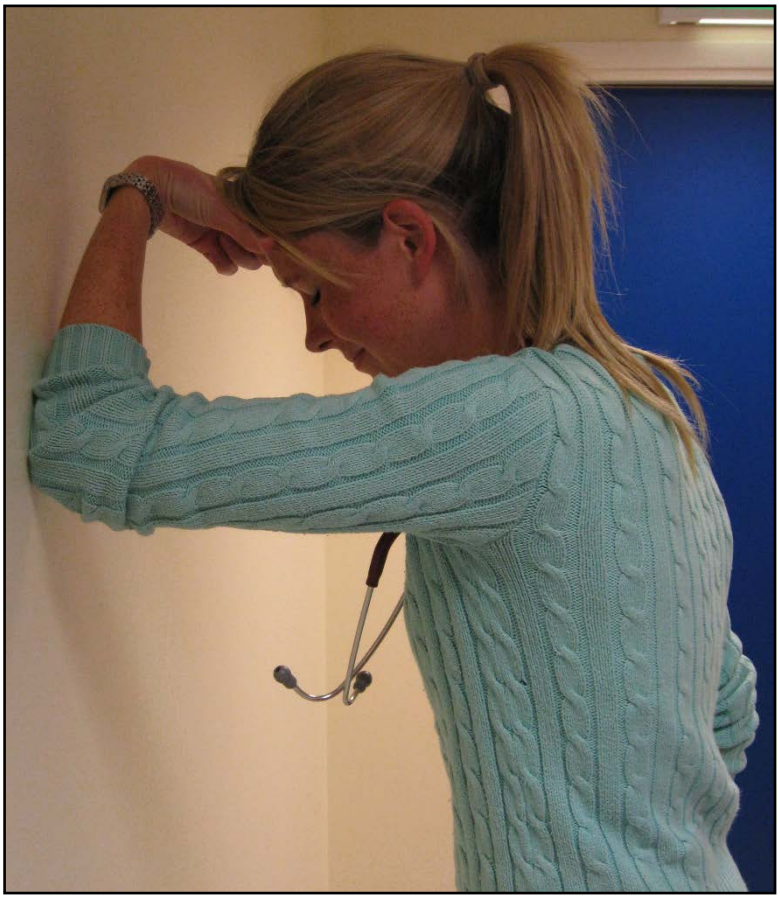

JUNIOR DOCTOR WELLBEING AND SUPPORT

Final Report for the Postgraduate Medical Council of Victoria, December 2014

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AlfredHealth

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Executive Summary

This report details a research project undertaken throughout 2014 that explored the factors contributing to workplace stress for Victorian intern doctors. The project involved an analysis of the impact of previously trialled interventions followed by a focus group study designed to reveal areas for improvement and explore other potential interventions.

The report is divided in to two sections; Part A details the methodology and findings from an extensive systematic review, and Part B details the methodology and findings from a series of focus groups held with Victorian interns. The ultimate aim was to develop a list of recommendations which may help reduce work-related distress in the intern population.

Using an established conceptual model to approach the challenging concept of workplace stress, this work reveals the discrepancy between the stressors interns face and current stress-related interventions. Specifically, role ambiguity, unclear expectations, and poor feedback mechanisms were highlighted as particularly stressful. The systematic review demonstrated that interventions focused on teaching coping mechanisms to interns and did not address the source of these stressors. Clarifying roles and expectations, more structured and earlier feedback, and a peer (PGY2 or PGY3) support system are just a few of the suggestions made in this report aimed at addressing the issues identified. These are detailed further in 'Recommendations for practice'.

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Introduction

The *beyondblue* study 'National Mental Health Survey of Doctors and Medical Students' published in October 2013 revealed a concerning prevalence of psychological distress among Australian doctors and medical students.(1) Psychological distress is an umbrella term which encompasses stress, burn-out, depression, anxiety and other related mental health problems. This study was conceived following the *beyondblue* literature review in 2010, which demonstrated similarly high rates of psychological distress among medical professionals worldwide, but also revealed a lack of Australian research in this area.(2)

In addition to the well-reported findings, the *beyondblue* study noted that psychological distress was more prevalent in younger doctors, and reported that "the transition from study to work appears to be a particularly stressful period".(1) This correlates well with findings from a large multicentre UK General Medical Council (GMC) study,(3) and whilst both studies postulate some factors contributing to these findings, the frequent calls for 'additional supports' remain vague. We sought to understand the factors contributing to work-related psychological distress in interns, and develop a series of recommendations aimed at reducing it.

Conceptual framework

A key problem and limiting factor in assessing the current state of occupational stress in medical professionals has been a lack of conceptional models with which to examine the issue. One of the major challenges of synthesising research in the field of work-related stress is the complex nature of the concept, and the subsequent difficulty in distilling multiple related stressors into an overarching conceptual framework.(4)

In order to faciliate meaningful review of the literature, the nature and causes of work-related stress were examined through the lens of the conceptual typology provided by Murphy.(5) The five broad categorisations used within the framework represent various sources of work-related stress that emanate from both the content and context of work. The work *content* stressors relate to characteristics of the job (such as workload) that cause a misalignment between the demands placed on an individual and their ability to cope with such demands. The *context* stressors include the individual's role in the organisation, their career development opportunities, relationships at work and the organisational climate.(5) The five broad categorisations, along with some more specific examples of stressors, are shown in **Table 1**.

Table 1- Murphy's model of occupational stressors. Categorisation and a non-exhaustive list of examples of work-place stressors. Factors intrinsic to the job refers to the job 'content', while the remaining four categories refer to 'contextual' stressors. Adapted from Murphy et al. 1995.(5)

Occupational Stressors	**Example**
Factors intrinsic to the job	Workload (overload or underload), work pace, autonomy, shift-work
Role in organisation	Role conflict, role ambiguity, level of responsibility
Career development	Over/under-promotion, job security, career development opportunities
Relationships at work	Supervisors, co-workers, subordinates
Organisational climate	Participation in decision-making, management style, communication patterns

Aims

The ultimate aim of our study is to make a series of organisational-level recommendations that may assist in the identification and management of psychological distress in interns. The first section of this two-part report details a literature review designed to determine specific workplace stressors for junior doctors and identify strategies or interventions that may allay psychological distress in interns (aims 1 and 2 below). Building on the findings from the literature review, the second section of this report comprises an analysis from a series of focus groups with Victorian interns performed to explore these factors in greater detail in order to generate a series of recommendations (aims 3 and 4 below).

