Author's response to reviews

Title: The relationships between perfectionism, pathological worry and generalised anxiety disorder

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Author's response to reviews: see over
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Professor Simon Harold
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Dear Professor Harold,

Please find enclosed a copy of the revised manuscript MS: 1748234078101783 entitled “The relationships between perfectionism, pathological worry and generalised anxiety disorder” by Alicia Handley, Dr. Sarah Egan, Dr. Robert Kane, and Associate Professor Clare Rees.

We thank the reviewers for the useful revisions suggested and the opportunity to resubmit this manuscript to BMC Psychiatry. Each suggested revision has been addressed as detailed below. In the revised manuscript, the changes are highlighted using the track changes option.

Reviewer 1’s comments:
1. The questions posed by the authors need to be defined more clearly. There are references in the text to ‘clinical perfectionism’ and ‘perfectionism’ but there does not seem to be clarity on which of these forms part of the main research question. Similarly, the concept of ‘pathological worry’ needs to be explained further.

We thank the reviewer for these comments. We have inserted two additional sentences on page 6 of the manuscript to clarify that this study assessed the relationships between multidimensional perfectionism and pathological worry, as well as the relationship between clinical perfectionism and pathological worry (new text in bold):

This study has two aims. The first aim was to examine the relationships between perfectionism dimensions [13, 19] and pathological worry in a sample of participants with elevated perfectionism and GAD (n = 36) who were participating in a perfectionism treatment trial. Specifically, this study examined whether Concern over Mistakes, Doubts about Actions, and Personal Standards are related to pathological worry as assessed by the PSWQ [16]. This study also investigated the relationship between Clinical Perfectionism and pathological worry as measured by the PSWQ.

We have also added text on page 3 of the manuscript to further explain the concept of pathological worry (new text in bold):

To date however, one anxiety disorder that has not received attention in the perfectionism literature is Generalised Anxiety Disorder (GAD). No research has
examined the relationship between perfectionism and pathological worry in a clinical sample of individuals with GAD. Pathological worry refers to worry that is perceived to be unremitting, hard to control, excessive and of a distressing nature [7]. It is a defining characteristic of GAD [8].

2. The methods are appropriate but the methodology is not well-described. For example, the authors need to state earlier on how the clinical sample was recruited and the study inclusion criteria. Furthermore, the MINI was used to assign diagnoses of GAD but depression was assessed on the Beck Depression Inventory (BDI). Although a cut-off score on the Beck is often used to assess for clinical levels of depression, it is not the same as assigning a diagnosis using DSM or ICD criteria. The cut-off score for assigning patients to the depression category of the BDI has not been given in the manuscript.

We thank the reviewer for these comments. In response to these suggestions, we have added a sentence on page 6 of the manuscript explaining that the participants in the study were those who were participating in a perfectionism treatment trial (new text in bold):

The first aim was to examine the relationships between perfectionism dimensions [13, 19] and pathological worry in a sample of participants with elevated perfectionism and GAD (n = 36) who were participating in a perfectionism treatment trial.

Furthermore, we have re-written the second and third lines of the participant section (p.7) to enhance clarity about how participants were recruited. The study inclusion criterion now immediately follows this (new text in bold):

This subset of participants with GAD was from a larger sample (n=42) of individuals with elevated perfectionism and a range of disorders who were at baseline assessment for participation in a perfectionism treatment trial. Participants had self-referred to this treatment trial in response to letters and advertisement fliers distributed to psychologists, psychiatrists, general practitioners, workplaces, and universities throughout the metropolitan area of Perth, Australia. Due to the inclusion criterion of the perfectionism treatment research, all participants had elevated perfectionism as defined by a score of greater than 24.7 on the Concern over Mistakes subscale [13].

Moreover, additional sentences have been inserted on page 8 of the manuscript to acknowledge the mean level of depression of the sample of 36 participants, and the sample of 42 participants based on the clinical cut-off ranges of the BDI-II [28]

For the sample of 36 participants:

The mean level of depression on the BDI-II was 19.44 (SD = 11.51), which indicated that the sample on average had a mild level of depression, based on the clinical cut-off ranges of the BDI-II [28]

For the sample of 42 participants:

The mean level of depression on the BDI-II was 20.29 (SD = 12.04), which indicated that the sample on average had a mild level of depression, based on the clinical cut-off ranges of the BDI-II [28]
3. Some of the correlations between the variables reported in Table 5 seem high (i.e., over 0.5) to be used in the regression analyses. This could be a problem with multicollinearity.

We thank the reviewer for this comment. Data screening indicated that the tolerance values for each predictor in each regression analysis were sufficiently high to suggest that predictors were not multicollinear [33]. A sentence stating this has now been inserted on page 12 and page 13 of the manuscript when describing each hierarchical linear regression analysis:

The tolerance values for each predictor in each regression analysis were sufficiently high to suggest that predictors were not multicollinear [33]

4. Are alpha levels reported in the Measures sections referring to Cronbach’s alpha levels? If so, this should probably be stated.

We thank the reviewer for highlighting this. To clarify that the alpha levels reported in the Measures section are referring to Cronbach’s alpha levels, \( \alpha \) has been replaced by the words Cronbach’s alpha throughout this section of the manuscript.

