

King's College London

Institute of Psychiatry, Psychology and Neuroscience

Research Module 7PAHMDIS

1455946

**Evaluation of the impact of the ‘Train the Brain’ programme on Phase 3 medical
students**

Word count: 9706

Acknowledgment

I would like to express my thanks and gratitude to my supervisor Dr Tamara Russell for giving her time, and for sharing her energy, knowledge and passion for the subject. I would also wish to extend that appreciation to Dr Derek Chase whose care and concern for the wellbeing of future doctors led to developing this programme, and to Dr Elena Anatova, without whom this new MSC would not have been possible. To the medical students from King's College London, who took part in the programme, I am humbled by your courage and grateful for your openness and honesty and wish you all a fulfilling life. Finally, I would like to thank my husband, children and friends who have been by my side, made coffee and brought hugs. They have been through rounds of proof reading and late nights, I am grateful for their love and support and continued encouragement.

“When health is absent,

Wisdom cannot reveal itself,

Art cannot manifest,

Strength cannot fight,

Wealth becomes useless, and intelligence cannot be applied”

“Herophilus, 300 B.C., Greek physician and pioneer of anatomy”

Abstract

Background: Medical students face significant levels of pressure, both academically and emotionally. Instances of depression and anxiety are common-place. Students feel a lack of support and few medical schools integrate resilience training into their core programme.

Objectives: The aim was to assess the feasibility and effectiveness of a proactive evidenced based biopsychosocial programme designed to develop knowledge and skills for a ‘tool kit’ to support their long-term health and resilience.

Methods: N=14, 3rd year medical students chose self-selected module. A quasi-experimental mixed methods design was used to evaluate the programme. Measures of mental wellbeing and resilience pre and post programme were the Perceived Stress Scale, the Warwick and Edinburgh Wellbeing Scale and the Self-Compassion Scale. A six step thematic analysis was used to elicit major themes from qualitative data collected from semi structured interviews, questionnaires, and focus groups including a nine week follow up

Results: N=12 students completed the requirements of the programme. There was a significant increase in self-compassion ($p < .05$), and a trend towards a decrease in perceived stress ($p = 0.083$), however there was no significant impact in the wellbeing measure. Qualitative analysis elicited three major themes, “growing awareness”, “impact of environment” and “ability to respond” suggesting that students benefitted from the programme and that their satisfaction and confidence increased.

Conclusion

The results, whilst limited, provide supporting evidence that a biopsychosocial programme can have a positive impact on medical student health and could add value as an integrated pedagogical approach.

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Introduction

Background

Medical student stress and psychological morbidity

Medical school culture is often one that promotes fierce competition, where work and study schedules are less flexible than other undergraduate programmes, and where illness, in particular mental illness, is often seen as a weakness. In addition to a curriculum that is both intellectually and emotionally demanding, medical students also encounter other sources of stress, including age related stressors, financial hardship and exposure to other life events, (Moffat et al., 20004; Midtgård et al., 2008; Outram, 2014). As a result of these high levels of perceived stress, students encounter challenges to their wellbeing (Dyrbye and Shanafelt, 2006; Grant et al., 2013). Qualitative research identified the level of stress arising from the highly competitive nature between peers, the need to develop a professional identity and the requirement to be seen as a competent clinician. Furthermore, teaching methods that condone humiliation and embarrassment are institutionalised (Chew et al., 2003; Radcliffe and Leicester, 3003).

In a six-year study of Norwegian medical students Tyssen and his colleagues examined whether certain personality types and traits were predictors of levels of stress experienced at medical school (Tyssen et al., 2001). The study suggested that students who were a high risk for developing symptoms of stress also had a personalities that were a combination of high neuroticism and high conscientiousness. Other studies highlighted vulnerability to negative psychological wellbeing, including impulsivity (Dahlin et al., 2007), maladaptive perfectionism (Enns et al., 2001) and performance based self-esteem (Dahlin et al., 2007). In a ten year longitudinal study, there was a strong relationship between self-criticism and

symptoms of stress, whereas long working hours were not high predictors of stress (Firth-Cozens, 1992, 1997).

These continued high levels of stress are associated with a decline in psychological health of medical students, and it is not uncommon for medical students to suffer from mental health related problems such as depression and anxiety, substance abuse, and at the extreme suicidal thinking (Rosenthal et al., 1990; Guthrie et al. 1998; Newbury- Birch et al. 2001; Tyssen et al., 2001; Daly and Willcock, 2002; Kiessling et al., 2004; Dahlin et al., 2005; Dyrbye et al., 2005; Dyrbye et al. 2006). Whilst adjusting to medical school is stressful these high levels of perceived stress have a tendency to increase over the course of a medical degree and beyond (Willcock et al., 2004; Kjeldstadli et al., 2006; Dunn et al., 2008). Burnout rates in medical students ranges from 45% to 71% (Ishak et al., 2013). In studies with comparisons against other students and non-student samples of the same age, medical students have been proven to have poorer mental health (Dahlin et al., 2005; Dyrbye et al., 2006; De Oliveira et al.; 2011, Ahmed et al., 2012).

In 2013, the General Medical Council (GMC) commissioned a review to identify good practice in the support offered by all 32 UK medical schools for medical students suffering with mental health issues Grant et al., 2013). The results concurred with earlier research that despite the above average level of depression and anxiety medical students are less likely to seek help. There is a fear of lack of confidentiality and many students perceive that there is stigma attached to mental ill health would not want to have mental ill health issues on their curriculum vitae (Chew and Graham, 2003; Hillis et al., 2010; Thistlewaite and Quirk, 2010, Grant et al., 2013). The review also highlighted the fact that perceived successful role models demonstrate values that encourage students to hide rather than seek help with problems (Grant et al., 2013).

The role of empathy

Empathy can be related to positive benefits for both patients and physicians and has an impact on all relationships (Hojat et al., 2002). The relationship between higher levels of empathy and lower levels of medical errors has also been demonstrated (West et al., 2006). It is an important ingredient for successful relationships and is stated as one of the most desirable attributes for a physician in a patient-centred environment (Bird et al., 2010; Hurwitz et al., 2013). There are two aspects to empathy: cognitive empathy is the capacity to understand another's feelings, to understand their inner experiences and take another's perspective and communicate it (Davis, 1994; Hojat et al., 2001), and emotional empathy, which involves the ability to step into or be part of the experiences and feelings of another (Davis 1994). Both cognitive and emotional empathy are higher in doctors with higher mental wellbeing (Shanafelt et al., 2005). It is well documented that medical student mental wellbeing declines throughout medical school. One study of over 450 medical students found that the most significant decline in empathy happens in year three, for many this is the first clinical placement year and the learning becomes ironically more patient centred (Hojat et al., 2009). A review paper by Outram et al (2014) posed the question “Could the very attribute that we look for in Tomorrow’s Doctors, their ability to be empathetic, make them vulnerable to stress” (Outram et al., 2014). In 2005, Singer and Firth, demonstrated that affective empathy was located in the same brain network as pain (Singer, t., & Frith, C, 2005). Listening empathetically to a patient may help patients feel supported and it is a desirable action in a patient centred healthcare system. However, for the person giving the empathy, this can leave them feeling emotionally drained and exhausted and the intensity of these feelings can result in empathetic distress. Aversive feelings generated by watching someone in pain can lead to maladaptive behaviour, isolation and a withdrawal of care and support, (Batson et al., 1987; Lamm et al, 2011).

The need to develop emotional resilience

In 2005, the General Medical Council (GMC) introduced its Fitness to Practice (FTP) standards for doctors. Since then there have been twenty-eight suicides and four suspected suicides by doctors under investigation. In 2014, following a review into these suicides, the (GMC) recommended that emotional resilience training should be a “regular and integral part of medical school curriculum” and stated that it is “critical that medical students have the resilience and coping mechanisms to maintain their wellbeing throughout their career”. However, while advocating this and indicating the intent to work with medical schools in this area, they were not prescriptive with regards to the content or definition of resilience (GMC, 2014).

Emotional resilience is a complex construct. There is no universal model and the debate continues as to what makes some individuals more resilient than others (Coutu, 2002; Fredrickson, 2001; Dyrbye et al., 2006; Epstein and Krasner, 2013; Zwack and Schweitzer 2013). Emotional resilience can be described as the ability to bounce back or recover after setbacks, disappointments, stress or trauma whilst maintaining self-control (Jackson and Watkins, 2004) with your personality in-tact (P. Campling, 2015). It stems from genetic and bodily influences, previous experiences and psychological and social factors (Peters, 2005). The constituent parts of emotional resilience comprise of a number of neurocognitive processes, including the capacity for mindfulness, self-awareness, self-monitoring, regulations of emotions, and control of impulses, self-compassion and compassion for others, and knowing one’s limits and the ability to ask for help. (Tulane and Fredricksen, 2004; Dyrbye, 2011; Epstein, 201; Zwack and Schweitzer, 2013). Figure1 demonstrates how these can also be overlaid into a model of emotional intelligence (Goleman, 2006).

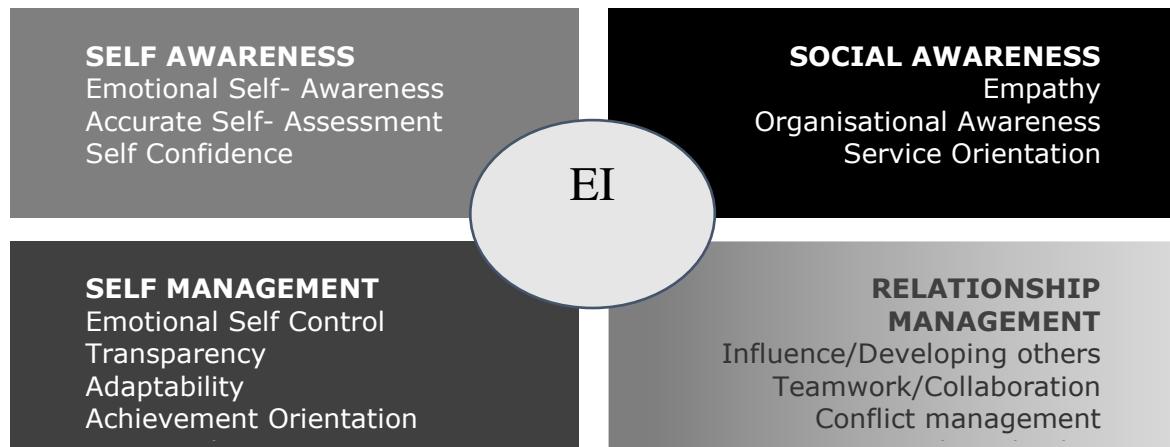


Figure 1: Adapted after Daniel Goleman four Quadrant Emotional Intelligence Model

Emotional regulation is an important component of emotional resilience. It is the means by which we influence which emotion we experience, how we experience it and then how that experience is expressed (Gross, 2002; Hojat et al., 2002). It can also contribute positively to workplace performance and impacts our relationships with others. Emotional resilience sits at the heart of mental health and physical wellbeing. It can enhance one's ability to manage stress, prevent burnout, increase pleasurable emotions and can be linked to life satisfaction (Zammuner, 2003; Kjeldstadli et al., 2006; McAllister and Mckinnon, 2009).

