Author's response to reviews

Title: Mindfulness training for smokers via the Internet: a pilot study

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Author's response to reviews: see over
COVER LETTER

(RESPONSE TO REVIEWER COMMENTS)

Editor's Comments:
This is an important area of study and will be of interest to readers of BMC CAM. The largest limitation of this study is that it is not controlled. Therefore, this should be clear at the outset- I would suggest that authors retitle their manuscript after the colon to be "a prospective observational study". It should also be clear that the main goal was feasibility and thus the methods to assess this feasibility should be better detailed. There are also several areas noted by reviewers where more detail is needed (e.g. the telephone call follow-up, in person sessions, manual, retreat, parent study, what about those who attended orientation but did not enroll, etc.) In addition, the statistics section needs to be expanded. Results section reports on associations and this is not in statistical methods. Results section 3.3 also reports on several numbers e.g. mean number of website logins but does not give a denominator, that is over what time period (per day, per week?). As reviewers commented, there are several inconsistencies in the paper (numbers) that need to be corrected. Writing also needs editing as there are incomplete sentences.

Dear Editor,
Thank you for your careful read of this manuscript. The following changes have been made in response to your recommendations:

1. The study title has been changed to read: “Mindfulness training for smokers via web-based video instruction with phone support: a prospective observational study”
2. An emphasis has been made that this is a feasibility study. For example, paragraphs on feasibility outcomes such as phone call completion, video completion, time on website, practice time have been moved to a first position (before abstinence outcomes) in all sections and have been titled “feasibility outcomes”
3. Substantial detail has been added to descriptions of the following: telephone call procedures, the course manual, retreat, other course details, and the relationship of the MTSO intervention to the parent face-to-face intervention.
4. We have provided a comparison of demographic variables of those who attended the orientation and did vs. did not enroll, and a comparison of demographic variables on participants in this study compared to the parent study.
5. The statistics section has been expanded and now includes methods used for associations.
6. Results section on process measures now includes dominators.
7. Recommended grammatical and numerical corrections have been made.

REVIEWER 1:

Dear Reviewer,

Thank you so very much for your thoughtful review of this manuscript. Reviewer comments led to a fairly extensive revision of the manuscript. With expansion of some areas of the manuscript, and new emphases we have modified the paragraph order in several places. Please see responses to individual comments provided in italics below.
We suggest areas where the authors could provide important methodological details. There are also some inconsistencies in the numbers reported in the text versus tables, as well as several typos, incomplete sentences, and other grammatical errors. In addition, we suggest that the authors examine and report associations between key variables that changed over the course of treatment (e.g., mindfulness, anxiety) and abstinence.

We have provided a full revision of the manuscript and with an independent copy edit, considerable addition of methodological details, correction of numerical inconsistencies, and have provided a report on association between self-report measures and abstinence.

1-Please specify that the orientation and assessment sessions were in person rather than online (if this is indeed true).

Section 2.1 now includes this:
“During a face-to-face MTSO study orientation session, study procedures were described including payment of $30 for attending each of the two face-to-face post-quit assessment visits (at 4 and 24 weeks post-quit attempt).”

2-Please provide more information on the online manual. Is this the same manual that has been used for in-person treatment, or was it adapted for Internet use?

Section 2.2 now includes:
“Video classes provide instruction in skills such as mindfulness meditation, mindful walking, mindful eating, and smoking-specific skills such as mindfulness of smoking triggers, urges, emotions, and thoughts (Table 1). The course also includes access to an online manual (109 pages) that includes information identical to that in the videos but with greater depth for participants who wanted to learn more than they could form the video alone. Use of the manual, however, was not required or stressed. Finally, participants were provided with web-based audio recordings of two guided meditation practices (15 and 30 minutes). Materials used were identical to those used in the face-to-face intervention from the parent study except that the video, manual, and audio recordings were provided only in a web-based format, not in physical form.”

3-What exactly did the coaching phone calls cover? Was there a particular format for these calls?

