**Promoting mental health in high-risk occupations: A feasibility study to promote psychological capital in medical students and junior doctors.**

**WORKPLACE MENTAL HEALTH**

Quality work and physically and psychologically healthy workplaces are established social determinants of health1. With most people spending one third of their lives at work, the workplace is now recognised as a priority setting for promoting health and wellbeing. In terms of mental health, workplace factors may increase the likelihood of the occurrence of a mental disorder, make an existing disorder worse, or contribute directly to mental distress all of which can be a source of considerable suffering for employees.

**MENTAL HEALTH IN THE MEDICAL WORKFORCE**

In 2013, beyondblue reported 20% of medical students and 10% doctors had suicidal thoughts in the preceding year, and 3.4% of doctors were experiencing very high psychological distress (vs. 2.6% of the wider community). Further, young doctors were found to be more psychologically distressed, thought about suicide more, and were more burnt-out than their more senior colleagues2. Several factors could explain these statistics, including: i) a professional culture which conflates stress and mental illness with weakness or incompetence; ii) long work hours in a high-pressure environment; iii) anxiety about making mistakes with serious personal and professional consequences; iv) workplace bullying and harassment; and v) first encounters with mortality which increase vulnerability and susceptibility to poor mental health3.

Compassion Fatigue (CF) has been identified as an intermediate step between these stressors and poor mental health in this population. CF results from exposure to a traumatised individual (vicarious traumatisation), is characterised by a state of physical and mental exhaustion4 and may lead to more serious mental health conditions such as post-traumatic stress disorder, anxiety or depression. Whilst vicarious traumatisation may be considered an inherent risk for doctors and thus difficult to modify, increasing evidence suggests compassion satisfaction or the pleasure one derives from their work, can mediate the relationship between secondary traumatic stress and CF (see figure below).

Compassion satisfaction can be boosted via the promotion of positive psychological capital (PsyCap), characterised by high self-efficacy, optimism, hope and resiliency5. This approach reinvigorates an individual’s passion for caring for patients and provides them with the energy required to inhibit or reverse secondary traumatic stress, burnout, and CF6, 7. Interventions that promote PsyCap and educate at-risk workers about coping strategies in response to adverse job exposures are likely to reduce CF *and* the incidence of psychological distress and suicide.

Whilst several studies have quantified psychological distress among junior medical professionals8, 9, and recognised the impact of CF, few have designed and evaluated preventative strategies around the promotion of individual, psychological resources. Therefore, this study aims to evaluate the feasibility of an intervention program to reduce depression, anxiety, stress and compassion fatigue among medical students based at the University of Tasmania’s Hobart Clinical School and junior medical officers (JMOs) based at the Royal Hobart Hospital via the development of their psychological capital and promotion of their skills and capacities for coping with inevitable work-related stressors. If the content and design of the intervention are proven successful, findings of this trial will inform the development of a state-wide roll out to medical students and JMOs located in Tasmania’s North and North West, and its provision to other employee groups populations including TasNetworks staff.

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**METHODS**

*Study Design*

This study will examine the feasibility of a workshop-delivered intervention to boost PsyCap and reduce poor mental health among University of Tasmania medical students and RHH junior medical officers. Using a randomised trial, we will compare the PsyCap workshop with an active control condition (psychoeducation only) ***and*** the PsyCap workshop plus a “booster session” and test the following hypotheses:

Hypothesis 1: Increasing PsyCap (resilience, optimism, self-efficacy, and hope) will reduce CF and psychological distress; and

Hypothesis 2: The PsyCap + booster session group will maintain the positive effect of the intervention for longer.

The intervention will be implemented through a 3.5 hour facilitated group-based workshop. Online surveys will assess medical students and JMOs in all three group at baseline, at intervention completion, and at 6-month follow up. All three groups (PsyCap, PsyCap+booster, and control) will also be assessed at 12-month follow-up to examine maintenance of effects (H2).