More specifically, we aim answer the following:

1. What are the factors that predispose to psychological distress in PGY1 doctors?
2. How effective are interventions that have been designed to reduce psychological distress in PGY1 doctors?
3. What are the specific workplace stressors for Victorian interns?
4. What interventions designed to identify and reduce psychological distress do Victorian interns consider useful?

Preliminary recommendations made at the end of this report would naturally lead to the pilot implementation of multi-faceted intervention strategies with subsequent evaluation and dissemination as appropriate.

Ethics

Low risk ethical approval from Monash University Human Resources Ethics Committee (MUHREC) was granted prior to undertaking the research project (reference number CF14/1494 – 2014000706).

Part A – Literature Review

Methodology

In May 2014, MEDLINE, Embase (Exerpta Medica), and PsycINFO (American Psychological Association) were searched in accordance with the search strategy described in **Table 2**. All prefix and suffix instructions, abbreviations and symbols were used as defined in the Ovid Gateway.(6) The decision to restrict the review to studies published within the last 15 years was based on the premise that medical practice for junior doctors has changed significantly in recent decades, and earlier research is unlikely to contain information relevant to modern medical practice.

Table 2- Search strategy and limits. The first search term set aimed to include all articles referring to PGY1 doctors, while the second search term included words related to psychological distress. These sets were combined and limited to articles published in English within the last 15 years.

Search methodology	
#1	(Intern OR interns OR internship OR PGY1 OR "post-graduate year 1" OR "postgraduate year 1" OR "post-graduate year one" OR "postgraduate year one" OR HMO1 OR "house medical officer 1" OR "house medical officer one" OR "first-year medical graduates" OR "first year medical graduates" OR "first-year practicing doctors" OR "first year practicing doctors" OR FY1 OR "foundation year 1" OR "foundation year one" OR resident OR residents).ti,ab.
#2	(Stress OR burnout OR depression OR resilience OR distress OR suicide OR wellbeing OR "mental health").ti,ab.
#3	#1 ADJ4 #2
#4	Limit #3 to yr=’1999-current’ AND ‘English language’

Titles and abstracts were checked and potentially eligible papers were accessed for final assessment. Studies were included if they met all of the inclusion criteria detailed in **Table 3**. Studies that did not specify the postgraduate year of the participating doctors, that presented results pertaining to mixed cohorts without subgroup analysis of PGY1 doctors, or involved indirect measures of psychological distress (e.g. substance abuse, sleep disturbance, somatisation) were not included. Papers deemed suitable for inclusion were checked against the inclusion criteria prior to data extraction. Forward and backward citation review of the included studies was subsequently used to identify other eligible studies that may have been missed by the electronic searches.

Table 3- The inclusion criteria and corresponding justification.

Inclusion Criteria	**Justification**
Primary empirical research	Opinion pieces and/or reviews are too varied in their focus to obtain meaningful data for the purposes of a systematic review
Examines either the factors predisposing to psychological distress of PGY1 doctors AND/OR the effects of interventions designed to reduce or prevent psychological distress in PGY1 doctors	Studies seeking to quantify the psychological distress of PGY1 doctors are already prevalent, but few have sought to provide insight into the causative factors or what interventions prove useful in addressing psychological distress in this cohort
Specified PGY1 doctor cohort studies, or mixed cohort studies with subgroup analysis of PGY1 doctors	Stressors may vary with career progression
Direct measures of psychological distress	Indirect measures of psychological distress, such as prescription errors, are not always representative of psychological distress and may be multi-factorial

Data extraction and analysis

Data extraction and quality scoring of all articles fulfilling the inclusion criteria was undertaken. All data were collated onto a data extraction form in Excel (Microsoft Office 2010). A formal meta-analysis was not conducted because of the heterogeneity of study design, the small number of studies, and the available data quality. The methodological quality of each included study was assessed using the Medical Education Research Study Quality Instrument (MERSQI) system. The MERSQI is a 10-item instrument designed to assess the methodological quality of experimental, quasi-experimental and observational medical education research studies with a range of possible total scores from five to 18. It is a quality scoring system that has accumulated considerable evidence to support its content, internal structure and predictive validity, and has been shown to have lower rater subjectivity than other comparable quality scoring instruments.(7-9)

Findings

As detailed in **Figure 1**, the initial search retrieved a total of 1,523 articles, 18 of which were found to fulfil the inclusion criteria. Forward and backward citation review identified a further three studies fulfilling the inclusion criteria. Of the final 21 studies included, 16 explored the factors influencing psychological distress in doctors.(10-25) Four studies examined the utility of various strategies designed to reduce psychological distress in doctors.(26-29) A single study explored both the factors influencing psychological distress and the utility of an intervention designed to reduce it.(30) Ten of the studies originiated from the United States,(10, 12, 19-21, 26-30) four from Norway,(11, 23-25) two from Taiwan,(13, 17) and one each from Canada,(14) South Korea,(15) Hong Kong,(16) Switzerland,(18) and South Africa.(22) The included articles were commonly in the format of cross-sectional questionnaires, but several studies involved thematic analyses of qualitative data. MERSQI scores ranged from seven to 12.5, with three studies attaining a score of lower than nine.(12, 13, 22)

Figure 1- Flowchart depicting the number of articles retrieved following the initial search, selected articles meeting the inclusion criteria, and citation review incorporating three further articles, for a final 21 articles.

