Burnout and psychiatric morbidity in new medical graduates

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ABSTRACT

Objective: To determine the prevalence of psychiatric morbidity and burnout in final-year medical students, and changes in these measures during the intern year.

Design: Prospective longitudinal cohort study over 18 months, with assessment of psychiatric morbidity and burnout on six occasions.

Participants: All 117 students in the first graduating cohort of the University of Sydney Graduate Medical Program were invited to participate in the study; 110 consented.

Outcome measures: Psychiatric morbidity assessed with the 28-item General Health Questionnaire and burnout assessed with the Maslach Burnout Inventory.

Results: The point prevalence of participants meeting criteria for psychiatric morbidity and burnout rose steadily throughout the study period.

Conclusions: Internship remains a stressful time for medical graduates, despite initiatives to better support them during this period. The implications for the doctors themselves and for the communities they serve warrant further attention, including programs specifically aimed at reducing the rate of psychological morbidity and burnout during internship.

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To gain unconditional medical registration, all Australian medical graduates undertake a year of internship within the public hospital system. The intern year has historically been seen as a trial of spirit and stamina and a primary initiation rite,[1] and represents an initiation into a challenging career where a stoic work ethic is the dominant culture and personal needs are secondary to the needs of both patients and employers. The internship period has been associated with elevated levels of psychiatric morbidity (including depression and anxiety)[2-4] and burnout.[5]

Levels of depression and anxiety reported among interns are greater than for the general community, and increase significantly during the intern year.[6] Previous studies have shown a high level of psychological distress and subsequent behavioural changes among junior doctors.[7] Burnout is a syndrome common in occupations where time is spent supporting other people,[8] and has been studied extensively among medical practitioners. Burnout has been associated with self-reported reduced levels of patient care.[5] Maslach's model of burnout describes a syndrome of emotional exhaustion, depersonalisation and reduced feelings of personal accomplishment, with any combination of these features in a given individual. The opposite of burnout (correlating with low burnout scores) is said to be indicative of engagement with work.

The high incidence of these problems among new medical graduates has been attributed to a number of factors, including a stressful work environment, long hours, conflict between work and other personal life tasks, and individual psychological vulnerability.[6,9] These factors have been grouped into two broad categories: stresses associated with the environment in which new graduates practice, and individual characteristics of the graduates themselves.[10]

Changes to the working conditions of new medical graduates, intended to reduce stress, have been instituted in recent years.[11,12] In this article, we report current levels of burnout and psychiatric morbidity among a cohort of final-year Australian medical students and compare the results to normative data (where available) for other young adult populations. Longitudinal changes in levels of burnout and risk of psychiatric morbidity in final-year medical students and interns are also analysed.

METHODS

We performed a prospective longitudinal cohort study of medical students from the University of Sydney during their final year of university and their intern year in the public hospital system.

The target cohort was all 117 students in their final year of the first graduating cohort of the Sydney University Graduate Medical Program in 2000. At study enrolment (May 2000; T1), participants were invited to provide demographic details, including age, gender, relationship status and language background. The standardised and validated Maslach Burnout Inventory (MBI)[8] and General Health Questionnaire (GHQ 28-item version)[13] were administered at T1, six months later at graduation (T2) and at 3-monthly intervals during the internship year (T3–T6), beginning in February 2001.

It was anticipated that participants may experience high levels of stress and distress during the study period, particularly during the intern year, so participants were contacted directly by research staff on three occasions during the study (T2, T4 and T6), and provided with details of appropriate support services. Control data for the GHQ were derived from the National Survey of Health and Well-being,[14] an Australian youth cohort study of psychological morbidity[15] and a United Kingdom medical student cohort study.[16] Normative data reported by the authors of the MBI were used for burnout measures.

Instruments

The General Health Questionnaire (GHQ)[13] is a self-administered screening tool that detects common non-psychotic psychiatric morbidity in the community, including anxiety and depression. The questionnaire refers to symptoms experienced in the last few weeks, and is therefore an indication of *state* rather than *trait* characteristics at a point in time. The GHQ cannot be used to diagnose specific psychiatric disorders, but identifies potential psychiatric morbidity.