Medical students are a highly vulnerable population, and previous research has highlighted educator's obligation to increase the resources available to support medical student-wellbeing (Dunn et al., 2008). Whilst medical students have expressed the need for increased and improved sources of self-help (Hillis et al., 2010), a 2013 survey of 2735 UK medical students reported that patient care and academic performance was improved when they felt that their own wellbeing was supported, (Cohen et al., 2013). Much of current research, interventions and support, focus on students already suffering from psychological distress.

However, it could be argued that what is required is more proactive training to increase resilience based on self-awareness, self-regulation and self-kindness. A mindfulness informed programme focussing on promoting holistic wellbeing and raising self-awareness could be one solution.

The concept of mindfulness

The act of mindfulness involves being aware of present moment internal and external stimuli by “paying attention in a particular way; on purpose, in the present moment and non-judgmentally, with curiosity and kindness”, (Kabat-Zinn, 1994, pg4). This ability to direct one’s attention in this way had earlier been described as ‘intentional self-regulation’ (Goleman and Schwartz, 1976). Jon Kabat-Zinn originally introduced mindfulness in the 1970’s as a Mindfulness Based Stress Reduction Programme (MBSR) to help people with chronic pain. This was further developed in the 1990’s by Williams, Teasdale and Segal to help those suffering from depression (Teasdale et al., 2000). In 2004 Scott Bishop and his colleagues defined an operational definition which has two components: self- regulation of attention and an adoption of a curious, open and accepting attitude towards one’s experiences, (Bishop et al., 2004). Mindfulness practice is initially learnt through ‘paying attention on purpose’, and is learnt through specifically designed exercises, usually starting with focussing on the breath. Learning to pay attention in this way increases awareness of bodily sensations.

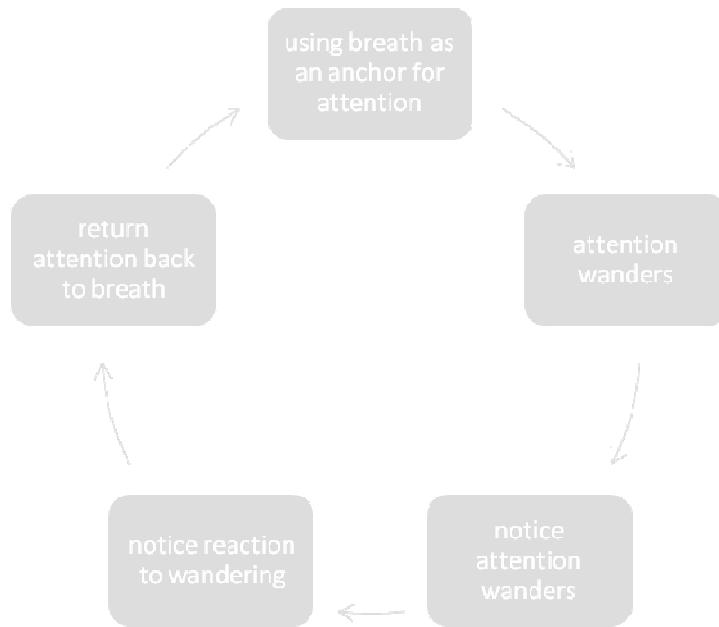


Figure 2: The flow of mindfulness instruction for paying attention to breath

The origins of mindfulness lie in ancient Buddhist meditation practice, however, mindfulness is not based on religion. Kabat-Zinn's philosophy is that as Buddhist meditative practices are concerned with the cultivation of clarity, equanimity (emotional balance) and compassion they can be used to reduce physical and mental suffering (Kabat-Zinn et al, 1994). Mindfulness is not just being aware that something is happening but experiencing the internal or external phenomenon, such as, thoughts, feelings and emotions, in a way that is free of grasping, aversion or anger (Salzberg, 2013).

Proof of the efficacy of mindfulness interventions

The majority of research into mindfulness has been about the effectiveness of mindfulness based interventions such as MBSR (Baer, 2003; Bishop, 2002; Gross et al., 2004). Despite the plethora of quantitative and qualitative evidence to demonstrate the positive effects of

Mindfulness based programmes, a common question, and particularly with an audience demanding scientific evidence such as medical students is, “what are the mechanisms by which the change occurs?” Studies using structural magnetic resonance imaging have demonstrated that mindfulness training can alter the structure of the brain (Lazar, 2005; Hoelzel, 2007; Pagnoni 2007). Cognitive neuroscience studies indicate that, the focussed attention to sensations from the body that are integral to mindfulness practice, develops a prefrontal attention network (Ochsener, 2002; Farb et al., 2010; Chiesa et al., 2011; Chiesa & Malinowski, 2011). Conventional strategies for emotional regulation are based upon the cognitive reappraisal of perceived negative events. This reappraisal is based on past experiences or judging the experience to be good or bad (Gross, 2002; Goldin et al., 2008). In contrast to this, mindful emotional regulation requires attentional resources to be directed towards a limbic pathway. Habitual reappraisal is reduced as present sensory awareness increases. This sensory attention involves the primary sensory regions, thalamus, insula (Farr et al, 2010). By practicing equanimity as opposed to judging an experience to be good or bad, mindfulness training increases the ability to recognise and disengage from conceptual judgment in response to sensory experiences. Non-judgmental attention also allows feels of self-compassion (Leary et al., 2007).

In a literature review of over 600 articles Shapiro and her colleagues (2000) highlighted the gap in medical school education with meeting the needs of student's mental health and wellbeing. They recommended that support and skills to build resiliency and manage stress should be part of the education process. Only 24 of the 600 articles included mindfulness based interventions which ranged from self-care, self-hypnosis, support-groups, and mentoring (Shapiro et.al, 2000). Over the past five years there has been an increasing level of literature highlighting the need for such interventions (Bush, 2011; Hyland, 2011; Shapiro et al., 2011). Mindfulness-based workshops and approaches have already been proven to be

effective in decreasing levels of stress, anxiety and depression and by increasing levels of self-awareness, self-compassion and empathy (Shapiro et al. 1998; Rozenzweig et al., 2003; Beddoe and Murphy, 2004; Shapiro et al., 2007). Mindfulness based interventions have had an impact not just on students wellbeing. Students have benefitted in other ways, including academic performance (Warnecke et al.; 2011 Mrazek et al., 2013). MacLaughlin et al., 2011; Warnecke et al., 2011; Barbosa et al., 2013; Boellinghaus et al., 2014). Benefits of student wellbeing extend beyond the student to other relationships and performance for example, medical students participating in mindful communication programme reported that they felt less isolated, more engaged and more able to be attentive and adapt their responses accordingly (Beckman et al., 2012). A shortcoming in many of these studies, however, has been the lack of follow up data, however, in one study the positive effects of the mindfulness intervention were still evident at the 8-week post trial evaluation (Warnecke et al., 2011).

It is well documented that small group formats provide a safe environment for people to discuss and share. Although Balint groups were introduced to support General Practitioners discuss emotional relationships with particularly difficult patients, they also afford doctors time and space to explore values and feelings (Eubank et al., 1991). Environment is important and studies have indicated that peer-led discussion groups, and groups that support personal development can nurture self-awareness. By sharing experiences and feelings in an open and non-threatening environment, students feel less isolated. There is substantial evidence to suggest that healthy habits related to wellbeing, if established whilst at medical school, can continue post qualification (Cadden et al., 1969 Dashef et al., 1974; Hilberman et al., 1975; Webster, G., & Robinowitz, C. B., 1979; Klamen, D. L., & Williams, R. G., 1997; Lee and Graham, 2001; Holm et al., 2010). Following the expansion of the mindfulness for schools programme, ‘Stop, Breathe, and Be’ (.b), in May 2015, the Oxford Centre for Mindfulness held one day workshop with the aim of sharing knowledge and concerns for developing

mindfulness based interventions for higher education. A ‘mindfulness for students’ website has been developed (<http://mindfulnessforstudents.co.uk>) which has resources, recordings and a list of programmes/links to universities. All of the courses listed are extra-curricular and most are ran by student support services.

Mind-body practices incorporated into medical schools across America have been shown to increase awareness of body sensations, enable the connection between thoughts, feelings and emotions through the support of present moment experience which lead to raised awareness of the importance of self-care and reduced stress (Gordon, 2014).

Compassion versus empathy

Compassion can be differentiated from empathy in that the understanding of another’s suffering is supplemented by a strong desire to elevate that suffering. In one study using functional magnetic resonance imaging (fMRI) participants were first trained in empathic resonance training followed by compassion training. Empathy training was found to increase negative mood and behaviour and involved regions of the brain that are associated with empathy of pain. The subsequent compassion training was found to not only reverse the increase in the negative affect but also enhance self-reports of positive affect. The researchers concluded that compassion training may provide a new coping strategy to help students develop their resilience and overcome empathic distress (Klimecki et al., 2013).

Self-compassion means demonstrating the ability to treat oneself with the same level of kindness and compassion as another. It implies that where possible we try to prevent our own suffering. Self-compassion should, therefore, give rise to proactive behaviours aimed at increasing or maintaining wellbeing (Neff, 2010) and particularly supportive for students who are predisposed to perfectionism (Neff et al., 2005).

Health, wellbeing and resilience should be measurable, teachable and sustainable. Programmes for medical students need to go beyond the standard protocols of MBSR and recognise that whilst the students may not be in chronic pain they are suffering. They need to support students by taking into consideration their gruelling schedules, their need for scientifically based pedagogy and be able to create the awareness, acquisition and skills that will enable them to flourish in their professional life.

The present study

The main aim of the study was to evaluate a pilot mindfulness-informed wellbeing programme offered as a self-selected component (SSC) for 3rd year medical students at King's College London School. The necessity for, and content of, the programme are evidence based. It is supported by previous research and data collected on medical student wellbeing. The programme has been developed and introduced based on the experience of the lead lecturer and programme designer Dr Derek Chase who was the Medical Officer for Kings College London between 2002 and 2014. The designers of the 'Train the Brain' (TTB) programme believe that it provides an innovative pedagogical approach to providing medical students with the knowledge, skills and experience to promote and sustain their wellbeing and as such, could form an integral part of a new medical curriculum. It is mindfulness-informed and has threads of mindfulness throughout. Whilst the programme included exercises from the MBSR and MBCT standard 8 week (2.5 hours) protocol, they are shorter in duration and the meditation practice is woven into the sessions rather than being the core. There are different mind/body exercises based on the expertise of the lead facilitator and each weekly theme was accompanied by the supporting theory. In addition to the premise that a broader curriculum was required it was felt that the level of 'homework' required by a full MBSR

was inappropriate for the medical students given their existing workload. The programme is not a self-help support group but has been designed as a more comprehensive proactive student ‘toolkit’ for sustainable wellbeing and resilience, as identified by Stanley (2007). In contrast to other mindfulness based interventions which are extra-curricular and seen as additional support the TTB programme is part of the curriculum, albeit a non-mandatory module. It is believed that as a more holistic approach to proactive wellbeing, the inclusion of some instruction in emotional intelligence, neuroscience of mindfulness, coaching and spirituality it would have the appropriate pedagogical approach and educational value to enhance the current curriculum whilst meeting the requirements of the GMC’s recommendations and Tomorrow’s Doctors (GMC 2009, 2014).