Section 2.2 now includes:
“Phone calls were made to participants once per week on a specified day and the call for that week was not repeated if the participant did not answer. Phone counseling calls were a maximum of 15 minutes and structured around core concepts and practices for each of the eight video-based classes. Calls were not scripted, but the Quit Coach was instructed to address each core issue from the prospective class and to provide “listening only” for “non-core” issues that the participant might wish to discuss. Fidelity to call procedures was assessed by the study PI who listened to two phone calls per class and provided feedback on core issues. Phone calls were not recorded.”

4-Please provide more information on the Quit Date Retreat and how this was adapted for the online intervention.
Section 2.2 now includes:
“After five weeks of weekly videos with calls, participants were asked to engage in a self-directed “Quit Day Retreat” and attempt smoking cessation. The recommended schedule of activities for the Quit Day Retreat included five hours of gentle mindfulness practices alternating with rest; these included mindful meditation, mindful walking, mindful eating, and mindful drawing or yoga. Each practice was scheduled to last 30 minutes, and participants were encouraged to modify the schedule to fit their needs. On the Quit Day Retreat participants began a 2-week course of nicotine patches with dosing of 21mg for >10 cigarettes/day and 14mg for ≤10 cigarettes/day.”

RESULTS

5. The text indicates that 81 individuals who were declined from the parent study due to scheduling conflicts were invited to the MTSO orientation; however the consort diagram (Figure 1) indicates that this was actually 98 people. Please clarify and make these numbers consistent.

Sorry for the confusion! 98 people declined from the parent study, but we were only able to reach 81 of them to screen them for this study. The consort diagram now shows this and Section 3.1 now reads:
“Over a 12-month period, 98 individuals declined participation in the parent study due to scheduling conflicts. Of these 98 called, 81 were successfully reached by phone and invited to attend the MTSO orientation (Figure 1). All 81 pre-participants stated that they had Internet access (3 reported access through the public library) and all 81 were invited to the orientation. Of these, 45 attended the orientation, all signed consent, and all were given written instructions and a password to login to the MTSO website. Of these 45, 26 completed enrollment at their “home Internet site” by logging into the MTSO website.”

6. Of 45 people who attended orientation, 26 completed enrollment. Did those who did not enroll fail to do so because of lack of Internet access or for other reasons? This is an important issue because future applications of this intervention will presumably only be available to people who have Internet access.

Section 3.1 now reads:
“All 81 pre-participants stated that they had Internet access (3 reported access through the public library) and all 81 were invited to the orientation. Of these, 45 attended the orientation, all signed consent, and all were given written instructions and a password to login to the MTSO website. Of these, 45 attended the orientation, all signed consent, and all were given written instructions and a password to login to the MTSO website. Of these, 26 completed enrollment at their “home Internet site” by logging into the MTSO website.”

The authors noted that there were not significant demographic differences between participants in MTSO and the parent study. It also seems extremely important to compare the 26 participants who enrolled in MTSO versus the 55 who did not. Did these two groups differ on SES, age, gender, race/ethnicity or baseline smoking behavior?

We re-ran analyses on demographics between those enrolled in this study and those in the parent study. Again we found no significant differences. We then run analyses comparing demographic variables of those who came to the orientation and enrolled vs. did not enroll and found no significant differences. We did not have demographic data on patients who did not attend.
orientations and did not have consent from these patients to use their data. Results sections and discussion sections now include this information.

Section 4.7 now includes this:
The finding that there were no significant demographic differences between MTSO and parent study participants suggests that employment of inclusion criteria of scheduling conflicts and Internet access appear to have had only modest impact on sample selection. The fact that there were no demographic differences between those who came to the orientation and enrolled vs. did not enroll suggests that the requirement to login at home did not meaningfully impact sample selection. That being said, if larger sample were studied, significant differences between these groups may have been found.

8. In section 3.3, the authors note that the mean number of video classes completed was 5.55; however, in the Discussion (section 4.2) they state that this number is 4.64. Please clarify this discrepancy.

