J. Jedediah Smith

BIFX 545

Redacted Paper Review

3/3/2022

This is a review of the retracted Elsevier article “Exposure to weapon pictures and subsequent aggression during adolescence” by Zhang et al. The paper as a whole sets out to establish a relationship between viewing images of weapons and aggressive behavior in adolescents. Their work seems to be original, and they have three clearly stated hypotheses. First, children who see weapon pictures will show more aggression than those that do not. Second, males will have a tendency to show more aggression than females. Third, individuals that already have aggressiveness traits will be more aggressive than those that do not. Aggression traits are measured using goal word reaction time. The Buss–Perry Aggression Questionnaire is used to assess aggression after the viewing of weapon photos. Zhang et al. claim validate all three of the initial hypotheses. While their introduction and discussion appear strong, there are serious issues with their data, analyses, and results.

My first concern is with data collection. The sample size is rather small, just under less than 300 participants. While they are taken from 8 different classes across 4 different schools in China, it is not stated whether these schools are in the same town or province. Even if the schools were on opposite sides of China, this still does not seem like a broad enough to generalize across the whole population, especially given the small sample size. While some confounding variables are controlled for, such as gender, mental wellness, and aggressive traits, other important factors like upbringing and socioeconomic status are completely ignored. The scope of controlled variables should be expanded, as well as the number of participants.

My second concern is with the methods. With the current state of the article, its experiments seems unreproducible. While the statistical procedures appear to be well explained, the goal words and weapon pictures used to collect data in this study do not seem to be readily available. Ensuring that these were the same would be a critical part of reproducing this experiment. Furthermore, I question the true value of using goal word reaction time to evaluate the presence of aggressive traits. It seems like a dubious method for establishing what the authors had hoped. Perhaps a more biological indicator could be used, such as genetic markers.

My third and final concern is with the statistics and analysis. It is stated clearly how that ANCOVA and MANCOVA tests were set up. This approach seems like a sound way to compare the relationship between variables. However, as pointed out by the corrigendum, there seems to be numerous misreported F-Values and P-Values, both in the text and in the charts of this article. These inaccuracies are sufficient enough to alter the outcome of the experiments. While one or two small mistakes might be understandable, I’ve counted no less than 10 misreported numbers. These grievous errors call into question the validity of this entire paper.

While the introduction and discussion seem strong and cite many other authors, this alone does not redeem the paper. Its conclusions, which supposedly validate all three of their hypotheses, are based on faulty results drawn from misreported statistics calculated using a small data set that does not account for several key confounding factors. I do not feel the paper should be published in its current form. If Zhang et al. adequately address all of the above concerns, particularly the misreported statistical values, perhaps publication could be again considered. But in its current state, this paper is not scientifically sound and any conclusions drawn from it are either misleading or invalidated by correcting for the inherent statistical errors.

Original Paper: <https://www.sciencedirect.com/science/article/pii/S0191886915005905>

Corrigendum: <https://www.sciencedirect.com/science/article/pii/S0191886918306457>

Retraction Notice: <https://www.sciencedirect.com/science/article/pii/S0191886922000587>