Primary and secondary aim

The main aims of this study are:

1. To assess the programme’s impact on knowledge and skills in stress management, overall wellbeing, mindfulness and resilience.
2. To gain feedback on the content and the value of a neurobiological educational programme that can enhance student experience at medical school, and evaluate its pedagogical validity in meeting or contributing to the educational outcomes in GMC Tomorrow’s Doctors, 2009.

Figure 3 Objectives from Tomorrow's Doctors 2009

Section	GMC Requirement from Tomorrow's Doctors
13(g)	Provide explanation, advice, reassurance and support
15(a)	Communicate clearly, sensitively and effectively with patients, their relatives or other carers, and colleagues from the medical and other professions, by listening, sharing and responding”
21(b)	Establish the foundations for lifelong learning and continuing professional development, including a professional development portfolio containing reflections, achievements, and learning needs
21 (c)	continually and systematically reflect on practice and, whenever necessary, translate that reflection into action, using improvement techniques and audit appropriately for example, by critically appraising the prescribing of others

It was hypothesised that the holistic approach to wellbeing contained within the Train the Brain programme would, through the promotion of self-awareness and reflection, have an impact on perceived stress, wellbeing and levels of self-compassion.

Methods

Participants

Participants were 3rd year medical students from Kings College London who self-selected the module as part of their phase3 programme. A sample size was not calculated, the maximum group size for the pilot was set at 14 (n), determined by space limitations, group sizes in similar studies and MBSR/MBCT programmes, (Webster and Robinowitz, 1979, Kelly et al., 1982). Medical students selecting the module as their first choice were given priority. N =14 medical students (4 male and 10 female) chose the elective as their first choice. There were no exclusion criteria, but all students had a pre programme meeting with Dr Chase. Five students had some experience of meditation or relaxation techniques. Five of the students had

a history of being treated for mental health issues. The most common reasons for choosing the elective included a desire to learn techniques to improve their stress and time management (n=9) and mindfulness (n=5), three were ‘sick’ of just the ‘science of medicine’ and one student was ‘sceptical’ but interested. The major concern expressed at the meeting was confidentiality and disclosure.

Facilitators

The programme was led by two key facilitators, Dr. Derek Chase and Dr. Tamara Russell. Each session was led by the lead Facilitator Dr Derek Chase. Mind/Body and mindfulness exercises was led by Dr Tamara Russell, a clinical psychologist, and mindfulness instructor. Specialist ‘guest’ lecturers led the sessions on coaching and spirituality.

Study design

A quasi-experimental mixed methods study design was used to evaluate the biopsychosocial pilot ‘Train the Brain’ programme. Quantitative and qualitative methods were used to add context and allows for the diverse views of the participants to be taken into account (Green, 1994, 2000). As the study was a review of a pilot programme, it was important to gain a thorough understanding of the student journey, the personal impact and reflections on both the programme and perceived pedagogy validity and the gaps it might fill within the current curriculum.

The 3 dependent outcome variables were perceived stress, self-compassion and general mental wellbeing. These were measured using validated quantitative measurement tools, pre- and post- programme.

Outcome Variable	Quantitative measurement tool
Perceived Stress (PSS)	Perceived stress scale (PSS)
Self-Compassion	Self-compassion scale (SCS)
General wellbeing	Warwick and Edinburgh mental wellbeing scale (WEMWBS)

Figure 3: Outcome Measures and Tools

Qualitative was collected via session observations at week 7 and the final session (week 12); semi-structured interviews and focus groups at week 7, week 12 and a 9 week follow-up. The post programme on-line questionnaire also included a programme review and each question had a mandatory qualitative element.

The Train the Brain Programme outline

The intention of the programme was to provide medical students with the understanding and skills to be able to develop a more a holistic and sustainable approach to their own wellbeing. The programme could be classed as a ‘mindfulness informed programme’ as it fulfilled the four requirements of the guidelines laid out by Bangor University’s mindfulness interventions teaching assessment criteria; (i)mindfulness threads throughout, (ii)facilitated by a mindfulness practitioner and a facilitator was a mindfulness teacher, (iii)directly taught mindfulness. Whilst the mindfulness and mind/body elements were ‘light touch’, the theory and inquiry enabled the medical students to explore how this practice related to their ways of being with inner and outer experiences of daily life and the inquiry style was the same as that used in mindfulness based interventions . The programme used a constructivist pedagogy, it was experiential with minimal didactic elements demonstrating the theory and developing

scientific knowledge and understanding. Figure 5 depicts the three dimensions of personal development raising knowledge awareness, acquisition of skills and action.

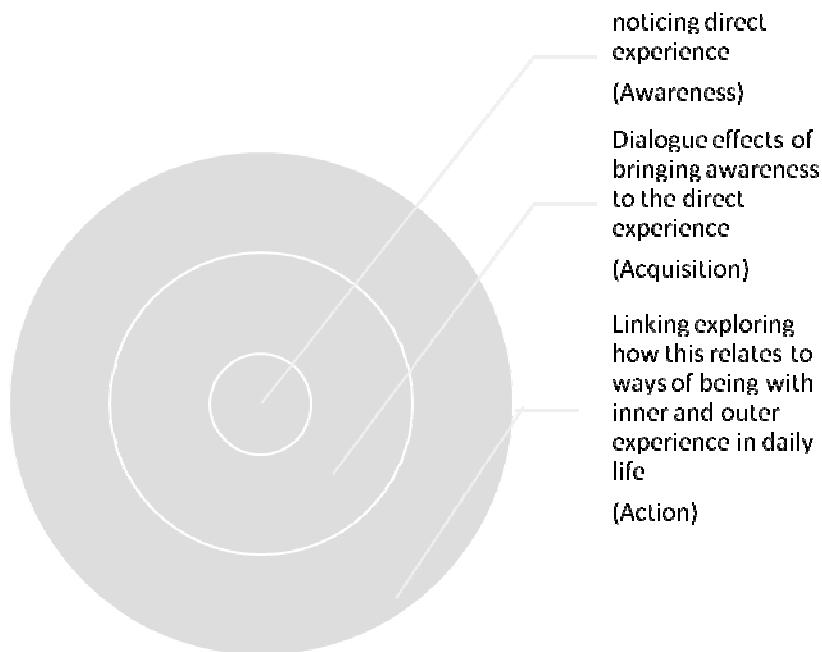


Figure 4: Stages of personal transformation

The programme included elements that were similar to MBSR and MBCT, for example, the mindfulness exercises and the ABC (Activating event, Beliefs and consequences) exercise in week 6. In addition to the ‘topic’ related homework also included reflective journaling, and a short mindfulness daily practice (10-15 minutes). The format of each session included:

- A short meditation aimed at bringing the medical students to a place of attention and awareness, being present in the room.
- Group sharing, based on the opening question ‘how was your week’. It was then up to the students what topics were discussed. The mindful instruction was always to bring the conversation away from conceptualising and back to present moment awareness, and always with an attitude of self-kindness. In this respect the inquiry process was similar to that of MBSR or MBCT.

- A break. It was felt that the break was as important to the session as the theory and practice.
- A theory element all linked to 4 core areas – wellbeing, lifestyle, stress management, and mindfulness. The theory often included practical exercises.
- Practical exercises linked to the topic of the week and mindfulness or mind/body practice
- Discussion of the homework for the week

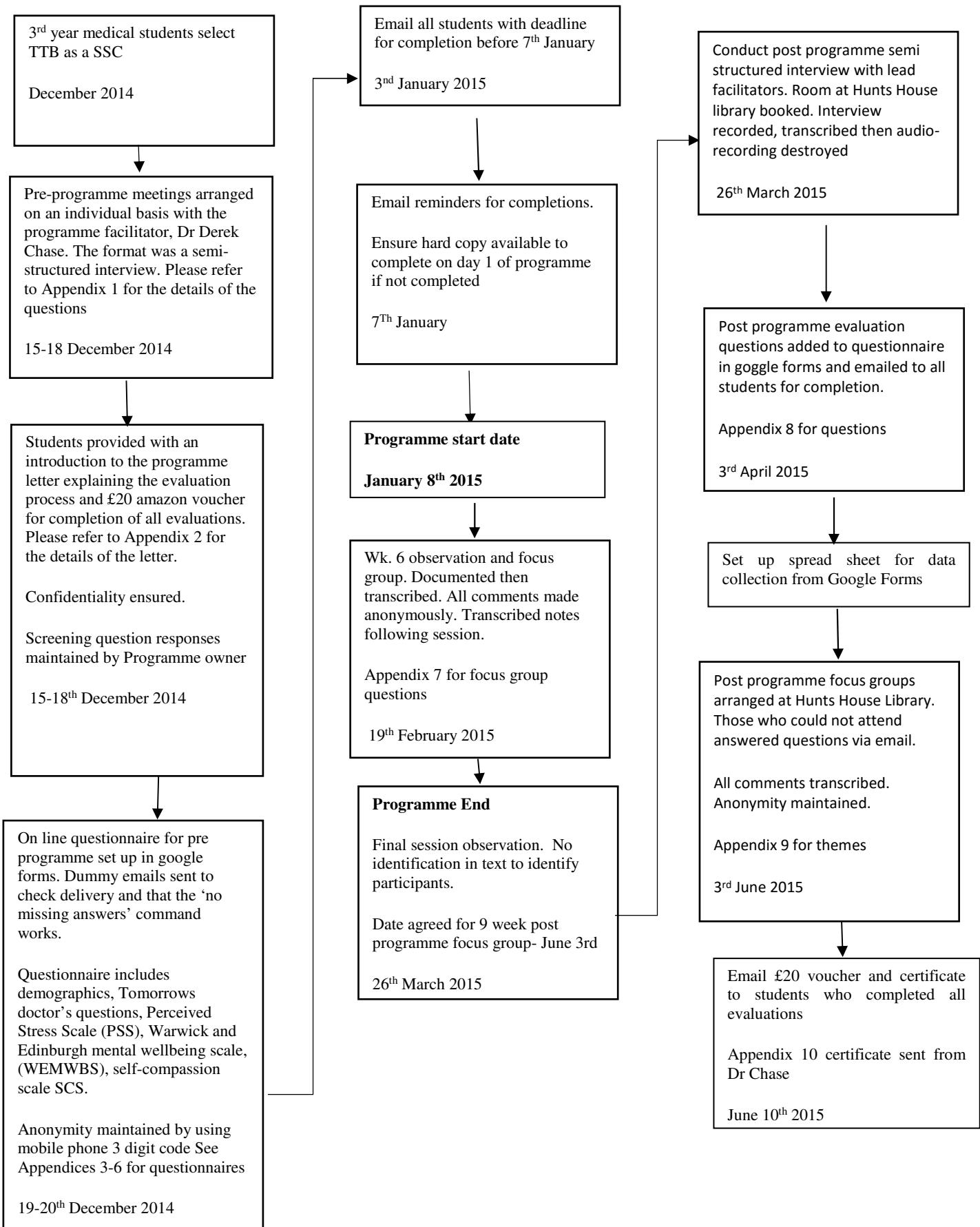
Figure 6 is the programme outline that was provided to students and demonstrates the weekly themes and the links between theory and practice.

