Mindfulness for education students: addressing welfare as part of the professional training

Ricardo Tarrasch

To cite this article: Ricardo Tarrasch (2018): Mindfulness for education students: addressing welfare as part of the professional training, Educational Studies, DOI: 10.1080/03055698.2018.1446337

To link to this article: https://doi.org/10.1080/03055698.2018.1446337

Published online: 14 Mar 2018.

Submit your article to this journal

View related articles

View Crossmark data
Mindfulness for education students: addressing welfare as part of the professional training

Ricardo Tarrasch

School of Education and Sagol School of Neuroscience, Tel Aviv University, Ramat Aviv, Israel

ABSTRACT

Students in special education teaching and counselling are exposed to relatively high levels of stress during their studies and their professional career, which are commonly manifested in high occupational burnout. Professional development programmes normally do not address this issue. A practicum course was developed to provide theoretical framework for research on mindfulness, training of self-application techniques, and guidelines for fieldwork teaching of these techniques to children, with the aim of improving quality of life by reducing anxiety and stress levels. Participants of mindfulness and control practicum filled questionnaires at the beginning and end of the year. Significant reduction in stress, rumination and sleep disturbances as well as elevated level of mindfulness were observed in the mindfulness practicum only. The results suggest that mindfulness training can be successfully introduced in traditional academic settings to enhance the personal mental health of future teachers, and subsequently lower their chances to suffer from burnout.

Occupational burnout in the educational system

High levels of stress among regular teachers, special education teachers and counsellors are a worldwide phenomenon (Byrne 1999; Guglielmi and Tatrow 1998; Lavian 2012; Rudow 1999; Russell, Altmaier, and Van Velzen 1987) inherent to the profession (Jalongo and Heider 2006). One of the most prominent outcomes of exposure to prolonged stress in the work environment is occupational burnout (Fernet et al. 2012). Burnout is characterised by symptoms in three domains: exhaustion (the draining of emotional resources to assist children with their needs), cynicism (or depersonalisation; referring to a negative or detached response to children and colleagues, as if the “spark” is gone) and inefficacy (feelings of incompetence and a lack of achievement and productivity at school) (Maslach, Schaufeli, and Leiter 2001).

Burnout may be predicted by adverse symptoms such as sleep disturbances (D.W. Chan 2011), depression (Duckworth, Quinn, and Seligman 2009), stress (Košir et al. 2015), anxiety (Rössler, Hengartner, Ajdacic-Gross and Angst 2015), rumination (Schonfeld and Bianchi 2015) and decreased life satisfaction (Söderström et al. 2012). Furthermore, burnout is also...
related to various negative outcomes, including anger, illness, frequent headaches, deteriorating work productivity and absenteeism (Armon et al. 2008; Cunningham 1982; Hakanen, Bakker, and Schaufeli 2006; Jackson, Schwab, and Schuler 1986; Söderström et al. 2012).

The challenge of retaining schoolteachers in their profession is currently considered a major source of social and economic concern (OECD 2005). High teacher turnover is not only costly (nearly half of all new teachers will transfer to a different school or leave the profession within five years of beginning their first school position, Ingersoll 2001), but also harms students’ achievements. This is especially relevant for special education teachers, as their shortages and turnover negatively affect the educational outcomes and post-school success of students who receive special education services (Rock et al. 2016).

A similar pattern is observed among counsellors. The Bureau of Labour Statistics (2006) reports a shortage of school counsellors that is expected to continue into the future, due to school counsellors who exit their positions prematurely because of job dissatisfaction (Clemens, Milsom, and Cashwell 2009). Importantly, school counsellors who are satisfied with their jobs are more capable of providing high-quality services to their school community (DeMato and Curcio 2004).

**Mindfulness meditation**

In recent years, accumulating evidence in behavioural sciences has indicated that mindfulness meditation can act as an efficient instrument for reducing stress and burnout across various professions (Cohen-Katz et al. 2005; Flook et al. 2013; Shapiro et al. 2005) and improve individuals’ well-being (Carmody and Baer 2008; Hoge et al. 2013). Given their increased attrition and risk of occupation burnout, special education teachers and school counsellors could provide a compelling paradigm for testing the effects of mindfulness training stress inoculation.

Mindfulness meditation emphasises an observant and non-reactive stance towards thoughts, emotions and physical states (Chiesa, Calati, and Serretti 2010). Mindfulness practices focus on bringing a certain quality of attention to moment-by-moment experience, along with a non-judgemental acceptance of it (S. R. Bishop et al. 2004; Kabat-Zinn 1990).

