff bullying each other and this finding is, while not entirely unexpected, of great concern.

The low rates of reporting, largely due to the fear of exacerbating the situation or not receiving support, suggests that considerable effort is still required to facilitate better reporting systems and procedures for handling bullying complaints. It is of further concern that, for the majority of those who did formally report bullying behaviour, the issue was not addressed and the behaviour continued. This suggests that despite the rhetoric, much work remains to be done to improve the outcomes for those who do choose to report.

These findings have considerable relevance for those charged with improving the working conditions of this vital component of the medical workforce. Previous research has revealed a correlation with sickness absence, although the direction of causation is unclear[33]. A Finnish study found that those who experienced bullying were more likely to use sedatives and hypnotics, with potential consequences for their performance[34]. The same study found greater levels of stress in those who were the victims of bullying and those who observed it, compared with those in workplaces without bullying. However, they also have implications for those concerned for the quality of patient care[35]. As explicated in grim detail in the qualitative data, bullying has far-reaching consequences that do not stop at the individual. Working in an environment where bullying is both witnessed and experienced has clear consequences for the manner in which medical teams are able to function[16,36] and deliver the services upon which public health systems depend[2,37].

The results of this survey indicate a need for a comprehensive series of interventions not only to address problematic behaviours but to consider the broader implications of growing workloads, under-resourcing and understaffing for the health and wellbeing of this medical workforce and their patients.

It is possible that the topic of the survey may have motivated those who have experienced bullying to respond, resulting in responder bias. Nevertheless, the primary author received a number of emails from individuals who self-identified as bullied who chose not to participate in the study for a

variety of reasons including fear of identification. Thus, research in this area may contradict the common conception that responder bias favours those affected by the issue at hand. Regardless, given the moderate response rate, this study cannot be presumed to be representative of the views or experiences of the senior medical workforce in New Zealand as a whole. The cross-sectional design of the survey also means that causal relationships cannot be inferred and any discussion of the associations between demographic and other factors is not meant to imply causality or direction.

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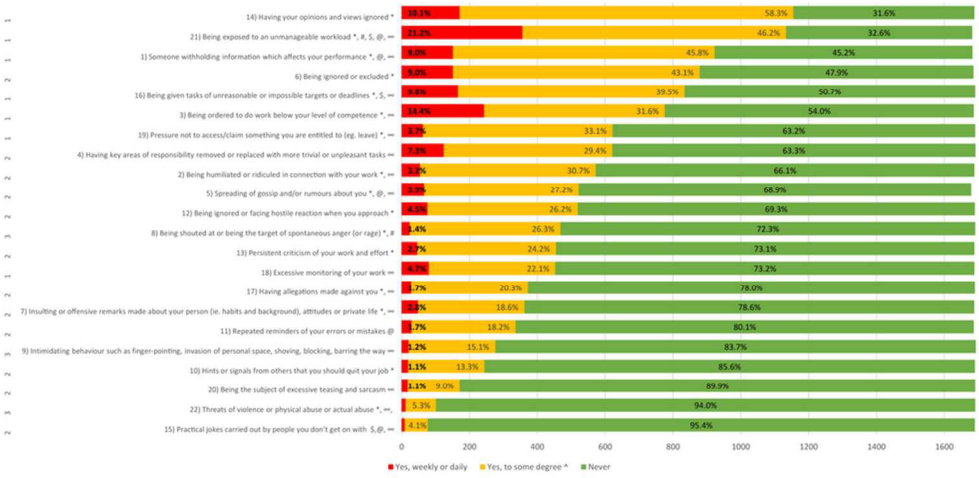

Figure 1: Frequency and percentage of respondents experiencing negative behaviours over the past 6 months (NAQ-r)

Sub-scale questions: 1= Work-related bullying 2=person-related bullying 3=physically intimidating bullying.

^ = collapsed frequencies of 'now and then' and monthly

* behaviours with significant variance by age group

behaviours with a significantly higher prevalence for female respondents compared to male respondents

$ behaviours with significant variance by ethnicity

@ behaviours with significantly higher prevalence for IMG respondents compared to NZ-trained respondents

∞behaviours with significant variance by medical specialty

85x41mm (300 x 300 DPI)

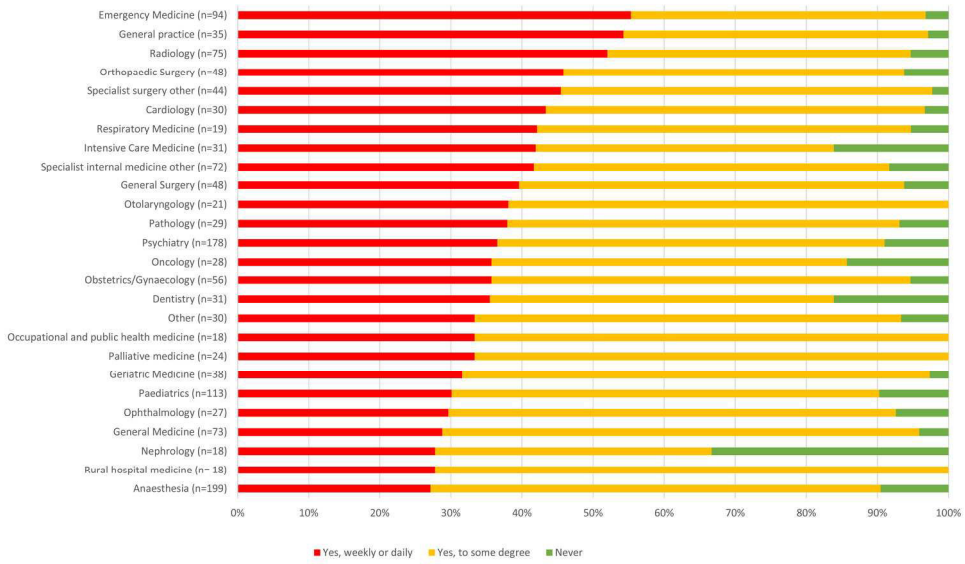

Figure 2: Prevalence of experiencing at least one negative behaviour (NAQ-r) by medical specialty.

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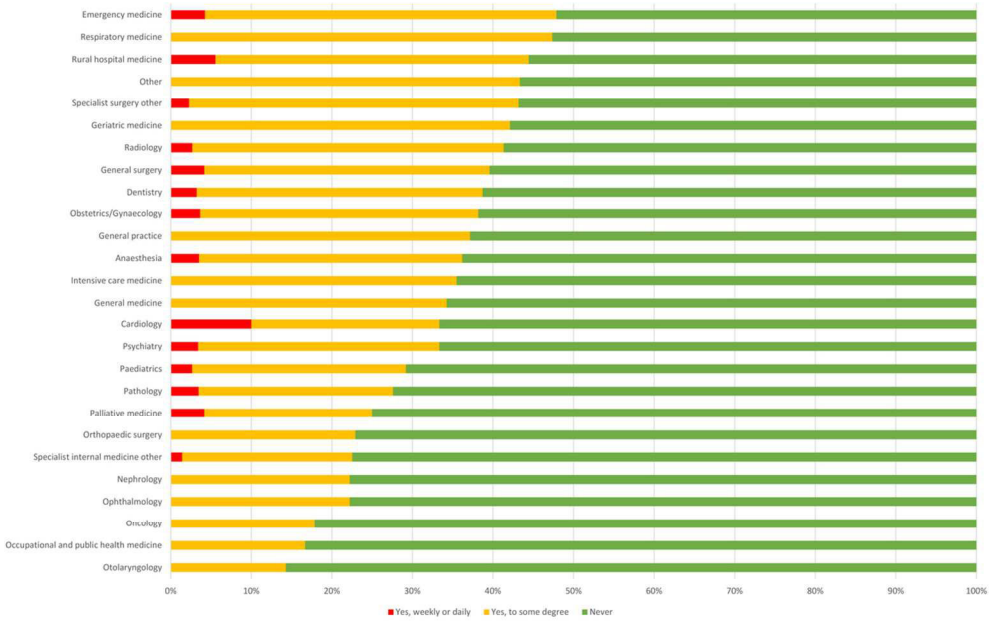
Appendix 1