Figure 5 Train the Brain Programme Outline

Session no. date facilitators	Title	Group work	Theory	Practical	Homework
1 08/1/14 Derek Chase Prideaux 3	Overview Ground rules Stress management (1) Essay and presentations	Introductions Expectations Hopes/fears Safety Confidentiality Journal Course work Buddies	Outline of course – 4 areas - wellbeing, lifestyle, stress management, mindfulness Stress management (1) EQ framework	Body map* Jacobsen muscle relaxation (MR) Diaphragmatic breathing (DB)	MR and DB – 10mins/day Daily journal writing (5mins) Stress symptoms
2 15/1 DC Tamara Russell Prideaux 3	Stress management (2) Intro to meditation	Learning, hot topics Organising for the essay	Stress management (2) Mindfulness – evidence of benefit (TR)	Stress style – personal stressors* and responses* Meditation on the breath	Meditation on breath – 15mins/day Daily journal writing (5mins) including experience of meditation Choosing topics for essay VIA survey – on wellbeing (Seligman) https://www.authentichappiness.sas.upenn.edu/home Diet diary
3 22/1 TR DC Prideaux 3	Lifestyle Strengths Wellbeing (1)	Learning, hot topics	Wellbeing – PERMA 6 areas Lifestyle - exercise, diet, sleep, music, internet, finance, safety, alcohol, drugs, sex (and the GMC)	Diet diary share (pairs) Mindfulness exercise on raisin Nurturing/depleting Building on strengths	Meditation – 15mins/day Daily journal writing (5mins) WWW Expressing one strength once a day Preparing essay and presentation Coaching scenario
4 29/1 DC Prideaux 3	Coaching	Learning, hot topics	Coaching Dr. Sue Morrison FRCPGP	Coaching Dr. Sue Morrison	Meditation – 15mins/day Daily journal writing (5mins) WWW Coach friend/family member Preparing essay and presentation
5 5/2	Study week				As above
6 12/2 TR/DC Prideaux 3	Emotions	Mindfulness, Learning, hot topics	Emotions, ownership, expression	Distressing event (pairs) Body scan	Meditation – 15mins/day Daily journal writing (5mins) – WWW Preparing essay and presentation Random act of kindness
7 19/2 TR/DC Prideaux 3	The Body	Mindfulness, Learning, hot topics	Thought patterns Change Benefits of mindfulness Types of intelligence Congruence	Body patterns Motivation	Meditation – 15mins/day Daily journal writing (5mins) - WWW Preparing essay and presentation Letter of forgiveness/gratitude
8 26/2	Study week				As above
9 5/3 DC,TR Prideaux 3	Relationship	Mindfulness, Learning, hot topics	ACR Empathy Managing conflict	Being assertive (pairs) Reaction vs response Hourglass 3 min meditation.	Meditation – 15mins/day Daily journal writing (5mins) - WWW Preparing essay and presentation
10 12/3 DC Prideaux 3	Spirituality and Compassion in healthcare	Mindfulness, Learning, hot topics	Dr. Sarah Eagger Spiritual special interest group, RCPsych	Having conversations that connect	Meditation – 15mins/day Daily journal writing (5mins) – WWW One expression of gratitude Preparing essay and presentation
11 19/3 DC/TR FWB 4.176	Presentations	Mindfulness, Learning, hot topics		Presentations	Meditation – 15mins/day Daily journal writing (5mins) Summarise main learning – next steps
12 26/3	Presentations review	Questionnaires and feedback		Presentations Next steps	LIFE!

Process and Procedures

Figure 6 Project Process and Procedures



Ethics

Dr Chase discussed ethical issues with the medical students at the pre-programme meeting. Student safety was assessed as part and mental health background gathered. Confidentiality throughout the evaluation was maintained. Students used a 3 digit code for analysis purposes and no names were assigned to any comments used. Students received a £20 Amazon voucher and a certificate for their portfolio for full completion of the evaluation.

Materials

Quantitative data.

The 3 assessment tools chosen are theoretically valid measures of perceived stress, mental wellbeing and self-compassion. All measures were scored and analysed in accordance with the instructions outlined by the creators. On-line questionnaires were composed so that answers could not be omitted or corrupted. Dummy emails were sent to ensure delivery capabilities on various operating systems. Mobile phones and IPAD responses were not possible, this was added to the questionnaire to avoid confusion.

Perceived Stress Scale

The 10 item Perceived Stress Scale Perceived (PSS-10) assesses how stressful various situations in life are perceived. Each question starts with “in the past month how often have you” and considers themes such as unpredictability, uncontrollability and overloading. The PSS is scored on a 5 point Likert scale 0-4, 0=never, 4=very often. Four positively worded questions were reverse scored prior to statistical analysis. Scores were added together with a maximum of 40, the higher the score the higher the perceived stress (Cohen et al., 1983; Roberti and Storch, 2006). See appendix 4 for the full set of questions.

Warwick and Edinburgh Mental Wellbeing Scale

The 14 item, positively worded WEMWBS was designed to facilitate the monitoring and evaluation of mental wellbeing initiatives. It captures both hedonic and eudaimonic aspects of mental health. (Tennant et al., 2007). Questions refer to aspects of mental wellbeing, feelings, positive affects, interpersonal relationships and positive functioning experienced in the previous 2 weeks. WEMWBS is measured on a Likert scale of 1-5, where 1= none of the time, and 5=all of the time, individual scores range from 14-70. See appendix 5 for the full set of questions.

Self- Compassion Scale

Self-Compassion is the only measure that did not have a temporal span. The full form version of the Self-Compassion Scale (SCS) was used as this allowed for analysis at each of the 6 subscale levels, self-kindness, self-judgement, common humanity, isolation, mindfulness, over-identified. The 26 questions were scored on a Likert scale of 1-5, 1=almost never, 5=almost always. Scores for negative subscales, self-judgment, and isolation and over-identification were reversed before the total mean compassion score was calculated (Neff, 2003). See appendix 6 for the full set of questions.

Qualitative data

Qualitative data was gathered from the students at five points, a pre- programme semi-structured interview with Dr Chase (see appendix 1), a mid-programme observation (Week 7) and focus group (see appendix 7), a final session observation (week12), a post-programme on-line qualitative evaluation to support quantitative reviews, and a follow up focus group and telephone interviews (see appendix 8), 9 weeks post-programme completion.

Please refer to fig 7 for flow and timing of the administration of questionnaires and observations.

Results

Quantitative Analysis Strategy

Preliminary analysis was conducted to assess the distribution of scores for each dependent variable. As they violated the assumption of normal distribution, it was more appropriate to use non-parametric statistical tests. Wilcoxon Signed Rank Tests were conducted to determine whether the programme improved the wellbeing measures for participants and that median difference between the two time points (pre and post programme) for self-assessment measures (SCS, PSS, and WEMWBS) were statistically significant, p -value was set at $p \leq .05$. The effect size (r) for each measure was calculated manually ($r=Z/\sqrt{n}$).

Missing data

$N = 14$ medical students began the programme, 1 student decided to take a break for mental health issues and did not complete the programme. Checks for completion, highlighted another student had not completed the initial questionnaires and was therefore excluded since there was no matching for the pre- and post- analysis. Checks for completion also highlighted the omission of question 24 from the SCS measure. This was taken into account when comparing the scores with other populations and studies. It did not impact the pre- and post-analysis. One student took a break so didn't complete and one failed to complete the questionnaire, results were based on $N=12$. All statistical analysis was performed using IBM SPSS statistics version 22.

Descriptive Statistics

Both male and female students chose the elective, females represented 70% of the group that started but 75% of the participants included in the statistical analysis. The mean age of the group was 24.43 years ($M = 24.43$, $SD = 4.52$). The age range was 17 years.

Table 1: Demographic information of participants in the Train The Brain Programme

	Pre TTB Sample size	Post TTB Sample size
N	14	12
Mean Age (years)	24.43	24.67
SD	4.52	4.85
Minimum Age (years)	20.00	20.00
Maximum Age (years)	37.00	37.00
Gender (Male/Female)	4/10	3/9

Note: TTB, Train the Brain; SD, Standard deviation

Table 2. Descriptive statistics for each outcome measure pre- and post- the TTB Programme

Outcome Measure	n	M Pre TTB	SD Pre TTB	M Post TTB	SD Post TTB	r
SCS	12	3.11	.61	3.45	.53	.50
PSS	12	17.00	8.49	13.00	6.40	.35
WEMWBS	12	54.00	7.73	54.17	5.56	.13

Note: M mean, SD standard deviation, r effect size, TTB Train the Brain
 SCS Self-Compassion Scale, PSS Perceived Stress Scale, WEMWBS Warwick Edinburgh Wellbeing Scale

Inferential statistics

Self-Compassion Scale

There was a statistically significant increase ($z = -2.45$, $p = .014$, $r = .50$) in the level of self-compassion following the TTB programme. The median score for Self-Compassion increased from pre- ($Md = 3.0$) to (post- $Md = 3.32$) programme. The interquartile range

increased from (IQR = 0.90) to (IQR = 1.39). The minimum and maximum scores were 2.3 and 4.4 pre-programme rising to 2.6 and 4.7 post-programme. Wilcoxon Signed ranks 9 students recorded an increase in self-compassion, the mean of the ranks was 6.72, 2 recorded a decrease and the mean of the ranks was 2.75. There was 1 tie.

Self-Compassion Scale sub scales

The results from the Wilcoxon Signed Ranks demonstrate that in all subscales more students had increases in scores following the programme than reductions. There was a statistically significant increase in self-kindness ($z = -2.63, p = .009$), decrease in over- identification ($z = -2.02, p = .043$). There was a trend towards a decrease in self-judgement ($z = -1.83, p = .07$), the effect size was medium $r = .37$. The remaining subscales demonstrated no significant change, common humanity ($z = -1.13, p > .05$), isolation ($z = -.78, p > .05$) which had the lowest effect size $r = .16$, mindfulness ($z = -1.01, p > .05$). After Bonferroni correction for multiple comparisons only self-kindness remained statically significant at the .008 level.