Sorry for the confusion. We actually collected data on the use of video classes in two ways – 1) In the Course Evaluation provided during the 4 week assessment – this requested a self-report on video use for the first 5 video classes - and showed use of 4.64 of the first 5 video classes. The Course Evaluation had been adapted from an older version of this questionnaire that was used with the MTS Intervention had only 5 pre-quit video classes. Unfortunately, this course evaluation had not been changed to add the quit day and post quit video classes. 2) The second way this data was collected was by the Quit Coach who asked participants at each class how many videos they had completed so far – this collection method included all 8 classes, but had more missing data - we were not pleased with. When we looked at this second data set there was missing data – because a missed call (with no reported video class) was coded as a missed video class. The section now reads:

“The mean number of pre-quit online video classes completed by self-report was 4.64 of 5 (SD = 1.14, range = 0-5). By another method, Quit Coach report of online video classes attended of 5.55 of 8 (SD = 2.48, range 0-8), with missing phone calls by Quit Coach coded as non-completion of the video classes.”

9. Please provide the range of video classes completed.
See above

10. How was being a “completer” defined for this study?

Section 3.3 now includes the following:
“Intervention completion was defined as a self-reported quit attempt on the scheduled Quit Day. Intervention completion rate was (20/26) 76.92% and was not associated with any demographic or baseline measure.”

11. With a mean of 5.55 of 8 and a standard deviation of 2.48, we can see that no one falls a full SD above the mean, and thus the data seem to be negatively skewed (with some participants perhaps viewing a very small portion of the videos). Given this, is mean the best indicator of central tendency?

This data (as noted above) was taken from calls from the Quit Coach – and include some callers who did not respond to later calls – negatively skewing the data. For this reason, the more reliable report of 4.64 of 5 pre-quit videos is cited more frequently in the manuscript.
12. Were increases in FFMQ scores or reductions in DASS scores associated with abstinence? It seems odd to present change scores for these variables but not examine their associations with the primary outcome.

Neither FFMQ nor DASS scores – subscales or composite scores were associated with abstinence. This is now included in discussion of these measures and then discussed in the discussion section:

Section 3.4 now includes:
“There were no significant associations between FFMQ composite score or subscales and smoking abstinence.”

Section 3.5 now includes:
There were no significant associations between DASS composite score or subscales smoking abstinence.

DISCUSSION

13. The authors compare the abstinence rate to that found in a recent meta-analysis of quit lines. Please also discuss the current abstinence rate in comparison to the abstinence rate found in Bricker et al.’s mindfulness-based smoking cessation delivered via Internet.

Section 4.6. Now reads:
“Biochemically confirmed abstinence rates of 23.1% at 1-month and 15.7% at 6-month post-quit is on par with web-based quit line interventions cited in a recent meta-analysis [5], and even perhaps encouraging when targeting recruitment to a low SES population. Abstinence rates are similar to those found by Bricker et al. [50] - 3-month post-quit 30 day continuous abstinence rate of 22.8% (not-biochemically confirmed). Bricker’s ACT intervention was similar in a number of ways; it was 8-part program using web-based video instruction, and phone-support and provided training in a mindful approach to urges, emotions and thoughts.”

14. Please make sure that the numbers in section 4.2 match up with the numbers in the Results section.

Section 4.2 has been corrected and now reads:
“The first is that while the behavioral treatment employed was quite intensive (mean completion of 4.64 of 5 pre-quit videos and 3.19 phone calls), the pharmacotherapy employed was relatively non-intensive – two weeks of nicotine patches – which though effective is less so than longer therapy (e.g., 12 weeks) [5].”

15. It will be important to discuss whether changes in mindfulness, stress, anxiety, or depression were associated with abstinence outcomes.

Section 4.4 now includes:
“The finding that FFMQ scores were not associated with abstinence may have been because mindfulness skills were not affecting smoking behavior, or may have been due to insufficient power to detect this signal in a small study.”

Section 4.5 now includes:
“The finding that DASS scores were not associated with abstinence may have been because changes in depression, anxiety or stress were not affecting smoking behavior, or may have been due to insufficient power.”

BACKGROUND

16. References are cited numerically in the body of the paper but are not numbered in the reference list. Please make this consistent so that readers are able to reference specific citations.

Thank you. The references are now numbered and citations double-checked against references.

