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National Institute of Statistical Sciences

News Release

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For Immediate Release

Paper Refutes Notion that Eating a Certain Cereal will Result in More Male Babies

January 14, 2009: RTP, NC – Researchers S. Stanley Young, Ph.D., Assistant Director of the National Institute of Statistical Sciences, Heejung Bang, Ph.D., of Cornell University and Kutluk Oktay, MD, FACOG, Professor of Obstetrics & Gynecology and Director, Division of Reproductive Medicine & Infertility Department of Obstetrics & Gynecology from New York Medical College, wrote a paper, “Cereal-Induced Gender Selection? Most Likely a Multiple Testing False Positive,” which has been published in the January 14, 2009 online issue of the *Proceedings of the Royal Society B*. The paper questions the claims made by Mathews, Johnson and Neil (2008) in their article “You are What your Mother Eats” that was published in the April 22, 2008 *Proceedings of the Royal Society B*, and generated over 50,000 Google hits due to media interest.

Young, Bang & Oktay note that the original research by Mathews, Johnson & Neil implied that children of women who eat breakfast cereal are more likely to be boys than girls. Young, Bang & Oktay assert that the result of the original study is easily explained as chance. Young, Bang & Oktay examined the data sets from the original study and noted that 132 food items were tested for two time periods, totaling 264 statistical tests. With this many tests, it is quite likely that some apparent statistical significance will occur simply by chance.

At the standard significance level of 5% (that is, there is 5% chance that the data will show an effect even when there is none), the 264 tests will yield approximately 13 false positives unless the analysis is adjusted to account for multiple testing. Young, Bang & Oktay argue that this is precisely what happened.

“This paper comes across as well-intended, but it is hard to believe that women can increase the likelihood of having a baby boy instead of a baby girl by eating more bananas, cereal or salt. Nominal statistical significance, unadjusted for multiple testing, is often used to lend plausibility to a research finding; with an arguably implausible result, it is essential that multiple testing be taken into account with transparent methods for claims to have any level of credibility,” note Young, Bang & Oktay.

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