“This is woolly…..tell me about the science”: Beliefs as troublesome knowledge in psychological preparedness (resilience) education

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**Abstract**

**Background**

As being a doctor involves complex interpersonal skills, emotional challenges and mental health risks, psychological preparation is necessary. However, psychological preparedness (resilience) education within medical school curricula and postgraduate settings remains limited. This exploratory study aimed to determine how senior educators’ beliefs might influence psychological preparedness training.

**Methods**

An extended review across psychology, occupational psychology and medical education literature determined the main discourses relevant to psychological preparation in medical education, summarised as a conceptual framework. On this background, elite interviews were conducted, involving three senior medical educators active in curriculum design in different United Kingdom medical schools, using a Hermeneutic-Dialectic Circle method followed by thematic analysis.

**Results**

Participants described beliefs, perceptions of the knowledge and attitudes of students and fellow educators, and aspects of their University’s culture and the culture of medical education which could impair psychological preparedness provision in medical schools. Affective preparedness and psychological attribute development were not prominent in educators’ minds, despite the importance of these concepts in the literature.

The conceptual framework arising from the study demonstrates the scope and inter-relatedness of multiple concepts relevant to psychological (resilience) preparation for the medical workplace, of potential use to medical educators and employers of doctors in improving education, training curricula and workplace design.
Conclusions

The study points to multiple areas for further inquiry, to determine whether the broader medical education community might hold similar beliefs and perceptions. Identifying resilience as a threshold concept and addressing areas of troublesome knowledge could help improve psychological preparedness provision in medical training. Multiple strands of evidence indicated medical education might benefit from partnering with occupational psychology expertise in the design and research of psychological preparedness programs in medical training.

Keywords: Resilience education; transdisciplinary literature review; the medical workplace; curriculum development; qualitative research; complexity science in medical education; threshold concepts; psychological preparedness for practice; physician wellbeing; occupational medicine.

Introduction

Being a doctor involves complex interpersonal skills and emotional challenges, posing occupational risks to mental health (Brooks, Gerada and Chalder, 2011; Figley, Huggard and Rees, 2013; Regehr et al., 2014; Rotenstein et al., 2016: West et al., 2016). The need for better preparation of medical trainees and doctors for the stress of training and work is well-recognised (Howe, Smajdor and Stöckl, 2012; Kinman and Teoh, 2018; McAllister and McKinnon, 2008; Rogers, 2016; Shapiro, Shapiro and Schwartz, 2000). Occupational psychology research demonstrates that a person’s psychological attributes can indeed be developed, conserved and strengthened, preventively, as preparation for later adversity (Dewe and Cooper, 2012; Hobfoll, 2001; Luthans and Luthans, 2004; Schwarzer, 2001). This strengthening of psychological resources is considered particularly important in highly-pressured jobs and is known to improve engagement and retention of employees (Bakker and Demerouti, 2008; Dewe and Cooper, 2012; Hobfoll, 2001; Luthans et al., 2007). Despite this, there is little evidence of robust psychological preparedness (often referred to as resilience) education within medical school curricula or postgraduate settings.

Definitions of ‘resilience’ vary in the literature (Fletcher and Sarkar, 2013). Many recognise this as a psychological capacity to ‘bounce back’ or ‘rebound…from adversity, uncertainty, conflict, failure, or even [from] positive change, progress and increased responsibility’ (Luthans, 2002, p.702). A broader, more occupationally-oriented definition is preferred by Robertson and colleagues (2015, p.534): ‘the role of mental processes and behaviour in promoting personal assets and protecting an individual from the negative effect of stressors’ (italics added). ‘Promoting personal assets’ arises from the research already quoted, referring to the need to strengthen a person’s psychological resources, whereas ‘protecting an individual’ is rooted in the widely-accepted requirement, now incorporated into United Kingdom (UK) law to prevent stress in the workplace (The Management of Health and Safety at Work Regulations, 1999). The lack of consistency in defining resilience is reflected in medical education research, intervention studies examining ‘stress management’, ‘coping skills’ development or ‘burnout prevention’, all of which are components of, or mean something similar to, resilience training. This begs the question; how can medical educators provide appropriate training if the definition is not clear? It is also known that doctors typically hold negative attitudes (stigma and perceptions of weakness) which lead to reluctance to discuss emotional or psychological issues, or to take time off work to address these problems (Brooks et al., 2011; Figley et al., 2013). Might these subconscious beliefs, on the part of doctor educators, potentially influence provision of psychological preparedness education? This study aimed how senior educators’ beliefs about psychological preparedness training might influence its implementation, an area not previously studied.

The term ‘psychological preparedness’, abbreviated to ‘psyprep’ is used throughout this paper instead of ‘resilience’, as it has a clearer meaning.
Methods

A unique study design involving two sequential phases was conducted:

1. an extended transdisciplinary review (of psychology, occupational psychology and medical education literature) to clarify the key discourses relevant to psyprep in medical training
2. elite interviews involving three senior medical educators working in UK medical schools, using a Hermeneutic-Dialectic Circle (HDC) method and thematic analysis.

As small-scale, exploratory research, the study was intended to increase understanding and thereby uncover potentially useful future research directions rather than generate proof. Research ethics approval was obtained from Dundee University Research Ethics Committee.

Literature review

Authoritative books and key published journal articles and studies involving an overview or synthesis were sought, representative of current thinking relevant to psyprep. The search was limited to English language and focussed on prevention education rather than interventions for established stress or depression. We included research and grey literature on stress prevention and wellbeing development in workplace settings in general (described in the occupational psychology literature), considering these interventions potentially relevant to preparedness for the medical workplace. Medical education literature published between 2000 and the search date in November 2018 ensured relevance to current educational practice. Interventions used in postgraduate medical training were also sought, considered pertinent to potentially evolving a spiral curriculum starting in medical school. Search terms (Table 1) were applied to: TRIP, PubMed, Scopus, ERIC, BEME, and also to Medline and Web of Science for occupational medicine and psychological/social science studies.

