

## Correction

In the article, "Further Evidence for Robust Familiarity of Pediatric Bipolar I Disorder: Results From a Very Large Controlled Family Study of Pediatric Bipolar I Disorder and a Meta-Analysis" by Janet Wozniak, MD, and colleagues in the October 2012 issue (*J Clin Psychiatry* 2012;73[10]:1328–1334), several errors were discovered that called for a reanalysis of the results. The reanalyzed results are only slightly different from those originally reported and do not change the authors' interpretation of the findings or conclusions. A new corrected version of the manuscript now appears online; the publisher has made the article free. A detailed explanation and description of the corrections appear in the below letter to the editor.

**To the Editor:** During a routine audit, we discovered an error in our article ("Further Evidence for Robust Familiarity of Pediatric Bipolar I Disorder: Results From a Very Large Controlled Family Study of Pediatric Bipolar I Disorder and a Meta-Analysis") published in the October 2012 issue of the *Journal (J Clin Psychiatry* 2012;73[10]:1328–1334).<sup>1</sup> We discovered that although the number of reported probands was reported correctly, there were 39 relatives (32 parents and 7 siblings) in the bipolar families who were mistakenly included in the analysis. We also found a coding error that caused the hazard ratios (HRs) to be calculated incorrectly. Accordingly, we completely reanalyzed the results, excluding those relatives and correcting our coding error. Except for the following statistic, no *P* values changed significance: comparison of age of the parents between groups became significant ( $P = .1$  became  $P = .0022$ ). Additionally, the HR comparing bipolar risk in first-degree relatives between groups changed slightly, but not in significance or direction (HR = 2.71; 95% confidence interval [CI], 1.57–4.66;  $P < .001$  for BPD-I vs controls; HR = 2.73; 95% CI, 1.66–4.50;  $P < .001$  for BPD-I vs ADHD; and HR = 0.99; 95% CI, 0.51–1.92;  $P = .98$  for ADHD vs controls). Figure 2 did not change because the correct sample size was used to generate the graph. We also took this chance to correct a few clerical errors in the article.

We are enclosing a new corrected version of the manuscript, highlighting these changes as well as a new Table. We are very sorry for this mistake. We want to emphasize, however, that the new results are only slightly different from those originally reported and do not in any way change our interpretation of findings or our conclusions. Thank you for your assistance in allowing us to provide this correction. Below is a detailed description of all changes.

**Corrections to Table 1:** We changed the sample size in the title to reflect the new number of first-degree relatives of BP-I probands. The original total sample size was  $N = 2,185$ , now corrected to  $N = 2,146$ .

The correct number of BP-I proband males is 174, not 99. The reported percentage of 72 was incorrectly rounded down instead of up from 72.8 (174 is 72.8% of 239), but in correcting the number of males, we took the opportunity to correct the rounding of 72.8% to 73%. Both of these errors were clerical ones and should have been caught in our internal review of the paper prior to our original submission to your journal, but unfortunately were not. However, the correct numbers were used in the analyses and, therefore, the change noted now does not affect the analyses or outcomes reported.

The degrees of freedom of the *F* test statistic associated with proband age was incorrectly reported as  $F_{2,536}$ . The correct statistic is  $F_{2,534}$ . This mistake did not affect any results.

The *P* value associated with proband age was incorrectly reported as 1.0. The actual *P* value was 0.9707, which we rounded here to 0.97. This mistake did not affect any results.

The degrees of freedom of the *F* test statistic associated with past GAF was incorrectly reported as  $F_{2,534}$ . The correct statistic is  $F_{2,532}$ .

The value of the *F* statistic associated with proband past GAF was reported with only one decimal place (778.5), which was inconsistent with the rest of the table. The correct value is 778.53.

The degrees of freedom of the *F* test statistic associated with current GAF was incorrectly reported as  $F_{2,534}$ . The correct statistic is  $F_{2,532}$ .

There were 32 parents who were incorrectly included in the original analysis. In actuality, there should have been 444 parents used in the analysis (originally there were 476 parents included). We corrected this number in the table. This affected the HRs reported as mentioned above, but did not change the direction of significance of the HRs.

Due to the decreased sample size of BP-I parents, the age of the parents changed from  $42.2 \pm 6.7$  years in the original article to the corrected value of  $42.8 \pm 6.3$  years in the corrected table. This affected the HRs reported, but did not change the direction of significance.

Due to the corrected age of BP-I parents, the associated test statistic changed from  $F_{2,1064} = 2.0$  in the original article to the corrected value of  $F_{2,1032} = 6.16$ . This change had no bearing on subsequent results or conclusions.