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1 Demographic characteristics of the 110 participants

Age (mean [SD])	28.3 (3.8)
Male	62 (56%)
Language spoken at home	
English	91 (83%)
Not English	19 (17%)
Relationship status	
Married/defacto	32 (29%)
Significant boyfriend/girlfriend	31 (28%)
Single	47 (43%)

2 Period point prevalence of psychiatric morbidity for a range of GHQ case identification scores

	Whole cohort (%)		Female (%)		Male (%)	
GHQ cutoff	T1	T6	T1	T6	T1	T6
> 4	26	37	32	41	21	33
> 5	19	29	23	36	16	23
> 6	18	25	21	28	16	23
> 7	12	21	15	26	9	17

T1 = Time 1 (May 2000 in the final medical student year); T6 = Time 6 (November 2001 in the intern year).

We used the 28-item version of the GHQ. Four subscales assess somatic symptoms, anxiety and insomnia, social dysfunction and depression. The generally recommended case identification (cutoff) score for the 28-item version is a score greater than 4, which allows for a highly sensitive identification of potential psychiatric morbidity. However, the actual cutoff score chosen depends on the purpose and context of each study, and relates to the relative importance of sensitivity and specificity.[15,17] Some authors have used higher cutoff scores for case identification,[15,18] so we analysed the prevalence of "caseness" according to a range of cutoff scores. Binary scoring (0011) of the GHQ was used for case identification and for determining the total mean GHQ score. Subscale scores were obtained using a Likert (0123) method as per accepted convention.

The Maslach Burnout Inventory (MBI) is considered the gold-standard measure for burnout,[8] and consists of three independently scaled measures. The emotional exhaustion (EE) scale assesses feelings of being emotionally overextended and exhausted by one's work. The depersonalisation (DP) scale assesses the presence of an unfeeling and impersonal response toward recipients of one's efforts. The personal accomplishment (PA) scale assesses feelings of competence and successful achievement related to one's work. High scores in the EE or DP scales, or low scores in the PA scale, indicate high levels of burnout. The MBI has been widely validated and recognises the different burnout patterns of individuals who may share common stressors. Each subscale score can be categorised as low, average or high burnout as defined by normative data.[8] Our study adopted a definition of burnout used in a recent survey of hospital resident staff in the United States (EE, >26 and/or DP, > 9).[5]

Statistical analysis

All analyses were conducted with SPSS software.[19] Means, standard deviations (SD) and 95% confidence intervals (CI) are reported. Univariate differences between groups were assessed using either the two-sample *t* test or paired *t* test. Significance was set post-hoc at 0.05.

RESULTS

Of the 117 students eligible to participate in the study, 110 (94%) consented. Demographic characteristics of participants are shown in Box 1.

Psychiatric morbidity

GHQ completion rates at the six data collection times varied between 95% and 76%. Box 2, which shows the prevalence of psychiatric disorder at T1 and T6 for a range of case identification scores, shows an increase in psychiatric morbidity over the period of the study regardless of the cutoff score adopted.

Of the 56 participants (51%) who completed the GHQ on all six occasions, 77 (70%) met criteria for psychiatric morbidity (using a conventional case identification score of > 4) on at least one occasion. When all 105 participants (95%) who completed the GHQ on at least one occasion were included, a similar percentage (73%) met criteria for psychiatric morbidity on at least one occasion, indicating that the incidence of psychiatric morbidity can be reliably estimated at 70% for a GHQ score of greater than 4. Of the 61 participants (55%) who completed the GHQ at all four collection times during internship (T3 to T6), 62.3% met criteria for psychiatric morbidity on at least one occasion.

The mean total GHQ score increased significantly during the study period (mean, 3.1 [SD, 4.6] at T1, to 4.4 [5.4] at T6; mean difference, 1.3; 95% CI, 0.1–2.4; $n = 84$ [participants with a GHQ score at T1 and T6]). During the study period there was an increase in both the somatic score and anxious/insomnia score. The mean difference between T1 and T6 for the anxious/insomnia score was a highly significant 1.98 (95% CI, 1.1–2.9), but the change in somatic score did not reach significance.

Burnout prevalence

Completion rates for the MBI varied between 92% (T1) and 75% (T5). MBI scores at T1 are shown in Box 3 along with normative data. Mean scores for emotional exhaustion (EE) at enrolment were in the "low" burnout range (< 19). From enrolment (T1) to the final access time (T6) there was a highly significant increase in EE and DP mean scores (see Box 4).