Beyond reducing stress and burnout, mindfulness has been shown to be useful in the reduction of anxiety and depression (Hofmann et al. 2010), boosting self-control after resource depletion (Friese, Messner, and Schaffner 2012), improving social competence (Schonert-Reichl and Lawlor 2010), attention regulation (Baijal et al. 2011; Hodgins and Adair 2010; Semple 2010), working memory (Jha et al. 2010), emotion regulation (Baer, Smith, and Allen 2004; Brown and Ryan 2003; Goldin et al. 2013), sleep quality (Black et al. 2015; Carlson and Garland 2005; Winbush, Gross, and Kreitz 2007), reflection (Chambers, Lo, and Allen 2008) and reducing avoidance and rumination (Kumar, Feldman, and Hayes 2008). Importantly, mindfulness practice has been found to increase mindfulness self-reports (the trait-like tendency to be mindful in daily life) (Jennings et al. 2013), and correlations have been found between improvements in mindfulness and other domains such as attention, depression (e.g. Flook et al. 2013), stress and burnout (Roeser et al. 2013).

According to the model developed by Hölzel and colleagues (2011), mindfulness exerts positive outcomes by: (1) enhancing attention regulation, (2) increasing body awareness, and (3) improving the capacity for emotion regulation, leading to (4) changes in perspective of self. Those who have experienced these changes in perspective of self, “exhibit deep
concern and tenderness toward others,” while also experiencing greater capacity for self-compassion.

Another proposed mechanism by which mindfulness exerts its prophylactic effects is the Liverpool Mindfulness Model (Malinowski 2013), which proposes five main theoretical tiers, each one being the precursor of the next, that modulate the outcomes of training: motivational factors; commitment to engage in mind training; attention, and regulation of emotions and cognition; a balanced mental stance or attitude and positive outcomes (i.e. physical and mental well-being). In both models, attentional processes play a central role in explaining the beneficial effects of mindfulness practice.

Using mindfulness in order to achieve better regulation of attention and emotions has been proved helpful in preventing processes leading to teachers’ burnout (Flook et al. 2013; Roeser et al. 2013). Better cognitive and emotional regulation can also improve teachers’ functioning in class, as reflected by better management of classroom behaviour and establishing more supportive relationships with students (Meiklejohn et al. 2012). Importantly, a more compassionate teacher might provide a more emotionally stable learning environment and a positive role model for children in their formative years.

**Mindfulness among teachers**

Teachers today are expected to be emotionally supportive to all students and be capable of dealing with various disruptions while maintaining a dignified and respectful demeanour. Alongside these emotional capacities, teachers are expected to remain focused and shift their attention, as well as their students’, back to the lesson material. These demands are rarely addressed by formal training and teachers are left to fend for themselves in the cognitive-emotional arena (Jennings 2011).

Several studies have shown that mindfulness meditation might provide a suitable solution for training teachers in developing the cognitive and emotional capacities that are demanded from them. Mindfulness was found to reduce stress and burnout symptoms, improve sustained attention and self-compassion among schoolteachers (e.g. Abenavoli et al. 2013; Flook et al. 2013; Roeser et al. 2013) and improve sense of efficacy (Jennings et al. 2013). Furthermore, among educators of children with special needs, mindfulness was found to increase teachers’ and counsellors’ efficacy by increasing their ability for compassion and forgiveness (Roeser et al. 2012).

Kemeny and colleagues (2012) found that emotional training, in which mindfulness was a key factor, led to reduced trait negative affect, rumination, depression and anxiety, while increasing trait positive affect, and the ability to recognise emotion in others. Indeed, enhanced emotion-regulation capacity, such as that shaped by mindfulness training, was associated with decreased burnout symptoms among teachers. This effect was mediated by increased support from principals and by greater positive affect (Brackett et al. 2010).

In addition, mindfulness interventions among teachers were shown to improve their ability of classroom management, relationships with students and their students’ behaviour and academic performance (Jennings et al. 2011).

Although the advantages of mindfulness training among teachers are becoming increasingly evident, the study of its effects on education students awaits further research.
Mindfulness among education students

Several studies found evidence of stress and anxiety among education students. A large study of Turkish university students revealed rates of moderate depression in 27.1%, anxiety in 47.1% and stress in 27.1% of the sample (Bayram and Bilgel 2008). A larger study in the United Kingdom revealed that depression scores rose steadily over time, peaking at the end of the final year and that depression scores never fell below pre-admission levels (Bewick et al. 2010).

As burnout is highly affected by stress and well-being (McCormick and Barnett 2011; Roeser et al. 2013), training education students to overcome stress early-on in their careers may have a prophylactic effect when they assume their responsibilities as teachers. Indeed, education students undergoing mindfulness training reported improved quality of sleep, enhanced capacity for empathy towards others and feeling better equipped for dealing with stress (Tarrasch 2014). Among counselling students and social work students participating in a mindfulness course, improvements were noted in their ability for compassion (i.e. self and other-oriented) and management of stress (Birnbaum 2008; Felton, Coates, and Christopher 2015). These improvements might circumvent core elements of burnout (i.e. exhaustion, cynicism and inefficacy).