Table 1: Literature search terms

| Search terms                          | Boolean connector | Additional search terms               | Boolean connector | Additional search terms |
|---------------------------------------|-------------------|---------------------------------------|-------------------|-------------------------|
| medical student                       |                   | resilience                             |                   | review                  |
| doctor                                |                   | stress                                 |                   |                         |
| physician                             |                   | coping                                 |                   |                         |
| resident                              |                   | wellbeing                              |                   |                         |
| medical educat*                       | AND               | psychol* AND develop*                 | AND               |                         |
| medical training                      |                   | psychol* AND intervention              |                   |                         |
| workplace                             |                   |                                        |                   |                         |

Search terms emerging from reference lists

| Search terms                          | Boolean connector | Additional search terms               | Boolean connector | Additional search terms |
|---------------------------------------|-------------------|---------------------------------------|-------------------|-------------------------|
| medical student                       |                   | self-awareness                         |                   | review                  |
| doctor                                |                   | mindfulness                            |                   |                         |
| physician                             |                   | cognitive behavioural therapy          |                   |                         |
| resident                              |                   | emotional intelligence                 |                   |                         |
| medical educat*                       | AND               | emotional labour                       | AND               |                         |
| medical training                      |                   | coaching                               |                   |                         |
| workplace                             |                   |                                        |                   |                         |

The quality of data was assessed and summarised by researcher HM, using criteria set out by Boaz and Ashby (2003) for quantitative and qualitative research, and by Norman and Eva (2014) for systematic review and meta-analysis data. Studies were excluded if considered methodologically flawed. Figure 1 shows the number of studies found.
The main discourses from the literature review were summarised as a conceptual framework. The literature review and framework enabled the design of the research questions and the interview strategy for the qualitative phase and provided a basis on which to consider the interviewees' responses.

**Elite interviews**

The study aimed to determine educators’ beliefs in relation to psy prep education, requiring a phenomenological approach and situated within critical theory in order to understand subjective experience and attachment of meaning (Illing, 2010; Minichiello et al., 1990). One-to-one (elite) interviews were planned, targeting senior educators working within UK medical schools with insight into and influence over longitudinal curricular design. We used opportunistic sampling, the principal researcher emailing intermediary contacts at different medical schools across the UK to request nomination of potential participants. Nominees were then invited to participate by email, informed that the study intended to explore their views about psychological development and resilience education. Two of the five educators contacted did not respond to invitations, therefore three participants entered the study. The small sample was justifiable, as the aim was to understand new insights rather than to reach findings generalisable to other groups or contexts.

Participants were asked not to prepare in advance for the interview as their authentic views were sought. The three research questions (Table 2) provided the structure for the interview but interviewees were given free rein around these questions to verbalise their thinking and care was taken not to lead them. Additional questions were asked later in the interview to clarify the interviewee's meaning or to prompt their consideration of certain areas derived from the literature review (if not raised spontaneously by the interviewee). Interviews were audio-recorded, with consent. Use of only one interviewer (HM) enabled a consistent approach.
Table 2: Research Questions (RQ)

| RQ  | Question                                                                                     |
|-----|--------------------------------------------------------------------------------------------|
| RQ1 | What role should medical schools have in preparing medical students to cope with the psychological challenges of training and practice… and the rationale for that? |
| RQ2 | In preparing doctors for the psychological challenges of training and practice, which ideas, skills or concepts might be valuable? |
| RQ3 | What are the difficulties involved in providing psychological preparedness education for medical students? |

An adapted version of Guba and Lincoln's Hermeneutic-Dialectic Circle (HDC) method (Guba and Lincoln, 1989) provided a cyclical approach, with the opportunity to go back to each participant, post-interview, as a brief telephone call, to raise additional concepts or to member-check unclear aspects of their transcript (Figure 2).

**Figure 2.** Pre-study plan for the interview process

Data analysis

HM analysed the transcribed data using inductive coding (the codes emerging progressively during the analysis). Descriptive codes were initially identified and multiple review iterations ensured data familiarity and accuracy of code allocation. Codes identifying stakeholders, emotion, magnitude, in-vivo, process and causation were identified, then subcodes to further describe the data. Independent checking by another researcher ensured the descriptive codes were appropriately applied. In a second cycle of analysis, codes were pulled together into clusters, condensed into pattern codes, categorised into key themes and distilled into assertions and propositions. Jottings recorded emerging reflections and decision-making, synthesised as analytic memos to create additional themes and higher-level meanings. An additional colleague (LJ) checked the key findings against the transcription data as a confirmability audit.

Results/Analysis

Literature review

**Psychological preparedness in the workplace**

Key concepts

Certain concepts form a foundation of factors underlying development of coping capability in the workplace in general, including employee autonomy (control) at work, good work relationships, social support, managerial quality, feedback provision and supervision (Table 3). This knowledge has emerged from well-established research, grounded in psychology theory, then further researched and translated into occupational psychology practice (Bakker and Demerouti, 2008; Robertson and Cooper, 2011) and UK government policy (Black, 2008; Health and Safety Executive Management Standards, 2013).

Specific interventions

In workplace settings, 'positive psychology' techniques are known to result in significant and lasting increases in employee wellbeing (Meyers, van Woerkom and Bakker, 2013; Sin and Lyubomirsky, 2009), improving job
satisfaction, workplace wellbeing, performance and employee retention (Luthans, Luthans and Luthans, 2004; Luthans, Avey and Patera, 2008; Luthans, Vogelgesang and Lester, 2006) (Table 3). Grounded in Seligman’s work, these interventions involve personal strengths development and positive appraisal activities such as expressing gratitude and savouring experiences (Seligman and Csikszentmihalyi, 2000).

Tentative evidence from systematic reviews indicates that ‘resilience training’ has a positive impact for employees, improving personal resilience and performance, and enhancing psychosocial functioning, with a positive effect on mental health and subjective wellbeing (Joyce et al., 2018; Robertson et al., 2015; Tetrick and Winslow, 2015). In particular, these studies researched: coping skills development; emotional awareness and regulation training; relationship development; coaching; mindfulness and relaxation; compassion-based practices; cognitive-behavioural techniques (CBT); goal setting; and personal strengths identification and development (Table 3). Mindfulness constitutes ‘being attentive to and aware of what is taking place in the present’ (Brown and Ryan, 2003, p. 822) whereas CBT involves development of self-awareness of emotions or negative thoughts and the reframing (changing) of these perceptions (Munir and McDermott, 2013). The extent of pre-existing stress or depression in many of the review studies -and therefore the value of the interventions as prevention- was not clear. In addition, no firm conclusions could be drawn about the comparative effectiveness of different interventions, due to lack of coherence in the design and implementation of the reviewed studies; this appears to be a characteristic of resilience education research.

