Mindfulness and cataract surgery experience in ophthalmology doctors in training

BY MATTHEW HARTLEY AND RAJEN GUPTA

Mindfulness can be described as the state in which one is to be fully present in the moment, which draws parallels with surgery. The origins of mindfulness stem from ancient Buddhist traditions, and its utilisation in recent times in the military, sports science and more has increased [1]. However, its effects in the operating room have been studied relatively little. Cataract surgery has been shown to exert variable levels of stress and anxiety on ophthalmology doctors in training (DiT) and consultants alike [2]. With ever-increasing operating pressures, waiting lists, and distractions of the modern world, mindfulness in cataract surgery may be more important than ever for our patients and for our mental wellness.

Aim

To assess ophthalmology DiT self-reported cataract surgery experiences before and after a four-week period of utilising mindfulness exercises to assess whether these had a beneficial effect.

Method

An observational prospective cohort study where Northern deanery ophthalmology DiT cataract surgery experience was measured at baseline using a questionnaire assessing feelings of enjoyment, anxiety, focus, relaxation and distraction, based on a typical operating list. The Likert questionnaire scaled each response from 1, a fully negative experience, to 7, a fully positive experience (Figure 1). Following completion of the baseline questionnaire, the 'Phaco Mindful Toolkit' (developed by the author) was disseminated to the DiT (Figure 2). The toolkit included resources of suggested mindful practices to utilise including breathwork, visualisation and positive affirmation. The commercially available smart-phone app and website Headspace (https://www.headspace.com) was utilised for many of the resources in the toolkit. A repeat questionnaire was completed after a period of four weeks with additional questions.

Results

All 22 ophthalmology DiT completed both the baseline and four-week follow-up questionnaires, meaning there was no attrition rate. There was an even spread of DiT grades participating, which included all years of speciality training from year one to seven. All 22 DiT had participated in at least one operating list over the four-week study period and 55% (12/22) had participated in three or more lists.

The most significant finding was the improvement of feelings of relaxation during an operating list, mean DiT scores were 4.41/7 (SD 1.14) and 5.09/7 (SD 0.97) at baseline and follow-up respectively, a positive increase of 15% (Figure 3). Furthermore, there were modest improvements in feelings of anxiety toward the next operating list, mean DiT scores were 5.09/7 (SD 1.74) and 5.59/7 (SD 1.14) at baseline and follow-up respectively, a positive increase of 10%. Questions regarding enjoyment, focus, distraction showed minimal change from baseline to follow-up.

At follow-up, 77% (17/22) of DiT agreed that the mindful toolkit improved their overall cataract experience

Do you feel relaxed during a list?	**1 Not at all**	**2**	**3**	**4**	**5**	**6**	**7 Fully relaxed**
Do you feel distracted during a list?	1 Distracted throughout	2	3	4	5	6	7 Never distracted
Do you feel focussed while operating?	1 Not at all	2	3	4	5	6	7 Fully focussed
Do you feel positive operating?	1 No positive feelings	2	3	4	5	6	7 I felt very positive
Do you enjoy cataract surgery?	1 Not at all	2	3	4	5	6	7 Thoroughly enjoy
Do you feel impatient or easily angered at any point during a list?	1 Constantly	2	3	4	5	6	7 Never
Does the thought of operating again next week cause anxiety?	1 Full of anxiety	2	3	4	5	6	7 No anxiety felt

Figure 1: Likert questionnaire at baseline and four weeks.

The Phaco Mindful Toolkit

1. Creating a relaxed mindful state with **breathwork**
   - **Box Breathing** for x4 cycles before a list, away from distractions as best possible
   - Breathe in 4 seconds, hold for 4 seconds, breathe out 4 seconds, hold 4 seconds, repeat
2. Focusing on operation with **visualisation**
   - Whilst scrubbing for each case, visualise in your mind every stage of phaco, in the most optimal way you've planned
3. Nurturing gratitude and **positive affirmation**
   - At the conclusion of each case: be greatful that you have the opportunity to operate and practice **positive affirmation** of the incredible work you have just done
4. Looking to the **future**
   - **Encouraging reflection**: ask yourself and your trainer of **specific aspects** to improve at conclusion of each case
5. Finally, **decompress**
   - Any focused attention requires rest - repeat box breathing at conclusion of list, away from distractions, before you head straight into your lunch/clinic/home/pub

The Phaco Mindful Toolkit explained

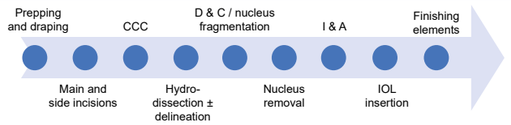
1. **Focused breathwork**
   A wealth of evidence that this contributes to improved feeling of presence, reduced cortisol, improved relaxation, amongst other benefits
2. **Visualisation**
   Evidence suggests the techniques of visualisation / mental imagery can help focus and stress; its use in sport and the military is well documented
3. **Positive affirmation**
   Nurturing positive affirmation boosts motivation and optimism about operating, furthermore it helps you negotiate set-backs and complications when they arise, building resilience
4. **Future**
   Evidence suggests that immediate reflection on specific skills in surgery facilitates continued improvement and refinement, which ultimately helps your abilities and reduces operating anxiety
5. **Decompress**
   Your focusing power is like a muscle and requires rest. Have you ever found yourself re-reading the same paragraph 3 times over and not taking it in? You need to actively decompress with breathwork

Scan to learn how to do box breathing

The **headspace app** is free for NHS employees and has loads of useful resources for mindfulness, sleep and more.