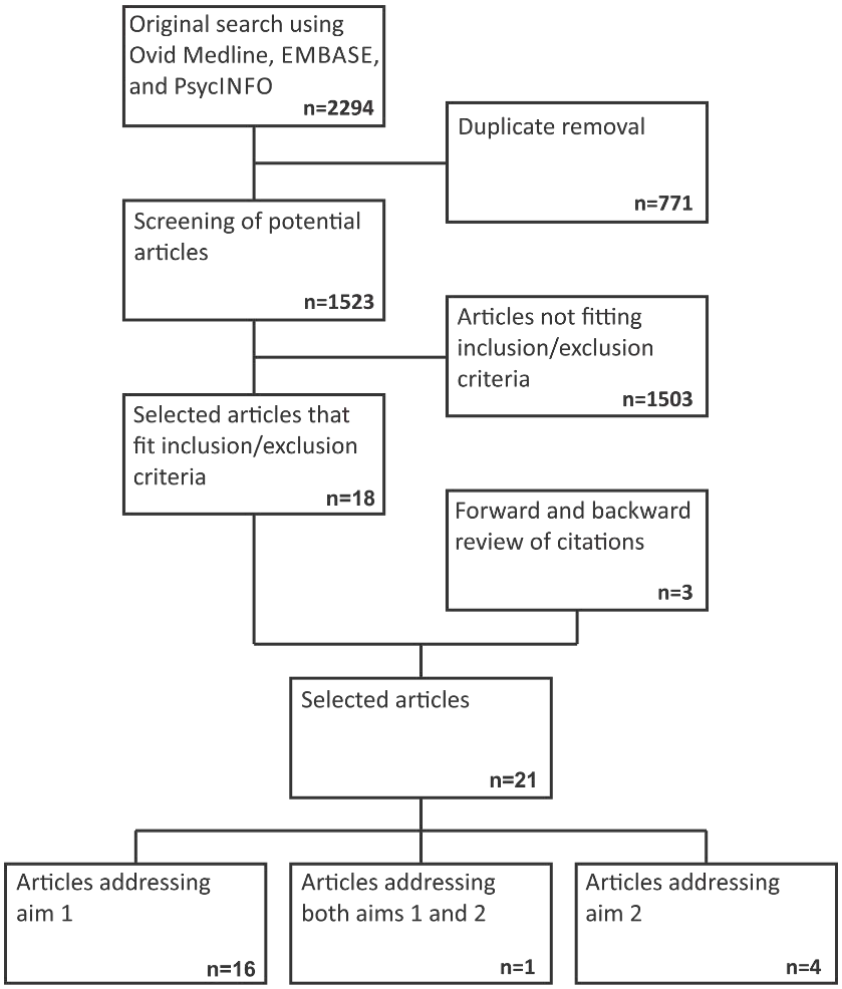

Table 5 provides details of the 17 studies exploring the factors influencing psychological distress in PGY1 doctors. Analysis of the findings of each individual study through the lens provided by Murphy's model of work stress factors revealed that 11 studies identified factors intrinsic to the job role as influencing psychological distress in PGY1 doctors.(10, 13, 14, 16-18, 21-24, 30) Six studies identified factors relating to work relationships.(12-14, 16, 18, 22) Four of the 17 studies found that elements of organisational structure/climate influenced psychological distress,(10, 12, 18, 24) whilst three of the studies identified factors related to a PGY1 doctor's role within the organisation as influential.(16, 18, 30) Notably, only a single study included career development concerns as a source of psychological distress.(18)

*Table 5- Articles examining the factors that predispose to psychological distress in PGY1 doctors. IM- internal medicine; EM- emergency medicine; CSQ- cross-sectional questionnaire; OR- odds ratio; SEM- standard error of the mean. *These articles are continuations and re-evaluations of the same data set.*

Article (ref)	**Sample group (n=)**	**Methodology**	**MERSQI**	**Factor addressed**	**Findings**
Block 2013(10)	USA; IM PGY1 doctors (55)	CSQ	12.5	Intrinsic to role	In 55 first year medicine residents, overnight rotations were associated with a significant development of burnout (adjusted OR=3.4, SEM=1.7).
Gramstad 2013(11)	Norway; PGY1 doctors (169)	CSQ (x3)	12.5	Personality traits	During postgraduate internship (n=169), neuroticism and reality weakness were associated with higher perceived job stress (r=0.19 and r=0.17 respectively), anxiety symptoms (r=0.23 and r=0.33 respectively), and depression (r=0.21 and r=0.36 respectively). Extroversion was protective against symptoms of depression (r=-0.20).
Hoonpongs-imanont 2014(12)	USA; EM PGY1-PGY3 doctors (109)	CSQ	7	Work relationships; Organisational climate	Using a Likert scale (0 to 4), 28 PGY1 doctors identified work relationships, response to patients and the work environment each as moderately stressful (1.46, 1.23 and 1.08 respectively).
Hsieh 2011(13)	Taiwan; PGY1 doctors (401)	CSQ	8.5	Intrinsic to role; Work relationships	Interns (n=401) rated high workload as significantly more stressful compared to hospital clerks (n=110), while patient complaints, academic loading, and interaction with other medical staff were not significantly different.
Hurst 2013(14)	Canada; PGY1 doctors (17)	Thematic analysis of face-to-face interviews	10.5	Intrinsic to role; Work relationships	Following interviews with 17 first year residents, thematic analysis revealed high workload, on-call stressors, poor team support, unclear expectations, unapproachable senior staff, and negative patient outcomes as being associated with a decrease in wellbeing throughout internship.
Hwang 2008(15)	Korea; PGY1 doctors (220)	CSQ (x2)	9	Past mental health history	Depression (sub-threshold or major) prior to internship was associated with a significant increase in the Beck Depression Inventory score compared to interns without depression prior to internship.
Lam 2010(16)	China; PGY1 doctors (155)	Thematic analysis of focus group discussions and CSQ	10	Intrinsic to role; Career development; Work relationships	155 interns identified frequent calls during night shift (95.9% of interns), long working hours (92.8%), heavy workload (90.7%), job competition (89.7%), future job securement (88.7%), and clinical errors (79.4%) as significant work stressors.
Lue 2010(17)	Taiwan; PGY1 doctors (555)	CSQ	10	Intrinsic to role; Personality traits	Of 555 interns, sleep deprivation (69.7%), keeping alert while on call (67.4%), excessive paperwork and administration responsibilities (63.4%), interruption of work (62%), and heavy workload (61.6%) were the most significant work stressors identified. Negative affectivity personality trait significantly predicted burnout (β=0.227).