Although these initial findings are encouraging, it is still unclear whether the introduction of mindfulness programmes is more effective during teacher training, or in later stages in their careers. In a pilot study that examined the effects of mindfulness on a mixed group of education students and their mentors, Jennings and colleagues (2011) found a shift in teaching styles towards increased pupil autonomy, but no improvements in well-being among the education students themselves. Notably, in a parallel pilot study among practising teachers, the same intervention raised well-being and mindfulness, and reduced stress among teachers.

In addition, mindfulness programmes for education students are still scarce, and there is an ongoing debate regarding the recommended protocol (Roeser et al. 2012). A survey of current mindfulness-based programmes for teachers revealed varied practice protocols, ranging from 2.5 days to several months (Flook et al. 2013; Meiklejohn et al. 2012; Roeser et al. 2012). Some protocols put an emphasis on additional constructs beyond those defined by Kabat-Zinn (1990), such as emotions and stress (S. R. Bishop et al. 2004; Chambers, Gullone, and Allen 2009).

Study aims and hypotheses

Paucity of research and conflicting evidence regarding mindfulness training for education students, together with the need for assessment of different protocols, calls for further research. The present study sought to address this need by examining the effects of integrating a mindfulness training programme into the curriculum for graduate students in educational counselling and special education programmes. It was hypothesised that students participating in mindfulness training would show enhanced mindfulness, improved measures of quality of life and mental health, as well as a reduction in anxiety and stress, relative to comparison students. Furthermore, it was hypothesised that increases in mindfulness will mediate changes in other psychological variables.
As mentioned above, depression, anxiety, sleep quality, satisfaction with life, and rumination are all predictors of burnout (Chan 2011; Duckworth, Quinn, and Seligman 2009; Fernet et al. 2012; Košir et al. 2015; Rössler et al. 2015; Schonfeld and Bianchi 2015; Söderström et al. 2012). As this study aimed to assess the above measures among graduate education students, burnout was not yet relevant. Nevertheless, one of the goals of this feasibility study was to assess whether mindfulness training could reduce the above measures, thus potentially preventing future burnout.

Method

Participants

The participants consisted of 45 graduate students at Tel Aviv University’s School of Education, Israel. Twenty-two of the participants were enrolled in an Educational Counselling Master’s degree programme, and 23 in a Special Education Master’s degree programme. All were women, with ages ranging from 25 to 54 (mean age = 30.7 years, SD = 5.84). The students were required to attend two of the nine available practicum classes. Thirty-three students (mean age 31.4, SD = 6.2; 17 from Special Education) participated in a 2-semester practicum called, “Meditation: Theory, Research, and Practice” (mindfulness group); and 12 students (mean age 28.9, SD = 4.4; 6 from Special Education) participated in another practicum (comparison group). The comparison group practicum was chosen randomly from the other eight options available in the students’ curriculum.

Because practicums are typically given to a small number of students, the study was conducted during two consecutive academic years. During the first academic year, 15 out of 19 students had not been able to fit into any of the other available practicum courses for administrative reasons, and were therefore required to enrol in the mindfulness course that was opened late specially to address this issue, as if the mindfulness practicum was a mandatory part of their curriculum. During the second academic year, students who enrolled in the mindfulness practicum did so by choice.

All students volunteered to fill out questionnaires twice during the practicum, at the beginning and end of the course. Most of the students taking the mindfulness practicum did not have past experience with meditation (83% in the first academic year and 60% in the second), as is usually the case in similar courses. Importantly, there were no significant differences between the two academic years in the mindfulness groups in none of the variables measured. This might suggest the lack of selection effects, (since, as mentioned above, the group in the first academic year had no choice in group allocation, whereas the second year group did have that choice).

The training programme

The course was instructed by a senior lecturer at the Tel Aviv University School of Education, with over 25 years of experience in practicing meditation and 9 years of experience in teaching it. In an attempt to decrease social desirability bias, online self-report questionnaires were filled out by students anonymously (using the last 5 digits of their ID numbers) and not in the instructor’s presence. Moreover, students were encouraged to practice 5-20 min
daily, but were told clearly that there were no penalties for non-adherence at home. Accordingly, data regarding actual practice time at home were not collected.

