

CORRECTION



## Correction to: Social Anxiety Disorder as a Densely Interconnected Network of Fear and Avoidance for Social Situations

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**Correction to:**  
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The original version of this article has been updated with an appropriate analytical approach. Hence, the initial findings have been updated on the sections Results, Fig. 1, and References.

Unfortunately, the supplementary material associated with this article is missing in the original publication. It has also been included with this correction note.

Also, Dr. Heeren affiliation has been updated.

The detailed description about the analytical approach is given below:

In the original publication of this article (Heeren and McNally 2018), we examined all 48 items of the Liebowitz Social Anxiety Scale (LSAS)—i.e., 24 distinct social situations are assessed twice, once for the intensity of fear and once for frequency of avoidance of the situation. Our rationale was twofold. First, including all items (symptoms) has been standard practice in network analyses of psychopathology. Second, because fear and avoidance are qualitatively distinct features of social anxiety disorder, we did not

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**Electronic supplementary material** The online version of this article (<https://doi.org/10.1007/s10608-018-9952-3>) contains supplementary material, which is available to authorized users.

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The original article can be found online at <https://doi.org/10.1007/s10608-017-9876-3>.

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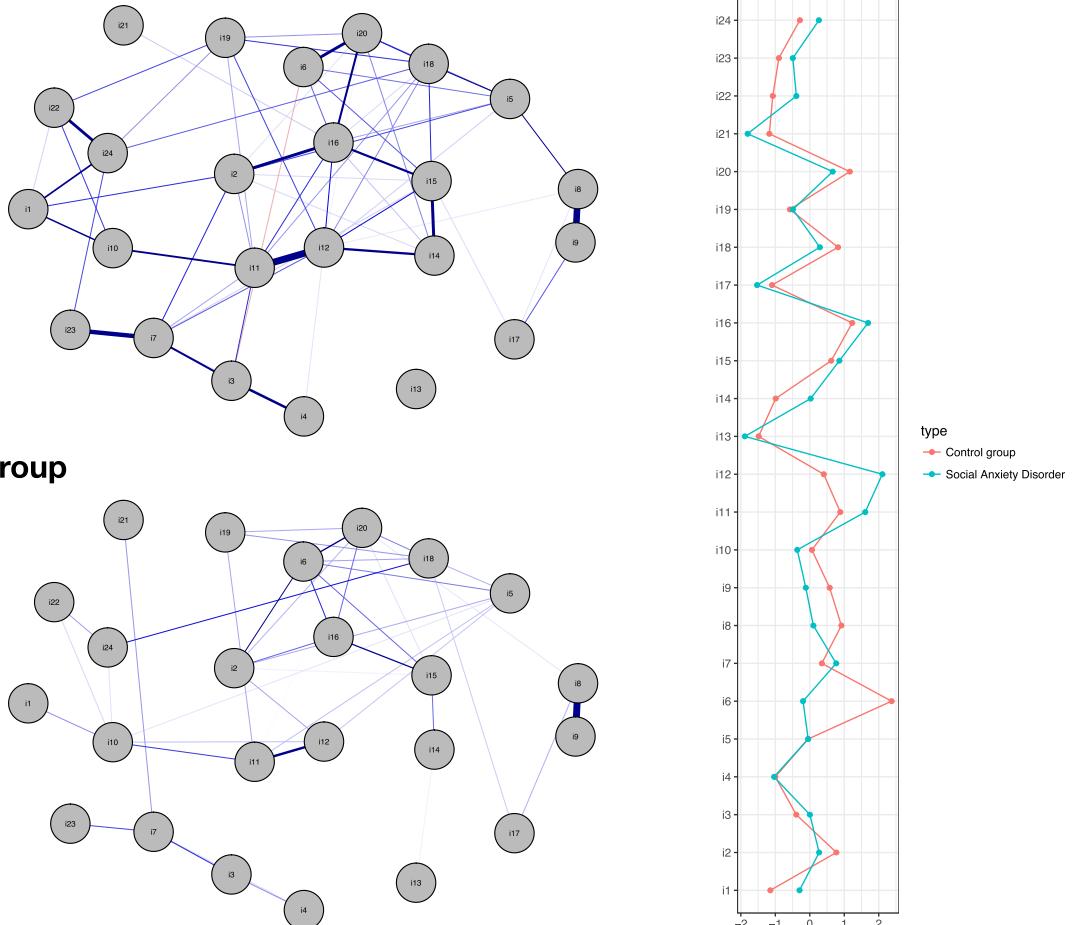
aggregate the fear and avoidance scores corresponding to each social situation.

However, while revising one of their own manuscripts concerning the LSAS (Rodebaugh et al. in press), Tonge and Rodebaugh discovered that this procedure can be problematic.<sup>1</sup> When attempting to analyze LSAS items (as we did) via an updated version of the R package qgraph, they received an error message indicating that the correlation matrix was *non-positive definite*, presumably because fear and avoidance pairs were highly correlated. Rodebaugh asked us whether we encountered this message, but we had not. After comparing our R codes, we solved the mystery. Tonge and Rodebaugh had used the latest version of qgraph, which automatically implements the *cor\_auto* function—a procedure that identifies variables as ordinal if the values consist of no more than seven integers and then calculates polychoric (rather than Pearson) correlations for the resultant matrix. When we conducted our analyses with the latest version of qgraph, we, too, received the same error message, identifying our matrices as non-positive definite. Accordingly, following Rodebaugh and colleagues (in press), we used the latest version of qgraph to re-run again our analyses after first summing fear and avoidance pairs of items. Moreover, we applied the *is.positive.definite* R function to confirm that our new matrices were positive definite (the code is available in the supplementary materials). Our reanalysis did not meaningfully change the results. Figure 1 depicts the corrected graphical LASSO networks with the tuning parameter set at 0.5. Consistent with our original findings, the Network Comparison Test revealed that the global network strength was significantly greater in the SAD group (global strength = 10.74) than in the comparison group (global strength = 8.05;  $p = .009$ ).

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<sup>1</sup> We are extremely thankful to Thomas L. Rodebaugh and Natasha A. Tonge Tonge for warning us about this issue.

## Social Anxiety Disorder



**Fig. 1** Regularized partial correlation networks of the distinct social situations returned for each group via the graphical LASSO procedure (left part) and z-scored strength centrality estimates of each node (right part). The 24 social situations are listed in Table 1 of the original paper (Heeren and McNally 2018). We used the Fruchterman-Reingold algorithm to plot the layout for the social anxiety

group, and then used this pattern of node placement for the nonclinical group, thereby facilitating ease of visual comparison between the two networks. Of note, consistent with our original findings, strength appeared as the most stable centrality index. Accordingly, we only reported strength centrality estimates

## References

- Heeren, A., & McNally, R. J. (2018). Social anxiety disorder as a densely interconnected network of fear and avoidance of social situations. *Cognitive Therapy and Research*, 42, 103–113. <https://doi.org/10.1007/s10608-017-9876-3>.

Rodebaugh, T. L., Tonge, N. A., Piccirillo, M. L., Fried, E., Horenstein, A., Morrison, A. S., et al. (in press). Does centrality in a cross-sectional network suggest intervention targets for social anxiety disorder? *Journal of Consulting and Clinical Psychology*.