Due to the corrected age of BP-I parents, the associated *P* value changed from .1 in the original article to the corrected value of .0022. We added a sentence to the results section of the manuscript describing this change.

Due to the decreased sample size of BP-I parents, the gender of the parents changed from 225 (47%) males in the original paper to the corrected value of 212 (48%) males in the corrected table. This did not affect any other results or conclusions.

Due to the corrected gender distribution of BP-I parents, the associated test statistic changed from  $\chi^2 = 0.6$  in the original paper to the corrected value of  $\chi^2 = 0.38$ . This change had no bearing on subsequent results or conclusions.

Due to the corrected gender distribution of BP-I parents, the associated *P* value changed from .7 in the original paper to the corrected value of .83. This change had no bearing on subsequent results or conclusions, and the direction of significance did not change.

Due to the decreased sample size of BP-I parents, the past GAF of the parents changed from  $51.7 \pm 9.8$  in the original article to the corrected value of  $51.8 \pm 9.8$  in the corrected table. This did not affect any other results or conclusions.

The past GAF for ADHD parents was originally published as 56.9, but the actual number was 56.9659. The correct rounding of this should be to 57.0 and we have made that change in the updated table. The correct GAF score of 56.9659 was used in the analysis, and no results nor conclusions changed with this correction.

Due to the corrected past GAF of BP-I parents, the associated test statistic changed from  $F_{2,1064} = 93.5$  in the original article to the corrected value of  $F_{2,1031} = 88.61$ . This change had no bearing on subsequent results or conclusions. The associated *P* value remained  $< .001$ .

Due to the decreased sample size of BP-I parents, the current GAF of the parents changed from  $63.2 \pm 7.8$  in the original paper to the corrected value of  $63.4 \pm 7.7$  in the corrected table. This did not affect any other results or conclusions.

The current GAF of control parents was originally published as 72.9, but the actual number was 72.9691. The correct rounding of this should be to 73.0, and we have made that change in the updated table. The correct GAF score of 72.9691 was used in the analysis, and no results nor conclusions changed with this correction.

Due to the corrected current GAF of BP-I parents, the associated test statistic changed from  $F_{2,1064} = 117.1$  in the original paper to the corrected value of  $F_{2,983} = 110.25$ . This change had no bearing on subsequent results or conclusions.

The degrees of freedom dropped from (2, 1,064) to (2, 983) because degrees of freedom in the original table did not account

for the fact that many parents were missing a current GAF score. In the current analysis, 17 BP-I parents, 23 ADHD parents, and 10 control parents did not have a reported current GAF. The *P* value associated with the changed statistic remained  $< .001$ .

There were 7 siblings who were incorrectly included in the original analysis. In actuality, there should have been 243 siblings used in the analysis (250 siblings were used in the original analysis). We corrected this number in the table. This affected the HRs reported, but did not change the direction of significance of the HRs.

The removal of 7 siblings did not change the age of siblings enough to change the rounded values presented in the table, and this value is thus not highlighted. However, it did affect the associated test statistic and *P* value. The test statistic changed from  $F_{2,577} = 4.71$  in the original article to the corrected value of  $F_{2,570} = 4.14$ . This change had no bearing on subsequent results or conclusions. The associated *P* value changed from  $< .01$  in the original paper to the corrected value of  $.016$ . The direction of significance did not change.

Due to the decreased sample size of BP-I siblings, the gender of the siblings changed from 116 (46%) males in the original paper to the corrected value of 112 (46%) males in the corrected table. This did not affect any other results or conclusions.

Due to the corrected gender distribution of BP-I siblings, the associated test statistic changed from  $\chi^2_2 = 3.2$  in the original paper to the corrected value of  $\chi^2_2 = 3.42$ . This change had no bearing on subsequent results or conclusions.

Due to the corrected gender distribution of BP-I siblings, the associated *P* value changed from  $.20$  in the original paper to the corrected value of  $.18$ . This change had no bearing on subsequent results or conclusions, and the direction of significance did not change.

Due to the decreased sample size of BP-I siblings, the past GAF of the siblings changed from  $57.6 \pm 9.7$  in the original paper to the corrected value of  $57.5 \pm 9.6$  in the corrected table. This did not affect any other results or conclusions.

The past GAF of control siblings was originally published as 65.9, but the actual number was 65.9718. The correct rounding of this should be to 66.0, and we have made that change in the updated table. The correct GAF score of 65.9718 was used in the analysis, and no results nor conclusions changed with this correction.