Grouped specialties:	Specialties included:	n
Psychiatry	Addiction medicine	6
	Psychiatry	162
	Psychogeriatrics	10
Specialist surgery 'other'	Cardiothoracic surgery	5
	Neurosurgery	4
	Oral & Maxillofacial Surgery	3
	Paediatric surgery	4
	Plastic & reconstructive surgery	13
	Vascular surgery	10
	Urology	5
Other	Clinical Genetics	3
	Medical Administration	3
	Other incl. requests for anonymity	20
	Rehabilitation Medicine	4
Specialist internal medicine 'other'	Dermatology	6
	Endocrinology	5
	Gastroenterology	12
	Haematology	15
	Immunology	2
	Infectious Diseases Medicine	5
	Neurology	12
	Obstetric Medicine	4
	Rheumatology	11
Paediatrics	Developmental Paediatrics	2
	Neonatology	10
	Paediatric other	15
	Paediatric oncology	6
	Paediatric haematology	1
	Paediatric cardiology	3
	Paediatrics	76
General practice	General Practice	21
	Family Planning & Reproductive Health	4
	Accident & Medical Practice	2
	Sexual Health Medicine	8
Oncology	Medical Oncology	18
	Radiation Oncology	10
Occupational and public health medicine	Occupational Medicine	3
	Public Health Medicine	15
Anaesthesia	Anaesthesia	191
	Pain Medicine	8
Palliative medicine	Paediatric palliative care	1
	Palliative Medicine	23



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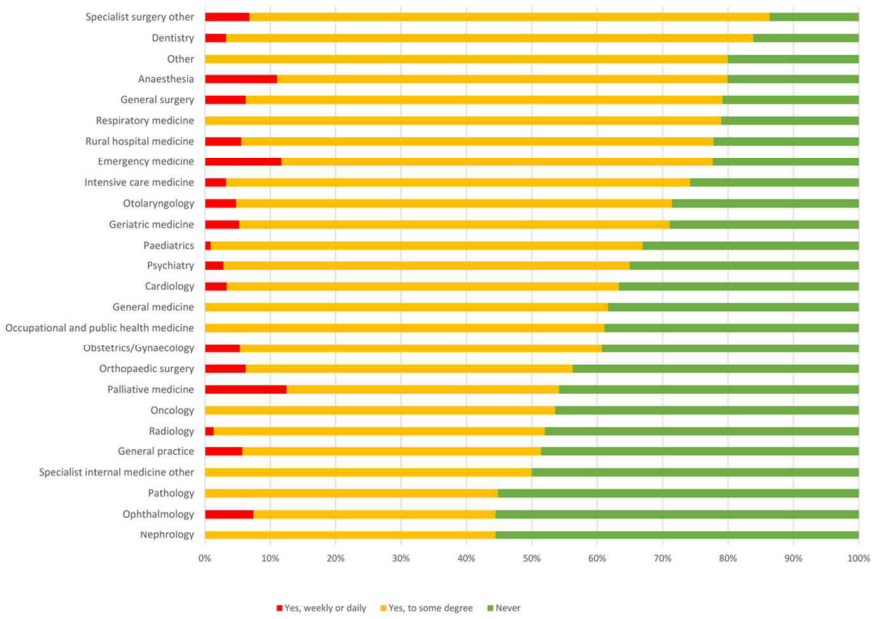

113x73mm (300 x 300 DPI)

STROBE 2007 (v4) Statement—Checklist of items that should be included in reports of *cross-sectional studies*

Section/Topic	Item #	Recommendation	Reported on page #
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract	1
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	2
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	3
Objectives	3	State specific objectives, including any prespecified hypotheses	1
Methods			
Study design	4	Present key elements of study design early in the paper	4
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	1,4
Participants	6	(*a*) Give the eligibility criteria, and the sources and methods of selection of participants	4
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	4-5
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	4-5
Bias	9	Describe any efforts to address potential sources of bias	*14-15*
Study size	10	Explain how the study size was arrived at	4
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	4-5
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	4-5
		(*b*) Describe any methods used to examine subgroups and interactions	4-5
		(*c*) Explain how missing data were addressed	6
		(*d*) If applicable, describe analytical methods taking account of sampling strategy	
		(*e*) Describe any sensitivity analyses	4-5
Results			

Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	6
		(b) Give reasons for non-participation at each stage	Throughout
		(c) Consider use of a flow diagram	n/a
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	6-7
		(b) Indicate number of participants with missing data for each variable of interest	7
Outcome data	15*	Report numbers of outcome events or summary measures	8-9
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	Throughout as applicable
		(*b*) Report category boundaries when continuous variables were categorized	n/a
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	n/a
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	9-10
Discussion			
Key results	18	Summarise key results with reference to study objectives	13
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	14-15
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	13-14
Generalisability	21	Discuss the generalisability (external validity) of the study results	13-14
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	n/a

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.

BMJ Open

"It feels like being trapped in an abusive relationship": bullying prevalence and consequences in the New Zealand senior medical workforce; a cross-sectional study

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Title: "It feels like being trapped in an abusive relationship": bullying prevalence and consequences in the New Zealand senior medical workforce; a cross-sectional study

Corresponding author: Charlotte N. L. Chambers, Ph.D., MSc
Principal Analyst, Association of Salaried Medical Specialists
PO Box 10763, Wellington, 6143, New Zealand
Email: CC@asms.nz
Phone: 0064 4 499 1271
Fax: 0064 4 499 4500

Co-authors: Christopher M.A. Frampton, Ph.D., BSc,
Professor, University of Otago, Christchurch, New Zealand

Martin McKee, CBE MD DSc FMedSci
Professor, London School of Hygiene and Tropical Medicine, London, United Kingdom

Murray Barclay, MD, FRACP, AGAF
Clinical Professor, University of Otago, Christchurch, New Zealand

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ABSTRACT

Objectives: To estimate prevalence of and factors contributing to bullying amongst senior doctors and dentists in New Zealand's public health system, to ascertain rates of reporting bullying behaviour, perceived barriers to reporting and the effects of bullying professionally and personally.

Design: Cross-sectional, mixed methods study.

Setting: New Zealand.

Participants: members of the Association of Salaried Medical Specialists (40.8% response rate).

Main outcome measures: Prevalence of bullying was measured using the Negative Acts Questionnaire (revised) (NAQ-r). Workplace demands and level of peer and managerial support were measured with the Health and Safety Executive (HSE) Management Standards Analysis tool. Categories of perpetrators for self-reported and witnessed bullying and barriers to reporting bullying were obtained and qualitative data detailing the consequence of bullying were analysed thematically.

Results: The overall prevalence of bullying, measured by the NAQ-r, was 38% (at least 1 negative act on a weekly or daily basis), 37.2% self-reported and 67.5% witnessed. There were significant differences in rates of bullying by specialty (p=0.001) with emergency medicine reporting the highest bullying prevalence (47.9%). The most commonly cited perpetrators were other senior medical or dental specialists. 69.6% declined to report their bullying. Bullying across all measures was significantly associated with increasing work demands and lower peer and managerial support (p=0.001). Consequences of bullying were wide ranging, affecting workplace environments, personal well-being and subjective quality of patient care.

Conclusions: Bullying is prevalent in New Zealand's senior medical workforce and is associated with high workloads and low peer and managerial support. These findings help identify conditions and pressures that may encourage bullying and highlight the significant risk of bullying for individuals and their patients.

ARTICLE SUMMARY

Strengths and limitations of the study:

- Strengths include being the first study to report prevalence of bullying using the NAQ-r in a multi-specialty nationwide survey of medical specialists in any country.
- It fills a gap in the otherwise scant literature on senior medical professionals as victims of bullying.
- It extends the understanding of bullying as a multicausal phenomenon, demonstrating the roles of increasing work demands and low peer and managerial support, as well as suggesting opportunities for mitigation.
- Limitations include a moderate participation rate and use of self-reported data
- The cross-sectional design limits the scope for causal inference.