**Table 3: Concepts and interventions relevant to psychological preparedness in workplace settings**

| Key concepts                                      | Resources/communication | Work-life balance/workload | Job security | Work relationships | Sense of purpose as an employee | Job conditions | Impact of management and leadership | Work support | Social support | Design of jobs and work | Performance feedback | Supervisory coaching | Balance between effort and reward | Autonomy/Control by employee in the way they do their work |
|---------------------------------------------------|-------------------------|---------------------------|-------------|-------------------|-------------------------------|----------------|-------------------------------|---------------|----------------|-------------------------|---------------------|---------------------|-------------------------------|------------------------|
|                                                   |                         |                           |             |                   |                               |                |                               |               |                |                          |                     |                     |                               |                        |
### Definitions (paraphrased from source papers):

**Design of jobs and work**: aims to ensure employees have an understanding of their role, that work is not repetitive or monotonous and employees are confident they will be treated fairly

**Work support**: encouragement and resources are provided by the organisation, line management and colleagues

**Acceptance and Commitment Training**: aims to enable the full experiencing of thoughts and feelings, the accepting of these and development of a focus on achieving goals

**Gratitude interventions**: expressing appreciation and shifting focus onto positive emotions

**PsyCap**: developable psychological attributes comprising optimism, self-efficacy, resilience, self-esteem

**Appreciative inquiry**: identification of the strengths in a person, process or organisation

**Loving-kindness meditation**: meditation to enable improvement in capacity for forgiveness, connection to others and self-acceptance

**Compassion-based practices**: encouragement for an individual to be compassionate toward themselves and others

### Source

1. Robertson et al., 2015
2. Bakker and Demerouti, 2008
3. Black, 2008
4. Joyce et al., 2018
5. Tetrick and Winslow, 2015
6. Grover and Furnham, 2016
7. Meyers, van Woerkom and Bakker, 2013

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**Psychological preparedness in the medical workplace**

**Key concepts**

The same key concepts identified as important in workplace settings were considered relevant to the medical workplace, by expert consensus, alongside additional concepts summarised in Table 4. There was emphasis on the need for a proactive approach to prevention of work-related stress and mental ill health in the medical workplace.

**Specific interventions**

There were limited studies on the effectiveness of psyprep education specifically for doctors (Table 4). CBT, resilience workshops and mental and physical relaxation reduced stress to a moderate extent in healthcare workers, compared with no intervention (Rogers, 2016; Ruotsalainen et al., 2015). Coping strategies used by health
professionals included time alone, talking to others, exercise and wellbeing, discussing feelings, socialising, relaxation training, staff support groups, organisational problem-solving, counselling, nurturing professional relationships, and staff sensitivity sessions (McCann et al., 2013). There are limited data on long-term effectiveness of psy prep interventions. A literature review published by the Society of Occupational Medicine (Kinman and Teoh, 2018) recommended the following as effective in protecting the mental health of medical practitioners: Schwartz Rounds (in which social, emotional and ethical issues about patient care are discussed); workplace support; and, a culture which encourages help-seeking for mental ill health and challenges the stigma of mental illness.

Table 4: Concepts and interventions relevant to psychological preparedness in the medical workplace

| Key concepts                                      |   |
|---------------------------------------------------|---|
| Identity-building work                            | 1 |
| Positive role-modelling                           | 1 |
| Coping, capacity and strengths development        | 1 |
| Professional cultural generativity                | 1 |
| Social connections with peers and other adults    | 1 |
| Supportive educational setting                    | 1 |
| Learning leadership: show others how to act with engagement, respect and partnership | 1 |
| Reflecting upon and learning from practice and from resilient role-models | 1 |
| Coping strategies                                 | 3 |
| Job conditions                                    | 3 |
| Development of managers and leaders               | 4 |
| Organisational culture of caring for employees (including addressing bullying and harassment policies) | 4 |
| Design of jobs and work (tacking the culture of long hours, developing jobs into meaningful work) | 4 |
| Culture that explicitly recognizes how the job impacts on wellbeing and promotes mental health and self-care | 5 |
| Culture that encourages help-seeking and challenges mental health stigma | 5 |
| Support in the workplace                          | 5 |
| Supervision                                       | 5 |
| Supportive relationships                          | 1,3,6 |

| Specific interventions studied                     |   |
|---------------------------------------------------|---|
| Coaching                                          | 1 |
| Resilience workshops                              | 2 |
| Cognitive-behavioural techniques                  | 2,8 |
| Schwartz Rounds                                   | 5 |
| Reflective practice                               | 6 |
| Loving-kindness meditation                        | 5 |
| Peer coaching                                     | 6 |
| Mindfulness                                       | 6 |
| Experiential learning                             | 6 |
| Group supervision                                 | 6 |
| Mentoring                                         | 6 |
| Emotional Intelligence skills                      | 3,7 |
**Definitions** (paraphrased from source papers):

- **Professional cultural generativity**: showing attributes, including altruism, leading, mentoring, coaching, and motivating others
- **Schwartz Rounds**: presentations by a group of clinicians who discuss impact of a patient experience on them
- **Loving-kindness meditation**: meditation to enable improvement in capacity for forgiveness, connection to others and self-acceptance
- **Peer coaching**: collaboration to help identify personal strengths, promote self-awareness and develop reflective techniques
- **Experiential learning**: use of case studies, role-plays and simulated practice to learn and improve emotion regulation, reflective capability, empathy and emotional intelligence

**Source**

1. McAllister and McKinnon, 2008
2. Rogers, 2016
3. McCann et al., 2013
4. Boorman, 2009
5. Kinman and Teoh, 2018
6. Grant and Kinman, 2014
7. Monrouxe et al., 2015
8. Ruotsalainen et al., 2015

**Psychological preparedness in the medical training environment**

**Key concepts**

Multiple concepts underlying psyprep in medical training have been identified by expert commentators (Table 5). In a United States setting, Dyrbye and Shanafelt (2016) recommended measures for primary prevention of student burnout, including developing strategies for taking tests, learning how to deal with suffering and medical error, and debt management. Fostering social interaction and social connectedness and nurturing a network of support through personal relationships were also considered important coping strategies for medical trainees (Drybye and Shanafelt, 2012), linking with the same findings from psychology research.

The General Medical Council (GMC) (the regulatory body which oversees UK medical education and training) advocates ‘preventive measures…. [in medical schools] to promote good mental health and well-being’ (GMC guidance, 2015a, para 4), access for trainees ‘to resources to support health and wellbeing’ (2015b, para.R3.2), and development of ‘healthy ways to cope with stress and challenges’ (2016, p.7). GMC guidance provided a somewhat limited definition of ‘emotional resilience’, as the ‘ability to adapt and be resourceful, mindful and effective in complex, uncertain or stressful situations or crises’ (2017) and no information on how to teach or develop these attributes or skills.