Luthy 2004(18)	Switzerland; IM PGY1 doctors (24)	Thematic analysis of written responses to questions	9	Intrinsic to role; Career development; Work relationships	88% of PGY1 doctors identified workplace communication as a significant workplace stressor, as well as high workload (58%), perceived lack of respect (58%), and career prospects (17%).
Ripp 2010(19)	USA; IM PGY1 doctors (154)	CSQ	9.5	Personality traits	First year residents developing burnout were more likely to have anxiety traits (51% V 28%), disorganised personality style (60% V 31%), and less confidence in their knowledge/skills (46% V 27%) compared with residents that did not develop burnout.
Ripp 2011(20)	USA; IM PGY1 doctors (261)	CSQ (x2)	9	Organisational climate; Personality traits	11% of PGY1 doctors with new burnout had a disorganised personality style compared to 0% of PGY1 doctors without new burnout. They were also less likely to report receiving regular performance feedback (63% V 87%).
Rosen 2006(21)	USA; IM PGY1 doctors (59)	CSQ (x2)	9.5	Intrinsic to role	Interns were more likely to have chronic sleep deprivation by the end of the year (43% at the end of the year, 9% at the start of the year), and this was correlated with an increase in the Epworth Sleepiness Scale, Beck Depression Inventory, and the Maslach Burnout Inventory, and a decrease in empathic concern per the Interpersonal Reactivity Index.
Satterfield 2010(30)	USA; PGY1 doctors (28)	Thematic analysis of support group discussions	9.5	Intrinsic to role; Organisational role	28 interns identified adverse patient outcomes, feelings of isolation, challenges to self-esteem and confidence, and the erosion of an idealised view of medicine as significant stressors.
Sun 2008(22)	South Africa; PGY1 doctors (110)	CSQ	8.5	Intrinsic to role; Work relationships	110 interns used a Likert scale (0 to 4) to rank occupational stressors such as high work-hours (3.07), high workload (3.07), HIV risk (2.84), equipment issues (2.81), hospital staff (2.74), and quality of care (2.21).
Tyssen 2000*(23) 2001*(25) 2005*(24)	Norway; PGY1 doctors (631)	CSQ (x2)	10	Intrinsic to role; Personality traits; Past mental health history	Vulnerability personality traits and reality weakness were associated with psychological distress (OR 1.6 and 1.6 respectively), suicidal thoughts (OR 1.3 and 1.2 respectively), and job stress (OR 1.7 for vulnerability, ns for reality weakness).

The five studies investigating the utility of various intervention and prevention strategies are detailed in **Table 6**. All five studies described primary prevention strategies delivered universally to PGY1 doctors, as opposed to intervention strategies targeting at-risk or already affected individuals. Two studies investigated the impact of an educational curriculum intervention,(27, 29) two more investigated the role of support groups and regular performance reviews,(28, 30) and a single study investigated the impact of legislation reducing duty hours.(26) Two of the five articles compared the intervention to a non-intervention cohort,(26, 28) while the other three articles used post-intervention surveys.(27, 29, 30) Using the lens provided by Murphy's model of work stress factors, two of the interventions sought to address sources of psychological distress that were intrinsic to the role of a PGY1 doctor,(26, 29) two addressed issues relating to organisation climate(26, 28) and one aimed to address psychological distress related to workplace relationships.(29) None of the interventions were designed to ameliorate distress that related to either a PGY1 doctor's role within the organisation or to career development.

Several studies identified factors influencing psychological distress in PGY1 doctors that were not represented within Murphy's conceptual model. These factors could be subdivided into personality traits (such as neuroticism, anxious traits, and lack of confidence), coping mechanisms (either cognitive such as reframing, or physical such as exercise), and a previous history of significant psychological distress. Personality traits were identified as contibuting to psychological distress in seven of the 17 studies exploring predisposing factors detailed in **Table 5**,(11, 17, 19, 20, 23-25) but were not discussed as part of any of the five prevention strategies described in **Table 6**. Specific coping strategies (such as the consumption of alcohol) were noted by seven of the studies in **Table 5** to influence psychological distress,(12, 14, 16, 17, 20, 22, 30) and were highlighted by three of the intevention studies in **Table 6**.(27, 29, 30) A previous history of significant psychological distress was predictive of psychological distress during the first post-graduate year in two studies.(15, 23)

Table 6- Articles examining the effects of intervention and prevention strategies aimed at reducing psychological distress in PGY1 doctors. CSQ- cross-sectional questionnaire; PIQ- post-intervention questionnaire.

Article (ref)	**Sample (n=)**	**Methodology**	**MERSQI**	**Intervention**	**Factor addressed**	**Findings**
Antiel 2013(26)	USA; surgical PGY1 doctors (213)	CSQ (x2)	11	Duty hour reduction (<80 hours a week maximum)	Intrinsic to role	Less than half (44%) of interns believed that changes in duty hour standards have decreased resident fatigue. 53% believed the changes decreased coordination of patient care, affected continuity of care (70%), and time in the operating room (57%).
Broquet 2004(27)	USA; PGY1 doctors (155) and program directors	PIQ	7	Half-day educational intervention program	Intrinsic to role; Coping mechanisms	92% of interns rated the 'physician stress and impairment' section of the intervention program as either useful or very useful, while 82% rated both the 'video and discussion' and 'stress management techniques' as either useful or very useful.
Foster 2012(28)	USA; PGY1-PGY3 doctors (18)	Prospective follow up study	9.5	Regular intern assessment/feedback meetings	Organisational climate	The pre-Resident Assessment Facilitation Team (RAFT) cohort (regular feedback from seniors) had a downward trend in reported global sense of wellbeing during internship, while the post-RAFT cohort had a relatively stable reported global sense of wellbeing.
Larkin 2010(29)	USA; PGY1-PGY2 doctors (27)	PIQ	9	Full-day educational curriculum	Intrinsic to role; Work relationships; Coping mechanisms	'Working in teams', 'time management', and 'patient education' components were most highly regarded. The 'stress management' component was less highly regarded, but still considered of moderate value.
Satterfield 2010(30)	USA; PGY1 doctors (28)	PIQ	9.5	Psychologist-facilitated support group discussions	Coping mechanisms	Support group discussions and peer relationships were considered a "critical source of support", and this cohort reported reduced psychological distress.