Meditation training took place during the first semester (13 lessons, 1.5 h each; for detailed protocol, see Tarrasch (2014). Each 90 min lesson included 10 min of class discussion on students’ experiences from the previous week (e.g. difficulties with practising or difficulties emanating from practicing), followed by a 60 min lecture on theoretical and empirical issues in the field of meditation. The last 20 min were dedicated to the practice of one or two mindfulness exercises. The techniques included (see Table 1): the awareness exercise, counting breaths, body scan, mindful eating, walking meditation, basic yoga positions, and imagining one’s own safe and peaceful place. These techniques are aimed to enhance students’ observation of their thoughts, emotions, bodily experiences and reactions to challenging situations in a non-judgemental manner.

At the end of the first semester, a 6-h mini-retreat was held in preparation for the students’ practical fieldwork with children during the second semester. Emphasis was given to adapting the practised meditation techniques to be used with children. The fieldwork included eight weekly sessions (45 min each) of teaching meditation to small groups (3–4 children) of 10/11-year-olds in a public elementary school (Tarrasch 2016).

**Measures**

Students filled out an anonymous online questionnaire twice. The first time was a “pre-measure”, during the first week of the practicum, and the second time was a “post-measure”, at the end of the second semester, during the last week of the practicum. The questionnaire included seven scales that measured: mindfulness, perceived stress, rumination and reflection, life satisfaction, depression, state anxiety, and sleep disturbance.

*The Mindfulness Scale* (MS; Friedman, *Unpublished doctoral dissertation, Tel Aviv University, Israel, 2006*; internal consistency α = .84). This 26-item (rated 1–6) scale measures the degree to which one is attentive to the present moment in one’s daily experiences, with questions such as, “Do I pay attention to how my emotions affect my thoughts and behaviour?”. High values denote high levels of mindfulness.

*The Perceived Stress Scale* (PSS; Cohen, Kamarck, and Mermelstein 1983; internal consistency α = .85; test-retest reliability .85) was used to measure the degree to which situations in one’s life are appraised as stressful. It includes 14 items (rated 0–4) with questions such as, “In the last month, how often have you been upset because of something that happened unexpectedly?”. High values denote high levels of stress.

*The Rumination-Reflection Questionnaire* (RRQ; Trapnell and Campbell 1999) measures the style of self-focused attention. This 24-item (rated 1–5) scale measures 2 orthogonal styles of self-observation: reflection (REF; internal consistency α = .9), that focuses on the self, due to curiosity and interest, e.g. “I love analysing why I do things”; and rumination (RUM; internal consistency α = .91), which is the tendency to dwell on, rehash, or reevaluate events or experiences, e.g. “I always seem to be rehearsing, in my mind, recent things I’ve said or done”. High values denote high levels of reflection/rumination.

*The Satisfaction with Life Scale* (SWLS; Diener et al. 1985; internal consistency α = .86; test-retest reliability .83), composed of five items (rated 1–7), measures cognitive judgements of satisfaction with one’s life, including elements such as, “I am satisfied with my life”. High values denote high levels of life satisfaction.
### Table 1. The techniques practised in the practicum.

<table>
<thead>
<tr>
<th>Technique</th>
<th>Description</th>
<th>Number of times practiced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness exercise</td>
<td>Focusing on the sensations of the breath from the nostrils to the abdomen and back, and subsequent focusing on any sensations that arise in the body, by simply acknowledging them or by non-judgementally witnessing thoughts that automatically appear, simply labelling them, and a subsequent turning of their attention back to breathing.</td>
<td></td>
</tr>
<tr>
<td>Breaths counting</td>
<td>Counting breaths from 1 to 10 while noticing sensations and thoughts as in the awareness exercise.</td>
<td>2</td>
</tr>
<tr>
<td>Body scan</td>
<td>Scanning of the body, by first focusing attention on the breath and then on each part of the body. During the body scan, participants methodically think about each body part, observe their sensations and their physical aspects, and whether pain or other unpleasant sensations are felt, try to describe them as objectively as possible and then intentionally relax each body part.</td>
<td></td>
</tr>
<tr>
<td>Mindful eating</td>
<td>Mindful eating a raisin or piece of fruit while instructed to be nonjudgemental and fully aware, with all senses, of different aspects of the raisin/fruit. Directions were given to the participants to smell, hear, and eat the raisin/fruit deliberately and open-heartedly.</td>
<td></td>
</tr>
<tr>
<td>Walking meditation</td>
<td>Mindful slow walking while noticing the lifting, moving and placing of the leg on the ground, with focused attention on body sensation and/or breathing.</td>
<td>1</td>
</tr>
<tr>
<td>Basic yoga</td>
<td>Practice of the sun salutation</td>
<td>2</td>
</tr>
<tr>
<td>Imagining one’s own safe, peaceful place</td>
<td>Imagining one’s own safe, peaceful place (according to personal preferences), vividly visualising it and paying attention to all details while feeling happy, healthy, strong and safe, followed by instructions to invite or open up to inner guidance (or wisdom).</td>
<td>2</td>
</tr>
</tbody>
</table>
The Centre for Epidemiologic Studies Depression scale (CES-D; Radloff 1977; internal consistency $\alpha = .85$) was used to measure the current level of depressive symptomatology (mood and depression). It includes 20 items (rated 0–3), with components such as, “During the past week I thought my life had been a failure”. High values denote high levels of depression.