17. In the first paragraph, the authors report that a recent meta-analysis of quit lines found a 6-month abstinence rate of 12.7%. However, readers may not be familiar with how that rate compares to other treatment modalities. It would be helpful to provide abstinence rates for smokers who attend some of the more common in-person treatments as well as people who attempt to quit on their own. This would help to put the 12.7% rate (and also the rate found in the current study) into perspective. The authors might consider referring to these rates in the Discussion section as well.

Reference to unassisted abstinence rates of <5% are provided in the paragraph 1. The addition of information on abstinence rates in face-to-face interventions seemed a bit problematic because they vary so widely with intensity of pharmacotherapy, behavioral intervention and population selection that it would take a considerable discussion (and perhaps digression) to treat the subject fairly. Instead we have provided greater detail on quit line data. Paragraph 3 now reads:

“A meta-analysis of US quit line therapies reported a mean biochemically confirmed 6-month abstinence rate of 12.7% and 14-22% with use of subsidized medications [5, 25, 26]. A study on a quit line in England showed similar biochemically confirmed 6-month post-quit abstinence rates of 17.7% - 19.6% [27]. A 2013 Cochrane review [28] on telephone-based counseling in smokers, including only studies reporting biochemically confirmed abstinence, noted that variation in abstinence rates was associated with the use of medications and the number of proactive phone calls completed. Studies on quit lines that relied on self-report alone to measure abstinence (no biochemical confirmation), have reported substantially higher abstinence rates (e.g. 29.9% - 51.6%) [31-33].”

18. In the second paragraph, mindfulness and mindfulness-based smoking cessation treatments are introduced very briefly. We suggest adding more information describing current mindfulness-based smoking cessation treatments (and emphasizing that these are typically in-person and in group format). It would also be informative to briefly review some of the hypothesized mechanisms underlying effects of mindfulness on smoking cessation.

This section has been expanded to two paragraphs and now reads:

Efforts to develop new and more effective therapies for smokers have lead to the development and testing of “mindfulness training” for treatment of tobacco dependence. Mindfulness has been
described as “paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally” [29]. Put another way, mindfulness means bringing greater awareness to and acceptance of presently occurring thoughts, feelings, or physical sensations, ultimately allowing for a less reflexive and more thoughtful response to experiences as they arise [30, 31]. Over the last seven years there has been a small but growing body of evidence supporting mindfulness training as a smoking cessation therapy [44] with studies showing that mindfulness training is associated with decreases in smoking urges [32], stress [33], anxiety [34-36], and depression [37], known predictors of smoking relapse [38-41].

Studies on mindfulness training for smokers include an initial pilot study in 2007 [42], a randomized trial favorably comparing mindfulness training to Freedom from Smoking, (American Lung Association) [43], a randomized trial favorably comparing mindfulness training to quit line [44], a study showing positive effects of mindful “urge surfing” [45], a study that showed favorable comparison between Acceptance Commitment Therapy (ACT) and Cognitive Behavioral Therapy [46], a study on with favorable comparison between ACT (provided in individual therapy) and control [47], and others [48, 49]. Although these face-to-face therapies demonstrate considerable promise for smokers, their public health impact is ultimately limited to treatment of patients who live near providing treatment centers. Currently there is only one notable report on a web-based mindfulness intervention for smokers – that conducted by Bricker et al. [50]. This study provided a web-based video instruction on Acceptance Commitment Therapy (ACT) combined with proactive phone-counseling calls. ACT videos and phone calls integrated training in mindfulness with other techniques to help smokers quit. This intervention showed self-reported smoking abstinence of 22.8% at 3-months post-quit attempt, significantly higher than controls (10.3%) (p = 0.05) using Smokefree.gov, a widely used web-based intervention.

19. In the last sentence of the second paragraph, it appears that the word “than” is missing.

Thank you. It has been added.

20. In the third paragraph of the Background section, please provide more details on Bricker et al.’s intervention, as it is the only known mindfulness-based smoking cessation intervention that has been delivered over the Internet. Please also provide the abstinence rate reported by Bricker and colleagues. Referring to this rate in the discussion section would also help readers to put results in perspective.