**Specific interventions**

Studies conducted in medical students and trainees provide some evidence that cognitive, behavioural and mindfulness-based interventions can reduce subjective stress and anxiety (Regehr et al., 2014; Shapiro, Shapiro and Schwartz, 2000) (Table 5). The teaching of mindfulness is becoming more frequent in medical schools (Dobkin and Hutchinson, 2013) and the importance of enabling self-care and provision of support confirmed in other studies (Thompson et al., 2016). Ethics education and interprofessional education can enable the handling of uncertainty and complexity and the building of confidence in one’s capabilities (self-efficacy) (Howe, Smajdor and Stöckl, 2012).
Table 5: Concepts and interventions relevant to psychological preparedness during medical school and early training

| Key concepts                                                                 | Specific interventions studied                                      |
|------------------------------------------------------------------------------|---------------------------------------------------------------------|
| Working collaboratively with teams¹  | Cognitive-behavioural interventions¹,³                           |
| Self-awareness development¹,²   | Mindfulness-based stress reduction¹                               |
| Awareness of burnout²            | Mentoring programmes¹                                               |
| Dealing with suffering²          | Directed and non-directed support groups¹                         |
| Dealing with medical error²      | Relaxation training (including meditation and hypnosis)¹,¹⁰         |
| Financial debt management²       | Time management¹,⁶                                                  |
| Study skills⁵                    | Coping skills⁵                                                      |
| Cross-roads teaching⁴           | Conflict resolution skills¹¹                                       |
| Developmental mentoring (empowering individuals to make changes to their present situation)⁵ | Adaptive coping strategies (such as positive reframing and problem solving)²,⁴ |
| Situational awareness⁶          |                                                                      |
| Peer coaching⁶                   |                                                                      |
| Emotional resilience⁶           |                                                                      |
| Openness to feedback⁶           |                                                                      |
| Provision of feedback by training body⁶         |                                                                      |
| Dealing with uncertainty and change⁶          |                                                                      |
| Access to educational/pastoral support⁶       |                                                                      |
| Recognition of warning signs of emotional ill health and seeking help⁶       |                                                                      |
| Fostering of social interaction and connectedness⁷ |                                                                      |
| Knowing professional boundaries regarding patient relationships⁶     |                                                                      |
| Supporting peers in distress/student training for peer support²,⁷ |                                                                      |
| Nurturing of personal relationships and relationships with colleagues to provide a network of support⁹ |                                                                      |
| Cultural competence¹⁰           |                                                                      |
| Proficiency in quality improvement¹⁰ |                                                                      |
| Emotional intelligence development⁸,¹¹ |                                                                      |
| Emotional labour⁹               |                                                                      |
| Support to deal with negative emotions¹² |                                                                      |
| Self-care (reduction of stress and fatigue, staying healthy)²,³,⁶,¹⁰ |                                                                      |
| Work-life balance/ Maintaining health and personal interests¹,⁶,¹⁰ |                                                                      |
| Proactive discussion by trainers about emotions and coping strategies¹² |                                                                      |
Definitions (paraphrased or quoted from source papers):

Cross-roads teaching: self-examination of source of own beliefs, challenging how beliefs fit with current experience and consideration of approach in future situations

Emotional resilience: ‘ability to adapt and be resourceful, mindful and effective in complex, uncertain or stressful situations or crises’

Situational awareness: ‘ability to identify, process and comprehend the critical elements of information in a dynamic situation, and be able to adapt, manage and mitigate emergent risk’

Emotional labour: portraying or suppressing certain emotions as an expected part of an individual’s job

Source

1. Shapiro, Shapiro and Schwartz, 2000
2. Drybye and Shanafelt, 2016
3. Thompson et al., 2016
4. Haglund et al., 2009
5. Sandars et al., 2014
6. General Medical Council, 2015a, 2015b, 2016
7. Drolet and Rodgers, 2010
8. Arora et al., 2010
9. Kinman and Teoh, 2018
10. Dobkin and Hutchinson, 2013
11. Lesser et al., 2010
12. Cherry et al., 2014
13. General Medical Council, 2017

Self-awareness and self-development

Benbassat and Baumal define self-awareness as an ability to, ‘pay attention to …emotions, attitudes and behaviour in response to specific situations’ (2005, p.156). Grounded in the fundamental psychological concept of metacognition, self-awareness involves bringing to consciousness personal knowledge about how thoughts are automatically processed to shape mental schemata, and the ability to control these thoughts (Meichenbaum, 1985). Fostering self-awareness, self-knowledge and personal growth in medical students and physicians is considered important by expert commentators (Benbassat and Baumal, 2005; Epstein, 1999; Novack, Epstein and Paulsen 1999). Some consider self-growth and self-development as falling within professionalism education, identifying as teachable skills: self-awareness; self-control; situational awareness; alternative strategy development; reflective practice; peer coaching; emotional intelligence; and, mindfulness (Lesser et al., 2010).

Affective preparedness

Emotional intelligence (EI) and Emotional Labour (EL) were evident in the literature relating to emotion skills learning (affective preparedness). Psychologists Mayer and Salovey (1997) described EI as a set of cognitive abilities (perceiving, expressing, generating, using, understanding and managing emotions in order to foster personal understanding and growth). Bar-On (1997) and Goleman (1998) proposed EI as a broader collection of inter-related abilities, Goleman’s work relating specifically to employees and the workplace (Table 6). In the workplace, EI has been linked to academic success, increased productivity and job satisfaction (Arora et al., 2010), and to leadership skills development, since managing one’s own emotions and understanding and recognising emotions of others influences workplace cooperation (Giesecke, 2007; Goleman, 2008).
Table 6: Broad definitions of emotional intelligence as a set of inter-related abilities

| Intrapersonal (includes ability to assert oneself) | Bar-On (1997) |
|--------------------------------------------------|---------------|
| Interpersonal (includes ability to be empathic)  |               |
| Stress management (includes ability to control impulses) |               |
| Adaptability domain (includes ability to problem solve) |               |
| General mood (includes optimism and happiness as a facilitator of emotional intelligence) |               |

- Self-awareness (knowing one's strengths, weaknesses, drives, values and impact on others)
- Self-regulation (controlling or re-directing disruptive impulses and moods)
- Motivation (relishing achievement for its own sake)
- Empathy (understanding other people's emotional make-up)
- Social skills (building rapport with others to move them in desired directions)

In medicine, emotions have been considered by experts as inherent to both clinical care and relationships with colleagues (Benbassat and Baumal, 2005; Figley, Hubbard and Rees, 2013; McNaughton, 2013; Monrouxe et al., 2015). Some limited evidence suggests EI is important in developing trainees’ interpersonal and empathy skills, teamwork and communication, error management, stress coping ability and organisational commitment (Arora et al., 2010; Cherry et al., 2014). General consensus links emotion skills with doctor competence, supporting the need for EI inclusion in the medical school curriculum (Arora et al., 2010; Figley, Hubbard and Rees, 2013; Cherry et al., 2014; Monrouxe et al., 2015; Satterfield and Hughes, 2007; Cherry et al., 2014, Shakir et al., 2017). EI development as a spiral curriculum has been recommended, corresponding to the developmental stage of the trainee (Stoller, Taylor and Farver, 2013). It is known that both EI and self-awareness can be learned by students and that curricular interventions can enhance these (Arora et al., 2010; Cherry et al., 2014). EI is considered an essential leadership skill in medicine (Arora et al., 2010; Shakir et al., 2017; Stoller, Taylor and Farver, 2013), included within the ‘Self’ domain of the Leadership and Management Standards for Medical Professionals (2016) and a basis for teaching professionalism and communication skills (Cherry et al., 2014; Taylor, Farver and Stoller, 2011). Skills in EI are widely acknowledged as enabling resilience in the helping professions (Grant and Kinman, 2014; McAllister and McKinnon, 2009). However, educators have expressed concerns about the lack of an operational definition of EI as a construct, the paucity of evidence about its measurement, and the characteristics and stability of the concept in the context of physician development (Arora et al., 2010; Cherry et al., 2014; Lewis et al., 2005).