At T1, 28% of participants met study criteria for burnout (a "high" DP score [> 9] and/or high EE score [> 26]), with 14% in the high EE range and 21% in the high DP range (Box 5). There was a steady increase in point prevalence of burnout, to a peak prevalence of 75% at T5.

At T1, male students were significantly more depersonalised than female students (mean DP score [SD] for males, 7.0 [4.8]; for females, 4.7 [3.3]; mean difference, 2.3; 95% CI, 0.8–3.9). By T6 there were no differences between the sexes for any of the burnout scales, and the mean DP score for females had risen to match that of males, both reaching the high burnout range.

Participants who were single were significantly more emotionally exhausted than those who reported being in a relationship (mean EE score [SD], 19.5 [8.4] v 15.9 [7.6]; mean difference 3.6; 95% CI, 0.4–6.9). This was the only significant difference based on partnership status noted for any of the items measured.

Psychiatric morbidity and burnout

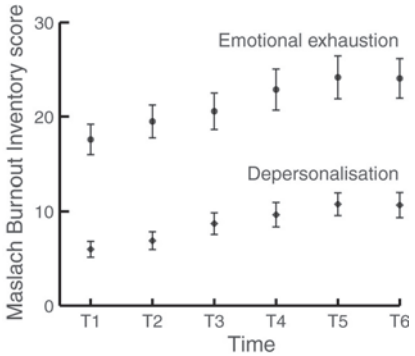
When the cohort was analysed in terms of risk of psychiatric morbidity at each time

3 Maslach Burnout Inventory subscale scores (mean [SD]) for 101 participating medical students in their final year at study enrolment (Time 1)

Subscale	Participating medical students	Normative data*	
		Medical practitioner	Post-secondary school
Personal accomplishment (PA)	36.74 (6.72)	36.53 (7.34)	39.17 (7.92)
Emotional exhaustion (EE)	17.57 (8.27)	22.19 (10.53)	18.57 (11.95)
Depersonalisation (DP)	5.99 (4.32)	7.12 (5.22)	5.57 (6.63)

* Occupational subgroups (data from the Maslach Burnout Inventory manual).[8]

4 Mean emotional exhaustion and depersonalisation scores over the study period



Bars show 95% confidence intervals.

point (with a GHQ case-identification score of >7 to increase the specificity of the instrument), emotional exhaustion was strongly associated with risk of psychiatric morbidity. Participants meeting criteria for psychiatric morbidity had significantly higher mean EE scores at each time point examined ($P < 0.001$), with the exception of T1 ($P < 0.05$; see Box 6). A similar profile was observed when the conventional but less specific case-identification score of >4 was used. Even though both groups at each time point showed an increase in the level of EE over the period of the study, the magnitude of the change was greater for the group at high risk of psychiatric morbidity at all measurement times. This difference in mean EE score between the groups peaked during the first 6 months of the internship year (T3 and T4). No significant associations between risk of psychiatric morbidity and depersonalisation or personal accomplishment were observed.

DISCUSSION

This study confirms that levels of psychological distress remain high among interns in NSW despite initiatives to improve the work environment in recent years. If standard case-identification criteria are used, the prevalence of psychiatric morbidity is 26% in the final year of medical school, which is higher than for the general population, and equivalent to rates reported for an Australian youth cohort. Prevalences increase significantly during internship, with 70% meeting criteria for psychiatric disturbance on at least one occasion during the study period, and 37% meeting such criteria at a single measurement time towards the end of internship. This compares with an incidence of 41% recently reported in senior Australian doctors and determined by the same instrument and identification criteria (GHQ score, >4).[20] This finding in older doctors contradicts the assumption that the psychiatric morbidity of internship is a transient phenomenon, part of the "rite of passage" that ultimately strengthens young doctors.

It could be postulated that our cohort of students already had a higher incidence of psychiatric disorder than a youth cohort population, and that they should have been compared with the general population of adults. When other cohort prevalences are reviewed, including one in a population of interns measured with the GHQ-30[21] and a general community study of women in New Zealand which used the GHQ-28,[22] we feel that the use of the standard case-identification criteria is justified. However, even if the cohort at enrolment is assumed to have a similar rate of psychiatric disorder to the general adult population rather than the young adult population (with the application of a higher screening cutoff point to achieve a reduced prevalence of "caseness"), the prevalence of psychiatric morbidity still rose significantly during the study, from 12% to a peak of 21%, a rate higher than for the normative adult population.

