**Author’s response to reviews**

**Title:** Mindfulness is not Associated with Dissonant Attitudes but Enhances the Ability to Cope with them

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REQUESTED REVISIONS:

1. It is very useful that the authors have used the Benjamini-Hochberg test to control for false discovery rate. It is also helpful that the procedure is described on page 18. But this method can produce some unusual "results" with adjusted p-values that are much higher than would typically be thought of as "statistically significant" (e.g., much greater than .05) being called significant. I think this has happened in this study and so the tables in which the authors are referring to statistically significant findings have p-values that are much higher than "typical". It is helpful that the CI are also presented, but it might also be useful to provide the information that was used to calculate the modifications and the cutpoint that was calculated. I think this point regarding the cutpoint was not described on page 18 and that would also be helpful for readers.

   ---&gt; Thank you for this comment. On page 19, we added the information that the tests were calculated “…with a false discovery rate at 25%.” The precise procedure of the test is explained in the references (68,69), which are also stated on page 19. We decided to refrain from an in-depth explanation of the procedure as this was not the focus of the study. We think that the information mentioned on page 19 (“To control for multiple testing, we used the Benjamini-Hochberg [68, 69] linear step-up method for the regression models. This method is considered more powerful and less conservative than the Bonferroni procedure [68]. By means of an Excel template, the adjusted p-values were calculated [70]. The Benjamini-Hochberg method ranks variables according to their p-values in increasing order. The smallest value gets rank 1, the second rank 2, and the largest value receives rank N. Then, each p-value is multiplied by N and divided by its assigned rank to give the adjusted Benjamini- Hochberg p-value. For all regressions and stratified analyses, Benjamini-Hochberg p-values are reported, with a false discovery rate at 25%.) are sufficient for the purpose of the manuscript. More information can be found in the abovementioned references.

2. 5 - facets of mindfulness and exploratory nature of the study. I think the authors argue forcefully for the 5-facet model of mindfulness and the importance of examining how it was important to include distinct facets in the study. The authors seem to indicate on the bottom of page six, however, that there will be one facet that accounts for the findings that mindfulness is associated with IDE. I do think the
authors can strengthen the rationale for studying these independently - they provide some rationale, but then seem to drop that to say it is all exploratory.

--&gt; Thank you for this comment. There were different reasons for choosing this approach and we hope that the following explanations clarify the issue:

1. The relationships between mindfulness and IED were based on theoretical reasoning and have not been explored before. Therefore, we decided to follow an exploratory approach. This is now stated on page 6 and 7: “As the relations between mindfulness and IED were based on theoretical reasoning and have not been explored before, we investigated our research questions in an exploratory way.”

2. We explicitly state that we investigated the research questions in an exploratory way as a result of a former reviewer comment, who asked us to formulate hypotheses for each mindfulness facet. However, the reason to assess the mindfulness subscales separately was to get an indication on which specific sub-scale/ability is related to (less) dissonance between attitudes. This was not done before and therefore also one of the novel aspects of the study. Former authors (e.g. Koole et al., 2009; Hyde et al., 2010) assumed that the ability to have insight into one’s inner processes (i.e. subskill observing) was responsible for reduced dissonance between self-related constructs. However, the different subskills were not tested in these studies (explained on page 6). As a result of that, we decided to explore the sub-skills separately. Moreover, the factor analysis performed by Bear et al. (2006) showed that mindfulness is not a unidimensional, but a multidimensional construct. This supports our approach of looking at the mindfulness sub-skills separately. The relevant reference is added on page 14 and 15. Adding hypotheses at this point in time would be post-hoc assumptions. Therefore, we kept the research question exploratory as originally intended and stress this in the manuscript (page 6 and page 8).

3. Introduction of RMC as part of the study rationale. This is one point that I do not believe the authors have provided sufficient justification. They note that the study's focus is IED and mindfulness on behavior, but it seems that they authors would not have chosen ANY behavior arbitrarily. Making this justification and introducing the concept of RMC earlier does not mean that the paper shifts its focus to eating behaviors as a central idea, rather it provides a fuller rationale for why RMC (or intention to reduce RMC) is important. If it is not important and is just arbitrary, then say that. The reason is, I think, that not all behaviors would show similar associations with IED. It was not surprising to me that findings were "mixed."

--&gt; Thank you for your comment. We now make more clearly on page 9, why we selected RMC for this study by having added the following paragraph:

The behavior chosen for this study is red meat consumption (RMC). RMC has been defined as a threat for people's health (e.g. 41) as well as for the environment (42, 43). Moreover, former studies have shown that individuals, who consume meat can experience dissonance, e.g. by an inconsistency of cognitions (“I like to eat meat; I don’t like to hurt animals”) (44) or by an inconsistency between their behavior and their morale or values (conflict between enjoying meat and concern for animal welfare) (45), which is also described as “meat paradox”(46) in the literature. Also it was claimed that “Meat should be of special interest to psychologists, because it is a quintessential example of the interesting and important state of ambivalence” (47). Based on this knowledge, we expected dissonance regarding RMC to exist between the implicit and the explicit level as it has been shown for other behaviors (28-31) and, therefore, selected the behavior at hand to answer the research questions. Moreover, shedding
light on the relationships between IED and RMC could support the development of future interventions that are aiming to reduce RMC.

4. Causal Language - there are still places in the manuscript that the authors use language that sounds causal (e.g., bottom of page 26 - "mindfulness does not lead to more congruent attitudes". And causal language is used at other points too - "affect", "triggered", "impact" etc..