The state version of the State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, and Lushere 1970; internal consistency $\alpha = .86–.95$; test-retest reliability .65–.75) aims to diagnose anxiety and to distinguish it from depressive syndromes. It includes 20 items (rated 1–4), with elements such as, “I am tense”. High values denote high levels of anxiety.

The Mini Sleep Questionnaire (SLP; Natale et al. 2014; Zomer et al. 1985; internal consistency $\alpha = .77$). This 10-item (rated 1–7) scale measures insomnia and excessive daytime sleepiness with questions such as, “Do you have difficulties falling asleep at night?”. High values denote high levels of sleep difficulties.

For all measures, the mean score was calculated with the exception of CES-D, where the sum of the items was used. The internal reliability values of the indexes used in the study, based on the data collected from the present sample during the pre- and post-measures, as measured by Cronbach’s alpha coefficient, were: MS .84 and .86; PSS .91 and .88; REF .92 and .87; RUM .95 and .93; SWLS .82 and .87; CES-D .88 and .91; STAI .96 and .95; and SLP .69 and .60.

Compliance with Ethical Standards

The study was granted ethics approval by the Tel Aviv University Human Research Ethics Committee.

Statistical analyses

In order to assess pre-existing differences between the two practicum groups, t-tests for independent samples were calculated. In order to assess changes in the mindfulness practicum compared to the comparison practicum, repeated measures analyses of variance (ANOVAs) were performed using time of measure (pre- versus post-measures) as within-subjects factor and the group (mindfulness versus comparison), and academic year (first versus second) as between-subjects factors. This was performed separately for each of the indexes assessed. Significant interactions between time and group indicate that the difference between the pre- and post-measures differs between the groups. The academic year was used as a between-subjects factor in order to determine possible effects of differences in allocation to intervention groups (see above). No 3-way interactions with academic year were obtained. Interactions with this factor would have meant that the practicum effects were differential for students allocated in different years. Accordingly, aiming for simplicity in the presentation of the results, the data were reanalysed using only the group as a between-subjects factor. Significant interactions were followed by Tukey Honest Significant Difference (HSD) post hoc tests comparing the pre- and post-measures separately for the mindfulness practicum and the comparison practicum. In order to provide a metric for the difference between the practicums, Cohen’s $d$ indices (1988) were computed, to reflect effect size, by comparing the differences between the pre- and post-measures between the mindfulness and comparison practicum, using pooled difference standard deviations. Effects sizes of .1 are considered small, .25 medium and .4 large (J. Cohen 1988).
In addition, in order to assess which variable or combination of variables best discriminated between the two practicum, a discriminant analysis was performed. The difference between the pre- and post-measures in the eight dependent variables used in the study were entered into a discriminant equation using a stepwise approach and employing the Wilks’ Lambda method, with criteria for entering variables set at \( p = .05 \) and for removing variables set at \( p = .10 \).

In order to assess whether the increase in mindfulness mediated changes in other psychological variables, hierarchical regressions were performed separately for each psychological measure. Pre-measure and group (mindfulness versus comparison) were entered as independent variables in the first step, and the difference in mindfulness (post minus pre) in the second step. In these analyses, mediation is revealed by a significant change in the adjusted R-squared in the second step.

**Results**

Table 2 summarises the main effects of time (pre- versus post-measures, second column) and the interaction between group and time (third column). Each row contains results of the repeated measurements ANOVAs performed on the measures assessed (first column). No significant main effects of group were obtained, and therefore are not included. As can be seen in Table 2, significant interactions between group and time were obtained for the scales of mindfulness, perceived stress, rumination and sleep disturbances. All other non-significant interactions showed \( p \)-values smaller than \(.2\) with differences in the hypothesised directions. Table 3 summarises the means and standard deviations of the two practicums (columns 2–5), and Cohen’s \( d \) values (column 6) showing the effect size of the interaction between time and group. As can be seen in Table 3, although the two groups seem to differ in the first measurement at the beginning of the year, t-tests for independent samples revealed that none of the differences were statistically significant (all \( p \)'s > \(.14\)). Tukey HSD tests revealed a significant improvement, only in the mindfulness practicum, for the four measures for which a significant interaction was obtained. Specifically, only the mindfulness practicum students reported an increase in mindfulness (\( p < .001 \)), a decrease in perceived stress (\( p < .005 \)), a decrease in rumination (\( p < .001 \)), and a decrease in sleep disturbances (\( p < .001 \)), while students in the comparison practicum did not show a significant difference between the two measures (\( p = .94, .72, .99, .99 \) respectively). The effect sizes of these effects are of a large magnitude (all effects larger than \(.7\)). The borderline-significant interaction for