Part B – Focus Groups

Methodology

After receiving MUHREC ethics approval, a number of chief medical officers (or their equivalent) from a variety of health services across Victoria were contacted by email with an attachment explaining the project (**Appendix A**). From the positive respondents, three metropolitan and one regional health service were selected for participation: Alfred Health (The Alfred Hospital), Melbourne Health (Royal Melbourne Hospital), Monash Health (Monash Medical Centre), and Ballarat Health Services (Ballarat Base Hospital). An administrative assistant or medical education officer at each health service (see acknowledgments) emailed locally based interns to identify and invite them to partake in the project. Focus groups were undertaken at each of the health services between August and November 2014. Each focus group involved careful explanation of the purpose of the project, the topics to be explored and the provision of appropriate consent per the consent form included in **Appendix B**.

A brief summary of the topics discussed during the focus groups is found in **Appendix C**. In short, the concepts detailed in Murphy's model of occupational stress were explored as they emerged in conversation. Using this model, we asked participants to identify the specific workplace stressors they had experienced, and investigated the concept of any particular intervention programs that the interns considered potentially useful.

The groups were transcribed verbatim with the assistance of field notes taken during the sessions. The transcripts were then analysed thematically according to Murphy's model. This analysis was divided in two parts; firstly to identify the specific workplace stressors Victorian interns experienced, and secondly to identify potential interventions that these interns would consider useful.

Findings

Focus groups varied in size from seven to 14 participants, and lasted between 45 and 65 minutes. The specific stressors and intervention ideas originating from the interns were identified following review of the focus group transcripts. Example quotes detailing these concepts are found below and organised according to Murphy's model of occupational stress.

Intrinsic to job

Interns cited several factors related to the volume of work and working environment that influenced their levels of stress. They complained of work overload, long hours with unpaid overtime and working patterns that disrupted their normal routines. Interns frequently felt that they were too busy to attend to their basic needs such as eating, drinking and visiting the toilet.

Work overload: "I can remember a day that was particularly stressful…my resident and I just had this huge list of things to do…at one point the consultant just said something like, you know, you are both doing a really great job. And just having that small amount of quality reinforcement changes everything."
(Group 1, Participant 5)

Unpaid overtime: "I have been thinking. The thing that I found really stressful in the beginning was all of the unpaid overtime. I know that we're interns and we're slow so it takes ages… it was very stressful or disheartening ..."
(Group 3, Participant 7)

Role in organisation

When talking about sources of stress, those related to the role of an intern were most often cited. Interns discussed the challenges associated with their new levels of responsibility, and the requirement to make decisions. They found it difficult to define exactly what was expected of them, for example, whether they should remain on the ward round or leave to complete 'the jobs', and this was a significant source of stress. They were also distressed when they were unable to complete required tasks, such as inserting intravenous cannulae, prescribing drugs or making a referral. Other sources of distress were dealing with high expectations from patients' families, being constantly in demand and having little feedback on their performance.

Referrals: "When you make a referral you feel pretty inadequate… you call up the registrar who's been doing this for five or six years or something and just what he thinks or she thinks is important to know, you might not have anything."
(Group 2, Participant 7)

Patients' families: "The expectations on you from all areas, like the nursing staff, the families and I've said it a few times, I think by far the most difficult thing that I found this year that I probably definitely didn't expect was dealing with patients' families… patients' families expect that you will talk to them for 10, 15 minutes every day, even when nothing's really happening with the patient, and you've got 15 patients."
(Group 3, Participant 3)

Expectations: "…at no stage was there any 'This is what I expect of you' in any rotation."
(Group 4, Participant 7)

Feedback: "…there's a difference between fulfilling all your roles as an intern and being a good or a great intern. And for some people it can be hard to know if you're achieving that or not. Like having a mid-term feedback at five weeks is useful, but it almost is, like, too late…"
(Group 1, Participant 1)

Career development

The main issue with regards to career appears to be one of uncertainty. Interns disliked their perceived lack of job security, both in the long and short term. They cited "constant applications" as a major source of stress. They also worried about their career prospects in the future, particularly getting a place on the training program of their choice. Other career related sources of stress were insufficient career guidance and support, pressure to impress to improve career prospects and lack of opportunity to change their career path.

Career choices: "…having to make the decision in May and June for something that's seven months away… if you haven't had exposures to rotations you have to wing it by what you had as a medical student."
(Group 2, Participant 1)

Career location: "In med school, I always thought it doesn't matter where you get your internship position either because it's only one year, you can change, that's fine, whatever. I didn't realise that it's not as easy as it sounds at the end of med school."
(Group 2, Participant 3)

Relationships at work

While peers were most often cited as a source of important support, senior colleagues could be a source of support or a source of stress. Registrars were sometimes a source of fear, and were described as "outrageously cruel", "not professional" and "terrifying" by some. Other issues in dealing with senior colleagues included inconsistency of expectations among consultants, lack of appreciation, lack of respect and lack of time given by registrars. Equally, nursing staff could be a

source of support or of stress. Interns worried that nurses would make them look bad in front of other staff (through writing damaging statements in patient notes) and that they had unrealistic expectations of interns (especially with regard to the speed at which pagers could be answered).

Supervisor's expectations: "I had a registrar who had no delegation skills and was very slow in everything he did which made my rotation that I was on at the time very difficult because he wasn't a good prioritiser in what jobs to give me and I spent most of my time sitting watching him do jobs and then it would get to the end of the day and my consultant would say 'why haven't you done this job?' …because of the dynamic I didn't like the work."
(Group 4, Participant 14)

Supervisor's delegation: "I had a registrar who delegated everything to me. And it turned out at the end that my intern work was sort of lacking because I had to do pretty much everything on the unit, so I was always falling behind. What should have been an enjoyable rotation again turned out to be something I couldn't wait to finish."
(Group 4, Participant 7)

Organisational structure and climate

Interns' main sources of stress at an organisational level were the arrangements for induction and handover when starting a new job. There are unique aspects of each rotation that they were not informed about at the general hospital induction, such as unit-specific tests and how to request them for patients. They found the process of having to constantly ask colleagues how to complete simple tasks frustrating and stressful. In addition, interns found the arrangements for handing over work at the end of a shift inadequate. They noted that the organisation of departments meant that it was not always possible to contact a senior colleague when required.