**Psychological Capital Intervention (PCI)**

The PCI model (summarized in the Figure below) aims to: (1) be brief; (2) enhance all four dimensions of PsyCap; and (3) enhance overall PsyCap through integration of the underlying principles and developmental aspects of each of the four individual PsyCap resource10. The PCI involves a series of exercises individuals complete within a facilitated group-based workshop format (approx. 20 participants). The exercises develop each individual component of PsyCap (hope, efficacy, resilience and optimism), along with more reflective exercises which incorporate the development of the individual component training into an understanding and operationalization of overall PsyCap12. For instance, individuals are asked to consider a personally meaningful work (or study) related goal. In identifying this goal, the individual is assisted by the facilitator to phrase the goal to enhance ‘agentic capacity’13 and to ‘step’ goals into manageable units14. The individual is then guided to generate several pathways that could enable them to achieve this goal.

A critical element of the PCI delivery is facilitated small group discussions15 where individuals share their goals and pathways to generate additional pathways and model positive goal setting behaviour to the group. This group process enhances participants’ level of self-efficacy through the generation of additional pathways to achieve their stated goal/s; while also enhancing their positive expectations (optimism) to achieve it. The generation of multiple pathways for goal achievement also increases resilience by enabling participants to ‘bounce back’ by selecting an alternative pathway, if an original pathway is blocked or met with challenge16.

The final element of the PCI focuses on optimism development by increasing participants’ awareness of negative cognitions they may possess when faced with a challenge at work. This element is based upon cognitive-behavioural theory which posits people tend to make automatic, unfounded, negative cognitions when confronted with problems, which generates negative behaviours (e.g. “This is hopeless, I can’t possibly complete this assignment by the deadline. I give up!”). The PCI optimism development phase aims to counter negative cognitions by encouraging participants to identify, challenge and replace them with more positive, realistic expectations (e.g. “This assignment is going to take a lot of work, but I have done similar assignments before and can do this one if I keep working”).

One of the groups that receive the PsyCap training workshop will also receive a 1.5-hour PsyCap **booster session** delivered 2 months following the initial workshop. This facilitated booster session will also be delivered in a group-based workshop format. The booster sessions are designed to provide opportunity for participants to further develop the skills learned in the initial workshop and to tailor these skills to their own personal work/study related goals and challenges. The PCI and booster sessions will be facilitated by trained educators/clinical psychologists who have extensive experience in workshop facilitation (Dr Sarah Dawkins, Prof. Angela Martin).

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**Figure 1: Overview of the Psychological Capital Intervention (adapted from Luthans et al., 2006).**

*Participants*

This feasibility trial will be open to all 4th and 5th year University of Tasmania medical students based at the Hobart Clinical School (approx. n=90) and all Junior Medical Officers – Interns (PGY1), Resident Medical Officers (PGY2, PGY3), and Registrars (PGY3, PGY4 or above) – based at the Royal Hobart Hospital (approx. n=285).

A full trial would aim to recruit a minimum of 185 JMOs (65% recruitment rate), and 60 medical students (65% rate) to allow for 81 participants per group and an attrition of 20% which would still enable detection of an effect size of 0.5. However, the rule of thumb for a feasibility trial such as this is 10% of the sample needed for the larger trial10, 11. Therefore we will recruit 30 JMOs and 30 medical students which allows for 10 medical students and 10 JMOs per intervention group, and 10 medical students and 10 JMOs in the active control group. Both are easy to engage cohorts due to regular contact in education sessions and orientation sessions, and up to date email distribution lists. Further, in his role as Director of Clinical Training for Interns at the RHH co-investigator Dr Allan Beswick has significant involvement and daily-contact with the JMOs, and Associate Professor Emma Warnecke and Dr Fiona Cocker have regular contact with the medical students as part of their student support roles at the UTAS School of Medicine, allowing them to ensure students are aware of this opportunity to participate.

*Recruitment*

Dr Fiona Cocker (Student Wellbeing Officer, UTAS) will give a presentation about the project to 4th and 5th year medical students during their orientation week in February 2019, and JMO’s during their orientation scheduled for January 2019. Information about the study will also be provided to medical students via the MyLO, University of Tasmania’s online learning environment. Co-investigators Professor Richard Turner and Dr Allan Beswick will also send an invitation to participate to medical students and JMOs, respectively via their group email lists. Individuals who are interested in participating will be asked to provide their expression of interest in person following the initial presentation, or later via email to Dr Fiona Cocker.