Emotional labour (EL) refers to the display or suppression of certain emotions as an expected part of a person’s job (Hochschild, 2009), such as the concept of professional detachment, thought to enable doctors to perform in emotional situations (Zapf, 2002). Engaging in EL is known to bring benefits in achieving successful patient interactions, but research suggests that prolonged dissonance between the emotion to be expressed and the emotion truly felt can lead to burn-out (Monrouxe et al., 2015; Rogers, Creed and Searle, 2014). It is evident that EL in medical education is an emerging field, requiring more research.

**Conceptual framework**

A conceptual framework was constructed to summarise the main discourses, categorising the key domains as: institutional-cultural elements; strengths development; wellbeing learning; and, professional identity formation (Figure 3).

**Figure 3.** Concepts relevant to psychological preparation for the medical workplace, derived from literature review.
Results from elite interviews

All three participants (IN1, IN2, IN3), one male and two female, were senior educators working in different UK medical schools at the level of Dean, Associate Dean or Lead for Undergraduate Teaching, and active in shaping their medical school curriculum.

RQ1: Medical school role and rationale for psyprep

Interviewees were concerned about job demands in medical training and practice and the need to better prepare trainees for the stress of training and work. They considered psyprep of key importance, a "core issue" (IN3), stating: "It is the medical school's raison d'être" (IN1), the ability to cope in the workplace being, "the product of a medical school" (IN1). IN2 and IN3 stated they spent much of their time thinking about psychological preparedness for practice. IN2 was concerned about the urgency to develop psyprep: "It feels more pressing with this…because our [National Health System] workforce are collapsing".

Interviewees considered the role of medical schools in psyprep as wide-ranging. This included developing professionalism, producing a workforce for the National Health Service, graduating doctors capable of providing good patient care, preparation for academic roles and "developing a profession who can improve, maintain, [and] support innovation in future" (IN1). It was important to provide a "positive educational experience" (IN3), a "duty of care" (IN3) being owed to students to ensure a safe, happy, stress-free, supportive and responsive medical school environment. All talked about medical schools supporting students’ developmental maturation process, enabling transition into adult learners. Interviewees’ expressed the need for medical schools to be explicit to students about job demands (including stress), the need to attend to mental health, and the difficulties experienced as a junior doctor working in a team. Building close-knit relationships was considered key to students feeling valued at university and at work and role-modelling of this within medical school necessary (IN3).
RQ2: Ideas, concepts and skills considered valuable in psyprep

Personal attribute development

Self-awareness, self-understanding and self-development were identified as important. Personal attributes to be developed included: coping with stress (IN1, IN2, IN3), coping with feelings (IN3), finding meaning and purpose (IN1), ‘bounce-back-ability’ (IN1, IN2), robustness (IN3), "resilience" (IN2, IN3) and, "for them [students] to build reserves… having something in reserve to cope with the difficult times" (IN3). ‘Resilience’ was considered a valuable concept, "for explaining [to students] you are working for a system under pressure and need to develop that personal bounce-back-ability" (IN1).

Pedagogical methods

Common themes included: the need for structured, facilitated reflection on experiences, feedback and support, small group teaching, one-to-one tutoring, and a longitudinal Personal and Professional Development (PPD) theme. Several innovative ideas for teaching were suggested, for example, student involvement in a long-term community learning project to build sense of purpose and personal satisfaction. IN3 considered PPD a main theme in the curriculum, specifically to focus on individual needs, growth, welfare and team role.

Reflection was considered important as part of self-development, defined as:

"Investing even a few minutes …in just sitting down and going ‘Am I on track? What were my objectives? Am I achieving them?’" (IN2)

"Reflection shouldn’t just be something you just do when you’ve had something go wrong, you should be reflecting on what went well, why did I enjoy that, why was that a good outcome, because if you can’t identify the positives, you won’t have a resilient strategy." (IN1)

This was linked to study skills (IN1, IN2):

"Knowing how to go about setting your own goals…using your study skills to get there and then using whatever evidence you have…whether that be your friend’s comments… what you’ve seen at small group work… your own physiology and feedback from this, that, and the other which tells you how well you are doing and then set your new goals and keep going. And keep doing that in quite a disciplined fashion" (IN3)

Team and leadership skills development

All interviewees identified enablement of team-working skills as part of psyprep, including the phenomenon of working in rapidly changing teams as a junior doctor:

"They are nowadays having to cope with…they are no longer the wonderful foundation star, the house officer who knew everything, because you only get to work with that team for maybe a day" (IN3).
None of the interviewees spontaneously offered leadership development as a concept linked to psychological preparedness. When prompted to consider this link, IN1 was sceptical, although this changed on thinking out loud about how leadership was defined and constructed in their mind. However, IN1 doubted that psyprep would be perceived by others (students, educators and junior doctors) as part of leadership training. IN2 and IN3 had not thought about this association before but thought around this and concluded that psyprep was part of leadership development:

"And I don’t see how… once I start to unpack that, how can it be anything else really? Because actually you are not an effective leader unless you can adjust how you respond to the situation" (IN2)

Affective preparedness

Two interviewees spontaneously raised aspects of emotion skills training, but in a limited way. IN1 described (in the context of enabling student self-awareness) the school’s ‘Death and Dying’ teaching as encouraging students, "to talk about their feelings and perspective" and IN3 recalled a memory from their time as a medical student:

"Very occasionally the consultant at the end of some bedside teaching would say, "So how did that make you feel?" What you are going to do about that feeling is also an important question because, yes, learning to cope on a day by day basis with those accruing feelings is important."

When the term ‘emotional intelligence’ was offered by the interviewer, responses included: "We don’t really do a lot of work on that… I don’t know where does" (IN1). Thinking further around this, interviewees concluded EI development was needed:

"In terms of future resilience, it's quite important" (IN1)

"I've never seen teaching on that. So, I would like to see that added" (IN3)

RQ3: Obstacles to psychological preparedness education

Practical barriers

Curricular time was considered problematic, relating to the need for a personalised approach to teaching self-awareness and reflective skills (IN1, IN2), and provision of personal tutors and small group work (IN3). Another barrier was lack of GMC and Royal College learning outcomes to facilitate both the design of the PPD curriculum and construction of a longitudinal (undergraduate to postgraduate) curriculum (IN3).