Rotation orientation: "I think I find at the start of every rotation it takes at least two weeks, longer in some places than others, to get accustomed. And often it's the really stupid things that you don't know, like, how I order this test or how do I refer to this person, and no one actually thinks to hand that stuff over."
(Group 1, Participant 1)

Access to seniors: "So, my first day, I was really well supported the whole day – I could ask my registrar any question all day, but then she got called to theatre for an emergency case and it was after hours and they asked me to write up an insulin prescription for a dialysis patient and this was my first day at six o'clock and I froze. I was just like, I have no idea what I'm doing. And I didn't know who I could call because my registrar was in theatre and it was after hours…."
(Group 2, Participant 5)

Lack of appreciation: "I think there's a bit of a tendency, especially with more senior members in a team they might be… a bit detached from what the actual jobs are. You know, for six days out of seven, you might be able to get there at 4:45am and provide a list update and everything works fine. And on that one day you turn up there and there's been 27 patients overnight and there's just more work than a person can possibly do in two hours, and on that day, when the list isn't ready, then they'll get annoyed. But for the six days out of seven you don't speak to them and they don't really know what's going on."
(Group 1, Participant 4)

Discussion

The literature review detailed in the first part of this report is the first to consider the increasingly recognised problem of psychological distress in PGY1 doctors. It has assimilated relevant studies exploring both the influential factors and potentially useful prevention strategies. It is also the first to explore this multifaceted issue using a well-established conceptual framework that has enabled the data to be collated and summarised in a meaningful way.

Murphy's model has facilitated identification of the disparity between the factors contributing to psychological distress and the foci of prevention strategies. Factors related to a PGY1 doctor's role within the healthcare organisation have been identified in this work as a source of significant psychological distress. However, no studies investigating strategies designed to reduce role ambiguity were identified. While the clinical years of training intend to improve a student's understanding of clinical medicine and expose them to the role of a junior doctor, role ambiguity remains a significant stressor for PGY1 doctors. This problem may be exacerbated by the disparate expectations of PGY1 doctors working in different organisations, or even as part of different medical teams within the same organisation. Stressors surrounding career development and future prospects are also factors contributing to psychological distress. However, there are no studies detailing strategies that have been specifically designed to counteract such stressors. With an increase in graduate numbers set to exacerbate career progression concerns amongst junior doctors in Australia, the provision of good career advice is likely to be more important than ever before.

In terms of the factors predisposing to psychological distress amongst PGY1 doctors, it is interesting to note the weight attributed to personality traits in the studies included in this review. Personality traits are not considered within Murphy's model of work stress factors. However, the interaction between an occupational stressor and the individual should not be overlooked. This is especially true when considering PGY1 doctors, where our findings indicate this interaction is significant. The influence of certain personality traits on student experience at medical school has been studied previously, with high levels of neuroticism, low levels of extraversion, and low levels of conscientiousness predisposing to stress.(31) Another study linking personality traits to academic progression showed that conscientiousness was a significant predictor of academic success in the pre-clinical years of medical school, but not in the clinical years.(32) The findings detailed in this report reinforce the negative impact of neuroticism on psychological distress, and the protective effect of extroversion.

Another factor predisposing to psychological distress in PGY1 doctors that was identified in the literature review part of this work was a sub-threshold level of depression (not meeting the diagnostic criteria for major depression) prior to internship. Personality traits and other risk factors such as previous psychological distress may be overlooked because they are not classically considered 'modifiable risk factors'. At present, it is unclear if curricula designed to educate medical students or interns about the correlation between these specific risk factors and the predisposition to psychological distress during internship would be beneficial.

Three of the five prevention strategies examined in the literature review section emphasised the importance of adopting appropriate coping mechanisms and avoiding those that may exacerbate rather than alleviate stress (such as heavy alcohol consumption). But it would seem unlikely that in terms of effective coping strategies, one size fits all. It may be that PGY1 doctors with particular personality traits such as neuroticism, introversion or reality weakness (experiencing oneself being totally different at different time points, and feeling in a 'fog' or 'haze') that place them at higher risk of work-related psychological distress may benefit most from tailored intervention strategies teaching specific coping mechanisms. For example, PGY1 doctors who lack organisational skills may find time management seminars including practical personal organisation strategies particularly helpful in reducing work-related distress. Indeed, during educational curriculum intervention programs, PGY1 doctors ranked topics such as 'coping strategies' as less useful than other curriculum components such as 'time management' and 'working in teams'.(29) Furthermore, it is unclear how being identified as 'high risk' may impact the chosen individuals. This is fertile ground for future work in this area.

Murphy's model of workplace stress proved useful when considering the various occupational stressors cited in focus group discussions. While factors such as work overload, unpaid overtime, and variable working patterns were frequently mentioned as stressful, it was the impact of these factors that were considered more stressful. These impacts include, for example, the inability to attend to basic needs (e.g.: eating, drinking, and hygiene) and impacts on life outside of work. As Murphy's model suggests, these stressors and their impacts are intrinsic to the job and stem from numerous factors at the organisational level.

While specific recommendations relating to particular stressors are explored in the following section (see *Recommendations for practice* below), stressors intrinsic to the job may be more appropriately addressed at levels *below* the organisation. For example, education-based seminars shedding light on the more engrained and intrinsic stressors targeted to staff that hold significant supervisory roles may allow for changes in workplace cultures. While not changing organisational factors, the impacts

of certain stressors may be perceived as less significant. Further, similar informative sessions may be targeted to junior staff (including interns) in order to shed light on these stressors earlier in the year, with the intention of exploring particular coping mechanisms the interns could employ.

Beyond those intrinsic to the role, other stressors pertinent to one's role within an organisation, career development, work relationships, and the workplace structure should also be considered, and are frequently overlooked in the literature. Interns frequently cited a lack of appropriate orientation to a unit as one of the most stressful periods due to a number of factors. Unclear, unexpected and unfamiliar expectations from senior staff were confounded by a lack of feedback, or feedback being delivered towards the end of the rotation. It is worth considering the impact of more thorough handover and earlier feedback. In the focus groups, one intern suggested the idea of a formal shadowing day (whereby the intern(s) new to the rotation shadows the intern completing the rotation) as a means of receiving the most effective handover before starting a new rotation. This suggestion was received with praise and indeed many health services offer such a shadowing day to interns prior to their first rotation.