(see paragraph above)

21. In the last paragraph of the Background section, a comma appears to be missing after the word “walking.”

This description was removed because it is cited in Methods (Section 2.2)

“Video classes provide instruction in skills such as mindfulness meditation, mindful walking, mindful eating, and smoking-specific skills such as mindfulness of smoking triggers, urges, emotions, and thoughts (Table 1).”

MATERIALS AND METHODS

22. In section 2.4, the narrative switches between incomplete and complete sentences. This makes this section very difficult to read.
This section has been re-structured and sentence structure corrected; it is now provided in section 2.3 and 2.4, and reads as follows:

2.3. Feasibility Measures: The following measures were employed to assess intervention feasibility: 1) phone call completion and length (recorded by the MTSO quit coach), 2) video completion (reported on Course Evaluation - covered only 5 pre-quit videos), and also by Quit Coach via phone report 3) website time (via a time-log function within the MTSO website), 4) minutes of daily meditation (via meditation calendar with daily minutes meditated recorded from Video Class 1 until the 4-week post-quit study visit, and 5) mindfulness practice (via Course Evaluation in which participants were asked to report the number of times per day that they engaged in various other mindfulness practices such as mindful walking, mindful eating, or moments of mindfulness).

2.4 Self-Report Measures: In addition to these process measures, the following written surveys were obtained during baseline, 1-month post-quit, and 6-month post-quit assessment visits: 1) Demographics Questionnaire, a non-standardized measure including information on demographics, smoking history, and Internet use (baseline only), 2) the Fagerstrom Test for Nicotine Dependence (FTND; only administered at baseline) [52], a six-item measure with internal consistency of $\alpha = .61$ and correlation with biological indices of heaviness of smoking, 3) the Five-Facet Mindfulness Questionnaire (FFMQ; all study visits), a 39-question survey with internal consistency between $\alpha = .75$ and .91 [53-55] to assess mindfulness on five subscales (“observing,” “describing,” “acting with awareness,” “non-judging of inner experience,” and “non-reactivity to inner experience”). In addition to FFMQ subscale scores, a composite score was derived from the total of subscale scores, as in previous research [55], and 4) the Depression Anxiety Stress Scales (DASS; all study visits), a 42-item measure with internal consistency of $\alpha = 0.96, 0.89$ and 0.93 for depression, anxiety, and stress, respectively [56, 57].

RESULTS

23. Do the authors have information on participants’ income levels?

No – unfortunately we did not collect this.

24. In section 3.1, the first sentence is incomplete. Perhaps “and” should be replaced by “were.”

This section has been revised and now reads:

“3.1. Recruitment and Demographics: Over a 12-month period, 98 individuals declined participation in the parent study due to scheduling conflicts. Of these 98 called, 81 were successfully reached by phone and invited to attend the MTSO orientation (Figure 1).”

25. Section 3.4 would read more clearly by indicating “MTSO participants demonstrated…” or “MTSO participants showed…” instead of “MTSO demonstrated” or “MTSO showed.”

This section now reads:

“Participants demonstrated predicted significant increases on FFMQ observing from baseline ($M = 3.41, SD = .84$) to the 4-week post-quit visit ($M = 3.96, SD = .40$), $t(17) = -3.07, p = .007.$”

DISCUSSION
26. In section 4.4, the first sentence should say “an important question to address… is” rather than “was.”

This sentence now reads:

“An important question to address when testing mindfulness training in a new format is whether participants are able to acquire mindfulness skills through this format.”

27. In the final two sentences of 4.4, negative affect and anxiety seem to be treated as the same or highly correlated without explanation. It is also unclear why this study found changes in anxiety but not depression or stress as assessed by the DASS.

The DASS Stress Subscale is sometimes thought of as a measure of negative affect. This distinction would likely be too fine and require too much detail to delve into in a paper of this length. Because of this I have removed references associating this subscale to negative affect. The section on DASS has been separated from FFMQ into separate paragraphs (4.4 and 4.5). The findings for each scale are now discussed in greater detail.