INTRODUCTION

Workplace bullying in medicine is a cause of on-going concern in several countries. Described as the most 'destructive phenomenon plaguing medical culture'[1] it poses significant risks to patient safety and quality of patient care[2], staff morale and job satisfaction[3] and the physical and psychological wellbeing of doctors and their co-workers[4,5].

Workplace bullying is defined as an escalating process where individuals repeatedly and over a period of time experience negative actions and behaviours from the people they encounter at work[6,7]. Bullying behaviours may range from overt aggression and violence to subtle and indirect acts. The intent of the behaviour(s) is not the primary consideration; it is the impact on and perception of the victim that is key in determining whether or not bullying has occurred[8,9].

The antecedents of workplace bullying are many and complex. The high rates of bullying experienced by junior doctors and trainees, for example, have been ascribed to the hierarchical model of medical training with bullying described as a necessary but unpleasant 'rite of passage'[1,10]. Factors known to encourage bullying include stressful and demanding work environments[11] competitive and unsupportive workplace cultures [8] and normalisation of incivility and rudeness in common conduct[12].

Research commissioned by the Royal Australasian College of Surgeons (RACS) in 2015 found almost half of all surgeons in New Zealand and Australia had experienced some form of inappropriate behaviour, with trainees reporting the highest reported levels of bullying amongst those surveyed[13]. Surgical directors or consultants were found to be the main perpetrators. Much less is known about the prevalence and consequences of bullying experienced by consultants and specialists in other specialities. In the New Zealand context, specialists are defined as any medical practitioner who is vocationally registered by the Medical Council of New Zealand in an approved branch of medicine. Of the known studies that have focussed on senior doctors, the focus has been on bullying prevalence in specific medical specialties for example, Australian general surgery consultants[14], Australasian fellows of the college of intensive care medicine[15] or obstetrics and gynaecology consultants working in the British National Health Service (NHS)[16].

To the best of the authors' knowledge, no studies to date have specifically assessed the prevalence of bullying in medical specialists in a multispecialty, multicentre nationwide survey. This study addresses this knowledge gap by investigating the prevalence of bullying amongst senior doctors and dentists of different specialties working in New Zealand's public health system. The study also explores correlates of experiencing negative behaviours, including medical specialty, gender and ethnicity as well as perceived levels of workplace demands and support from peers and non-clinical managers. Finally, the study examines the nature and extent of barriers to formally reporting bullying behaviour as well as the consequences of bullying on the professional and personal lives of respondents.

METHODS

Participants

Participants were members of the Association of Salaried Medical Specialists (ASMS) who are medical and dental specialists, and other non-specialist registered medical officers, employed by New Zealand's 20 District Health Boards (DHBs) and other medical employers around the country such as the national blood service and community health providers. DHBs provide inpatient and outpatient healthcare for geographically defined populations within New Zealand's health system and are the main employers of health professionals working in the public sector. The ASMS is the professional association and union for senior doctors and dentists in New Zealand. For ease of description, these ASMS members are referred to as medical specialists or as the senior medical workforce. At the time of the survey the ASMS represented over 90% of all senior doctors and dentists and other non-vocationally registered medical specialists employed within New Zealand's DHBs and approximately 77% of non-DHB employers.

The entire ASMS membership (4307 individuals) was invited by email to participate voluntarily in an anonymous electronic survey in June 2017. The invitation emphasised the anonymous nature of the survey and noted that analysis would not be undertaken on a line-by-line basis to encourage participation. The survey was deemed outside of scope for ethical review by the New Zealand Health and Disability Ethics Committee (HDEC) due to the anonymous nature of the survey and the type of data requested. The survey was open for 1-month and 4 reminders were sent out to encourage participation. Demographic information, including age, gender, main place of work, ethnicity, and country of primary medical qualification, was requested, summarised and described.

Measures

Prevalence of workplace bullying was measured with the negative acts questionnaire (revised) (NAQ-r), developed by Einarsen, et al. [17]. The NAQ-r is accepted as a robust tool to quantify bullying in international contexts as it combines both an operational approach to establishing bullying prevalence as well as a single item measure of perceived victimisation[18]. The first part of the NAQ-r scores how often respondents have experienced 22 types of behaviours over the past 6 months (never=1, now and then=2, monthly=3, weekly=4, daily=5). Overall scores were computed with a possible range of 22 (never experienced any behaviours) to 110 (experiencing all behaviours on a daily basis). The NAQ-r comprises three interrelated subscales of bullying; work-related, person-related and physically intimidating bullying, which enables an analysis of the prevalence of the different types of negative behaviours.

After the NAQ-r questions had been answered, a definition of workplace bullying was provided: '*bullying at work refers to situations where one or more persons feel subjected to negative and/or aggressive behaviour from others in the workplace over a period of time and in a situation where they for different reasons are unable to defend themselves against these actions'[adapted from 19]*. On the basis of this definition, respondents were asked whether they had witnessed bullying of other staff or colleagues and whether they had been subjected to bullying over the past 6 months. Responses were on a 5-point Likert scale (never; yes, rarely; yes, now and then; yes, several times per week; and yes, almost daily).

Bullying prevalence from the NAQ-r was established according to Leymann's criteria as experiencing at least one negative act on a daily or weekly basis over a 6 month period[20]. For both witnessed and self-report responses, bullying was identified if any of the affirmative responses, i.e., very rarely, now and then, several times a week and almost daily, were endorsed.

Those respondents who reported either witnessing or self-reporting bullying were asked to select the main categories of perpetrators of the bullying and those who self-reported were asked whether they had reported the behaviours, what the outcomes of reporting were and if they had not reported them, the main reasons why.

Levels of workplace demand (including factors such as workload and the work environment) and support from colleagues and non-clinical managers were measured using 17 items from the Health and Safety Executive Management standards analysis tool[21] asking about experiences at work over the past six months (never=1 to always =5 and work demands never = 5 to always = 1). Total scores for each of these three subscales were calculated and the scores for workplace demands reversed, so that higher scores reflected higher demands.

A chi-square goodness of fit test was used to compare the mixture of gender and DHB groups in the respondent group with the known distributions for the full ASMS. Differences in mean scores for the individual questions in the NAQ-r and the health and safety executive management scales between demographic, specialty and country of training (NZ v IMG) groups were tested using 1-way Analysis of variance (ANOVA). The differences in the percentages experiencing the different types of bullying were compared amongst the groups using chi-square tests. Spearman's correlation coefficients were used to test the associations between HSE scales and the NAQ-r scales and the frequency of witnessed and respondent's self-reporting of being bullied. ANOVA was used to test construct validity between those scoring as a victim of bullying using self-report data and those with higher total sum scores on the NAQ-r. A two-tailed p-value <0.05 was used to define statistical significance.

Qualitative data were extracted from comments from respondents who self-identified as bullied. These respondents were asked to describe the impact of bullying on their personal and professional lives. Data from the comments section were imported into NVivo pro (V.11), read through in detail and open coded. This coding resulted in 23 recurring themes that were grouped into 3 umbrella categories pertaining to the severity of the consequences of the bullying behaviour, namely significantly, moderately and little effects/managing , consistent with a study by Shabazz, et al. [16]. This process followed the broad tenets of grounded theory where qualitative data is organised into emergent themes through iterative coding with the resultant themes understood to reflect the perspectives of the research participants[22]. Comments selected for inclusion were those that best expressed the various themes. Comments were transcribed directly, and where sections were omitted, ellipses ('…') signify the break. Any words replaced or altered to preserve anonymity, tense or sense are noted within square brackets ('[ ]').

RESULTS

Responses were received from 40.8% (n=1759) of the ASMS membership. 56.8% (n=862) were male and 43.2% (n=655) female. 242 respondents did not disclose their gender and occasionally other items were not completed. The majority of respondents were New Zealand trained (58.1%) and identified as New Zealand European (Pākehā) (59.4%). 59 specialty and sub-specialties were represented in the study which were grouped into 26 major specialty categories for analyses (see Appendix 1). Some comments left in open text boxes expressed fear of identification and this was also raised in 4 emails despite reassurances in the invitations to participate in the research as to the anonymous nature of the survey. Analysis was undertaken on the most complete data available for each summary or comparison and the actual numbers available are specified throughout. A full demographic summary of respondents is provided in Table 1.