*Survey Design and Data Collection*

Individuals who have expressed an interest in participating will be sent an email containing a link to an online survey which will be built in REDCap; a secure web application for building and managing online surveys and databases available to University of Tasmania staff. Prior to completing the survey participants will be asked to read a participant information sheet and complete an online consent form, as per appropriate ethics-approved protocols. Completion of the survey should take no more than 20 minutes.

The survey will contain:

**Primary Outcome**

* The Psychological Capital Questionnaire (PsyCap): A measure of PsyCap with 24 items. Each of the four components in PsyCap (hope, optimism, resilience, and self-efficacy) are measured by six items. The resulting score represents an individual's level of positive PsyCap.

**Secondary Outcomes**

* The Depression Anxiety Stress Scores (DASS) – Short form: This is a 21-item questionnaire designed to measure the negative emotional states of depression, anxiety and stress.
	+ Depression scale assesses dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest/involvement, anhedonia, and inertia.
	+ Anxiety scale assesses autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious affect.
	+ Stress scale is sensitive to levels of chronic non-specific arousal. It assesses difficulty relaxing, nervous arousal, and being easily upset/agitated, irritable/over-reactive and impatient.

Participants are asked to use 4-point severity/frequency scales to rate the extent to which they have experienced each state over the past week. Scores for Depression, Anxiety and Stress are calculated by summing the scores for the relevant items. The scales of the DASS have been shown to have high internal consistency and to yield meaningful discriminations in a variety of settings.

* The Professional Quality of Life (Pro-QoL) Scale – A measure of compassion fatigue, burnout, compassion satisfaction, secondary traumatic stress with 30 items.
* To provide an economic evaluation of the intervention, both medical students and JMOs rates of absenteeism and presenteeism will also be assessed.

*Process Evaluation*

We will evaluate the design and implementation of the intervention by conducting between 5 and 10 qualitative interviews with participants in the PsyCap workshop and workshop + booster session. We will also use these interviews to determine enthusiasm for the train the trainer model of delivery, which may be a useful method for promoting program sustainability. As a means of enhancing resource development, a train-the-trainer model could be implemented, whereby appropriate personnel (e.g. student leaders/other staff) will be trained to deliver the PCI. The model would involve facilitating a half day PCI delivery training workshop with the nominated trainers prior to the delivery of the PCI.

*Analysis*

Descriptive analysis will be undertaken with comparisons conducted across the different participant types (i.e., registrars, HMOs and interns, medical students) for each question using chi-squared tests. If available, the responses to each question will be compared to Australian population norms, via a one-group proportion test. Data will be analysed using Stata version 12.1, with a p-value of less than 0.05 considered to indicate statistical significance. The Menzies Institute for Medical Research will provide the research team with statistical support and advice regarding the development of the process evaluation and analysis of the qualitative data it will produce (Dr Kim Jose).

**THE RESEARCH TEAM**

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| **RESEARCH TEAM**  | **CURRENT POSITION** | **PROJECT ROLE** |
| Dr Fiona Cocker (chief investigator) | Research Fellow – Menzies Institute for Medical ResearchWellbeing Officer – Hobart Clinical School, School of Medicine, UTAS | Oversee the design and implementation of the feasibility trial; analyse data and write up findings.  |
| **Co-Investigators** |  |
| Assoc. Prof. Emma Warnecke | Director of Student Development and Support - School of Medicine, University of Tasmania | Expertise on medical student mental health and wellbeing. |
| Professor Richard Turner | Director – Hobart Clinical School | Expertise in medical education and promotion of trial among 4th and 5th year medical students. Provision of facilities to conduct workshops. |
| Dr Allan Beswick | Director - Clinical Training for Interns, Royal Hobart Hospital | Expertise in medical workforce and promotion of trial among RHH JMOs. Provision of facilities to conduct workshops. |
| Professor Angela Martin | Principal Consultant – PracademiaAdjunct Prof (Org. Behaviour) – Tasmanian School of Business and Economics, University of Tasmania | Expertise in psychological capital and mental health and wellbeing, Deliver PsyCap workshops. |
| Dr. Sarah Dawkins | Lecturer (Management) - Tasmanian School of Business and Economics, University of TasmaniaResearcher – Positive Organisational Behaviour  | Expertise in psychological capital and mental health and wellbeing, Deliver PsyCap workshops. |
| Dr Kim Jose  | Post-doctoral Research Fellow – Menzies Institute for Medical Research, University of Tasmania | Expertise in process evaluation and qualitative interviewing. Develop qualitative interview.  |