4.4. Acquisition of Mindfulness: An important question to address when testing mindfulness training in a new format is whether participants are able to acquire mindfulness skills through this format. The most accepted secular training in the US is Mindfulness-Based Stress Reduction (MBSR) [30], which provides mindfulness training in face-to-face group format. This study suggests that participants did in fact acquire mindfulness skills as reflected in significant increases in pre- to post-intervention FFMQ subscales “observing” and “non-judging,” and FFMQ composite scores. The increases in FFMQ subscales and composite provides support to the notion [34] that acquisition of mindfulness skills does not require face-to-face instruction, but might be successfully taught via web-based video instruction with phone support. It should be noted that the FFMQ has limitations typical of any self-report measure including susceptibility to social desirability bias [63] or “halo” effects [64]. To better assess mindfulness acquisition within this format, and reduce such potential bias, it would be helpful to compare MTSO to an active control in a randomized study design. The finding that FFMQ scores were not associated with abstinence may have been because mindfulness skills were not affecting smoking behavior, or may been due to insufficient power to detect this signal in a small study.

4.5. Changes in Anxiety, Depression and Stress: Participants showed significant decreases in anxiety relative to baseline, as measured by scores on the DASS, which was promising given that research has implicated anxiety as a major cause of smoking relapse [65]. Participants also showed a drop in pre- to post-intervention depression and stress subscales and DASS composite score, but these changes were non-significant. A study by Goldberg et al. (2014) on Mindfulness Training for Smokers (in face-to-face group format) [66] showed decrease in self-reported pre- to post intervention DASS stress subscale and hair cortisol, suggesting that MTS in a face-to-face format does in fact lead to decreased stress. Statistically insignificant decreases in stress scores on DASS in this study suggests that MTSO has less robust effect on participants than MTS in a face-to-face format, or that the study was insufficiently powered to demonstrate a significant change. The finding that DASS scores were not associated with abstinence may have been because changes in depression, anxiety or stress were not affecting smoking behavior, or may been due to insufficient power.

28. The second sentence of 4.6 should say “to be used” instead of “to use.”

This has been corrected.
29. The fourth sentence of 4.6 appears to be missing the word “as.”

“Because MTSO functions as a video-based intervention, it might conceivably be provided to a wide population at minimal expense.”

30. The last sentence of 4.5 reads: “Finally, the requirement of participants to have Internet access may have contributed to selection bias, for example by selecting participants more advantaged and thus more likely to be compliant and maintain abstinence.” This is a very important point, and the authors should be able to compare SES levels of those who enrolled versus did not enroll in MTSO to know whether those who enrolled did indeed tend to be more advantaged.

An additional analysis was performed to assess education of this participants enrolled with those in the parent study and no significant differences were found. As we mentioned earlier, those who did not enroll, largely also did not complete demographic surveys. Limitations now includes this:

“Additionally, the requirement of participants to have Internet access may have contributed to selection bias, perhaps selecting participants who were more advantaged and thus more likely to be compliant and maintain abstinence. The finding that there were no significant demographic differences between MTSO and parent study participants suggests that employment of inclusion criteria of scheduling conflicts and Internet access appear to have had only modest impact on sample selection. That being said, if larger sample were studied, significant differences between these groups may have been found.”

31. TABLE 2: Please make sure that the rows are properly lined up (e.g., “education” and “age” are currently not lined up with their respective numbers).

Table 2 has been revised so that variables and variable scores line up properly.

32. TABLE 3: Please clarify what the numbers 66 and 43 mean. Please also clarify how “completers” were defined.

The numbers 66 and 43 were from a prior iteration of this manuscript comparing results of this study to another study. They have been removed. The term “completer” is now defined.

DISCRETIONARY REVISIONS

BACKGROUND

33. At the outset of the manuscript, we suggest adding more background information on the prevalence of smoking and the need for smoking cessation interventions that can be disseminated more widely (especially for lower-SES smokers, who tend to have lower access to high-quality smoking cessation treatments). Adding this information would make a stronger case for why the current study has high potential public health impact.

