


Mindfulness Education for Otolaryngology Residents: A Pilot Study

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Abstract

This pilot project was designed to (1) implement a mindfulness-based wellness curriculum for otolaryngology residents, (2) determine the impact of a mindfulness-based curriculum on resident mood, and (3) examine the use of mindfulness among otolaryngology residents. Otolaryngology residents participated in a 6-week course guided by the Headspace mindfulness mobile application. Resident use of mindfulness was measured by the validated Mindful Attention Awareness Scale (MAAS). Changes in mood before and after each session were assessed using the validated Positive and Negative Affect Schedule (PNAS). Residents reported a statistically significant decrease in postsession negative affect scores ($P < .001$). A moderate positive correlation was noted between mindfulness scores and pre-session positive mood (Pearson $r = 0.597$, $P < .001$). This pilot study supports the feasibility and impact of including mindfulness training as part of a resident wellness curriculum.

Keywords

wellness, burnout, resident, education

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There are high levels of burnout, depression, anxiety, and suicidal ideation among medical students, residents, and attending physicians.^{1–5} Mindfulness, a practice in which an individual focuses their attention on the present moment while acknowledging feelings, thoughts, and sensations that accompany the moment in a judgment-free manner, has been used in attempts to enhance physician wellness.^{2,3,6–10}

Although mindfulness training can improve mood and burnout,^{9–11} longitudinal mindfulness courses can be expensive, difficult to implement, and onerous on participants, especially for surgical residents with limited time.¹² There is a need for accessible, time-saving strategies to improve resident physician wellness without adding undue burden.

This pilot study was designed to (1) implement a mindfulness-based wellness curriculum for otolaryngology residents during scheduled didactic time, (2) determine the

impact of a mindfulness-based curriculum on resident mood, and (3) examine the use of mindfulness among otolaryngology residents. Building the curriculum into scheduled weekly didactic sessions provided protected time for residents to learn mindfulness skills in an effort to improve resident participation.

Methods

This pilot study was approved by the Connecticut Children's Institutional Review Board as an exempt study. Otolaryngology residents ($n = 8$) participated in a 6-week mindfulness course with weekly group meditations guided exclusively by the mobile Headspace application as part of a comprehensive wellness curriculum.¹³ Prospective residents were provided with research information sheets explaining that data collection was entirely voluntary, data would be coded, and there were no repercussions for not submitting the anonymously collected forms.

Mindfulness sessions occurred once per week in a group setting at the beginning of scheduled didactics. Sessions were guided entirely by the Headspace app free basic mindfulness course with no additional supplemental material. The application was accessed by the residents through a web browser, and the session's content was played through the projection system. Each session was approximately 10 minutes and covered 1 to 2 introductory meditations (**Table 1**).

The primary objective of this study was to implement a mindfulness-based curriculum. The secondary objectives were to determine effects on resident (1) mindfulness measured by the validated Mindful Attention Awareness Scale (MAAS)¹⁴ and (2) mood before and after each session measured by the validated Positive and Negative Affect Schedule (PNAS).¹⁵ The MAAS uses a 6-point Likert scale to assess

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Table 1. Summary of Headspace App Sessions and Content Covered Each Week as Part of Scheduled Resident Didactics in the 6-Week Mindfulness Course.

| Session week | Headspace sessions covered | Content covered |
|--------------|----------------------------|---|
| 1 | 1, 2 (5 minutes each) | <ul style="list-style-type: none"> • Introduction to mindfulness • Introduction to mindfulness techniques (body scan, focused attention) • Practice meditation |
| 2 | 3, 4 (5 minutes each) | <ul style="list-style-type: none"> • Approaching thoughts in judgment-free manner • Incorporating mindfulness into daily routine (driving, eating, showering, brushing teeth) |
| 3 | 5 (10 minutes) | <ul style="list-style-type: none"> • Being in the moment • Easing expectations • Judgment-free awareness of distractions |
| 4 | 6, 7 (5 minutes each) | <ul style="list-style-type: none"> • Dealing with negative emotions, sensations, thoughts |
| 5 | 8, 9 (5 minutes each) | <ul style="list-style-type: none"> • Judgment-free mindfulness • Self-acceptance • Acceptance of others |
| 6 | 10 (10 minutes) | <ul style="list-style-type: none"> • Practice meditation incorporating various mindfulness techniques learned in course |

mindfulness use. The PNAS measures positive and negative affect using a 5-point Likert scale. These validated scales are widely used to assess mindfulness and affect among adults, including health care professionals.^{3,9,11} A satisfaction survey was completed at the end of the study using a Likert scale (1-5).

A paired-samples *t* test and a Wilcoxon sign rank test were used to compare mean changes in PNAS scores pre- and postcurriculum after assessment of normality of data using the Shapiro-Wilk test. Association between mindfulness score and mood was assessed using Pearson and Spearman correlation tests. Statistical tests were conducted using IBM SPSS Statistics 25.0 (SPSS, Inc) with $P < .05$ considered significant.