Dealing with referrals and patients' families are jobs frequently assigned to interns and represent a source of stress. Fear of chastisement or harsh instruction from senior staff were the greatest sources of stress when assigned a referral. Aside from the dissemination of a clear referral system (e.g.: ISBAR), teaching staff in senior positions how to provide clear and constructive feedback may prove to reduce intern stress. Information about various coping mechanisms for interns should be made readily available (either in the form of information sheets, a website, or a seminar) to interns in order to give them the opportunity to develop skills in dealing with negative feedback. Similarly, dissemination of information to help interns prioritise tasks appropriately, and develop their time management and communication skills may also be useful.

The issue of career development stressors surrounded perceived lack of choices seems disproportionate to the information received in medical school and during intern year information sessions. Career prospects were seen as limited by some because of a perceived inability to transfer easily between health services following the intern year. This was confounded by a perceived lack of job security and constant applications, many of which are made very early each year before an intern can experience the full range of available rotations.

Limitations

The literature review section of this work synthesised recent studies exploring both the factors predisposing to, and the strategies designed to prevent, psychological distress in PGY1 doctors. It is, however, limited by several methodological factors. The small number of studies that fulfilled the inclusion criteria and their relatively poor quality makes firm conclusions difficult to draw. Both validated and non-validated assessment tools were used in measuring the various forms psychological distress, and this lack of standardisation makes interpretation of certain studies difficult. Furthermore, this review only considered risk factors for psychological distress, and not protective factors, which are likely to be equally important. Due to the lack of available data in many of the studies, we did not examine demographic factors, such as gender, that *beyondblue* identified as potentially important in predisposing to psychological distress amongst this cohort.(1)

A clear limitation in the Australian context is that no research identified was performed in Australia, and there was a paucity of high quality studies. The absence of studies describing targeted intervention (as opposed to universal prevention) strategies is also noteworthy. While Murphy's model of occupational stressors provided a solid base for conceptualising topics repeatedly identified in the included studies, it proved incomplete when considering the cohort of PGY1 doctors. The identification of personality traits and previous psychiatric history as additional salient factors highlighted the importance of considering the interaction between stressors and an individual PGY1 doctor, rather than focusing on occupational stressors alone.

We have endeavored to preview the stressors facing Victorian interns as thoroughly as possible during this project. One regional focus group was held in order to uncover the unique stressors facing regional and rural interns. While we have noted these particular stressors and made recommendations to address them, a sole rural and regional study would facilitate exploration of these stressors in greater detail. As with all interview-style data collection, the responses obtained will have been influenced by the social context of the focus group including the order, structure and language of the questions posed, the role of the facilitator as a clinician and the inherent power dynamics that are particularly prominent within the hierarchy of medicine.(33)

Future Direction

While this project has extensively reviewed current literature and sought to clarify the occupational stressors facing Victorian interns, several steps must logically follow. The recommendations that follow below have been considered carefully after thorough dissection of the data collected from Part A and Part B of this research. However, these recommendations would benefit from a pilot study investigating the degree of utility of the proposed interventions. Following appropriate

evaluation of these pilot studies, wider dissemination of the most effective interventions would naturally follow. From an academic perspective aspect, our literature review partly summarised in Part A of this report is currently under review by an Australian journal. Further, we are currently undergoing the process of writing other articles based on data obtained in Part B of this report.

Recommendations for Practice

Table 7 details a list of potential interventions that may be implemented to address the most commonly cited sources of stress facing Victorian interns. These recommendations have stemmed from readings of the background literature review (Part A) and from discussions with Victorian interns during focus groups (Part B).

Table 7- A series of potential interventions organised by the most significant stressors according to the intern participants during focus group discussions. The potential interventions have been categorised according to the stressor groups listed in Murphy's model of workplace stress.

Stressor category (per Murphy's model)	**Specific stressors**	**Potential intervention**
Intrinsic to job	Work overload, Unpaid overtime	Departmental strategies to help reduce intern workload and improve unit efficiency (e.g. ensuring times of peak workload coincide with higher staffing levels)
		Acknowledge unpaid overtime (not necessarily financially) and the impact it has on time for self care and relaxation
		Carefully designed rosters that promote routine and time for self-care
		Easier access to food, water and bathroom facilities on the wards (e.g. water coolers in doctors rooms)
		Intern education focussing on time management and stress reduction techniques
		Psychologist-facilitated support group discussions with peers
Role in organisation	Referrals, Patients' families, Expectations Feedback	Registrar education relating to the referrals process including how to obtain information in an encouraging manner, and how to deliver constructive feedback to interns
		Ensuring the delivery of formal feedback early in rotations (as occurs in theory but often not in practice), promoted by rostered time dedicated to feedback
		Promoting consultant and registrar awareness in relation to the value of ad hoc feedback to interns, including praise as a driver to culture change
Career development	Career choices, Career location	Clearer medical student education regarding competition ratios for internship placements and further training programs

		Preferences due later during intern year to allow for more clinical experience in a variety of rotations
		Provision of careers evening for interns to discuss potential career plans with a variety of consultants and other colleagues
		Options for >1 year contracts post-graduation
Relationships at work	Supervisors' expectations, Supervisors' delegation	Supervisor education on how to promote effective working relationships with junior colleagues
		Consultant mentor programme to facilitate confidential discussions between junior and senior staff
		Professional development programme for interns including discussion of personality types and their influence on professional relationships
Organisational structure and climate	Rotation orientation, Access to superiors, Feelings of under-appreciation	Better orientation for each rotation – thorough written handover (e.g. investigations unique to individual units and expectations of interns in relation to ward rounds and other activities)
		Shadowing days prior to each rotation with the intern completing the present rotation

A number of the listed potential interventions could be amalgamated, especially as many recommendations are education-based for particular cohorts. Some limited examples include seminars informing interns about particular coping mechanisms, time-management skills, and communication skills. In contrast, senior staff seminars may increase focus on the provision of constructive feedback and delegation skills education. The method of distributing these interventions may vary in format, including written (e.g.: handouts, emails, websites), spoken (e.g.: seminars, lectures), and interactive (e.g.: workshops) formats.

A number of interventions are education based and designed to increase awareness of particular issues for Victorian interns. In contrast, a number of changes at an administrative level may also be considered, such as changes to the rostering system to allow for more consistent shifts, or changes such as to allow overtime acknowledgement.