Depending on your technique / surgical style, your **visualisation** maybe different, different – below is an example.

But it is important you go through each key step in your mind, **in the most optimal way planned** (depending on the case, e.g. if a ring is planned)



Scan to learn more about the power of positive affirmation

I don't suggest that you pause for several minutes at the conclusion of every phaco, but I do suggest that for a few moments you give yourself the **positive affirmation** of doing a good job or doing a specific part of the operation well. This is key to this part of the practice. I suggest positive thinking whilst taking off your surgical gown.

A summary of the toolkit

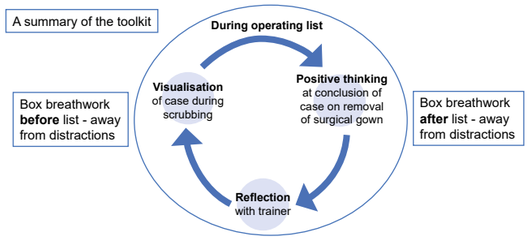


Figure 2: The Phaco Mindful Toolkit.

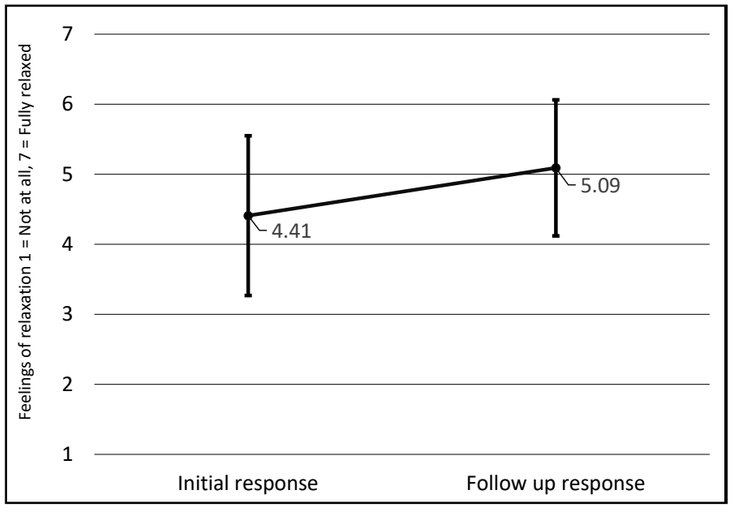


Figure 3: Mean response to feelings of relaxation during an operating list.

Discussion

The toolkit developed for this study was centred on three key mindful concepts:

- Breathwork
- Visualisation
- Positive affirmation.

Breathwork is a cornerstone to mindfulness and involves simply focusing on every breath in and out, together with the accompanying movement of the chest. Numerous papers have found focused breathwork to decrease stress, lower blood pressure, and regulate the autonomic nervous system, amongst other benefits [3]. The combined benefits of breathwork may allow a surgeon to approach a list with an increased feeling of focus and

calmness. Furthermore, focused breathing is free, non-pharmacological and can be utilised nearly anywhere, even mid-way through an operating list.

Visualisation, or mental imagery, is "the cognitive rehearsal of a given task in the absence of physical movement" [4]. This purely cerebral technique has been well documented for years to have effective outcomes in sports athletes, musicians and dancers [5,6]. A recent randomised study investigating visualisation in surgeons prior to undertaking a simulated gastric operation found those practising visualisation performed superiorly overall compared to those who did not [7]. Crystalising the steps of cataract surgery in one's mind before executing them is likely to reduce stress prior to operating and possibly improve performance. This is especially true for the first case on a list, for an atypical case or after a period of absence from the operating room.

Positive affirmations are positively loaded thoughts or statements to challenge unhelpful or self-sabotaging thoughts, which can occur during or after surgical difficulties. Complications are known to cause variable negative psychological impacts on a surgeon, and can affect their surgical ability, social life and relationships [8]. Fostering positive affirmation can improve perceived wellbeing and resilience, which gives the surgeon the ability to reduce negative psychological impacts associated with surgical difficulties such as complications [9].

Conclusion

The practice of mindfulness in the approach to cataract surgery appears to benefit ophthalmology DiT experience, particularly in terms of feelings of relaxation, anxiety and impatience. The practice of mindfulness may also be of benefit in other surgical specialties during training.

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