

# Evolutionary Basis of Stapler-Induced Human Aggression and Psychopathology

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Previous studies have observed increasing rates of human aggression and psychopathology in areas of Tutt Library containing staplers. A study was conducted to determine the nature and origins of this behaviour, and a novel and straightforward hypothesis rooted in evolutionary psychology is presented.

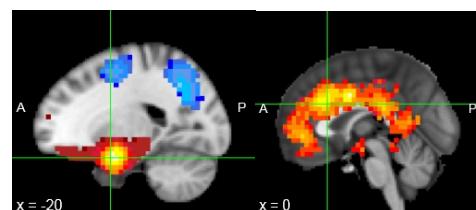
Staplers are common mechanical devices prevalent within institutions that frequently handle paper and paper products. This is due to their effectiveness in binding paper and paper products together and their relatively simple operation. The most common staplers is the manual desktop stapler, which have a mean paper binding capability of  $M = 20$  pages, 99% CI (18.0, 21.9) and loads staples of  $\frac{1}{4}$  inch lengths. The typical construction of a stapler includes the pin, spring, magazine cartridge, carriage, spring steel and tooth, base, and arm [1]. Combined with their aesthetically pleasing design and ergonomic functionality, staplers are used by millions each day in the United States and by billions of millions each month in the United Kingdom [1].

In recent years staplers have been consistently abused, broken, or destroyed at Tutt Library, and instances of aggressive and psychopathic behaviour in individuals using staplers or near staplers have increased, particularly towards the end of the block [2]. Some observed behaviours include, violent stapling, resulting in sound levels of 80 dBs, indignant facial expressions, and suspicious muttering. These behaviours are problematic as they can be socially contagious like depression, spreading aggression and psychopathology across campus, and may lead to increased violent expression among young adults [3]. While social psychologists and other similar lay theorists argue for situational explanations of such behaviours (e.g. the frustration-aggression relationship or social learning theory) and other researchers argue that such behaviours are “normal”, these explanations are inadequate and intellectually bankrupt.

We present the current study which compares fMRIs of students who use staplers and students who do not use staplers and find that students who use staplers have higher activations of the amygdala and cingulate cortices when compared to students who do not use staplers. Additionally, surveys were conducted to determine testosterone levels and alcohol usage, with the results subsequently correlated with fMRI scans.

Subjects were recruited from Tutt Library through a convenience sample with a total of five ( $N = 5$ ) subjects; however, a 40% attrition before the study began reduced the total sample size to three ( $N = 3$ ). Subjects were asked to

complete a survey of their alcohol usage for the week and self-estimated weekly testosterone levels before being scanned. Due to an incompatible pineal gland resonance during fMRI scanning, one subject was unable to proceed in the study, nor able to further participate in medullary functions. The final subject sample size was two ( $N = 2$ ) with one male in the stapler group and one female in the non-stapler group.



Figures 1 and 2. When subjects were asked to view a stapler, those who use staplers displayed activation in the amygdala and cingulate cortex.



Figures 3 and 4. When subjects were asked to view a stapler, those who do not use staplers displayed no activation in the amygdala or cingulate.

Figures 1 and 2 depict the subject in the stapler group. As evidenced by the blood-oxygen-level-dependent (BOLD) levels, when asked to view a stapler, the subject displayed increased activation in the amygdala and the cingulate cortex. The amygdala has been associated with aggression, and when electrically stimulated, docile animals become violent [4]. The cingulate cortex, particularly the right anterior cingulate cortex, has also been identified as a neuroanatomical correlate of aggression [5] and has been associated with schizophrenia [6]. Figures 3 and 4 show the subject in the non-stapler group. The subject, in contrast to the subject in the stapler group, displayed no activation in the amygdala and the cingulate, suggesting a lack of aggression associated with staplers. When these results were correlated with survey results, there was a positive correlation between amygdala and cingulate activation and self-reported testosterone levels,  $r(1) = .72, p = .05$ , and alcohol usage,  $r(1) = .76, p = .05$ . The complete methodology of the study, results of the survey, and supplemental

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appendices can be accessed from the Apocryphal Evolution and Human Behaviour website.<sup>†</sup>

We have demonstrated through a series of fMRIs and surveys the biological origins of aggression and psychopathology and its relation with staplers and the robust activation of aggression centers associated with staplers. Because of its biological origins, it is imperative to explain this phenomenon through an evolutionary perspective as all human behaviour is hard-wired into our genes [7]. It is intuitively obvious why using staplers inspire aggression and displays of psychopathology. Because the earliest human ancestors originated from the savannah of Africa and lacked the written word, their main mode of communication was orally based. Our ancestors did not have to deal with papers and paper products and their organization or ordering. Presumably then, displays of aggression and psychopathology are forms of regression towards our ancestral past, suggesting a rejection of modern civilization and a longing to return to our pastoral past. This explains why it is only those who use staplers display aggressive and psychopathic behaviour, as these are the individuals mired in bureaucratic modernity and paperwork, while those who do not use staplers, presumably, preserve their ancestral method of communication.

These behaviours have been subsequently hard-wired into our brains. Such impulses have been documented by Thomas Hobbes, who states that human beings are aggressive beings by nature, and by Sigmund Freud, who delineates the human instinct towards life, Eros, and instinct towards death, Thanatos. It is also possible that violence and psychopathology induced by staplers has a psychologically adaptive function. Since aggression must be released before it festers [7, 8], violence towards staplers may release such energy before it harms the Self.

Because of these results, we recommend that staplers be banned from all institutions and to start using paper clips. It was also suggested to one of us that the neuroeconomic approach to stapler vs. paper clip use should also be a high priority [9]. We agree and plan to conduct further studies on the neuroeconomic merits of paper clips over staplers and how we can approach this field from an evolutionary standpoint.

## Notes and references

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† www.coloradocollege.edu/apoevolhumbehavior

1 <http://www.acco.com/swingline/> accessed Feb. 29<sup>th</sup> 2012

2 <http://www.coloradocollege.edu/lifeatcc/different/> accessed Feb. 29<sup>th</sup> 2012

3 M. D. Yapko, *Depression is contagious: How the most common mood disorder is spreading around the world and how to stop it, 2009.*

4 D. M. Stoff and R. B. Cairns, *Aggression and violence: Genetic, neurobiological, and biosocial perspectives, 1996.*

5 A. D. Boes, D. Tranel, S. W. Anderson, and P. Nopoulos, *Behavioral Neuroscience, 2008*, 677-684.

6 [http://en.wikipedia.org/wiki/Cingulate\\_cortex](http://en.wikipedia.org/wiki/Cingulate_cortex) accessed Feb 29<sup>th</sup> 2012

7 Personal communication with S. Pinker and M. Gladwell, Feb 29<sup>th</sup> 2012

8 Old wives' tale

9 Private communication