**BUDGET**

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| **Cost** | **Detail** | **$** |
| Facilitated workshops | 3.5-hour PCI workshops (2 facilitators) with ~25 participants. | ($4000/workshop)\*2 workshops (n=10) = $8,000 |
| Booster session | 1.5 hours PCI booster session | ($2000/session)\*1 = $2,000 |
| Project manager | Academic Level B2, 0.3FTE, 12 months to manage the day-to-day running of the trial.  | $36,828.26 |
| Process Evaluation | Staff Time = 90 minutes staff time (Level 3 Research Assistant, $47.50/hour)\*5 interviewsTranscription service = $150\*5 interviews | $356.25$750.00 |
| Process Evaluation Support | Kim Jose – provide advice/support re: preparation of qualitative interviews and analysis of data. (1/2 day/month @ Academic Level B2) | $3,258.27 |
| Equipment + Materials | PsyCap measure licence feePrinting psychoeducation materials * beyondblue “Looking after your mental health at work” booklet (6 pages)
* beyondblue “Understanding depression and anxiety” booklet (12 pages)
* beyondblue “Staying well Recovering from anxiety and depression” (4 pages)
 | $0.50/survey\*270=$135$0.50/6 pages\*20=$60$0.50/12 pages\*20=$120$0.50/4 pages\*20=$40 |
| **TOTAL** |  | **$51,547.78** |

**TIMETABLE**

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|  | **2019** | **2020** |
|  | **MAR- APR** | **MAY** | **JUN** | **JUL** | **AUG** | **SEPT** | **OCT** | **NOV** | **DEC** | **JAN** | **FEB** | **MAR** | **APR** | **MAY** | **JUN** | **JUL** | **AUG** | **SEPT** | **OCT** | **NOV** |
| **Survey development & ethics application preparation**  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Ethics application review and approval**  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Recruitment** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Baseline data collection**  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Intervention delivery** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Post-intervention data collection** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Baseline, post-intervention data cleaning and analysis** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Booster session** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **6-month follow up (workshop)** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **6-month data cleaning and analysis** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **12-month follow up (workshop)** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **12-month data cleaning and analysis** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Report/paper writing** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

**RESEARCH SIGNIFICANCE AND FUTURE DIRECTIONS**

To our knowledge, the associations between CF and psychological distress have not been examined among both medical students and junior doctors. In addition, whether aspects of psychological capital (resilience, optimism, self-efficacy, hope) mediate the association between CF and psychological distress, has not been confirmed. This project will provide evidence as to the viability of investing further in the development of psychological capital-focused training for these individuals to prevent compassion fatigue and, by extension, more serious and costly mental health conditions such as depression, anxiety and post-traumatic stress disorder. Further, although medical students and JMOs are particularity vulnerable to poor mental health, beyondblue also reported that one in 10 doctors had suicidal thoughts in the past year, and 3.4 per cent of doctors are experiencing very high psychological distress, much greater than the wider community figure of 2.6 per cent. Therefore, these findings may be applicable, not just to the medical students and junior medical officers, but also to medical professionals at all experience levels, to caring professions such as teachers, social workers, aged care workers, as well as beyond the Tasmanian and Australian context.

 Including preliminary data collected in this trial, which has confirmed CF as a potentially modifiable predictor of psychological distress in this population, in future grant applications will greatly improve their chances of being funded. More specifically, we intend for the next stage of this research will be a full randomised controlled trial to assess the effectiveness of this intervention with participants recruited from the South, North and North West of Tasmania. Therefore, the collection of preliminary data will help us identify whether we need to make alterations in the data collecting methods, and therefore, in the main study more efficiently, putting us a step ahead. It will also greatly reduce the number of unanticipated problems as we will be able to redesign parts of the study to overcome difficulties this preliminary study may reveal.

**CONCLUSION**

Poor mental health among health professionals has far-reaching effects. As well as the personal impact for the individual and those close to them, colleagues, patients and health services can also be affected. Promoting good mental health in our health services is strongly in the interests of both the health profession and the broader Australian community.

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