The chi-square goodness of fit tests indicated a slight overrepresentation of females in the sample, (43% compared with 38% in the ASMS) and the overrepresentation of a single DHB in the sample (6% compared with 4%). Apart from these two examples, the respondents were generally representative of the full ASMS membership

Table 1: Demographic composition of survey respondents

Gender	**N**	**%**
Females	862	56.8
Males	655	43.2
Not disclosed	*242*	
Age bracket	**n**	**%**
30-39	182	11.6
40-49	577	36.8
50-59	545	34.8
60-69	235	15.0
70 and over	29	1.8
Not disclosed	*191*	
Ethnicity categories	**n**	**%**
NZ European/Pākehā	919	59.4
Māori/Pasifika (Samoan, Cook Island Māori, Tongan, Fijian)	31	2.0
Asian/Indian (Southeast Asian, Chinese, Indian, Other Asian)	165	10.7
European/other European	315	20.4
Other (Middle Eastern, Latin American/Hispanic, African, 'other')	117	7.6
Not disclosed	*212*	
Country of primary medical qualification	**n**	**%**
New Zealand	888	58.1
International medical graduate	638	41.9
Not disclosed	*230*	
Medical specialty	**n**	**%**
Anaesthesia	199	14.3
Cardiology	30	2.1
Dentistry	31	2.2
Emergency medicine	94	6.7
General medicine	73	5.2
General practice	35	2.5
General surgery	48	3.4
Geriatric medicine	38	2.7
Intensive care medicine	31	2.2
Nephrology	18	1.3
Obstetrics/Gynaecology	56	4.0
Occupational and public health medicine	18	1.3
Oncology	28	2.0
Ophthalmology	27	1.9
Orthopaedic surgery	48	3.4
Other	30	2.1
Otolaryngology	21	1.5
Paediatrics	113	8.1
Palliative medicine	24	1.7
Pathology	29	2.1
Psychiatry	178	12.8
Radiology	75	5.4
Respiratory medicine	19	1.4
Rural hospital medicine	18	1.3
Specialist internal medicine other	71	5.1
Specialist surgery other	44	3.2
Not disclosed	*363*	

Prevalence of negative behaviours

The overall mean NAQ-r score was 31.4, with a maximum score of 102. Based on the NAQ-r, 93% (n=1575) of respondents had experienced at least one negative behaviour at least once over the last 6 months and 38.1% (n=645) had experienced at least one negative behaviour on a daily or weekly basis. 24.9% had experienced two negative behaviours on a weekly or daily basis and 6.7% (n=114) had experienced at least 5 on a daily or weekly basis.

Analysis of the NAQ-r subscales revealed negative work-related behaviours (49.9%) were more prevalent and occurred on a more regular basis than negative person-related (25.3%) or physically intimidating behaviours (16.7%). The most prevalent work-related behaviours experienced on a daily or weekly basis were being exposed to an unmanageable workload (21.2%) and being ordered to do work below your level of competence (14.4%). Being ignored or excluded and having key areas of responsibility removed or replaced with more trivial or unpleasant tasks were the most frequently experienced negative person-related behaviours occurring on a weekly or daily basis (9% and 7.3% respectively). While infrequent, 24 respondents (1.4%) had experienced being shouted at or spontaneous anger on a weekly or daily basis and 11 (0.7%) had experienced threats of violence or actual abuse at the same frequency. Detailed scores for all 22 NAQ-r behaviours are presented in Figure 1.

There was no significant difference in the overall mean NAQ-r score by gender (female mean=32.7, male mean=32.3) although women (mean 3.72) had a significantly higher mean NAQ-r sub-scale score for physically intimidating behaviour than men (mean 3.55), p=0.011. A higher proportion of female respondents experienced at least one or more negative behaviours than their male counterparts (94.8% vs. 91%, p=0.004). Specific questions in the NAQ-r for which women had a higher mean score are noted with # in Figure 1.

There were significant differences in mean scores by age-group (p<0.001). Respondents aged 40-49 and 50-59 had higher than average NAQ-r scores and further analysis of frequency scores found respondents aged 40-49 and 50-59 also experienced significantly higher prevalence of bullying behaviours than other age groups. Specific questions in the NAQ-r for which there was significant variance by age group are noted with * in Figure 1.

Ethnicity was significantly associated with experiencing one or more negative behaviours (p=0.037) with Asian ethnicities reporting the lowest prevalence (89.1%) overall. There were no significant associations of ethnicity with overall or sub-scale mean scores but some ethnicities experienced higher levels of some behaviours noted by $ in Figure 1. International medical graduates (IMGs) reported significantly higher mean scores for person-related bullying than New Zealand trained specialists (16.7 vs. 15.9, p= 0.012) and reported higher levels of experiencing 5 behaviours (noted with @ in Figure 1) than New Zealand trained specialists.

There were significant differences amongst the medical specialties in the NAQ-r overall mean (p=0.032) and subscale scores as well as prevalence of negative behaviours (p=0.006). Specialists in emergency medicine and general surgery reported the two highest mean overall NAQ-r scores (35.8 and 35.7 respectively). Respondents from emergency medicine had the highest mean sub-scale scores for work-related and physically intimidating bullying behaviour (14.4 and 4.2 respectively) as

well as the highest prevalence of bullying behaviours experienced on a weekly or daily basis (55.7%). Behaviours with significant effects of medical specialty are noted with ∞ in Figure 1. Prevalence of experiencing at least one negative behaviour (NAQ-r) by medical specialty is summarised in Figure 2.

Figure 1: Frequency and percentage of respondents experiencing negative behaviours over the past 6 months (NAQ-r) Sub-scale questions: 1= Work-related bullying 2=person-related bullying 3=physically intimidating bullying.
^ = collapsed frequencies of 'now and then' and monthly
* behaviours with significant variance by age group
# behaviours with a significantly higher prevalence for female respondents compared to male respondents
$ behaviours with significant variance by ethnicity
@ behaviours with significantly higher prevalence for IMG respondents compared to NZ-trained respondents
∞behaviours with significant variance by medical specialty

Figure 2: Prevalence of experiencing at least one negative behaviour (NAQ-r) by medical specialty.

Overall prevalence of self-report and witnessed bullying

37.2% (n=606) self-reported having been bullied 'to some degree' (i.e. from very rarely to almost daily) over the last 6 months. 2.5% (n=40) reported that they had been bullied either several times a week or almost daily. The corresponding figures for witnessing bullying were almost twice as high with 67.5% (n=1109) reporting that they had witnessed colleagues being bullied to some degree (i.e. from very rarely to almost daily) over the last 6 months. 4.7% (n=78) reported that they had witnessed bullying either several times a week or almost daily. Women were significantly more likely to self-report bullying compared with their male counterparts (39.9% vs 32.3%, p=0.002). There were also significant differences in rates of self-report 'to some degree' (p=0.033) and significant differences in frequency of witnessing bullying (p=0.001 'to some degree' and 'weekly or daily') by medical specialty (supplementary figures a and b). There were no other significant differences in rates of self-report or witnessed bullying rates by other demographic variables. Prevalence data for self-report and witnessed bullying is summarised overall and by gender in Table 2.

Table 2: Prevalence of self-report and witnessed bullying with significant variance by demographic variable

	Self-report as bullied						Witnessed bullying of other staff or colleagues					
	No		Yes, to some degree		Yes, weekly or daily		No		Yes, to some degree		Yes, weekly or daily	
	n	%	n	%	n	%	n	%	n	%	n	%
Overall	1022	62.8	606	37.2	40	2.5	535	32.5	1109	67.5	78	4.7
Females	392	60.1	260	39.9*	17	2.6	199	30.4	455	69.6	34	5.2
Males	583	67.7	278	32.3*	21	2.4	299	34.8	561	65.2	40	4.7

*p<0.001

Note: totals for each block differ because of missing data

Associations with bullying, workplace demands, peer and non-clinical manager support

Non-parametric Spearman's correlations revealed significant associations between the three HSE sub-scales, with levels of workplace demands increasing with decreasing levels of peer and managerial support (all correlations >0.28). There was a strong association between being exposed to higher workplace demands and increasing overall NAQ-r and NAQ-r sub-scale scores. Low levels of peer-support were also strongly associated with higher overall NAQ-r and person-related bullying

scores. Similarly, high levels of workplace demands were associated with higher levels of work-related bullying. Witnessing and self-reporting bullying were also associated with high workplace demands, low levels of peer support and low levels of managerial support as detailed in Table 3.