Due to the corrected past GAF of BP-I siblings, the associated test statistic changed from  $F_{2,577} = 27.9$  in the original paper to the corrected value of  $F_{2,570} = 28.27$ . This change had no bearing on subsequent results or conclusions. The associated *P* value remained  $< .001$ .

Due to the decreased sample size of BP-I siblings, the current GAF of the siblings changed from  $62.9 \pm 7.8$  in the original paper to the corrected value of  $62.9 \pm 7.7$  in the corrected table. This did not affect any other results or conclusions.

Due to the corrected current GAF of BP-I siblings, the associated test statistic changed from  $F_{2,576} = 41.1$  in the original paper to the corrected value of  $F_{2,569} = 41.01$ . This change had no bearing on subsequent results or conclusions. The associated *P* value remained  $< .001$ .

Due to the corrected number of BP-I relatives as discussed above, the total number of BP-I relatives changed from 965 in the original paper to the corrected value of 926.

The standard deviation of the SES of control families was originally published to be 0.8, but the actual number was 0.7395. The correct rounding of this should be to 0.7 and we have made that change in the updated table. The correct standard deviation of 0.7395 was used in the analysis, and no results or conclusions changed with this correction.

The significance associated with SES was incorrectly reported as  $P = .01$  in the original paper. The correct associated *P* value was  $P = .009$ . No results or conclusions changed with this correction, and the direction of significance did not change.

Due to the decreased sample size of the BP-I column of the table, the BP-I race/ethnicity values changed slightly. The only affected value was the number of Caucasians, which changed from 916 in the original table to 877 in the corrected table. No associated percentage values changed because the decrease in sample size was too small to influence the rounded values.

Due to the change in race numbers, the associated test statistic changed from  $\chi^2_6 = 39.39$  in the original table to  $\chi^2_6 = 41.19$ . The associated *P* value remained  $< .001$ .

**Corrections to the manuscript text:** In the methods section of the abstract, we changed the sample size of relatives from the original incorrect size of 726 to the corrected sample size of 687 relatives. This is a result of removing the 39 relatives that were but should not have been included in the original analysis.

In the results section of the abstract, we changed the HR values to reflect the newly calculated values. The 39 erroneously added relatives as well as an error in coding produced incorrect HRs. The original HR comparing the likelihood of relatives of probands to have bipolar I disorder in the BP-I group compared to the ADHD group was changed from 3.02 (95% CI, 1.85 to 4.93) to 2.73 (95% CI, 1.66 to 4.50), and the HR comparing BP-I and control groups was changed from 2.83 (95% CI, 1.65 to 4.84) to 2.71 (95% CI, 1.57 to 4.66). The associated *P* value did not change in either case.

In the "subjects" section of the methods, we corrected the number of newly recruited first-degree relatives to 200, as opposed to the original 239 relatives originally reported, erroneously including the extra 39 relatives. We included this number in our previously submitted manuscript, but it was deleted in the published paper. However, we would still like to take this opportunity to fix this number. We also corrected the 726 first-degree relatives to the new sample size of 687 first-degree relatives. In our submitted manuscript, this was written as 726, but in the published manuscript appeared as 276. The correct number of relatives is 687.

In the "Expanded Sample Family Study Results" in the results section, we added a sentence describing the changed significance of parent age; in the original paper the parent age was not significant ( $P = .1$ ), but in the corrected version it became significant ( $P = .0022$ ).

In the section titled "Risk for Bipolar I Disorder in First-Degree Relatives," we again corrected the HR comparing the relatives of BP-I probands with the relatives of ADHD probands, and the relatives of BP-I probands with the relatives of control probands, as was done in the abstract. We also corrected the HR comparing the ADHD group with the control group, originally reported as 0.98 (95% CI, 0.51 to 1.91) and corrected to 0.99 (95% CI, 0.51 to 1.92). We also changed the reported *P* value from  $.96$  in the original paper to the corrected value of  $.98$ .

Thank you for your assistance in allowing us to provide this correction.

## REFERENCE

1. Wozniak J, Faraone SV, Martelon M, et al. Further evidence for robust familiarity of pediatric bipolar I disorder: results from a very large controlled family study of pediatric bipolar I disorder and a meta-analysis. *J Clin Psychiatry*. 2012;73(10):1328-1334.

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*J Clin Psychiatry* 2015;76(7):e891-e892 (doi:10.4088/JCP.14lcx09028).  
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