We added the following two paragraphs at the beginning of the manuscript:

Tobacco use is the number one cause of preventable morbidity and mortality in the US [1], has devastating health effects worldwide [2], but is notoriously difficult to treat [3]. Approximately
50% of US smokers attempt smoking cessation each year [4], but discouragingly, abstinence rates remain less than 5% in unassisted attempts [5, 6]. Since the advent of US public awareness of health risks from smoking [7], many smokers who have been able to quit using medications or other available therapies have already quit, leaving a population of smokers today that is more dependent [8], and more resistant to available therapies [9]. Smokers now are most highly represented within low socioeconomic status (SES) populations [4, 10], populations who often have limited access to effective therapies [11, 12]. As the population of smokers becomes resistant to available therapies [13, 14] there is a growing need for new, effective therapies that can be made widely available, especially to disadvantaged populations [15].

Currently the most widely accessible smoking cessation therapies are telephonic smoking cessation programs or “quit lines,” available to urban and rural smokers [16] in every US state [17]. Quit lines employ multiple therapeutic modalities including phone-based counseling, physician referral, mailed materials, subsidized pharmacotherapy [18], and web-based services [19, 20]. Web-based services associated with quit lines may include written materials, short videos, interactive exercises, or access to online communities [21]. Web-based therapies have had a growing impact on low-SES smokers in the last decade, a change that is thought to be related to development wireless infrastructure in low SES regions [22], and adoption of smart phone use among disadvantaged populations [23, 24].

34. In the last paragraph of the Background, the authors mention “addictive thoughts.” Please clarify exactly what is meant by this term.

This is a colloquial term used within the Mindfulness Training for Smokers intervention and to describe it accurately would require more space than is afforded in a manuscript of this size. The core idea however, is “mindfulness of thoughts” which is commonly accepted practice.

The sentence now reads:
“Video classes provided instruction in skills such as mindful meditation, walking, eating, as well as mindfulness of smoking triggers, urges, emotions, and thoughts.”

MATERIALS AND METHODS

35. It seems that providing a 100-page manual may be a bit much for low-SES participants. Why was the entire manual included, and did participants read the manual?

This manual was the one used for the face-to-face group therapy Mindfulness Training for Smokers (MTS). In addition, participants were told to use the videos to complete the course, and told that the manual was optional and only provided in case they wanted materials to enhance the video instruction. We asked participants about their use of the Manual in the course evaluation, but there was no numerical value provided. No one completed the Manual and only a handful read any of it. Reporting on this however, may be misleading since we did not instruct or encourage participants to use it. We agree that this shorter version of the Manual would be more appropriate for a web-based intervention.

RESULTS/DISCUSSION

36. Neither meditation nor patch use were associated with abstinence in this study. Could the authors provide some speculation as to why this might be?
This has been added on Medication Use:

4.2. Feasibility - Medication Use: There are a couple of reasons that may have lead to a lack of association between medication use and abstinence. The first is that while the behavioral treatment employed was quite intensive (mean completion of 4.64 of 5 pre-quit videos and 3.19 phone calls), the pharmacotherapy employed was relatively non-intensive – two weeks of nicotine patches – which though effective is less so than longer therapy (e.g., 12 weeks) [5]. It is also likely that the study was underpowered to demonstrate differences between compliant (n = 12) and non-compliant patch users (n = 14).

This has been added to Section 4.3 regarding practice time:

4.3. Feasibility - Practice Time: Adherence to daily meditation was modest but acceptable, with a mean of 12.17 minutes meditation practice per day. This is a lower rate of daily meditation practice than was found in Mindfulness Training for Smokers in a face-to-face format (21.6 minutes per day) [44]. Participants reported using other mindfulness practices (e.g., mindful walking, mindful eating, mindfulness of urges) a mean of 5.0 (SD 6.15) times per day, suggesting that mindfulness practices were taught at least somewhat successfully through web-based instructional videos with phone support. The lack of association between meditation time and smoking cessation outcomes has been seen in other studies using mindfulness training for smokers [43, 49], and new data is now emerging to suggest that practice quality (self-reported on a practice quality measure) may be a better predictor than practice time of at least some psychiatric outcomes [62].

REVIEWER 2:

Overall, an interesting paper with potential for exploring the use of mindfulness training for smokers provided over the Internet. Thank you for the opportunity of reading your work. I hope the comments and suggestions provided will be useful for the authors.

Major Compulsory Revisions:

None

Minor Essential Revisions:

a. Page 2, paragraph 2 – the authors should include the reference for the parent study so that the reader may review information on the parent population.