--&gt;Thank you for this comment. We reformulated these sentences, e.g. “mindfulness is not associated with more congruent attitudes”; “IED was not associated with intention, hence no reaction was linked to IED”, “In the current study, the relationship was negative.”

5. Drop out seems to be a significant issue with only about 32% of the original sample retained at the second followup. The authors note that acceptance without judgment predicted drop out at T1, but no measured variables predicted drop out at T2. It raised two major questions for me - what does it mean that one of the variables that is highlighted in the study findings also predicted drop out. Moreover, loss of 68% of a sample seems problematic in and of itself - even power was sufficient, what unknown variables might have distinguished drop outs from non and how may have they influenced the findings?

--&gt;Thank you for raising these questions. It is true that drop-out was high, however, drop-out was (almost) as high as anticipated in advance by the research agencies. On page 10 we explain that “Based on former experiences of the internet research agencies that were collaborated with in this study, a drop-out of 60% between the baseline and the second follow-up (T2) was expected.” That was the reason why we recruited more people at baseline. Other reasons which might have led to a slightly higher drop-out than anticipated (68% instead of 60%) could have been the study topic (RMC), however, logistic regressions did not reveal RMC to be a predictor for drop-out (see page 19,20). Another reason could have been the SC-IAT, which required participants to additionally download a software. These study panel members were not familiar with this procedure. Also downloading an unknown software might have raised mistrust and might have resulted in drop-out. Also the longitudinal character of the study might have added to the slightly higher drop-out.

--&gt;Moreover, we checked the spreading of acceptance without judgment at baseline (T0), after one month (T1), and after three months (T2). Although the mean at T1 and T2 was lower than at T0, the variable was normally distributed at all three measurement points. Therefore, we think that although the variable acceptance without judgment predicted drop-out, results were not necessarily influenced by that.

6. The intention items. That you use three intention items in your analysis is very confusing. First of all, it is suggested that these are not strongly associated, but are correlated .70-.82, which might suggest that they could reasonably be combined into a composite - conceptually it would make sense too. It is also not clear what distinguishes these items - especially since they are referred to as items 1, 2 and 3. If you chose to include all three, I would recommend that you call them something else to distinguish what kind of intention they are measuring. It would be similar to calling the mindfulness facets mindfulness 1,2,3,4 and 5. Something has to make these items distinct. Moreover, if you use all three in the analyses, then you need to be able to explain why associations may be significant with one or two but not the others. The take way message refers only to intention - but not to item 1, 2, or 3.

--&gt;Thank you for this input. It is correct that the intention items were correlated with each other,
however, unfortunately the factor saturation of the standardized sum scores was estimated as insufficient ($\Omega = .07$). Therefore intention items were entered separately in the analyses. This rationale is explained in the method section on page 14 and 15. We now labeled the intention items clearly as intention planning, intention likeliness, and intention strength in order to make the difference between the items clearer. This can now be seen in the method section as well as in the tables.

Not noted by the earlier reviews:

7. I was struck by the inclusion of "intention" as a central outcome variable (or variables) because the introduction had not discussed intention at all - just behaviors. But it is introduced in the research questions. It struck me that this needed to be justified earlier in the introduction. It is evident that this was part of the parent study, but should also be discussed earlier.

---&gt; Thank you for this comment. We now explain more clearly on page 8 and 9, that the first two hypotheses were built on the postulations put forward in dual-process models and that the last research question regarding intention is based on socio-cognitive models, which state that intention is the most proximal determinant for behavior.

“Dual-process models, which postulate direct influences of implicit attitudes and explicit attitudes on behavior served as starting point for these two research questions. Socio-cognitive models, such as the Reasoned-Action Approach [39] or the Integrated-Change Model [40] state that the most important proximal determinant for behavior is intention. Currently, it is unclear whether IED affects behavior only or also its most proximate antecedent and whether this relationship might be moderated by the mindfulness subskill. Therefore, we additionally explored whether the mindfulness subskills moderate the relationship between IED and intention (RQ 2b).”

8. It seemed odd to me that one criterion was that participants had to indicate that hey consumed meat "regularly" but the authors included a question to ensure that individuals actually consumed meat "at least once a month," which does not seem to be "regular".

---&gt; Thank you for this hint. We realized that we made a mistake in the description. We did not ask whether they consume red meat regularly but only asked whether they consume red meat. This is now adjusted in the manuscript.

9. At the top of page 27, the authors suggest that "the non-acceptance of dissonance had a positive and thereby desirable…..", but I do not think the authors actually measured non-acceptance of dissonance - this a big inference that goes well beyond the data. Likewise, there is a statement in the conclusion paragraph that is similar and indicates a process of managing dissonance that is not clearly tested or indicated in the findings. On the other hand, I think the point of using dissonance to promote behavior change is viable - it one strategy that is used in Motivational Interviewing - identifying discrepancies, which can cause dissonance.

---&gt; Thank you for your comment. It is correct that we did not measure acceptance of dissonance. This is now mentioned in the limitation section of the study on page 30.

“Fifth, acceptance of dissonance was not measured but rather inferred. Whether people who scored higher on acceptance were indeed able to better accept dissonance is unclear. Specific questions about
the ability to accept dissonance could be added in future research to draw even stronger conclusions.”

ADDITIONAL REQUESTS/SUGGESTIONS:

No