

Correction

GENETICS

Correction for “Genetic nurturing, missing heritability, and causal analysis in genetic statistics,” by Hao Shen and Marcus W. Feldman, which was first published September 28, 2020; 10.1073/pnas.2015869117 (*Proc. Natl. Acad. Sci. U.S.A.* **117**, 25646–25654).

The authors note that, “On page 25653, the argument that NT_{pa} and X_{ch} are correlated in Fig. 2 is incorrect because the confounding between G_{pa} and X_{pa} (U in Fig. 2), together with the confounding between X_{pa} and X_{ch} (U in Fig. 2), generate a collider $G_{pa} \leftrightarrow X_{pa} \leftrightarrow X_{ch}$, which makes NT_{pa} and X_{ch} uncorrelated.” As a result, a number of changes should be made to the article.

On page 25653, left column, third full paragraph, line 6, “For example, if in addition to the confounding of the parents genotypes and phenotypes, the parents’ and the child’s phenotypes are also confounded (e.g., by certain sociological and demographical factors, represented by U in Fig. 2), then even if there is no genetic influence, linkage disequilibrium, or parental phenotype influence, this correlation may still exist (Fig. 2)” should be deleted.

On the same page, right column, first full paragraph, line 5, “, or other mechanisms such as the combination of confounding factors U and U' shown in Fig. 2” should be deleted.

To further illustrate how pure cultural transmission, without referring to mechanisms such as genetic nurturing, can make G_{pa} and X_{ch} correlated, the published Fig. 2 and its legend should be replaced by the corrected versions shown below. Starting on page 25653, left column, second full paragraph, line 21, “(Path 4 still exists even if $NT_{pa} \rightarrow X_{pa}$ and $T_{pa} \rightarrow X_{pa}$ do not exist.)” should be replaced with “Path 4 still exists even if $NT_{pa} \rightarrow X_{pa}$, $T_{pa} \rightarrow X_{pa}$, and $G_{ch} \rightarrow X_{ch}$ do not exist, see Fig. 2. (In principle, we should also include $G_{ch} \leftrightarrow X_{ch}$ in Fig. 2 since the genotypes and phenotypes are confounded in the parents’ generation. However, adding this will not activate any path, so we neglect it for simplicity.)”.

On page 25653, left column, second full paragraph, line 17, “(such as assortative mating)” should be deleted.

In addition to the above changes, there are two typographical errors unrelated to the error described above. On page 25649, Eq. 17, an open bracket “[” should appear before the term “ $rP^m(1 - c_1)$ ”. On page 25652, right column, first full paragraph, line 2, “if there exist F_1, F_2 ” should be replaced with “if there exist F_1, F_1', F_2 ”. None of the above errors nor their corrections affect the main conclusions of the article. The corrected Fig. 2 and its corrected legend appear below. The article has been updated online.

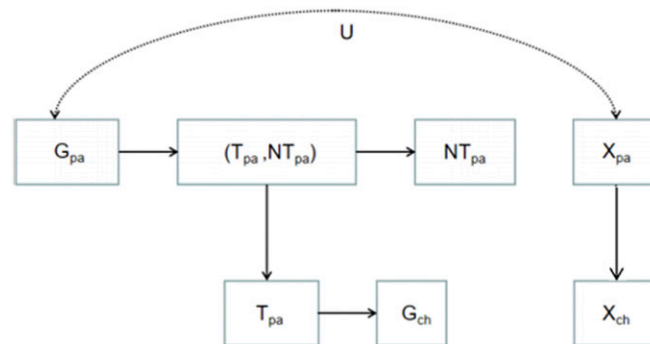


Fig. 2. A potential causal diagram where NT_{pa} and X_{ch} are correlated due to pure cultural transmission.

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Published September 1, 2021.

www.pnas.org/cgi/doi/10.1073/pnas.2113732118