Section 2.1 now includes this statement:
Further details on the parent study can be through a published manuscript at Davis et al. 2014 [49].

b. The references are numbered consecutively, in square brackets, in the text. However, in the “References” section, the references are presented alphabetically by the author’s surname rather than numbered consecutively and this needs to be changed.

This was a clerical error in EndNote – it has been fixed

c. Page 2, first paragraph, 3rd line – a correction of the line is needed, it states walking eating.

This description has been moved to Methods (Section 2.2) and now reads:
“Video classes provide instruction in skills such as mindfulness meditation, mindful walking, mindful eating, and smoking-specific skills such as mindfulness of smoking triggers, urges, emotions, and thoughts (Table 1).”

c. Figure 1: There is a difference in the text from what is in the figure (81 vs 98).

Sorry for the confusion! 98 people declined from the parent study, but we were only able to reach 81 of them to screen them for this study. The consort diagram now shows this and Section 3.1 now reads:

“Over a 12-month period, 98 individuals declined participation in the parent study due to scheduling conflicts. Of these 98 called, 81 were successfully reached by phone and invited to attend the MTSO orientation (Figure 1). All 81 pre-participants stated that they had Internet access (3 reported access through the public library) and all 81 were invited to the orientation. Of these, 45 attended the orientation, all signed consent, and all were given written instructions and a password to login to the MTSO website. Of these 45, 26 completed enrollment at their “home Internet site” by logging into the MTSO website.”

Also, it would be helpful to change the title of the first box to: Invited to attend the MTSO orientation (and an asterisk included at the bottom of the figure –to include information on being ineligible for the parent study due to scheduling conflicts). Also, it is unclear why the n=22 at the 4-week assessment visit when there are only 20 completers. Please clarify?

An additional box has been added to the consort diagram to clarify recruitment from subjects declined or excluded from the parent study. In addition, notes have been provided below the diagram to describe this in greater detail. Finally, the definition of completers has been provided below Figure 1 to clarify this number.

d. Table 2 needs revisions – column 1 does not line up with column 2 and the information needs to be defined (i.e., mean and SD not defined).

The table has been revised so variables and value line up; mean and SD have been defined.

f. Table 3 needs clarification – Please clarify the numbers in parentheses (66) and (43)?

These were from a prior iteration of the manuscript and have been removed.

g. Authors’ contributions – does not provide information on the contribution of the authors.

Author contributions have been added.

Discretionary Revisions:

a. Page 1, last paragraph - it would be useful to include the quit rates of the participants in the Bricker et al, study.

The following has been added to the Background:

“Currently there is only one notable report on a web-based mindfulness intervention for smokers – that conducted by Bricker et al. in 2013 [50]. This study provided a web-based video
instruction on Acceptance Commitment Therapy (ACT) combined with proactive phone-counseling calls. ACT videos and phone calls integrated training in mindfulness with other techniques to help smokers quit. This intervention showed self-reported smoking abstinence of 22.8% at 3-months post-quit attempt, significantly higher than controls (10.3%) (p = 0.05) using Smokefree.gov, a widely used web-based intervention.”

b. It would be helpful to include the start date of the trial (and the length of time taken to recruit participants) in the methods section.

The following was added to Methods section 2.1
“Participants were recruited over a 12-month period through a larger “parent” study targeted to low SES neighborhoods within a mid-sized city…. Further details on the parent study can be through a published manuscript at Davis et al. 2014 [49].”

c. Page 2, MTSO – it would be helpful to include information on the quality control methods used for review of phone calls.

The follow information was added to Section 2.2:
“Phone calls were made to participants once per week on a specified day and the call for that week was not repeated if the participant did not answer. Phone counseling calls were a maximum of 15 minutes and structured around core concepts and practices for each of the eight video-based classes. Calls were not scripted, but the Quit Coach was instructed to address each core issue from the prospective class and to provide “listening only” for “non-core” issues that the participant might wish to discuss. Fidelity to call procedures was assessed by the study PI who listened to two phone calls per class and provided feedback on core issues. Phone calls were not recorded.”