Table 3: Correlations between bullying measures and levels of workplace demands, peer and managerial support

Correlations (Pearson correlation)	**Level of workplace demands**	**Level of peer support**	**Level of non-clinical managers' support**
NAQ-r score	0.464**	-0.574**	-0.463**
Physically intimidating bullying sub-scale score	0.246**	-0.319**	-0.214**
Person-related bullying sub-scale score	0.284**	-0.565**	-0.408**
Work-related bullying sub-scale score	0.608**	-0.491**	-0.464**
Frequency of witnessing bullying	0.229**	-0.315**	-0.253**
Frequency of self-reporting as bullied	0.379**	-0.461**	-0.379**

**All correlations are statistically significant at p<0.001

Perpetrators and reporting of bullying behaviour

Of the 606 respondents who self-reported as bullied, other senior medical or dental staff were the most commonly cited perpetrators (52.5%) followed by non-clinical managers (31.8%) and clinical leaders (24.9%). The largest share of respondents reported that perpetrators were mainly male (36.8%) followed by those reporting equal numbers of male and female (35.5%).

30.4% (n=182) of those who self-reported as bullied formally reported the behaviour experienced. Of the 415 who did not report it, 407 provided reasons why. Table 1 details the most common reasons for not reporting. Notably, 43.5% felt that they would not be supported and 42% felt that reporting would make the situation worse.

Table 1: Summary of reasons for not reporting bullying behavior

Why did you not report this behaviour?*	**n**	**%**
I was concerned that reporting the issue would make the situation worse	171	42.0
I did not know who to report the issue to	45	11.1
I felt I would not be supported if I reported the issue	177	43.5
I was concerned about the impact that reporting the issue would have on my career	112	27.5
The behaviour stopped and has not recurred	26	6.4
The person I would normally report the issue to is the perpetrator	115	28.3
Other (please specify)	127	31.2

*respondents could select more than one reason

Explanations in the 'other' section expressed choosing not to report due to the behaviours being normalised: *"I have come to accept this as the culture of the institution I feel I cannot trust the people who I could report".* Others noted that the behaviour was something that they accepted as simply part of the job *"[aggressive] behaviour from upset parents has always been part of my job. It makes me feel shaken and I generally would have a cup of tea with a colleague afterwards. Never considered a formal report"*. Some simply stated that *"I have more important things to worry about".*

Of the 182 who reported their bullying experience, 30.8% noted that the issue was not addressed and the behaviour continued, while 20.9% stated that the issue was addressed but not resolved and the behaviour continued. 'Other' outcomes (28.6%) included the issue being currently under review as well as people noting either a dismissal of the reporting *"I mentioned to head of department and he said, 'yes they can be difficult sometimes' ""* as well as extreme consequences such as resigning or

changing roles *"[eventually] I resigned and moved to be as far away from possible from the person. Restructuring later occurred and that person has now left. The service has been traumatised and is still healing from his 2 years of reign".*

Consequences of bullying on professional and personal lives

The effects of bullying, as reported by those who self-identified as having been bullied and chose to leave comments (n=563), were many and varied with 'moderate' consequences the most frequently reported. Respondents described feeling disillusioned, isolated, fearful, and lacking in trust. Others detailed the significant personal and professional costs of bullying including depressive episodes and feelings of burnout. Some detailed feelings of distress and upset when their stress and frustration spilled over from work into their interactions with partners or children. Thirty one comments described bullying as significantly circumscribing their ability to innovate or improve clinical service delivery due to poor communication and a tendency to resort to defensive medical practice. Some felt that this ultimately affected the timeliness and quality of patient care: *"[it] makes you reluctant to engage a second time to discuss patient management. A delay in or wrong decision to discharge is then made. Over-monitoring by a non-clinical [manager] then has you working defensively. Add abuse from patients for not meeting expectations and weekly passive aggressive reminders that targets are not being met...".* A full summary of themes and illustrative comments is detailed in Table 5.

Table 5: Summary of themes and illustrative comments

Themes: (NB: comments could reference multiple themes simultaneously)	**Illustrative comments:**
Minor consequence/coping • Dealt with bully personally (n=3) • Coping by acquiescence, retreat, keeping head down (n=21) • Little effect or no significant impact (n=49)	"Recognise the behaviour and dismiss it and remain calm... Does not affect me and I do not try to defend against allegations made. Have had many years of practice."
Moderate consequences: • Defamation, character attacks, unfounded gossip or rumours (n=12) • Not wanting to go to work (n=20) • Undermining of abilities or professional standing (n=20) • Feeling unappreciated and/or unacknowledged (n=20) • Affected sleep (n=26) • Reduced hours and level of involvement (n=28) • Impeded ability to innovate or improve clinically (n=31) • Anger, irritation, frustration (n=42) • Loss of self-confidence and faith in abilities (n=42) • Affected personal life or home dynamic (n=49) • Compromised ability to work or perform to usual standards (n=51) • Negative work dynamic resulted (n=52) • Affected collegiality and willingness to collaborate (n=59) • Anxiety, loss of trust, faith in system, feeling isolated (n=66) • Disillusionment loss of enjoyment or love of job (n=76)	"For the first time in 19 years working as a doctor, I dislike coming to work. I am anxious and sleep poorly. I am struggling in my personal relationships because I feel like I should be able to cope but don't seem to be able to…I often feel unsafe now at work, and I worry that my experience here will have a negative impact on future positions I apply for. I am considering leaving the field of medicine because of my experience at this particular DHB."
	"As the person doesn't speak, communicate or interact with [me] and hasn't for 2.5 years. I am at a loss as to how to fulfil my role...[I'm] basically guessing what to do. Plus [I] have been undermined and humiliated and disenfranchised and the staff I give clinical guidance to know it. I have lost confidence in myself and in my professional abilities."
	"… Bullying wrecks a whole week. It leads to self-doubt and second guessing. It takes a long time to recover from. It is poorly recognised. It is difficult as an SMO to call out on bullying as it is a sign of weakness. Therefore, many of us put up with it especially in a system where we are overworked with unrealistic schedules and no hope of making an improvement."
	"You pull back and do the bare minimum to keep a service running. Bringing the behaviour to the attention of managers further up the pecking order has made no difference. Patient health is at risk."
	Professionally it has affected my enjoyment of my job and I am considering moving to another DHB as I feel that I am so intimidated at times that I am unable to do my job to the best of my abilities. At times it is intolerable. The behaviour has caused me stress which has spilled over into my personal life too.
Significant consequences • Taken leave (n=7) • Burnout, mental health issues, depression (n=25) • Significant stress (n=58) • Contemplating leaving, early retirement, quitting medicine (n=64)	"I fear going to work. I feel as if I am being watched the whole time. I feel as though it doesn't matter how good my clinical work is, that my manager and [clinical director] will find a way to put a negative spin on it… I have lost confidence in myself as a doctor and a person. I feel disempowered... I am very anxious about work. This affects my sleep, which makes me worry more… I find it harder to trust people in general, and am more defensive…I am less patient with my children, as I feel so stressed. It feels like being trapped in an abusive relationship… I often dream of leaving. I often feel I have wasted my life, investing so much of myself in my work, when it is not valued by my seniors, even though patients value what I do. …I see patient care compromised, and the quality of the service being eroded. …I feel ethically compromised every day"

DISCUSSION

This study reports the first multicentre multispecialty study into the prevalence of workplace bullying in a senior medical workforce across an entire country, including the sources of such behaviour and rates of and barriers to reporting. It extends existing research by examining associations between bullying prevalence and perceptions of workload and peer and managerial support. It addresses the extensive methodological debate about how to measure workplace bullying, including both 'inside', or self-report measures and 'outside', or peer report methods[23]. It also combines quantitative and qualitative data, with analysis of the latter, describing personal and professional impacts of bullying, further adding to the strengths of this study. Other approaches, such as focus group discussions, or critical incident analysis would not be feasible on a large scale.