Results

All eligible residents participated in the study ($n = 8$; 4 = male, 4 = female), including 2 residents from each year of training (postgraduate years [PGYs] 2-5) with an age range of 28 to 32 years. All residents participated in at least 5 of 6 training sessions.

There was a significant decrease in the postsession overall negative affect score (median, 11; interquartile range [IQR], 10-14) compared to pre-session score (median, 15; IQR, 11.5-19; $Z(36) = 40$; $P < .001$) (**Figure 1**). There was no difference in the overall positive affect scores ($t(36) = -0.462$, $P = .647$) (**Figure 2**). A moderate positive correlation was noted between overall mindfulness scores and overall pre- and postsession positive mood ($r(30) = 0.597$, $P < .01$; $r(22) = 0.486$, $P < .01$). The mean pre-session MAAS and PNAS did not change throughout the curriculum.

Satisfaction survey results found that all but 1 resident expressed interest in further mindfulness training. Mean

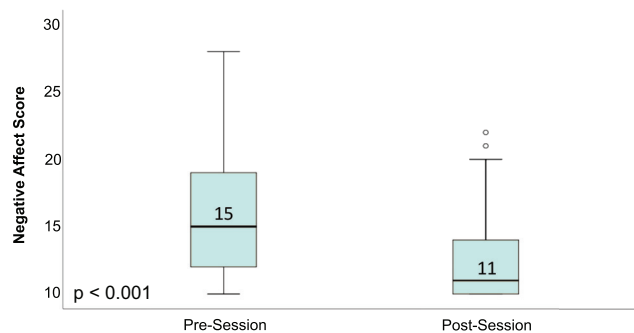


Figure 1. Change in overall pre- vs postsession negative affect score. There was a significant decrease in postsession negative affect ($P < .001$). Scores range from 10 to 50, with higher scores representing higher negative affect (reference mean 14.8 ± 5.4).

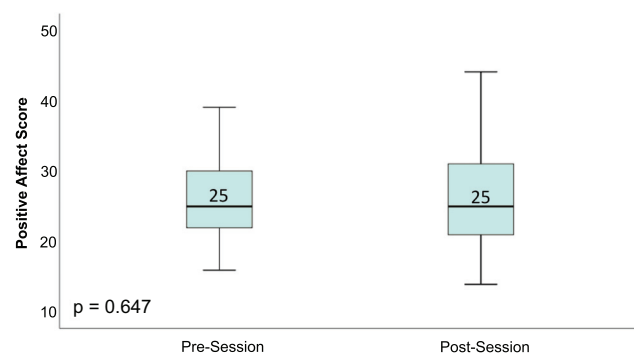


Figure 2. Change in overall pre- vs post-session positive affect score. There was no change in positive affect scores ($P = .647$). Scores may range from 10 to 50, with higher scores representing higher positive affect (reference mean 29.7 ± 7.9).

scores for residents' overall course rating on a Likert scale (1 = *strongly disagree* to 5 = *strongly agree*) was 3.71 ± 0.70 , perceived benefit was 4.11 ± 0.87 , and feeling cared for by the residency program was 4.29 ± 0.70 .

Discussion

This pilot study demonstrates that mindfulness courses can be easily implemented into a wellness curriculum with potential benefits for trainees. Although our curriculum involved only 10 minutes of meditation during weekly didactics, we found a statistically significant decrease in postsession negative affect scores. This study's generalizability is limited by the small sample size, lack of control group, and short duration. We chose the Headspace basic course because it is free, but other apps may offer similar content and could be considered.

Our residency program uses a needs assessment approach to design the wellness curriculum, and the mindfulness sessions were implemented as a module.¹³ Incorporating wellness content and courses into the didactic curriculum helps to emphasize this important issue. Mindfulness training was included after being the most highly rated topic. Providing residents with protected time during scheduled didactics allowed for high participation levels with no time investment. Moreover, the basic course is free to use and does not require specialized lectures or personnel, and the app was easily accessible to residents should they wish to use it outside of scheduled sessions. Future studies should examine durability of change in resident mood, resident use of the app outside group sessions, and whether mindfulness courses of longer duration may lead to improved mindfulness and mood.

Conclusion

Our study found that a mobile platform mindfulness curriculum can be integrated into didactics, is well received by residents, and may decrease negative mood. Our approach to teaching mindfulness can be easily adopted by other residency programs in that it requires no funding, specialized personnel, or extracurricular time demands on residents.

Author Contributions

Lawrence Kashat, conception and design of work; acquisition, analysis, and interpretation of data; drafting/revising the work; final approval of the version; agreement to be accountable; **Bridgette Carter**, analysis and interpretation of data, revising the work, final approval of the version, agreement to be accountable; **Maua Mosha**, analysis and interpretation of data, revising the work, final approval of the version, agreement to be accountable; **Katherine R. Kavanagh**, conception and design of work; acquisition, analysis, and interpretation of data; drafting/revising the work; final approval of the version; agreement to be accountable.

Disclosures

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