5. The results of this study are based on self-reported questionnaire scores from subscales which may or may not have any relevance to clinical practice and functional impairment. If the impact of perfectionism and pathological worry is being investigated in GAD, it would probably be more relevant if there was some comment about how these questionnaire results may impact on clinical practice.

We thank the reviewer for this comment. On page 17 of the manuscript three additional sentences have been inserted to highlight the relevance of these findings to clinical practice (new text in bold):

This study contributes to the literature by highlighting that significant relationships exist between specific dimensions of perfectionism, pathological worry and a principal GAD diagnosis in a clinical sample. This finding has clinical relevance as it highlights the need for mental health professionals to include questions about perfectionism when conducting assessments for individuals presenting with GAD symptomatology. The clinician could then include perfectionism in a client’s formulation if it appears to be maintaining the client’s symptoms. These findings provide a rationale for future research to examine whether treatments that target perfectionism can decrease GAD symptomatology in addition to the symptoms of other psychological disorders [1, 12].

Furthermore, on page 18 of the manuscript, one sentence has been revised to highlight the clinical relevance of these findings (new text in bold):

In sum, the current study found that significant associations exist between certain dimensions of perfectionism, pathological worry and GAD. Such findings have clinical relevance for the assessment of individuals with GAD, and provide impetus for future research to explore whether treatment of perfectionism can ameliorate GAD symptomatology [1, 12]. This may hold significant promise for improving treatment outcome in individuals with GAD.
6. Furthermore, the sample size seems small - this is a limitation that needs to be acknowledged.

An additional sentence has been inserted on page 18 of the manuscript to acknowledge the small sample sizes as a limitation of this study.

An additional limitation was the small sample sizes used in this study, which may have resulted in Type II errors [33]

7. The writing style could be improved in some areas. For example, the results section reporting on the regression analyses is particularly repetitive.

We thank the reviewer for this comment. Predictors were entered at four steps in the first linear regression model and at three steps in the second linear regression model. The repetition to which the reviewer refers was a consequence of having to report the regression results at each step. We now realise that the first three steps in the first hierarchical linear regression analysis can be collapsed into a single step, as can the first two steps of the second hierarchical linear regression analyses, without any compromise to the rigor of the analyses. Therefore, the linear regression analyses presented in Tables 2 and 3, as well as two sentences about the order of entry of predictors on pages 12 and 13 of the manuscript have been revised to reflect this reduction of steps. Additionally, we now realise that the binary logistic regression analysis is redundant; it conveys no additional information above that already conveyed by the significant point-biserial correlation between Doubts about Actions and a principal diagnosis of Generalised Anxiety Disorder in Table 5 (r = .46). We now realise that reporting the results of this binary logistic regression analysis contributed to the repetition to which the reviewer refers. We have therefore deleted the binary logistic regression analysis from page 14 of the revised manuscript. Overall, the reduction in the number of steps in the two linear regression analyses, in conjunction with the deletion of the binary logistic regression analysis has enabled us to substantially reduce the repetition in the reporting of the regression analyses.

Reviewer 2’s comments:
No additional amendments were suggested.

Editor’s comments:
The authors need to respond to Reviewer 1’s question about co-linearity and whether the results are stated as Cronbach’s alpha levels. Additionally, they need to perform a formal test for correction of multiple comparisons or how false positive and false negatives were dealt with in their data analysis.

We thank the Editor for these comments. The responses to Reviewer 1’s question about co-linearity and whether the results are stated as Cronbach’s alpha levels have now been addressed in the revised manuscript as outlined above. In this study, multiple comparisons were not conducted; rather only two regression analyses were conducted. Therefore, for this study, a formal test for the correction of multiple comparisons was not needed.
In relation to how Type I errors (i.e., false positives) were dealt with, we applied an alpha level of .05 throughout, therefore for each regression model the probability of a false positive was 5 per cent. The probability of a Type II error (i.e., a false negative) was ascertained by the power of the statistical test [33]. In this study, the most complex regression model contained four predictors. Based on the current sample size, at an alpha level of .05, the four-predictor regression model had an 80 per cent likelihood of capturing ‘moderate to large’ associations between each of the four predictors and the dependent variable [34]. Thus, the probability of failing to capture ‘moderate to large’ associations in the population was 20 per cent [33, 34]. We have inserted a paragraph stating this on pages 11 – 12 of the manuscript (new text in bold):

**Control of Type I and Type II Errors**

An alpha level of .05 was applied throughout, therefore for each regression model, the probability of a Type I error was 5 per cent. The probability of a Type II error was ascertained by the power of the statistical test [33]. In this study, the most complex regression model contained four predictors. Based on the current sample size, at an alpha level of .05, the four-predictor regression model had an 80 per cent likelihood of capturing ‘moderate to large’ associations between each of the four predictors and the dependent variable [34]. Thus, the probability of failing to capture ‘moderate to large’ associations in the population was 20 per cent [33, 34].

We look forward to the outcome of your review of this revised manuscript.

Kind regards,

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on behalf of co-authors Dr. Sarah Egan, Dr. Robert Kane, and Associate Professor Clare Rees.