Table 3 Wilcoxon Ranks for Self-Compassion Scale sub components

Sub Component	Negative Ranks N	Positive Ranks N	Ties N
Post self-kindness - pre self-kindness	1	9	2
Post self-judgment-pre self-judgment	2	6	4
Post common humanity-pre common humanity	3	7	2
Post isolation-pre isolation	4	5	3
Post mindfulness – pre mindfulness	2	7	3
Post over-identification – pre over identification	2	7	3

Note: negative ranks post<pre score, positive ranks post>pre score, tie no change, N = number of participants
Positive ranks imply reduction for negative subscales self-judgement, isolation, over-identification (i.e. positive self- compassion impact)

Perceived Stress Scale

Following the programme, there was a trend towards a decrease in the perceived stress levels ($z=-1.74$, $p = .083$), with a medium effect size $r = .35$. 7 reported a decrease in perceived stress, the mean of the ranks was 7.5, compared with 4 increases in perceived stress, and the mean of the ranks was 3.38. There was 1 tie. The median score decreased from $Md = 15.5$ pre- to $Md = 13.5$ post, there was no change in the interquartile range (IQR =12). The minimum and maximum scores were 6 and 36 pre-, decreasing to a minimum of 4 and maximum of 24 post, from a total possible maximum score of 40. The range of scores both pre- and post- were large at 30 and 20 respectively.

WEMWBS

There was no significant change in WEMWBS scores, ($z= -.6$, $p=.5$). There was a small decline in the median WEMBS score pre- to post-. $Md = 55$ compared to $Md= 52$ and an increase in the IQR from 6 to 8. The mean of the ranks was 5.58 for the 6 that had a decrease in wellbeing scores and a mean of ranks of 5.38 for the 4 that showed an improvement. The minimum and maximum scores were 33 and 64 pre-programme with the minimum increasing by 15 points to 48, no change in the post- programme maximum score was posted. The total possible maximum score for the measure is 70. Changes in scores ranged from a decrease in the WEMWBS measure of 20 points and an increase of 5. Participant 9 was identified as an outlier pre programme with a score of 33, however this student recorded the largest increase (20 points) post programme.

Qualitative Analysis strategy

The aim of the qualitative research was to gain a comprehensive and personalised understanding of the student's experience. A six phase thematic analysis using a coding process was used to bridge the gap between quantitative and qualitative language (Boyatzis,

1998; Braun & Clarke, 2013). Transcripts of the observations and focus groups were then read and re read for familiarisation with the data. Each phrase was written on to a post-it note, assigned a code and listed into an Excel spreadsheet. Themes were then established and reviewed. Post-it notes were put into clusters. Each cluster (theme) was then named. To ensure objectivity and eliminate personal bias a colleague with no prior knowledge of the subject but experience in thematic analysis reviewed the coding, clustering and naming of themes. Over 70 codes were initially allocated, which were considered pertinent to the research question. These were then reduced to seven sub themes, connecting with emotions and feelings, understanding my reactions, taming the inner critic, stress management, medical school culture, a place to just be me and clinical demands. From this three major themes were identified, ‘becoming more aware’, the impact of environment and culture, ‘a different way of responding’.

Figure 7: Key Themes

Becoming Aware

This theme reflects the data connected with the students growing understanding and awareness of their inner world and how they relate to it by becoming more consciously aware on a moment to moment basis. Sources of this growing awareness were attributed to all elements of the programme. Sub themes included, gaining strength from my personal character traits and affirmations, being OK to nourish me, I get gripped by fear and stress, and paying attention emotions, feelings and thoughts.

Awareness of Personal strengths

Students commented on the value and insights they gained from the session on personality types and how the affirmation boosted their self-confidence.

“I am more aware of my strengths and I feel more confident about myself and my abilities. This has led to me feeling more competent as a medical student and I feel less fear when I think about my future as a doctor as I know feel confident I will be good at my job. This is mainly due to the fact that I have realised a lot of the qualities I have will make be better at my job. I have also realised we are all human. Doctors are not robots. We all have different strengths and weaknesses” (P653)

Many of the students acknowledged that they were ‘perfectionists’, setting high standards for themselves and others. They acknowledged the level of harsh self-judgment and the tendency to be self-critical, and to berate themselves when they did not meet their own expectations.

“The biggest thing I noticed about myself was my tendency towards being utterly judgemental, often with impossibly high standards. Journaling helped me notice this”. (P243)

This growing self-awareness was still evident at the nine week follow-up

“I am definitely a lot more self-aware - rather than trying to resist any anxiety I may be feeling (which often used to make it worse), I would just become aware of it and maybe do some breathing exercises. I also feel a lot more in control of my thoughts in stressful situations as I can recognise when my mind is going into an anxious/negative thought pattern, so I can stop it in its tracks!”

Emotional awareness

This reflects the growing sense and connection with, and paying attention to their emotions, rather than the practice of suppression and that they “never really took any notice of them before, well not closely”.

“A good tip I learnt from the course is to notice what I feel in my body and that’s helpful. It distracts you from the pure head emotion you might be feeling and makes me feel more anchored” (P72)

Recognising emotions also helped the students maintain their present moment attention, not just to their emotions. In addition they reported a growing awareness of being able to connect feelings and behaviours.

“Through the practice of mindfulness, I have become more able to identify my emotions. It has given me a better ability to identify why I feel a certain way at any given moment, and how that may be manifesting physically”. (P459)

Awareness of personal stressors

In addition to cognitive awareness of stress, comments were made about the increasing awareness of being able to connect with the feelings of stress in their body. *“When I’m distressed my body aches and my head can’t think” (P299)*

Impact of culture and environment

This theme encapsulates how they related to their external world. There were two key sub themes and the students made comparisons between them. The first was the medical school and clinical culture and the second the small group environment experienced in the TTB programme. Feeling safe and, valued were key elements

Medical School Culture

Despite having a set of initial questions for the first focus group the key theme led by the students was the impact that medical school culture had on their emotional wellbeing and the extent to which they felt a lack of security and recognition and alignment of personal value. They reported that ‘humiliation and sarcasm impacted their ability to learn and over 50% of the students said that this had impacted their feelings of self-worth and general levels of confidence

“Med school is completely demoralising there’s so much criticism in med school. It’s a pretty negative place. We need carrots not just the universal stick” (P872)

The students questioned teaching methods in the context of ‘what a good doctor’ looks like’ and if the ‘right values’ were being nurtured

“The environment has a lot to answer for. Whether we are on clinical wards or in lectures I feel judged and intimidated, even bullied at times. There is no end to the pressure. I’m not sure it makes us better doctors in the long run” (P427)

Some of the students raised how they felt this impacted patient care

“Some consultants are helpful. Others look like they get a kick out of intimidating you in front of patients, patients look embarrassed and nurses roll their eyes, you end up feeling stupid and worthless” (P299)

However, the pressure was just from tutors and consultants but also from the fierce competitive nature between students,

“Med school is mentally exhausting and emotionally draining. It’s such a competitive environment. You never trust anyone. Sometimes I’m so tired I feel ill” (P68)

A contributory factor was the tendency towards a lack of concern for student wellbeing and a dismissive attitude towards ill health, particularly mental health issues demonstrated by consultants, tutors and senior course leaders. Overall students expressed concern that they would not know who to go to for help. Several students expressed concern that any sort of illness was seen as weak or failure. When they had asked for help it had not been met with compassion.

“It worries me that I do not know who to approach with problems, my clinical supervisor has not recognised me, and like many consultant/firm heads we come across he is only concerned with our academic achievements, tutors don’t really work”(P68)

Clinical placements have added another layer of pressure. In addition to feeling that they needed to ‘perform’ being seen to be credible in front of consultants appeared to increase the level of competition. Witnessing suffering and not feeling empowered to do anything made students feel unappreciated and some said worthless. All of the students expressed that they

felt uncertain about what their role as a 3rd year student was and that this was an increasing source of stress.

“I get immobilised by fear. What’s my role? What should a 3rd year student do?” (P617)

This was a specific area where the students felt that the course content had helped

“Doing the discussion in different roles was really useful as it made me think about situations from another person’s point of view which I wouldn’t normally consider”. (P679)

Safe place to share

All of the students emphasised the positive impact of the openness of the group. However, they all agreed that it took 3-5 sessions to gain enough trust to really open up and share. This view was also shared by both of the facilitators. During the post session focus group students talked about how they had found the open environment difficult to begin with, and ‘alien’ to that of the medical school. The space to “reflect” and “share” in a “non-judgmental environment” was felt to be “very helpful” as “hearing everyone else’s experiences made me feel like I was not alone”.

“It helps to see that we don’t have to be perfect all of the time and share who we are and talk about feelings. This is the first time we have had a group where we don’t have to talk about results. It’s refreshing” (P653)

The students questioned why the group had worked so well and why it was as supportive as it was. There was a general feeling that if the programme had been mandatory then there would not be the same level of support.

“Did our group work and did we share because we all self-selected this SSC? I’m not sure it would be the same if people were forced to do it. Even students are sceptical about mental health and this sort of development. It isn’t surprising when we have consultants and tutors who still make comments like psychiatry isn’t really medicine” (P 679)

Responding with Kindness and acceptance

All of the students commented that they had noticed that they were able to respond in different ways to stressful or difficult situations. Some commented that they used the breath meditation to calm themselves and others said that they tried to treat themselves with more kindness and not judge the moment. Feeling stressed was by some something to feel guilty about. This theme also encapsulates the changes in behaviour expressed by the students at the nine week follow up.

“If I am stressed I am less judgemental of myself. I do not question why I am stressed, I simply become aware of it. This avoids feelings of guilt or being harsh on myself for feeling stressed, which ultimately would have led to further stress building” (P68)

The students reported that greater awareness and ability to accept themselves for who they are, supported their ability to respond in a kinder way

“Noticing my emotions has been incredibly powerful. I feel calmer and happier and better able to notice the choices I have in emotional situations” (P427)

“I often struggled in difficult situations to control/supress my emotions as I felt that this was necessary in order to maintain a professional manner. I now realise it is important to accept and embrace the emotion rather to suppress them” (P653)

“I am happier when I am less harsh on myself. I had the mock OSCE today and it was a good opportunity to be mindfully kind and reflective after the event” (P432)

Several of the students expressed how difficult they found ‘trying to be kind to myself’ was and did not realise to begin with when they were being judgemental.

“It was great when Derek and Tamara picked up on the fact that we were making comments that we were being judging of ourselves. I have felt empowered to be more self-compassionate and to give myself time to relax by playing the violin/listening to music without feeling guilty” (P 617)

Responding differently and with kindness as a theme extended beyond the programme. Many of the students expressed how they were noticing a continued change in how they reacted to stressful situations, “definitely more aware of my emotional and physical responses to these situations” which allowed them to “accept the way that I am feeling, and helps me to get on with dealing with the situation”.

The most commonly used coping strategy was the three minute breathing space. This was used randomly, for exam pressure and as a relaxation and calming tool. Five students commented how they used the breathing space to distress on crowded public transport.