The basic demographic characteristics of the young doctors who participated in the study (Box 1) did not significantly influence the risk of psychiatric disorder (although those who were single were significantly more emotionally exhausted than those in a relationship).

Rates of emotional exhaustion and depersonalisation also rose significantly during the intern year. The presence of any combination of the features of burnout leads to decreased effectiveness at work.[8] Many interns are reported to acknowledge that they had "altruistic ideals, fantasies of healing the sick, and heroic images of themselves when they entered medicine. To achieve these goals, many interns had developed compulsive type A behaviour patterns oriented toward achievement and approval".[23] As the internship year progresses, the ability to achieve these ideals may be seriously threatened, resulting in psychological distress. The process of burnout "exhausts one's physical and mental resources by excessively striving to reach some unrealistic expectation imposed by oneself or by the values of society".[24]

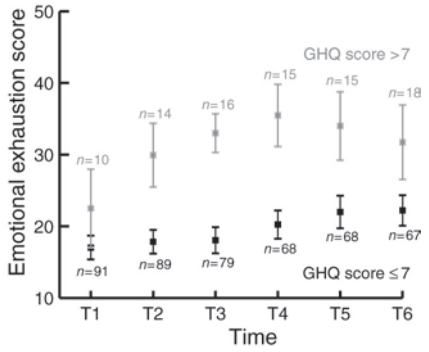
The reasons for such high levels of psychiatric morbidity and burnout among new medical graduates are likely to be complex, and to reflect both the environment in which young doctors work and personal characteristics of the doctors themselves.[3] Recent improvements in working conditions for new graduates[11] should have made the intern period less stressful over the last decade or so, but rates of psychiatric morbidity are still elevated. Reasons for this are

5 Prevalence of burnout over the study period

High burnout criteria	Prevalence at assessment time					
	T1	T2	T3	T4	T5	T6
Emotional exhaustion score >26	14%	23%	31%	33%	46%	40%
Depersonalisation score >9	21%	27%	44%	46%	63%	52%
Personal accomplishment score <34	25%	21%	18%	24%	19%	15%
Burnout*	28%	39%	54%	57%	75%	61%

* Emotional exhaustion score >26 and/or depersonalisation score >9.

6 Relationship between psychiatric morbidity* and emotional exhaustion†



* As measured by the 28-item General Health Questionnnaire (GHQ). † As measured by the Maslach Burnout Inventory.
Bars show 95% confidence intervals.

thought to be complex, and cannot be attributed to single issues such as working hours.[25]

For the new medical graduate working in an environment which will remain highly stressful through the subsequent years of residency and vocational training,[26] future psychological health sequelae and burnout are likely results.[20,27-29] Psychiatric morbidity, substance misuse and personal relationship problems are all common in medical practitioners, and a high risk of psychiatric disorder over a prolonged period of early professional life will set the stage for such problems. Workplace environments should acknowledge the high level of risk for all new graduates, and should have systems in place which recognise and remediate those in whom signs of psychiatric distress are discernible, as recommended by the NSW Doctors' Mental Health Working Group.[30]

Communities are entitled to expect a medical system where service providers are psychologically healthy. A high incidence of psychiatric morbidity among providers may result in lower standards of care, particularly if distress becomes associated with impairment. However, the system does not readily identify practitioners who are distressed but not yet impaired. A British study has reported an association between increased levels of intern stress and medical errors,[31] and a recent American study suggests that interns who meet criteria for burnout more frequently report providing suboptimal care to their patients.[5]

High levels of psychiatric distress and burnout may also affect workforce participation rates. This has implications for community access to timely and appropriate health care.

It has been stated that "The attitude of the medical profession to the health of its members has always been one of disinterest which is transiently discarded when disaster overtakes one of its members".[32] It is incumbent on the individuals and health-care systems that employ and supervise our new generation of medical practitioners that these young doctors are given the same care and support that we expect them to provide to their patients. This should occur through a range of specific support and education strategies as outlined in the NSW Doctors' Mental Health Working Group.[30]

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