<table>
<thead>
<tr>
<th>Measure</th>
<th>Main effect of time ( F(1,43) = )</th>
<th>Interaction between time and group ( F(1,43) = )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mindfulness</td>
<td>11.05, ( p = .002 )</td>
<td>5.54, ( p = .023 )</td>
</tr>
<tr>
<td>Perceived stress</td>
<td>1.49, ( p = .229 )</td>
<td>9.13, ( p = .004 )</td>
</tr>
<tr>
<td>Rumination</td>
<td>4.54, ( p = .039 )</td>
<td>6.67, ( p = .013 )</td>
</tr>
<tr>
<td>Reflection</td>
<td>.64, ( p = .43 )</td>
<td>1.84, ( p = .182 )</td>
</tr>
<tr>
<td>Life satisfaction</td>
<td>6.99, ( p = .011 )</td>
<td>1.78, ( p = .189 )</td>
</tr>
<tr>
<td>Depression</td>
<td>.12, ( p = .734 )</td>
<td>1.98, ( p = .167 )</td>
</tr>
<tr>
<td>State anxiety</td>
<td>.20, ( p = .887 )</td>
<td>3.38, ( p = .073 )</td>
</tr>
<tr>
<td>Sleep disturbances</td>
<td>5.05, ( p = .030 )</td>
<td>4.77, ( p = .034 )</td>
</tr>
</tbody>
</table>

*Statistically significant results (\( p < .05 \)) are in marked in bold.
the anxiety scale also suggests a reduction in anxiety in the mindfulness practicum, but this trend should be treated with caution.

In the discriminant analysis performed to distinguish between the two practicums, the only variable that entered the formula was perceived stress (Wilks’ lambda = .82, Chi (1) = 8.2, F(1,43) = 9.13, p < .005). This indicates that the best differentiator between the two practicums was the reduction in perceived stress in the mindfulness practicum (Cohen’s d = .68) against the non-significant rise in the comparison practicum (Cohen’s d = .37).

Table 4 summarises the results of the hierarchical regressions. As can be seen, a significant change in the adjusted $R^2$-squared was obtained after entering mindfulness increase in the analyses of stress, rumination, life satisfaction, depression and state anxiety. In other words, the rise in mindfulness was found to mediate the lowering in stress, rumination, depression and state anxiety and the increase in life satisfaction.

**Discussion**

In recent years, an increasing interest has focused on studying the impact of mindfulness on the healthy population, in line with the approach of positive psychology, which emphasizes prevention, well-being, and improving quality of life (e.g. Schonert-Reichl and Lawlor 2010). Accordingly, this pilot study applied the practice of mindfulness meditation to graduate students in educational counselling and special education, as a normal population that

Table 3. Psychological outcomes. Pre- and post-measure means and standard deviations (in parentheses), separately for each group, and Cohen’s d.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Mindfulness practicum Pre</th>
<th>Mindfulness practicum Post</th>
<th>Comparison practicum Pre</th>
<th>Comparison practicum Post</th>
<th>Cohen’s d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mindfulness</td>
<td>3.21 (.63)</td>
<td>3.71 (.62)**</td>
<td>3.46 (.46)</td>
<td>3.55 (.44)</td>
<td>.794</td>
</tr>
<tr>
<td>Perceived stress</td>
<td>2.04 (.7)</td>
<td>1.69 (.66)**</td>
<td>1.73 (.62)</td>
<td>1.88 (.5)</td>
<td>1.019</td>
</tr>
<tr>
<td>Rumination</td>
<td>3.81 (.91)</td>
<td>3.21 (.87)**</td>
<td>3.46 (.93)</td>
<td>3.52 (.79)</td>
<td>.871</td>
</tr>
<tr>
<td>Reflection</td>
<td>4 (.66)</td>
<td>3.84 (.57)</td>
<td>3.76 (.91)</td>
<td>3.8 (.68)</td>
<td>.457</td>
</tr>
<tr>
<td>Life satisfaction</td>
<td>4.46 (.94)</td>
<td>5.02 (1.1)</td>
<td>4.6 (1.14)</td>
<td>4.78 (1.2)</td>
<td>.450</td>
</tr>
<tr>
<td>Depression</td>
<td>16.8 (9.2)</td>
<td>14.0 (10.4)</td>
<td>13.2 (6.2)</td>
<td>14.8 (6.8)</td>
<td>.474</td>
</tr>
<tr>
<td>State anxiety</td>
<td>2.07 (.71)</td>
<td>1.9 (.71)</td>
<td>1.79 (.54)</td>
<td>1.98 (.51)</td>
<td>.619</td>
</tr>
<tr>
<td>Sleep disturbances</td>
<td>2.85 (.88)</td>
<td>2.26 (.74)**</td>
<td>2.42 (.75)</td>
<td>2.41 (.82)</td>
<td>.736</td>
</tr>
</tbody>
</table>

Notes: HSD post hoc tests comparing between the pre- and post- measures; Cohen’s d comparing mindfulness and comparison practicum differences between the post- and pre-measures, using pooled difference standard deviation. Cohen’s d in bold represent measures in which significant interactions were obtained (See Table 2).