"I have been able to utilise the acquired knowledge to help me in the hospital environment when I have been treated poorly by consultants. I felt empowered to cope in scenarios which would have been a lot more difficult before participating in the course" (P359)

"It was a way to open my eyes to what I could and couldn't change as life stressors. Accepting what I couldn't change was powerful" (P72)

Student evaluation of the TTB as an SSC module

The qualitative findings suggest that the programme was well received by the medical students and they found it beneficial, and that it filled a gap in the current curriculum. This is consistent with findings from the Mind-Body programmes. (Saunders et al., 2007; Gordon, 2014) and other stress management and mindfulness-based interventions for medical students (Shapiro et al., 2000; Yusoff et al., 2014). See appendix 11 for a samples of student recommendations for bridging this Gap

One student commented that the fact that the course was part of the curriculum made her feel more valued than if it had been extra curriculum. All but two of the students expressed a desire for some sort of continued. Others suggested that this type of training should be available every year. Students were asked to rate their satisfaction with King's College London medical school experience, the mean score for personal aspects of medical school were regarded as relatively poor and was the only aspect with a mean score less than 6 on a scale of 1-10. Students rated their confidence in talking to patients ($M= 7.58$ pre, $M=8.17$ post intervention) higher than their confidence in talking to medical colleagues ($M= 6.33$ pre, $M=7.83$ post intervention). All measures increased post the course, but their rating for personal aspects of the programme remained the lowest. There were no elements that all

students found unnecessary or disliked, the most popular and most beneficial elements were the personality-strengths session, the mindfulness and mind/body practices and the weekly group discussion; the least beneficial was the coaching. When asked what they would change the majority of students commented that they felt that the name was ‘gimmicky’ and did not really describe the contents.

Discussion

There is a growing body of evidence of medical student’s vulnerability to psychological ill health and the needs to change the medical education curriculum. Recommendations from previous studies, including the GMC have called for action to include resilience and self-care training, others are calling for self-care to be recognised as a core competency (Peters, 2005; Kushner, 2011). Self-care has traditionally been the students’ responsibility, until remedial support is required (Christopher et al., 2006).

Previous studies have highlighted the factors that contribute to poor levels of psychological health including personality traits, perfectionism, an overt sense of duty and responsibility, academic pressures and the hidden curriculum (Dyrbye & Shanafelt, 2006; Grant et al, 2013; Outram, 2014). The qualitative research from this study supports these previous findings. This study adds to the growing evidence that medical students have benefitted from mindfulness based programmes (Shapiro et al, 2000, Beddoe and Murphy, 2004, Warnecke et al., 2011) set in small groups (Lee and Graham, 2001, Gordon, 2014) and that both elements contributed to the improvement in wellbeing, reduction in stress and increase in self compassion and overall confidence. The qualitative and quantitative results were complementary and 3 major themes emerged: a growing sense of awareness (developing a

strong foundation), an ability to respond with kindness (the catalyst for change) and the positive impact of a ‘safe environment (the enabler). Medical students are exposed to many forms of emotional distress, and the consequences of not dealing with these can last for months if not years. Studies have recommended that to counteract this students are taught the knowledge and skills of emotional regulation (Hoffman, 2000; Monrouxe et al., 2015).

Sustainable Wellbeing

Dunn et al., proposed that sustainable wellbeing or resilience was a process by which positive stimuli outweighed negative stimuli and one mechanism for managing this balance was mindfulness. (Dunn et al., 2008). The findings from this study concurred with the concept but added the dimension of environmental impact as having a considerable negative impact on their wellbeing, whereas the small group setting was found to be restorative. This is consistent with the findings of the mind-body programmes at Georgetown University medical school (Gordon, 2014). The medical students who selected this module reported greater insight into their emotional wellbeing, what hindered it and what nourished it. They were able to give examples of how they used the tools that they had learned to better enable them to cope with day-to-day stress. This awareness and knowledge plays an important part of the daily re-fuelling that students must develop if they are to avoid burnout (Boyatzis & McKee, 2005). In addition to this, the study supported earlier studies and recommendations that resilience training can be taught as part of the curriculum and that the small group environment where students felt ‘safe for the first time’ was an essential enabler for personal development and growth.

Raising awareness

The ability to positively regulate emotions begins with acknowledging the emotions as and when they occur. By paying attention to present moment experience there is less opportunity to start to dwell on negative feelings (Shapiro et al., 2005, 2007; Barbosa, 2013; Brown 2014). All of the students on the programme were able to express a growing present moment connection with thoughts, feelings and emotions. Acknowledging feelings for many was a new sensation, as previously feelings of discomfort had been judged ‘bad’ and avoided by suppression and similarly feelings of gratitude and joy were often overlooked and ignored. Mindfulness per se, was measured as a subscale of the SCS, and whilst the increase was not significant only two students had reduced levels of mindfulness. This may be due to an initial over assessment as many admitted, as their sense of awareness grew. Ten of the twelve students had the same or increased levels, and this was supported by the free text comments in the post programme questionnaire and again at the nine week follow up. Enhancement of mindfulness through training such as the TTB has been shown to support a variety of wellbeing outcomes. Students engaged in mindfulness practice and other wellbeing promotion practices are more likely to score higher in global wellbeing (Weiner et al., 2001). This was supported by the comments that students made about feeling calmer, less stressed and finding it easier to relax. Whilst there was no significant increase in the mental wellbeing measure, WEMWBS, only two of the students reported scores less than 51.6(the UK norm). 50% of the students had total scores that decreased post programme, but as this was not corroborated by the qualitative reviews it may have been merely due to the timing of the baseline measures which was immediately after the Christmas break. The programme did have an impact on the medical students’ perceived stress. A Baseline PSS mean score of M=17.0 was similar to other studies involving medical students (Warnecke et al., 2011) but lower than UK GP’s (M=20.6) and nurses in a corporate setting (M=20.64) (Bazarko et al.,

2013). The results were skewed by 4 scores of less than 10, whilst 50% of the students reported above average perceived stress levels of which 3 reported very high levels and anxiety (above 27 out of 40). However, there was a medium effect size and a trend towards a reduction in perceived stress which would suggest that the students observed some changes. At the follow-up focus group students commented that they were continuing to manage their stress differently. Key to this was accepting the stress, being kind to themselves and using breathing techniques. This is consistent with other studies of mindfulness based interventions and stress management programmes (Rozenzweig et al., 2003; Beddoe & Murphy, 2004; Warnecke et al., 2011). Objective structured clinical examination (OSCE), which are known to be the cause of extreme levels of stress (Radcliffe & Lester, 2003), over half of the students commented that they had used this technique before and during the recent OSCE, to maintain focus and keep themselves calm. This is consistent with the study by Shapiro et al., which demonstrated that mindfulness can be beneficial during exams (Shapiro et al., 1998). The same technique could be used in clinical practice to ‘decompress’ between patients.

Maladaptive perfectionism and learning to respond with kindness

Self-compassion is a strong predictor of anxiety and depression, the lower the level of self-compassion, the higher the risk (Van Dam et al., 2011). Whilst compassion is usually expressed as other directed it may also be self-directed, this is achieved by accepting oneself or situations with the same kindness as one would another (Neff, 2003). This study demonstrated that participation in a biopsychosocial programme, could have a positive impact on self-compassion. Self-compassion does not appear automatically, but is nurtured and developed from the increasing sense of awareness. Without the ‘space’ that greater self-awareness creates there is no opportunity to respond differently, i.e. non-judgementally and

with kindness, the habitual ‘self-berating’ and damaging ruminative thinking can continue. Medical students have a propensity to be self-critical and self-sacrificing with high ideals of perfectionism (Miller and Mc Gowen, 2000). There is no social censure to the silent and harsh ‘inner critic’, and when things go wrong, self-blame is often the path of least resistance. Comments made by students with regards to their personality traits and ‘harsh inner critic’ support previous studies that indicate that medical students who score high on perfectionism are more likely to be depressed and even less likely to ask for help (Ey et al., 2000). As reported by Lee and Graham (2001) participation helped students feel less guilty about spending time on themselves. The programme didn’t include loving-kindness meditation which might positively impacted self-compassion as this had been the impact in a study with therapists (Boellinghaus et al., 2014), however as with that study the researchers suggested that more needed to be understood about why certain character traits find it more difficult to practice.

Within the SCS subscales, self-kindness also increased significantly with a strong trend towards a reduction in over-identification supporting previous research that meditation training and self-kindness can effectively reduce over-identification. This is of particular importance in medical students first clinical year (usually 3rd year) as previous research with health workers had identified the negative impact of over-identification on mental health, and a positive association with a risk of emotional contagion and emotional exhaustion (Ying & Han, 2007). In a similar way this was demonstrated during one of the mind body exercises the students had to hold their arms up as if hugging a tree. When asked how they felt, some felt angry, because they had failed but, others said that they tried to ignore the pain. One student commented that she was more concerned about everyone else until her own pain was so great that she just gave in. Are they too busy caring for others and being affected by others pain that they do not notice their own? What would happen to patients if doctors came from a

place of caring for themselves first, ironically, would that actually be the best for the patient and create a healthier more patient centred environment?

There was continued evidence of self-kindness and self-compassion at the mine week follow-up. Students described instances where they had kept calm and had been able to halt old habits of berating themselves. This was leading to increased confidence and motivation, supporting the theory that self-compassion could be a new coping strategy and part of building resilience (Klimecki et al., 2013). An outstanding question is what constitutes resilience for high achievers? Is it based on kindness and self- compassion and acceptance of one's vulnerability and not about toughening up and developing grit?

A safe place to decompress

Personal safety is a fundamental need, emotional safety and physical safety are equally important (Maslow, 1943, Freitas & Leonard, 2011), and practicing safe medicine includes both. The impact of environment on emotional welling, both positive and negative was a major theme throughout the discussions. Students were unanimous in their feelings about the often hostile environment of the medical school. Consistent with previous research, (Radcliffe & Lester, 2003) the key elements based on findings from this study were the competitive environment, 'outdated' teaching by humiliation, and lack of good role models in consultants and tutors and a poor tutor group system. Students felt that it was important to have good relationships with tutors and Consultants as they perceived that this would benefit their morale and sense of value as well as academically. The criticality of the relationship between student and teacher has been previously identified (Haidet and Stein, 2006). However, the students was one where tutors are seen to be impersonal and 'someone you see twice a year to get your log book signed'. All elements of the hidden curriculum as identified in a qualitative review of 3rd year medical students' reflective journals (Gaufberg et al.,

2007). By comparison, the TTB group was referred to as a “safe place” and somewhere where students felt that they were able to share their feelings without being judged. Comments made were identical to those made by medical students in other countries following mind-body programmes (Thomas et al., 2007; Gordon, 2014) and other peer led student groups (Benor, 1995, Griggs, 2004).