Over a third of this sample of senior doctors and dentists working in New Zealand's public health system are regularly exposed to a wide range of negative behaviours at work. Over a third self-report as being bullied and over two thirds report witnessing bullying of colleagues. The results overall suggest exposure to some degree of negative behaviour is ubiquitous in this senior medical workforce, with work-related bullying especially common.

The strong associations between decreasing peer and managerial support, increasing workplace demands and increasing frequencies of all measures of bullying are of note. These findings contribute to the literature which views bullying as a phenomenon with multiple antecedents, and emphasise the impact of stressful workplaces with poor organisational cultures where bullying may be normalised as a coping strategy[6,9,24]. Conversely, these associations suggest that having good relationships with peers and those in managerial positions might act as a buffer against bullying. It is also worth noting that even in workplaces with high stress and demands, bullying is not always an inevitable consequence[12].

The application of the NAQ-r enables both an assessment of the types of behaviours most commonly experienced as well as the frequency of the bullying experienced in a manner that provides for international comparisons as well as highlighting specific issues requiring action. Overall NAQ-r prevalence in this study is higher than the rates of bullying reported in Australasian studies applying the same methodology [14,25] The NAQ-r mean score and 37% self-report prevalence scores were also higher than in other international studies using the NAQ-r such as Carter, et al. [24]. The difference in the rates of self-reported (37%) and witnessed bullying rates (67.5%) is consistent with trends reported in other studies [3,26]. This differential may be ascribed to a reluctance by individuals to self-identify as a 'victim'[27], but it is equally possible that some respondents may witness the same person being bullied thus potentially overreporting bullying prevalence.

The statistically significant differences in NAQ-r mean scores and self-report bullying rates by age, medical specialty, and for some of the sub-scale scores, gender, ethnicity, medical specialty, and country of medical training, are concerning. They suggest that while bullying is experienced across the board, there are pockets of higher prevalence of certain behaviours for specific groups of individuals that warrant further investigation and organisational action. For example, the finding that international medical graduates are more likely to experience person-related bullying should be of concern given New Zealand's high reliance on IMGs[28]

The findings from this study confirm the impression given by the existing literature that certain medical specialties experience higher prevalence of bullying than others. The high self-report prevalence (47.9%) and NAQ-r scores for specialists in emergency medicine is, methodological differences notwithstanding, higher than the 34.5% bullying prevalence reported by the Australasian College of Emergency Medicine which surveyed all fellows of the college, including trainees[29]. At the time of both surveys, many emergency departments around the country were reporting higher than usual demands on their services over the winter period[30]. In light of broader workforce pressures including poor resourcing, staffing shortages and high levels of burnout in this workforce[31], it is not hard to conceive that negative interpersonal interactions, particularly if they are already normalised in the workplace, may escalate as a way to 'get things done' in times of significant stress[32].

Also consistent with studies was the finding that other senior medical staff were the main perpetrators of self-reported and witnessed bullying behaviour (52.5% overall). These findings highlight the significant problem of peer-to-peer bullying in this section of the medical workforce. Little research to date has revealed the extent to which other senior medical and dental staff bullying each other and this finding is, while not entirely unexpected, of great concern.

The low rates of reporting, largely due to the fear of exacerbating the situation or not receiving support, suggests that considerable effort is still required to facilitate better reporting systems and procedures for handling bullying complaints. It is of further concern that, for the majority of those who did formally report bullying behaviour, the issue was not addressed and the behaviour continued. This suggests that despite the rhetoric, much work remains to be done to improve the outcomes for those who do choose to report.

These findings have considerable relevance for those charged with improving the working conditions of this vital component of the medical workforce. Previous research has revealed a correlation with sickness absence, although the direction of causation is unclear[33]. A Finnish study found that those who experienced bullying were more likely to use sedatives and hypnotics, with potential consequences for their performance[34]. The same study found greater levels of stress in those who were the victims of bullying and those who observed it, compared with those in workplaces without bullying. However, they also have implications for those concerned for the quality of patient care[35]. As explicated in grim detail in the qualitative data, bullying has far-reaching consequences that do not stop at the individual. Working in an environment where bullying is both witnessed and experienced has clear consequences for the manner in which medical teams are able to function[16,36] and deliver the services upon which public health systems depend[2,37].

The results of this survey indicate a need for a comprehensive series of interventions not only to address problematic behaviours but to consider the broader implications of growing workloads, under-resourcing and understaffing for the health and wellbeing of this medical workforce and their patients.

It is possible that the topic of the survey may have motivated those who have experienced bullying to respond, resulting in responder bias. Nevertheless, the primary author received a number of emails from individuals who self-identified as bullied who chose not to participate in the study for a

variety of reasons including fear of identification. Thus, research in this area may contradict the common conception that responder bias favours those affected by the issue at hand. Regardless, given the moderate response rate, this study cannot be presumed to be representative of the views or experiences of the senior medical workforce in New Zealand as a whole. The cross-sectional design of the survey also means that causal relationships cannot be inferred and any discussion of the associations between demographic and other factors is not meant to imply causality or direction.

a. Contributorship statement: The research was designed and conducted by Dr Chambers, statistical analysis was performed by Prof Frampton and analysis and contributions were received from Prof Barclay and Prof McKee. All authors edited and revised the final submission and signed off on the final version.

b. Competing interests: There are no competing interests

c. Funding: There are no funders to report for this submission

d. Data sharing statement: no additional data available

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Figure legends:

Figure 1 and Figure 2

Yes, weekly or daily

Yes, to some degree

Never

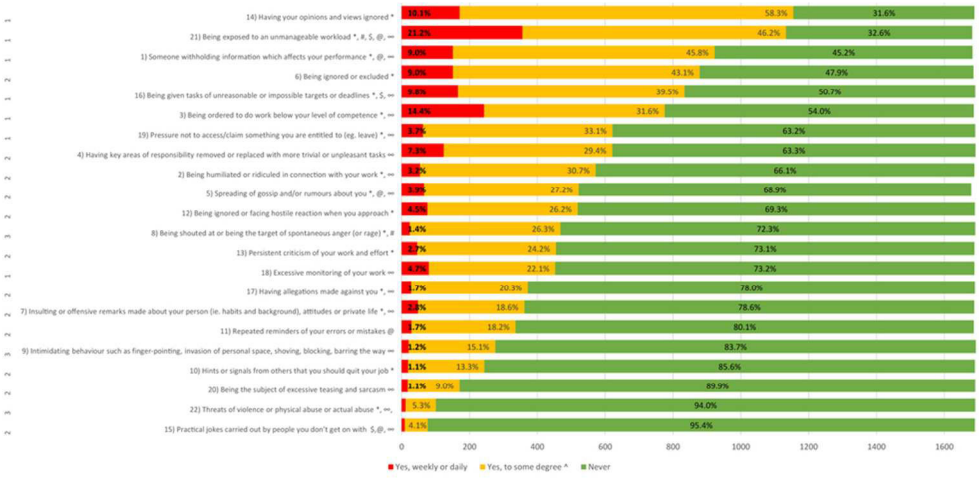

Figure 1: Frequency and percentage of respondents experiencing negative behaviours over the past 6 months (NAQ-r)

Sub-scale questions: 1= Work-related bullying 2=person-related bullying 3=physically intimidating bullying.