Cultural barriers

There was frustration relating to the educational culture in the UK, considered as passive, teacher-centred and focussing on individual academic achievement rather than self-improvement (IN1, IN3):
"The lecturer tells you what you need to know, then you go away and learn it and then you get examined on it. And that's not adult learning – that's pedagogical, children's, infant learning. That isn't going to develop psychological preparedness" (IN1)

The culture in medical education was also considered problematic, specifically the lack of familiarity with self-development as a concept (IN1), the tendency to teach negative rather than positive aspects (during feedback, or about the job) (IN1) and the lack of recognition of (and teaching about) mental health risk (IN2). One interviewee questioned the wisdom of teaching team-building skills without first enabling students' understanding of their own selves (IN2). The idea of assessing and rewarding an individual’s team-working skills was also proposed (IN1, IN2), to encourage resilient behaviours like seeking social support:

"It's about…teams… how do we prepare our students for the fact that after you graduate it's not about you as an individual…And your flow, your self-efficacy, your resilience, your flourishing is dependent on your role within the group. And our culture doesn’t prepare you for that” (IN3)

"It's not about a culture of working together and developing as a group. We don't reward that in any way. It's the individual. Our students still want to be rewarded for being an individual” (IN1)

"Our whole education is about the individual and actually alienating yourself from the social support. So you're rewarding the people who don't engage with the team” (IN1)

Interviewees described barriers arising from their local cultural and political milieu, such as one university's lack of understanding that the medical school required a longitudinal PPD lead (IN3) or the tradition in their school that small group learning centred on clinical knowledge rather than self-development (IN1).

Student attitudes, beliefs and knowledge

All of the participants perceived student resistance to psyprep, involving: lack of developmental maturity; poor student understanding of the need or rationale for psyprep; attitudinal resistance to discussion about self or emotions; and, having a performance mind-set (a focus on achieving high marks):

"There's student perceptions…this is woolly…tell me about the science, the knowledge that I need to learn, tell me something that you can assess me on” (IN1)

"That's reflection right there…it needs a dollop of maturity and a dollop of willingness to take the time to do it properly” (IN2)

"I meet the odd third year who tells me they want to be an orthopaedic surgeon….and what they mean is I don't want to waste my time on that emotional nonsense. I've heard them say it. It's astonishing.” (IN2)

"Students are not hearing, believing and doing…They all go off and do a predictable work-based
assessment that they know they will get an ‘A’ at, rather than do something a bit more difficult, that will challenge them” (IN3)

Interviewees also identified a lack of student familiarity with self-development (IN1), the perception that students think reflective self-development difficult and a lack of understanding that reflection and study skills were linked (IN2, IN3).

Medical educator attitudes, beliefs and knowledge

A belief among educators was disclosed, that medical school stress seemed necessary as a test of a student’s ability to cope (IN1, IN2, IN3), leading to a tension between exposing students to stress and providing a supportive environment (IN3):

"There’s a kind of old-fashioned view which is the way that we…pressure [students] through exams and other stressful situations. It’s some sort of simulation of the stresses of later life. And I hear an awful lot-I have said it myself I'm quite sure, that if they can’t cope with this then what on earth are we doing letting them progress?” (IN2).

"I have heard it said that if you wrap them up in cotton wool, you’re not really preparing them for what’s out there. I don’t entirely agree with that. But I’m hearing that in the back of my head.” (IN3)

Participants perceived barriers relating to beliefs of other educators, specifically: lack of familiarity with psyprep and the perception it is not required (IN2); other curricular subjects being considered more important (IN2); a focus on the negative, not the positive (in providing feedback or talking about the job) (IN1); and, the perception that psyprep is not part of leadership training (IN1). One interviewee felt that psyprep had little impact:

"If the system continues to crumble, having made [the workforce] more aware of mindfulness and CBT before they graduate ain't going to fix it. They're just going to get an extra six weeks before they go off sick. That's not really going to cut it” (IN2).

Deficits in educator knowledge were also thought to be problematic, involving: self-development as a new concept in medical education (IN1); lack of knowledge about delivery of teaching (IN1); lack of awareness of the need to teach positives (IN1); the need for educational frameworks to facilitate teaching (IN1); not knowing how to enable students to change attitudes and behaviours regarding wellbeing and psyprep skills (IN3); not recognising the need for individual self-understanding before team skills can be acquired (IN2); not knowing how to prepare students for the junior doctor team role (IN3); and, not understanding that study skills and reflective self-development are part of the same skill set (IN3).

When prompted by the interviewer to consider the potential role of occupational psychologists in psyprep teaching, interviewees expressed some concerns about resources to fund it and lack of credibility of psychologists to students as front-line educators. Overall, they thought this would be useful, in providing evidence-based teaching methods, introducing concepts to students, faculty training and support for faculty coaching of students, for example:

"It's really tough being a PPD lead because you're scrabbling around trying to get the best evidence. But
you’re not a content expert. It would be better if you had a proper psychologist” (IN3)

Comparison of interview data against conceptual framework

Interviewees raised some areas not identified from the literature search; the need for explicitness to students about job demands and mental health risk, and development of personal organisational skills. These were added to the conceptual framework (Figure 4). Conversely, there were key domains in the framework which interviewees had not raised, relating to:

1) affective preparedness and the need for a culture that would support this

2) the identification and development of specific psychological attributes as coping skills.

Figure 4. Concepts relevant to psychological preparation for the medical workplace: Interviewee responses mapped against conceptual framework

Discussion

The transdisciplinary nature of the literature review, the evaluation of this particular study population (i.e. senior educators as curriculum designers), the study aim (to explore aspects of meaning in relation to psychological development education) and use of the HDC method represent novel approaches to medical education resilience research, enabling novel insights. The extended literature review evolved into what is best described as a scoping
study, mapping key concepts in this field (Daudt, van Mossel and Scott, 2014). Although a team approach to data interpretation and quality review is considered the ideal for scoping studies (Colquhoun, Levac and O’Brien, 2014), due to resource restrictions this was performed by only one researcher. While accurate, unbiased interpretation of the research was attempted, the challenges in weighing and presenting these methodologically-complex data are acknowledged.

Nevertheless, the conceptual framework derived from the search was a useful tool to construct, providing a context in which to make sense of the interview data. The framework also provides a graphical representation of the broad range of capabilities and skills enabling psyprep for the medical workplace and the factors required to nurture these, defining what is meant by psyprep (resilience) training in medical education. Such a model is not currently available to medical educators. This could be verified and built on through further research, using a Delphi process, for example, to seek collective expert input (De Villiers, De Villiers and Kent, 2005). As it currently stands, the framework may be helpful to medical educators in understanding the broad scope and inter-relatedness of psyprep concepts, enabling optimisation of the multiple components of psyprep in the medical training and workplace environment.