A contributing factor to the success of the programme was the style and ability of the facilitators. Many tutors do not necessarily have those skills but they can be taught. Developing the skills of tutors to be able to run biopsychosocial programmes has been shown to be beneficial to both tutor and students (Gordon, 2014). As one of the students remarked, “You can teach us all of this but if the tutors and consultants don’t learn this as well then we don’t stand a chance”.

There are very few programmes of this type in existence in the UK. In the United States over 15 medical schools have successfully incorporated mind-body programmes into the curriculum. The SAFEMED programme developed at University College Cork is beginning to be adopted by other universities (Maher et al., 2014). 15 U.K. universities appear on the ‘mindfulness for students’ website, however, the majority are for mindfulness stress management programmes that are still extra-curricular. In Australia at Monash university, mindfulness is part of the core curriculum and includes, stress management, nutrition, exercise and creating a supportive environment. They have seen significant reductions in depression and anxiety, hostility and psychological distress (Hassed et al., 2009). Results echoed at Oklahoma State University with the peer support groups (Redwood and Pollark, 2007). Balint groups have been successful with GP’s and Schwarz rounds are now being introduced into the NHS, a place where healthcare workers can talk and share emotional

challenges involved with their work. There is an argument that these practices that exist post qualification could be adopted into the curriculum.

Limitations

Whilst the combined results were promising, the study suffered from several limitations. The first is that all of the output measures were self-reported. Whilst advantages include the ease of administration, disadvantages include skewing due to social desirability, desire to please the researcher and the meta-awareness capability necessary to answer the questions (Grossman, 2008, 2011). Future studies should consider biological measures such as those used by MacLaughlin, who demonstrated the positive impact that the Mind Body programme at Georgetown University had by measuring cortisol level changes compared to a control group (MacLaughlin, 2011).

The programme was a self-selection module and there may have been a positive bias. The quantitative results must be placed in context of the timing of the course which began at the beginning or term, post the Christmas holidays. The WEMWBS measure refers to feelings in the past two weeks, all of which would have been on holiday and PSS refers to feelings in the past month, three quarters of which would have been on holiday. The most striking observation of the quantitative results was the extreme range of scores within each of the measures. There was no indication that these were age related. There is evidence to suggest that certain personality traits such as neuroticism is strong predictors of stress (Tyssen et al., 2001) however, as personality traits were not measured then it is not possible to say if this was a cause of variation. Future studies should take this into account.

Without a control group for comparative purposes, it is difficult to ascertain whether or not the programme was the cause of the measured changes in the outcome variable there might well have been additional confounding variables that impacted the results. Future research

could consider control groups from other SSC's. As students reported benefits from all parts of the programme it is unclear to what extent each element contributed to the change. This is consistent with research on the mechanism of mindfulness which is proving difficult to pinpoint (Shapiro et al., 2006; Baer, 2010). The sample size was 14 with 2 exclusions in the final analysis. Whilst this is not small for this sort of group or for the SSC in terms of the study it limits the power. It could not be said that these results would generalise to the student population.

Conclusion

Time for Change – a challenge to the medical education model

What is resilience and where does it fit in to the education of the next generation of Doctors? The GMC may have recommended that is should be an integral part of medical student education part of the education of Tomorrow's Doctors but they did not define what it means. Without that clarity there could be a danger of diverse interpretations.

If desire is to provide students with a proactive toolkit so that they have a sustainable future as Tomorrows' Doctors, who can find the compassion and humility to relate to patients and future students, then they need the support from their educators. The challenge is to provide this whilst challenging the negative elements of the hidden curriculum. As the guidelines for Tomorrows Doctors change for 2016, many of the UK's medical schools will be considering their curriculum changes, perhaps now is the time for courage. Any rollout would have to consider costs as the pilot had two facilitators but training tutors could have benefits far beyond the programme and students. Future studies should consider the elements of the hidden curriculum and cultural change required to create a sustainable future. This should

include the efficacy and logistics of integrating programmes like the ‘Train the Brain’ in to the core medical curriculum, the identification of obstacles and the nature of tutor groups.

In a recent workshop at the Centre for Resilience, on compassion and resilience in the NHS, one of the speakers, Penny Campling, a medical psychotherapist, described resilience as “a process not a trait, something we can facilitate in others, something we can nourish in our organisations and something we can work at”. Time for change requires resilience training for both students and their educators.

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Appendices

Appendix 1 Pre programme semi structured interview questions with Dr Derek Chase (Designer)

1. What was your motivation in applying for this module?
2. What would you like to gain from it?
3. What excites you?
4. Do you have any concerns? If so what are they?
5. What do you currently do to keep you nourished? E.g. meditate, play sports, cook?
6. Do you have any experience of mindfulness, if so what? Do you currently practice? If so how long?
7. Are you anticipating or have you recently had a major life event?
8. Have you ever or are you currently being treated for anxiety or depression?
9. Have you been hospitalised for a mental health condition?

Appendix 2 Introductory Letter

**Train the Brain
 Pre-course questionnaire
 SSC Jan-march 2015
 Phase 3
 School of Medical Education**



Evaluation of SSC Module Phase 3 2015 'Train the Brain'

Greetings and Welcome! We are very excited to welcome you as the first cohort to take this brand new SSC Module. Our intention is to provide a learning and reflective space where you can consider ways of working that are sustainable. This course will help you to thrive in your current studies and future work.

As this is a new course, we will be running an evaluation alongside the teaching component. Two Masters students from King's are helping us to understand better how the course has benefited you as well as get some more general feedback about content, the experience, what was helpful, not helpful etc. We wish to offer this course to future students so your contribution to this evaluation is vital to ensure we can do this in the most appropriate way.

We will therefore be asking you to complete the following as part of the course:

- 1) Three short questionnaires before you start (to be completed in the first week January – these will be emailed to you or you can complete them online)
- 2) Three short questionnaires at the end of the course (after March 26th)
- 3) A feedback form (completed at the final session)
- 4) A short telephone interview to find out in more depth about your experience
- 5) A focus group (likely in April) where you can reflect together on the experience

For your participation you will receive a certificate to indicate that you have taken part in a valuable evaluation to inform curriculum development at Kings.

As a token of our appreciation for your time we will also provide you with a £20 voucher.

Your responses will be treated in strict confidence by ourselves and the research team and anonymised in any summary evaluation. All information will be destroyed at the end of the project (summer 2015).

Dr Tamara Russell and Dr Derek Chase Co Facilitators

Appendix 3

Pre and Post programme measures of satisfaction and tomorrow's Doctors outputs. Provided by Dr Chase

Included in the on-line questionnaire. Measured on a Likert scale of 1-10. 1 = not at all, 10= completely

C1. How satisfied are you with the scientific aspects of the medical course so far

C2. How satisfied are you with the personal aspects of the medical course so far

C3. How confident are you relating to patients

C4. How confident are you relating to medical colleagues

C5. How confident are you that you have the personal skills to make a good doctor

C6. How satisfied are you with your decision to pursue a career in medicine

Appendix 4

Included in online questionnaire

Perceived Stress Scale

The questions in this scale ask you about your feelings and thoughts **during the last month**. In each case, you will be asked to indicate by circling *how often* you felt or thought a certain way.

0 = Never 1 = Almost Never 2 = Sometimes 3 = Fairly Often 4 = Very Often

1. In the last month, how often have you been upset because of something that happened unexpectedly?	0	1	2	3	4
2. In the last month, how often have you felt that you were unable to control the important things in your life?	0	1	2	3	4
3. In the last month, how often have you felt nervous and "stressed"?	0	1	2	3	4
4. In the last month, how often have you felt confident about your ability handle your personal problems?	0	1	2	3	4
5. In the last month, how often have you felt that things were going your way?	0	1	2	3	4
6. In the last month, how often have you found that you could not cope with all the things that you had to do?	0	1	2	3	4
7. In the last month, how often have you been able to control irritations in your life?	0	1	2	3	4
8. In the last month, how often have you felt that you were on top of things?	0	1	2	3	4
9. In the last month, how often have you been angered because of things that were outside of your control?	0	1	2	3	4
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	0	1	2	3	4

References: The PSS Scale is reprinted with permission of the American Sociological Association, from Cohen, S., Kamarck, T., and Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, 24, 386-396. Cohen, S. and Williamson, G. Perceived Stress in a Probability Sample of the United States. Spacapan, S. and Oskamp, S. (Eds.) *The Social Psychology of Health*. Newbury Park, CA: Sage, 1988.

Appendix 5**Included in on-line questionnaire**

**The Warwick-Edinburgh Mental Well-being Scale
(WEMWBS)**

Below are some statements about feelings and thoughts.

Please tick the box that best describes your experience of each over the last 2 weeks STATEMENTS	None of the time	Rarely	Some of the time	Often	All of the time
I've been feeling optimistic about the future	1	2	3	4	5
I've been feeling useful	1	2	3	4	5
I've been feeling relaxed	1	2	3	4	5
I've been feeling interested in other people	1	2	3	4	5
I've had energy to spare	1	2	3	4	5
I've been dealing with problems well	1	2	3	4	5
I've been thinking clearly	1	2	3	4	5
I've been feeling good about myself	1	2	3	4	5
I've been feeling close to other people	1	2	3	4	5
I've been feeling confident	1	2	3	4	5
I've been able to make up my own mind about things	1	2	3	4	5
I've been feeling loved	1	2	3	4	5
I've been interested in new things	1	2	3	4	5
I've been feeling cheerful	1	2	3	4	5

Warwick-Edinburgh Mental Well-Being Scale (WEMWBS)

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Appendix 6

Included in on-line questionnaire

Self-Compassion Scale SCS- Guidelines and Permission

To all interested, please feel free to use the Self-Compassion Scale (SCS) for research or any other use. Masters and dissertation students also have my permission to use and publish the Self-Compassion Scale in their theses. The SCS is appropriate for ages 14 and up (as long as individuals have at least an 8th grade reading level). If you aren't that interested in using the subscales, you might also want to consider using the Short SCS (12 items), which has a near perfect correlation with the long scale.

Kristin Neff, Ph. D.

Associate Professor

Educational Psychology Dept.

University of Texas at Austin

1 University Station, D5800

Austin, TX 78712

E-mail: kristin.neff@mail.utexas.edu

Reference:

Neff, K. D. (2003). Development and validation of a scale to measure self-compassion. *Self and Identity*, 2, 223-250.

Coding Key:

Self-Kindness Items: 5, 12, 19, 23, 26

Self-Judgment Items: 1, 8, 11, 16, 21

Common Humanity Items: 3, 7, 10, 15

Isolation Items: 4, 13, 18, 25

Mindfulness Items: 9, 14, 17, 22

Over-identified Items: 2, 6, 20, 24

Subscale scores are computed by calculating the mean of subscale item responses. To compute a total self-compassion score, reverse score the negative subscale items - self-judgment, isolation, and over-identification (i.e., 1 = 5, 2 = 4, 3 = 3, 4 = 2, 5 = 1) - then compute a total mean.

(This method of calculating the total score is slightly different than that used in the article referenced above, in which each subscale was added together. However, I find it is easier to interpret the scores if the total mean is used.)