^ = collapsed frequencies of 'now and then' and monthly

* behaviours with significant variance by age group

behaviours with a significantly higher prevalence for female respondents compared to male respondents

$ behaviours with significant variance by ethnicity

@ behaviours with significantly higher prevalence for IMG respondents compared to NZ-trained respondents

∞behaviours with significant variance by medical specialty

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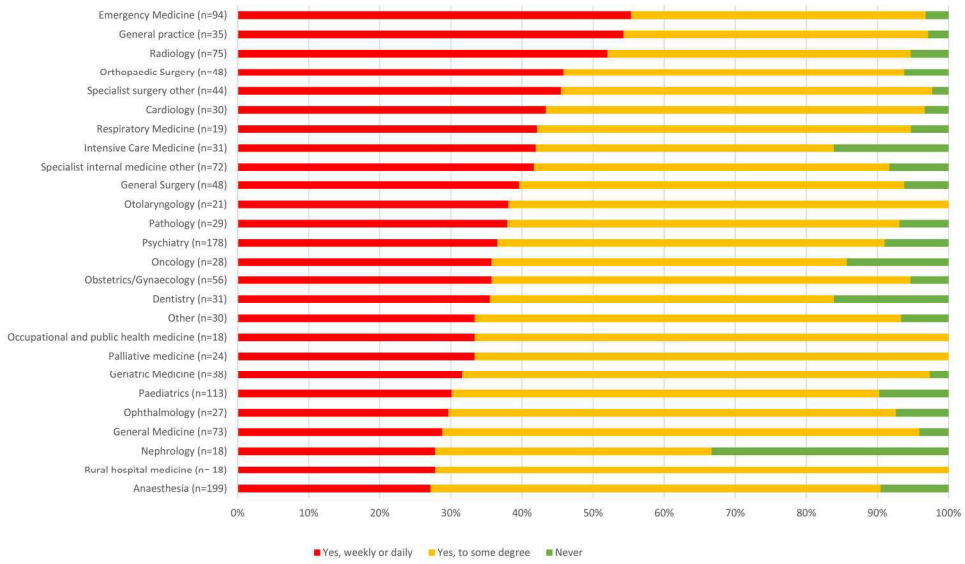

Figure 2: Prevalence of experiencing at least one negative behaviour (NAQ-r) by medical specialty.

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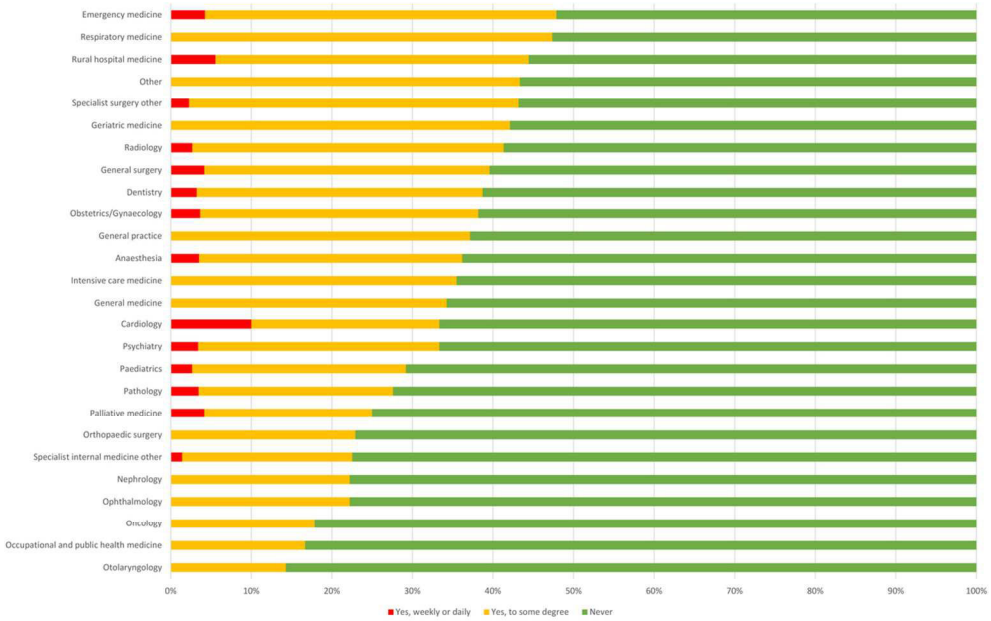
Appendix 1

Grouped specialties:	Specialties included:	n
Psychiatry	Addiction medicine	6
	Psychiatry	162
	Psychogeriatrics	10
Specialist surgery 'other'	Cardiothoracic surgery	5
	Neurosurgery	4
	Oral & Maxillofacial Surgery	3
	Paediatric surgery	4
	Plastic & reconstructive surgery	13
	Vascular surgery	10
	Urology	5
Other	Clinical Genetics	3
	Medical Administration	3
	Other incl. requests for anonymity	20
	Rehabilitation Medicine	4
Specialist internal medicine 'other'	Dermatology	6
	Endocrinology	5
	Gastroenterology	12
	Haematology	15
	Immunology	2
	Infectious Diseases Medicine	5
	Neurology	12
	Obstetric Medicine	4
	Rheumatology	11
Paediatrics	Developmental Paediatrics	2
	Neonatology	10
	Paediatric other	15
	Paediatric oncology	6
	Paediatric haematology	1
	Paediatric cardiology	3
	Paediatrics	76
General practice	General Practice	21
	Family Planning & Reproductive Health	4
	Accident & Medical Practice	2
	Sexual Health Medicine	8
Oncology	Medical Oncology	18
	Radiation Oncology	10
Occupational and public health medicine	Occupational Medicine	3
	Public Health Medicine	15
Anaesthesia	Anaesthesia	191
	Pain Medicine	8
Palliative medicine	Paediatric palliative care	1
	Palliative Medicine	23



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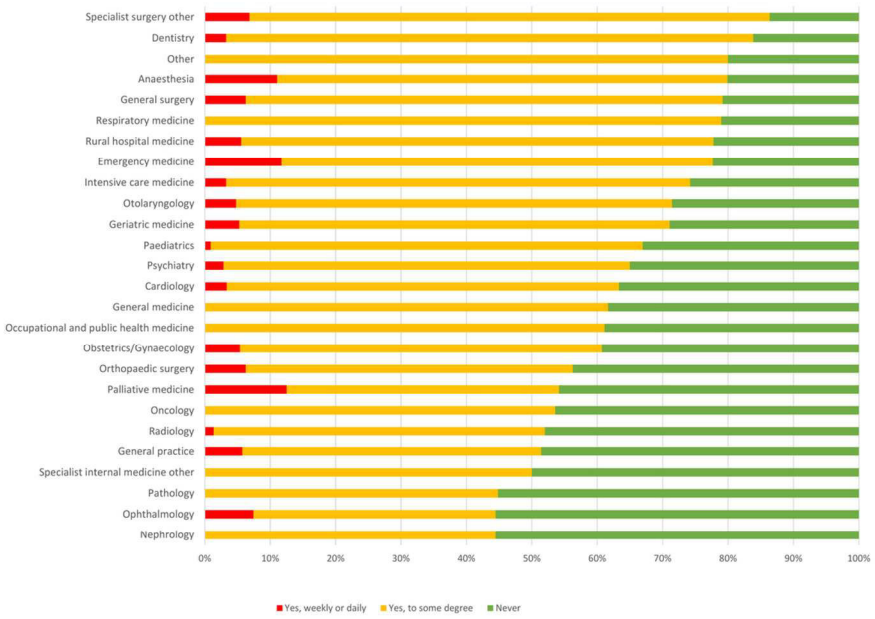