*p < .005; **p < .001.

Table 4. Summary of hierarchical regressions using the post-measure as dependent variable, and pre-measure and group as independent variables in the first step, and difference in mindfulness in the second step. Column 2 presents $R^2$ change of the second step, and its significance.

<table>
<thead>
<tr>
<th>Measure*</th>
<th>$R^2$ change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived stress</td>
<td>.13, p &lt; .001</td>
</tr>
<tr>
<td>Rumination</td>
<td>.14, p &lt; .001</td>
</tr>
<tr>
<td>Reflection</td>
<td>.01, p = .33</td>
</tr>
<tr>
<td>Life satisfaction</td>
<td>.05, p = .045</td>
</tr>
<tr>
<td>Depression</td>
<td>.24, p &lt; .001</td>
</tr>
<tr>
<td>State anxiety</td>
<td>.24, p &lt; .001</td>
</tr>
<tr>
<td>Sleep disturbances</td>
<td>.04, p = .12</td>
</tr>
</tbody>
</table>

*Statistically significant results (p < .05) are in marked in bold.
is subject to various sources of stress in the present (Bayram and Bilgel 2008), and is expected to experience stress in the future (Guglielmi and Tatrow 1998; Russell, Altmaier, and Van Velzen 1987).

The study focused on the influence of mindfulness practice on eight possible predictors of burnout: mindfulness level, perceived stress, rumination, reflection, life satisfaction, depression, state anxiety, and sleep disturbances. In line with the hypotheses, significant improvements were obtained among participants in the mindfulness practicum in mindfulness, perceived stress, rumination, and sleep quality. Trends in the hypothesised directions were observed in other variables measured, suggesting that the mindfulness practicum had a positive effect on students’ welfare. Furthermore, the rise in mindfulness was found to mediate the improvements in other psychological variables, including perceived stress, rumination, life satisfaction, depression and state anxiety, strengthening the validity of the obtained outcomes as stemming from the mindfulness training.

The inclusion of a comparison group, undergoing a university course with a similar level of requirements, also helped to rule out some of the alternative explanations for the obtained improvements. Notably, unlike similar university courses that attract students with previous meditation experience, many of the participants in this study were naïve and even suspicious in regard to meditation (Tarrasch 2014). This reduced the plausibility of a placebo effect, and emphasised the contribution of mindfulness training to the obtained effects. Furthermore, this fact strengthens the notion that mindfulness training can be effective not only among positively pre-disposed individuals.

The most prominent differentiator between the mindfulness and comparison practicums was found to be a reduction in perceived stress, which has been shown in numerous studies to be correlated with a decrease in burnout (Howard and Johnson 2004; McCormick and Barnett 2011; Gomes, Faria, and Gonçalves 2013). In addition, occupational burnout has been predicted by poor sleep quality and rumination (e.g. Armon et al. 2008; Söderström et al. 2012), two measures that, in this study, differed between the mindfulness and the comparison groups. Thus, the lowering of stress levels and rumination, together with increasing sleep quality, as observed in the present study, may predict reduced proneness to burnout.

Our results are in accordance with previous studies showing a reduction in stress among counselling students (Felton, Coates, and Christopher 2015). However, as mentioned in the introduction, Jennings et al. (2011) found no differences in well-being after cultivating awareness and resilience among student teachers. Although we did not assess well-being, many studies have reported a negative correlation between well-being and stress (Scheibe and Zacher 2013). There are several possible explanations for this inconsistency. First, emotional labour strategies have been found to moderate the link between stress and well-being (Lawrence et al. 2011), and it is possible that Jennings et al. participants exhibited stronger emotional strategies. Second, the training protocols used differed significantly, as the Jennings et al. training consisted of two weekends separated by one month (during which participants received phone coaching to help them practice). Third, in our study the participants were graduate students of special education or counselling, while in Jennings et. al. study they were student teachers, together with their mentor teachers, from school environments receiving strong institutional support. As mentioned by Jennings et al., despite students’ needs, the presence of superiors may have inhibited their participation in the
intervention programme. Further studies will shed light on the conditions required to obtain positive effects.