Appendix 6 SCS full form questions

Included in on-line questionnaire

HOW I TYPICALLY ACT TOWARDS MYSELF IN DIFFICULT TIMES

Please read each statement carefully before answering. To the left of each item, indicate how often you behave in the stated manner, using the following scale:

Almost never	1	2	3	4	5	Almost always
1. I'm disapproving and judgmental about my own flaws and inadequacies.						
2. When I'm feeling down I tend to obsess and fixate on everything that's wrong.						
3. When things are going badly for me, I see the difficulties as part of life that everyone goes through.						
4. When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world.						
5. I try to be loving towards myself when I'm feeling emotional pain.						
6. When I fail at something important to me I become consumed by feelings of inadequacy.						
7. When I'm down and out, I remind myself that there are lots of other people in the world feeling like I am.						
8. When times are really difficult, I tend to be tough on myself.						
9. When something upsets me I try to keep my emotions in balance.						
10. When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.						
11. I'm intolerant and impatient towards those aspects of my personality I don't like.						
12. When I'm going through a very hard time, I give myself the caring and tenderness I need.						
13. When I'm feeling down, I tend to feel like most other people are probably happier than I am.						
14. When something painful happens I try to take a balanced view of the situation.						
15. I try to see my failings as part of the human condition.						
16. When I see aspects of myself that I don't like, I get down on myself.						
17. When I fail at something important to me I try to keep things in perspective.						
18. When I'm really struggling, I tend to feel like other people must be having an easier time of it.						
19. I'm kind to myself when I'm experiencing suffering.						
20. When something upsets me I get carried away with my feelings.						
21. I can be a bit cold-hearted towards myself when I'm experiencing suffering.						
22. When I'm feeling down I try to approach my feelings with curiosity and openness.						
23. I'm tolerant of my own flaws and inadequacies.						
24. When something painful happens I tend to blow the incident out of proportion.						
25. When I fail at something that's important to me, I tend to feel alone in my failure.						
26. I try to be understanding and patient towards those aspects of my personality I don't like.						

Appendix 7 Initial focus group –week 7 following observation. Guideline questions

Train your Brain Focus Group 1- 19/2/2015

Duration- 1hr (realistically 50 minutes with food)

Ground Rules- ask the group what they want these to be

Aims

- 1) To articulate individual and group experiences of their learning journey at the mid-point of the programme.
- 2) Gain insight into the educational process, its strengths and any limitations/challenges.
- 3) Provide a base line for the post programme review and follow up- dates and one to ones?

General questions

- 1) How would you describe your experience as a medical student at King's College?
- 2) How if at all is this module adding value to your experience?
- 3) How is this SSC different if at all from others you have undertaken? If yes, in what ways?
- 4) What kinds of things do you do for relaxation? Do you have things you do to help you manage stress?
- 5) Emotional resilience- has many definitions. What does it mean to you? Why is it important? Is your understanding and awareness of this changing? If so how?

The Journey so far

- 1) You have now completed 6 sessions, so half way through. What has it been like as a personal journey? Think back to the beginning. What were you feeling? How do you feel now? In what ways, if any, do you think you are gaining new knowledge, awareness, developing resilience? (Group this at points in time how did you feel at the start, how do you feel now, how do you want to feel at the end)
- 2) What kind of benefits (if any) are you noticing? What changes (if any) have they noticed in how they handle stressful situations? E.g. on the wards, with friends.
- 3) We talk a lot about compassion and how it starts with self. How is the programme helping you to be more self-aware and self-compassionate? What are you noticing and how are you being?

The process

- 1) Keeping a reflective journal. Is that something new? How is it supporting you and they will now be able to answer the second part of the question if they do not understand the process. (request would anyone be willing to share elements for the final review)
- 2) Home practice- what are the challenges? How is the nature of this changing?
- 3) Comparing this to other parts of their medical education, how do they see the importance of this as a skill? How is it supporting them (and they are unlikely to know this.)
- 4) What aspect(s) of the programme have been most challenging?
- 5) What aspect(s) have been the least beneficial?
- 6) What aspect(s) has been the most beneficial part of the programme?
- 7) What would you like more of?

Appendix 8 Extracted and amended from Downloaded from Google Forms – online questionnaire

Note: Google forms download too large for file.

Section A Pre-course organisation

Q1. Pre course organisation very poor 1 2 3 4 5 excellent

Q2. Pre course interviews unhelpful 1 2 3 4 5 extremely helpful

Please add any comments that would help improve the pre course information and understanding

Q3. Room and facilities very poor 1 2 3 4 5 excellent

Q4. Session length

was the 2.5 hours the appropriate duration a)about the right duration b)less time needed
c)more time need d)Other

Q5. Preferred start time a) 9am b) 9.30am c) other

Q6. Please add your comments to support the general organisation of future programmes

Section B Facilitator evaluation poor 1 2 3 4 5 excellent

Q7 Dr Derek Chase - Facilitation Style very

Q9 Dr Derek Chase - Content pitched at appropriate level

Q10. Dr Derek Chase - communication and group engagement

Q11. Additional feedback for Dr Derek Chase

Q12 Dr Tamara Russell - Facilitation Style very

Q13 Dr Tamara Russell - Content pitched at appropriate level

Q14. Dr Tamara Russell - communication and group engagement

Q15. Additional feedback for Dr Tamara Russell

Section C Course Content

The aim of this section is to understand the relative benefits you have gained from each element of the course. In the comments sections please provide, where appropriate, examples of how you have used this knowledge or experience, what difference it has made and any further knowledge required

a) not necessary b) nice to have c) useful d) really useful e) essential
Q16 neuroscience

Q16 How if at all have you applied this, what have you noticed

Q17 Stress Management

Q17 How if at all have you applied this, what have you noticed

Q18 Character strengths

Q18 How if at all have you applied this, what have you noticed

Q19 Wellbeing

Q19 How if at all have you applied this, what have you noticed

Q20 Lifestyle

Q20 How if at all have you applied this, what have you noticed

Q21 Coaching

Q21 How if at all have you applied this, what have you noticed

Q22 Time Management

Q22 How if at all have you applied this, what have you noticed

Q23 Emotions

Q23 How if at all have you applied this, what have you noticed

Q24 Thinking styles

Q24 How if at all have you applied this, what have you noticed

Q25 relationships

Q25 How if at all have you applied this, what have you noticed

Q26 Spirituality

Q26 How if at all have you applied this, what have you noticed

Q27 self-compassion

Q27 How if at all have you applied this, what have you noticed

Q28 Reflective Journal

Q28 Comments

Q29 assessments

Q29 please comment

Q30 course work - random act of kindness

Q31 course work - letter of forgiveness

Q32 course work - coach a friend/patient

Q33 course work - comments

Q34 film clip "the Doctor"

Q35 discussion - different roles

Q37 Comments

Q38 Mindfulness theory

Section D Please rate the frequency of use of the Mindfulness skills

a) never use, b) sometimes use b)frequently use c) use everyday

Q39 Breath

Q40 Raisin

Q41 body scan

Q42 3 minute breathing space

Q43 Please provide examples if applicable of how you use the mindfulness techniques and the impact

Section E Tomorrow's Doctors

To what extent did the course address the following educational outcomes?

Not at all 1 2 3 4 5 totally

Q44 13g - provide explanation, advice, reassurance and control Q45 15a communicate sensitively and effectively with patients, their relatives or carers, and colleagues from the medical and other professions, by listening, sharing and responding Q46 21b Establish the foundations for life-long learning and continued professional development, including a professional development portfolio containing reflections, achievements and learning needs *

Q47 21c Continually and systematically reflect on practice and whenever necessary translate that reflection into action, using improvement techniques and audit appropriately for example by critically appraising the prescribing of others

Q48 where your expectations for the course met

Appendix 9 Post Programme follow-up focus group and questions

Final group follow up focus group - Train the brain 3rd June 2015

Open with welcome and check in with everyone, short breathing space.

General questions

- 1) How are they? How are the rotations going?
- 2) Are they noticing any differences, if so what are they and how are they responding?
- 3) Are there other areas of their lives where they are noticing a difference? If so where?
- 4) Are they noticing any physical or emotional differences, if so what are they?

Refer back to some of the themes that came from the data so far

- 4) Are they continuing to practice? Is yes, what do they do and when, what are the results?

Themes relating to previous data

- 5) During the programme you talked about self-kindness and self-compassion. Many of you noted how important this Self compassion but at the same time found it difficult. Can we talk about that?
- 6) You have all highlighted various sources of stress, both personal and medical school. How are you reacting/ responding to stressful situations
- 7) We talked a lot about mind/body connections and a growing sense of self awareness. How would you describe this now?
- 8) If the programme was to continue or be rolled out, what would you recommend and why?
- 9) Do you have any personal experiences relevant to the programme or this topic that you would like to share?

Appendix 10 Completion Certificate for Student portfolio

School of Medical Education



CERTIFICATE

This is to certify that

.....

Participated in a research evaluation of the SSC (phase 3) Train the Brain which involved focus groups and quantitative and qualitative questionnaires.

Signed:

Date/...../.....

Appendix 11

Sample output recommendations for programme roll out and continuation. Gathered from the follow up post programme focus group

Question 6) what would you recommend happens next?

"If the programme was rolled out I would like to see more emphasis on self-compassion. I think self-kindness, common humanity and mindfulness could all help a lot of students in the medical school. There are so many perfectionist who do not know how to deal with failure and I think this could really help" (P72).

"I think the course should be available to all years. The earlier it is started the better! There is such a strong culture of competition and wanting to be the best among medical students and I think it would help people understand there is so much more to being a doctor than academia and exams. As well as this it could greatly help reduce stress levels and mental health issues among students. With more people willing to open up about how they are feeling it stops others feeling alone when they are most certainly not" (P679).

"I think the most useful part of the course for me was learning how to practice mindfulness, and how I can integrate this into my day. I think it would be great to learn more mindful practices, and for this to be more widespread across the medical school, as I believe that it would be useful for many other medical students" (P359).

"It would be great to see some sort of programme rolled out. I still think it would be worth doing something every year of the course. Surely cultivating the right mindset for mental wellbeing and resilience is just as vital as getting into the medic mindset (how to communicate with patients, take histories, etc. etc) and to me it makes sense to begin the two things simultaneously. I also think medical schools might want to consider changing their entry criteria completely, I'm not always sure that the people they select are always the best for the job that comes at the end of it. More and more, working in healthcare is about knowing how to be reflective, self-compassionate, compassionate and able to work with others towards a common goal - all under the crushing weight of the machine that is the NHS. I don't think the qualities that will help you survive/thrive this are necessarily the ones that give you 5A at A level. Any programme that is rolled out should focus on self-compassion, many students need permission to be kind to themselves and be reassured that they really really are OK. Also, some aspect of the programme should try to address the disconnect between the values we like to celebrate - the CV values - vs the values that matter - the eulogy values. We cling too tightly to the wrong things which end up making people miserable" (432).*