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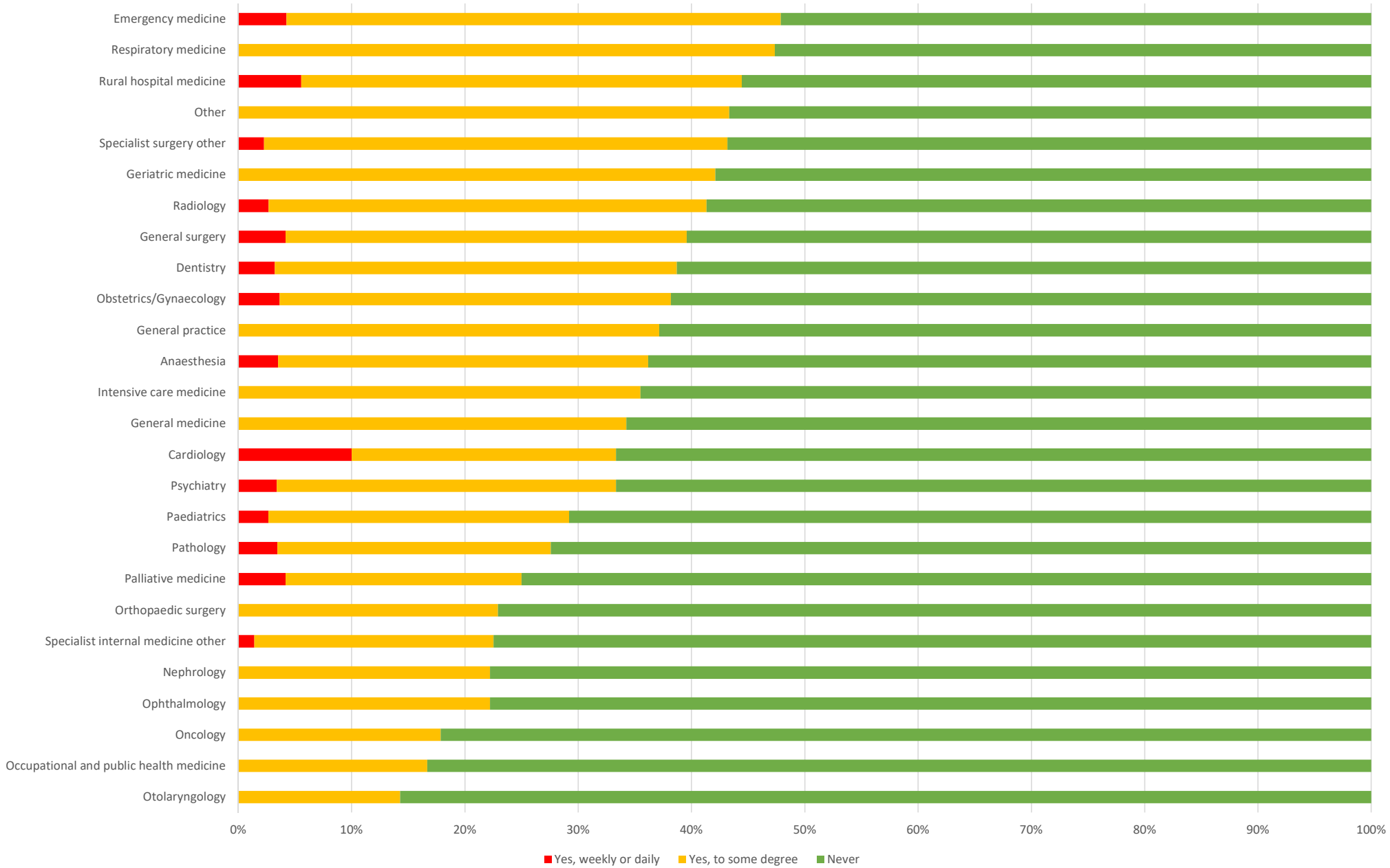

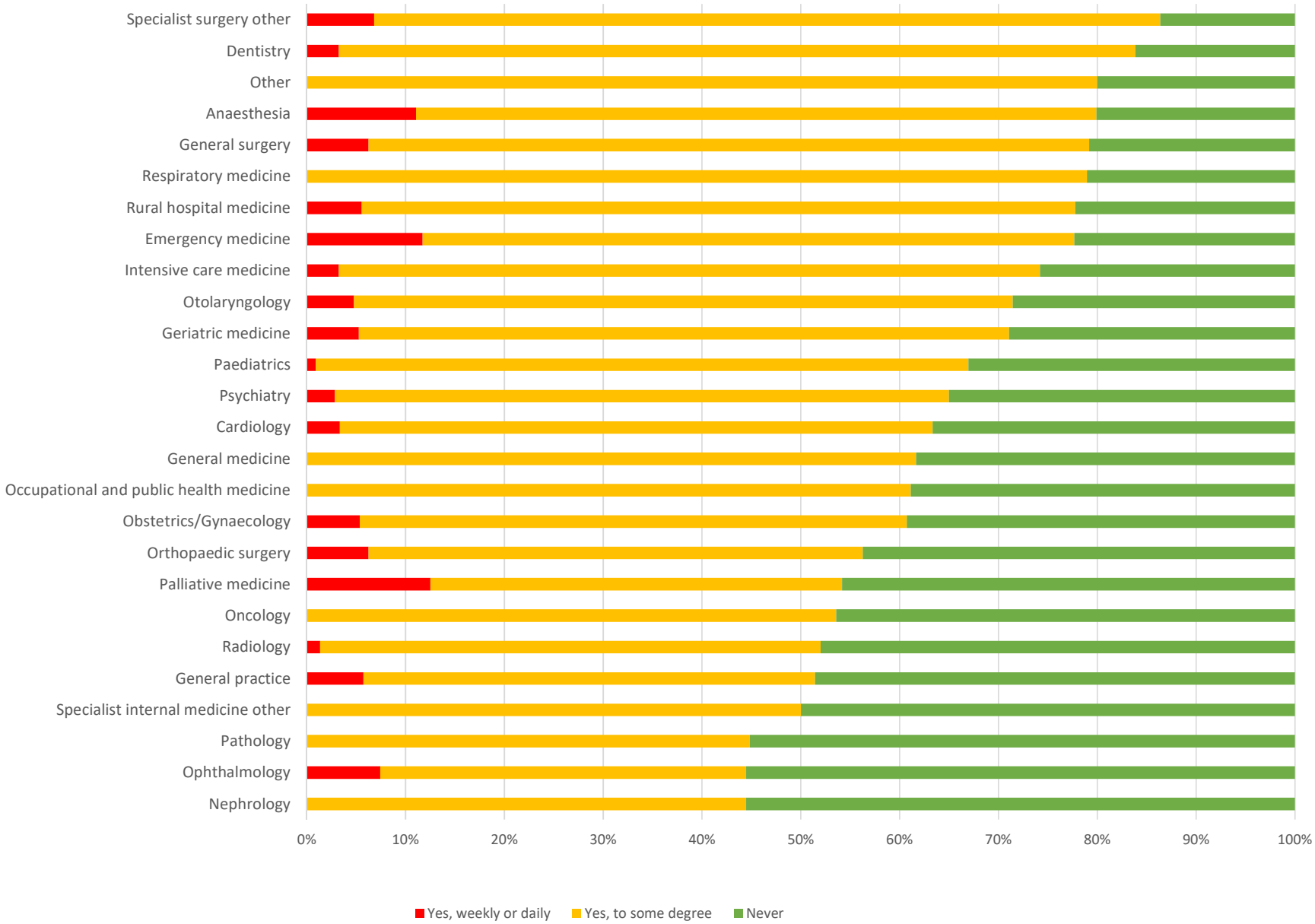

STROBE 2007 (v4) Statement—Checklist of items that should be included in reports of *cross-sectional studies*

Section/Topic	Item #	Recommendation	Reported on page #
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract	1
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	2
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	3
Objectives	3	State specific objectives, including any prespecified hypotheses	1
Methods			
Study design	4	Present key elements of study design early in the paper	4
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	1,4
Participants	6	(*a*) Give the eligibility criteria, and the sources and methods of selection of participants	4
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	4-5
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	4-5
Bias	9	Describe any efforts to address potential sources of bias	*14-15*
Study size	10	Explain how the study size was arrived at	4
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	4-5
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	4-5
		(*b*) Describe any methods used to examine subgroups and interactions	4-5
		(*c*) Explain how missing data were addressed	6
		(*d*) If applicable, describe analytical methods taking account of sampling strategy	
		(*e*) Describe any sensitivity analyses	4-5
Results			

Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	6
		(b) Give reasons for non-participation at each stage	Throughout
		(c) Consider use of a flow diagram	n/a
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	6-7
		(b) Indicate number of participants with missing data for each variable of interest	7
Outcome data	15*	Report numbers of outcome events or summary measures	8-9
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	Throughout as applicable
		(*b*) Report category boundaries when continuous variables were categorized	n/a
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	n/a
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	9-10
Discussion			
Key results	18	Summarise key results with reference to study objectives	13
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	14-15
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	13-14
Generalisability	21	Discuss the generalisability (external validity) of the study results	13-14
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	n/a

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.