Interviewees had a good understanding, concordant with the literature, of the importance and need for psyprep, the role of medical schools and relevant pedagogical methods. The informed nature of these results may indicate a selection bias; it is possible that volunteers entered the study because they were particularly interested or committed to psyprep. In considering the study results it should be borne in mind that other educators might hold less enlightened or informed beliefs. The small sample size was appropriate to the study aims and methodology, the small group of participants providing a wealth of genuine signals about their way of thinking. Further research, summarised in Table 7, would determine nomothetic applicability (in larger numbers of educators and students).

Table 7: Summary of signals derived from study and implications

| Summary of signals derived from study | Implications |
|--------------------------------------|--------------|
| Emotional skills education was not a prominent concept in educators’ minds nor explicitly taught in their school. | It is possible that affective preparedness education is neglected in medical education; this needs confirmed and the reasons determined. |
| The need for development of specific psychological attributes was not identified by educators. | It is possible that the development of specific psychological attributes is not included in medical education; this needs further explored. |
| Perceived barriers relating to student attitudes included:  
• lack of maturity  
• lack of student familiarity with self-development as a concept  
• negative attitudes towards self-insight development or emotions learning  
• lack of willingness to engage in psyprep learning because it is not assessed  
• perception that reflective self-development skills are difficult  
• lack of student understanding that reflective self-performance and study skills are linked  
• a fixed (performance) mind-set | These could be untested assumptions which might influence the actions of educators in psyprep provision and (if found to be true) influence the engagement of students in psyprep. The attitudes and beliefs of both educators and students could be further researched and elucidated. How normal adolescent maturation links with teaching psychological preparedness for medical practice is an area for further study. There may be an educator need for information on how growth mind-set can be taught and learned. This is another area for further study, dissemination of information and faculty development. |
Practical barriers to psyprep provision included lack of resources such as curricular time (for a personalised approach to teach self-awareness and reflective skills) and provision of personal tutors and small group work to enable close relationship development with students.

Medical schools could share best practice about how to manage time and staffing resources.

Perceived barriers relating to the culture of medical education included:
- lack of familiarity with self-development as a concept
- a tendency to teach negative rather than positive aspects (during feedback, or in general, about medicine as a job)
- lack of recognition of (and teaching about) mental health risk
- the teaching of team-building skills without first enabling student self-understanding
- the belief that medical school stress is a test of coping ability

These findings might reflect organisational barriers to psyprep, all of which could be further researched. Research could be done to verify educators’ beliefs about medical school stress as a test of coping ability and the impact on psyprep provision. Research into the characteristics of cumulative stress in medical training would also be helpful in targeting and improving psyprep.

Barriers relating to medical educators’ attitudes included:
- lack of familiarity with psyprep and the perception psyprep is not required
- the view that other curricular subjects are more important
- a focus on the negative, not the positive (in providing feedback or talking about medicine as a job)
- the view that psyprep has little impact unless system changes are made
- educators may hold negative views about psychological inventory use
- belief that medical school stress is a test of coping ability

These beliefs may be untested assumptions which could influence the actions of educators in provision of psyprep education and are areas for further research.

Barriers relating to medical educators’ knowledge included:
- self-development is new to medical education and educators do not know how to deliver teaching
- lack of awareness of the need to teach the positives
- there is a need for educational frameworks to facilitate teaching
- not knowing how to enable students to change their attitudes and behaviours to enhance wellbeing and psyprep skills
- lack of recognition that individual self-understanding is needed before team skills can be acquired
- not knowing how to prepare students to work in rapidly changing teams
- not understanding that study skills and reflective self-development are part of the same skill set
- lack of realisation that psyprep is linked with leadership training

These beliefs may be untested assumptions which could be researched to determine whether widely held, and the need for faculty development in these areas. There may be a need for educator education about the link between emotion skills development and leadership training.

No interviewee spontaneously raised the concept of emotional intelligence (EI) *per se*, nor the broad range of...
functions of emotion skills training or the notion of a longitudinal or spiral EI element. Participants were unaware that EI is a developable attribute with a knowledge base and methods available to develop self-understanding (Arora et al., 2010; Goleman, 2008; Wagner, Jester and Mosley, 2001). Neither did participants talk about developing specific psychological attributes studied in the psychology literature (such as self-efficacy, hope, optimism, cognitive awareness and reframing, adaptability, personal strengths identification or development, or use of positive psychology interventions) and represented as a large domain ('Strengths Development') in the conceptual framework. Although participants could not be expected to mention every relevant area it was clear these aspects were not prominent in their minds, despite being evident as valuable in the literature. It is possible that development of these attributes does occur in the interviewees’ medical schools but is simply not labelled or explicit in the curriculum. Alternatively, this may indicate a wider neglect in medical education, especially if the interviewees represent a knowledgeable group. Other researchers have noted this phenomenon, as a ‘tangible tension in medicine concerning the whole field of emotion in practice’ (Lewis et al., 2005, p.341) and emotional discourse as an ‘ever-present absence’ in medical education (McNaughton, 2013, p.71). Two interviewees provided additional testimony indicating potential neglect, stating awareness that other medical schools did not teach emotion skills, and another observed a lack of familiarity with the concept of self-development in medical education in general. These signals could be explored across a larger group of educators and medical schools, for example as a survey.

Interviewees also seemed unaware of the association between emotion skills training and leadership development, well-established in the literature, one interviewee considering that educators and students would have difficulty buying into this link. If lack of recognition of this link is a wider phenomenon this could act as a barrier to psyprep education, since incorporating EI into undergraduate leadership education might help resolve institutional concerns about curricular time and cultural non-acceptance of EI. This could indicate a need for faculty education about –and cultural acceptance of– the link between emotion skills development and leadership training.

The study illuminates a belief that stress in medical school acts as a test of coping ability, almost a rite of passage, necessary in order to become a doctor. The literature indicates theoretical and empirical evidence in support of moderate stress and adversity as enablers of resilience and better mental health, summarised by Seery, Holman and Silver (2010). These authors refer to previous work by Dienstbier (1989,1992) which demonstrates that exposure to stressors has a psychophysiological ‘toughening’ effect. Toughening enables individuals to perceive future situations as more manageable, enabling them to better cope with both minor challenges and difficult stressors and suggesting that exposure to stress is more effective than either being sheltered from stress or continuous exposure to stress. However, there are important caveats. Seery and colleagues (2010) quote evidence that stressors must be manageable, and levels of adversity kept low (as this is likely to enable successful coping), rather than exposure to overwhelming stressors. Dienstbier (1992) recommended adequate opportunity for recovery between stressful events as a component of toughness development. Meichenbaum’s ‘Stress Inoculation Training’ advocates similar, graded, exposure to stress but this is done under the aegis of a trainer, using one-to-one assessment, psychological testing, cognitive-behavioural work and follow-up (1985). This fits with a key resiliency theory: resilient reintegration (recovery) following stress, or positive adaptation, requires an individual to experience some insight or growth from having experienced the stressful disruption, so enabling the identification and strengthening of resilient qualities (Richardson et al., 1990). If the belief is widespread in medical education that stress is a necessary test of coping ability, without knowledge about or attention to the need for the protective, educative, self-insight and self-growth elements, this could negatively influence the motivation to either reduce medical school stress or to provide psyprep education for students. The psychology research quoted, on growth through adversity, would seem to bolster the need to provide psyprep in medical education –in order to optimise learning from the stress inherent to the course-- and requiring a focus on enabling students to develop insight and growth through exposure to stress. Further research could verify educators’ beliefs about this, the impact on psyprep provision and any need for faculty development. Studies to characterise cumulative stress in medical training would also be helpful in targeting and improving
All three interviewees described student attitudinal barriers to psychological growth consistent with a ‘fixed mind-set’. This refers to a focus on performance goals (high marks) as the goal of learning rather than ‘growth mind-set’, where the learner aims for expansion of understanding (for example, perceiving feedback as an opportunity for personal development) (Rattan et al., 2015). This is relevant to resilience development, as:

‘Students with growth mindsets seek to learn and develop their abilities, and thus pursue challenges, value effort, and are resilient to setbacks; in contrast, students with fixed mindsets avoid challenges (which could reveal “permanent” deficiencies), dislike effort (which they think signals low ability), and give up more easily when facing setbacks (which they view as evidence of low ability)’ (Rattan et al., 2015, p.724).

Interviewees expressed frustration about students’ tendency towards fixed mind-set and the perception that they – and other educators– lacked the skills or knowledge to address this. However, growth mind-set is a form of psy prep which can be learned and developed (Rattan et al., 2015; Ricotta et al., 2018). This study implies an educator need, potentially applicable to the wider medical educator body, for information on how growth mind-set can be taught and learned.

Participants identified a maturation process during medical school, influencing student coping abilities. Grant and Kinman (2014) identified social confidence, assertiveness, and development of communication and conflict resolution skills as important for resilience development. This might relate to maturity. In addition, resilience is thought to be a marker of a psychologically mature personality, demonstrated by high levels of self-directedness and cooperativeness (Eley et al., 2013). The phenomenon of normal adolescent maturation and how this links with teaching psychological preparedness for medical practice has been poorly researched; further characterisation might aid psy prep provision.

Interviewees perceived negative student attitudes towards self-insight development or emotion skills learning and a lack of student engagement in psy prep learning because these areas are not assessed. Kinman and Teoh (2018) noted a phenomenon that stress management training may only be effective for those who have an interest in it and those who might be ‘naturally reflective’ but resisted by those who are ‘action-orientated’. However, other studies suggest positive student buy-in to personal development aims and stress management programs (Storrar, Hope and Cameron, 2018; Shapiro, Shapiro and Schwartz, 2000). The beliefs arising from this study, that students may be resistant to psy prep interventions, are untested assumptions which might potentially influence the actions of educators in psy prep provision. Are these beliefs more widely held? Is there any basis in fact? What is the impact on psy prep provision? These areas could be further researched.

Many threads of evidence suggest there are insights from psychology which need to make the leap across the disciplinary divide into medical education, including: how to encourage development of emotional intelligence and psychological attributes; cumulative stress research and management; a need for educational frameworks to enable psy prep teaching; how to enable students to change attitudes and behaviours to enhance wellbeing and develop psy prep skills; how to prepare students to work in rapidly changing teams; psychological inventory use; enabling recognition that individual self-understanding is needed before team skills can be acquired; the role of psy prep in leadership training; and, faculty education (on growth mind-set, how to deliver psy prep teaching and why and how positivity could be taught). These findings suggest that the absence of occupational psychologists in medical education might constitute the largest obstacle to psy prep.

This study has exposed the concept of resilience as ‘troublesome knowledge’, a term referring to a difficulty in learning due to various, often tacit, presumptions (Perkins, 1999). The data suggest that both students and educators
may consider psyprep difficult to accept or learn, be reluctant to participate in emotional learning, or consider it unimportant; the language involved, arising from psychology as a discipline, has poorly defined terms and meaning unfamiliar in medical education. All of these are characteristics typical of troublesome knowledge (Meyer and Land, 2006). This suggests that resilience is a ‘threshold concept’, needing ‘a transformed way of understanding…or viewing [the concept], without which the learner cannot progress’ (Meyer and Land, 2006, p.16). By identifying resilience as a threshold concept in the context of medical education it is hoped that this study will stimulate research into better understanding the obstacles involved in the psychological development of doctors, enabling these to be addressed and overcome.

Conclusion

This study responds to a recognised need for more research on the organisational aspects of resilience education in medicine (Lemaire and Wallace, 2017; Shanafelt and Noseworthy, 2017) and contributes to positive organisational scholarship, potentially effecting changes in organisations (i.e. medical schools and workplaces) to improve the experiences of individuals and their positive development and flourishing (Dewe and Cooper, 2012, p.23).

Potential barriers to psychological preparedness training were identified, relating to senior educators’ beliefs, their perceptions of the knowledge and beliefs of fellow educators and students, and aspects of the local (University) culture and the wider medical education culture. Of particular concern was the finding that affective preparedness and development of specific psychological attributes were not prominent in participants’ minds, despite the importance of these concepts in the literature. These beliefs and perceptions represent troublesome knowledge for both students and medical educators, suggesting that resilience is a threshold concept. Further exploration, to confirm whether these beliefs and perceptions are widespread, would be important in improving psyprep provision.

The literature review highlighted the complexity of psyprep provision, involving multiple interlinked personal skills and abilities as well as attention to the organisational environment, summarised as a conceptual framework and demonstrating the scope and inter-relatedness of psyprep concepts. The framework is offered as a blueprint for psyprep (resilience) education, of potential use to medical educators and employers in enabling psyprep provision in medical training environments and the medical workplace.

Multiple strands of evidence emerged from the study suggesting that medical education might benefit from partnering with occupational psychology expertise in the designing and research of psyprep programmes. It is proposed that not collaborating with psychologists could constitute the largest obstacle to psyprep provision.

Take Home Messages

- The attitudes, beliefs, knowledge and educational culture of medical students and educators may act as barriers to psychological preparedness (resilience) education.

- Despite being important in the literature, emotion skills training and development of individual psychological attributes were not prominent in educator participants’ minds.

- As resilience is a threshold concept, identifying and addressing troublesome knowledge in students and educators could improve psychological preparedness provision.

- The study’s conceptual framework demonstrates the scope and inter-relatedness of psychological
preparedness components, a potential blueprint for medical education and workplace design.

- Incorporating occupational psychology expertise in medical education and workplace environments might improve psychological preparedness for doctors.

**Notes On Contributors**

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Figures 1-4. Source: the authors.

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Appendices

None.

Declarations

The author has declared that there are no conflicts of interest.

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