One of the evident advantages of self-improvement is its possible manifestation in people who have frequent interactions with the meditator. Hence, mindfulness meditation in the context of a special education teachers and counsellors training course might also positively impact the pupils of those teachers and counsellors. For example, a recent study showed that pupils of teachers that practice mindfulness had improved social interactions (Singh et al. 2013). In that context, Jennings et al. (2011) showed that a training programme that enhances mindfulness and emotional skills improved classroom management capabilities and relationships between students and teachers.

The present method of integrating mindfulness training into an academic environment as part of the regular curriculum offers several benefits. It allows for the exposure of a general and unbiased population to meditation, and thus circumvents effects from expectations and previous experience. It also supplies future special education teachers and counsellors not only with the practice itself, but also with a solid theoretical background. In addition, it provides an environment that encourages critical thinking and a scientific approach, as the practicum includes critical reading of studies assessing the effects of meditation on psychological and physiological outcomes. Moreover, this method, unlike most methods implemented in schools, focuses on the interaction and joint effort of pupils and teachers to achieve a common goal.

To the best of the author’s knowledge, other mindfulness training programmes do not include a phase in which the trainees experience teaching mindfulness. Wagner and Gansemer-Topf (2005) suggest that peer-teaching might be a critical experience for students in professional education programmes. Accordingly, teaching a skill was found to increase confidence and enhance a sense of competence in that skill (Wenrich et al. 2011), and lead to deeper understanding and better retention of knowledge (Bargh and Schul 1980; Biswas et al. 2005). It may be plausible that the teaching phase in the mindfulness practicum contributed to the results presented above. The gap in the mindfulness literature regarding the effects of mindfulness teaching on the teachers themselves warrants further research.

Finally, implementation of mindfulness practice early in the academic career of teachers and counsellors may prepare them for their future roles, where they will need to function in a highly stressful environment, and may provide a prophylactic method for reducing or preventing the deleterious consequences of future stress encountered while on the job. Accordingly, in a study assessing the effects of mindfulness training on counselling students, participants indicated greater confidence regarding their ability to prevent burnout and their future career (Felton, Coates, and Christopher 2015). Altogether, in accordance with similar studies, it seems that the practice of meditation can be adapted to improve teachers’ lifestyles and work performance, in the context of an academic curriculum.

This improvement may be especially relevant for counsellors as, in addition to the typical stresses of mental health practitioners, they have additional stressors that are unique to their specialty. Hancock (2013) suggests that through meditation, school counsellors can alleviate stress and increase their feelings of self-esteem. It has also been reported that initial training and ongoing support are vital to securing and maintaining a robust workforce comprised of special educators who are knowledgeable, resilient, committed, capable and effective (A. G. Bishop et al. 2010; Belknap and Taymans 2015).
Limitations

This study was based on a small sample of students collected throughout a two-year period. The assignment to practicum groups was based on personal preferences rather than randomised. As such, the present study’s quasi-experimental design limits causal inferences, and our promising results should be interpreted with extreme caution.

Noteworthy is the fact that during the first academic year, practicum participants had no choice but to attend the course. Importantly, there were no significant differences between the mindfulness groups participating in the two academic years in any of the variables measured. This might suggest the lack of selection effects (as the mindfulness group in the first academic year had no choice in group allocation, whereas the mindfulness group in the second academic year did). Although the comparison group was randomly selected from a list of eight other practicum groups, participants self-selected themselves in relation to their availability to fill the questionnaires.

The use of self-reports, combined with the fact that the author was both researcher, practicum instructor, and teacher, might have made participants susceptible to social bias. Self-report measures are prone to different biases (e.g. social desirability) and varied interpretations of questions by participants. Future work ought to include more objective measures assessing mindfulness (e.g. Stroop tasks), emotional and cognitive mantle state (e.g. cortisol levels, electroencephalography, evoked response potentials, heart rate variability), and objective performance reports (e.g. students’ grades, teachers’ principal evaluations). In addition, an evaluation of burnout symptoms and actual burnout should be completed (i.e. measuring the length of teachers’ careers and noting any changes).

The question regarding the effects of combining the learning and teaching of mindfulness should also be considered, as the teaching phase in the present study might have enhanced the effects of the programme.

Disclosure statement

No potential conflict of interest was reported by the author.

Notes on contributors

Ricardo Tarrasch is a Senior Lecturer at the School of Education and the Sagol School of Neuroscience at Tel Aviv University. He has published 57 peer reviewed articles. He wrote the book chapter Mindfulness, science and the brain. In M. Lieblich (Ed.), Mindfulness here and now: Practice, theory and application (Keter, 2018, in Hebrew).

ORCID

Ricardo Tarrasch http://orcid.org/0000-0003-1677-6615

References