An already frequently available intervention at numerous Victorian health services include a mentoring program. These usually consist of pairing an intern with a senior doctor, commonly a senior registrar, fellow, or consultant. A common complaint about such a program was difficulties

confiding in senior staff, and interns frequently suggested a similar program with more junior doctors such as an HMO2 or HMO3. There are concerns, however, that the role of a 'mentor' to one or more interns may place an additional burden on junior doctors who already face many of the same stressors as those they seek to help. This may be exacerbated by the need to undertake professional exams and gain a place on their desired training programme. As an alternative measure, Alfred Health are currently considering the possibility of seminars or day-long workshops which aim to promote self-awareness amongst HMO2 and HMO3 doctors. These doctors would be equipped with a more detailed knowledge of the support structures available for junior doctors in distress, and through this grassroots approach, some of the stigma associated with depression and anxiety in junior doctors may be reduced.

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Appendix A – Explanatory Statement

EXPLANATORY STATEMENT

Participant Group: Intern Doctors

Project: Junior Doctor Welfare and Support

Chief Investigator	**A/Prof Laila Rotstein** Monash Clinical School, 5th floor Alfred Centre, Commercial Road, VIC, 3004 Phone: 03 9903 0799 email: laila.rotstein@monash.edu
Other Investigators	A/Prof Rob Selzer, Dr Vicky Tallentire, Dr Melissa Fitzgerald, Mr Adam Facey

You have been invited to take part in this study. Please read this explanatory statement in full before deciding whether or not to participate in this research. If you would like further information regarding any aspect of this project, you are encouraged to contact the researchers via the phone numbers or email addresses listed above.

What does the research involve?
The aim of this study is to explore and understand the specific work-place stressors that Victorian intern doctors experience, and what mechanisms are best served to help address these. As participants, we ask you to be involved in audio-recorded focus group discussions of up to two-hours, run by an appropriately trained mediator. The focus groups will explore topics such as workplace stressors, burnout, anxiety and depression during the intern year and what coping mechanisms you employ to address these factors. A portion of the focus group discussion will gauge what support systems you use to address work-place related stress and burnout, and what systems you recommend be implemented for future interns.

Why were you chosen for this research?
As an intern, you were chosen for participation in this study because it is well known that junior doctors are more likely to suffer from high levels of psychological distress than the general population. The impetus for this research was the release of the Beyond Blue National Mental Health Survey of Doctors and Medical students in October 2013 (for more information, please see: www.beyondblue.org.au). We have approached health services across Victoria, including the health service you currently work for, for contact details to approach you for participation in this study.

Source of funding
This research has been funded by the Postgraduate Medical Council of Victoria (PMCV).

Consenting to participate in the project and withdrawing from the research
It is important to read and understand this explanatory statement before signing and returning the consent form. Participation in this study is entirely voluntary. You may withdraw from this research project at any point up until participating in the focus group discussions. However, once audio recordings are collected and anonymously transcribed it will be impossible to withdraw from the research due to the anonymous nature of the data received.

Possible benefits and risks to participants
This is a 'low-risk' research project whereby the maximal risk to participants is that of inconvenience and discomfort. The focus group discussions may provoke unpleasant emotions (e.g.: feelings of

being overwhelmed, sad, etc.) due to the nature of the topics to be discussed (e.g.: stress, burnout, anxiety, depression, etc.). This is the only foreseeable risk of the research. The mediator of the focus group discussions will be trained to recognise signs of discomfort early, and make all efforts to guide discussions appropriately.

The data that comes from the research will guide recommendations to improve the wellbeing of junior doctors throughout Victoria.

Confidentiality
The focus groups are necessarily not anonymous, however confidentiality is highly valued and will be maintained. The only exception will be when information obtained fulfils the mandatory reporting obligation detailed in section 140 of the National Law, or when there are clear and identifiable risks to patients and / or interns themselves. Following the audio-recording focus groups, conversations will be anonymously transcribed and remain anonymous thereafter. All results will be de-identified and participant names will not be used in any way.

Storage of data
Data collected will be stored in accordance with Monash University regulations. Audio recordings will be stored on a password-protected memory drive, which itself will be stored in a secure office at The Alfred Hospital. Transcription data will be treated similarly. Only the primary researchers involved will be allowed access to the raw data collected. According to Monash University regulations, data will be stored for a period of five years before destruction.

Results
Results will be available during December 2014. If you would like to receive a copy of the results, please indicate this on the consent form. We intend to publish the results in a peer reviewed manuscript and present at relevant medical education conferences.

Complaints
Should you have any concerns or complaints about the conduct of the project, you are welcome to contact the Executive Officer, Monash University Human Research Ethics (MUHREC):

Executive Officer
Monash University Human Research Ethics Committee (MUHREC)
Room 111, Building 3e
Research Office
Monash University VIC 3800

Tel: +61 3 9905 2052 Email: muhrec@monash.edu Fax: +61 3 9905 3831

Thank you,

A/Prof Laila Rotstein

Appendix B – Consent Form

MONASH University

CONSENT FORM

Participant Group: Intern Doctors

Project: 'Junior Doctor Welfare and Support'

Chief Investigator: A/Prof Laila Rotstein

I have been asked to take part in the Monash University research project specified above. I have read and understood the Explanatory Statement and I hereby consent to participate in this project. I understand that participation in this project is entirely voluntary and I may withdraw consent at any stage up until the commencement of the focus group.

I consent to the following:	Yes	No
Taking part in a focus group of up to 10 people.	☐	☐
Audio recording and subsequent anonymous transcription of the focus group discussions.	☐	☐
The use of direct quotations in published material (all of which will be non-identifiable).	☐	☐

I wish to receive a copy of:	Yes	No
The deidentified audio transcript of the focus group in which I participated.	☐	☐
The final results of the project.	☐	☐

Name of Participant _____

Participant Signature _____ Date _____

Appendix C – Focus Group Schedule

Focus Group Details	
Research group	Victorian intern doctors
Focus group size	~10 participants
Time taken	1-2 hours

Broad Topics	Subtopics	Example specific topics
Work-related stressors	Team	Expectations
	Workplace demands	Hours
	Confidence and competence	Clinical skills/knowledge
	Other	
Personal stressors	Self	Time management
	Social	Strained friendships
	Family	Living arrangements
	Relationship	Strained relationships
	Other	
Support structures	Coping mechanisms	Exercise, meditation
	Social support	Family, friends
	Workplace support	Mentors, peers
	Other	