Prestimulus Response in the Sympathetic/Parasympathetic Nervous System

Results:

Thirty four participants took part in a formal study examining pre- and post-stimulus responses to acoustic stimuli consisting of 1-second of 95db of white noise with a random inter-stimulus interval of 30 ± 10 s. The dependent variable was the difference between pulse-rate, which was measured by a standard 3-electrode ECG placement, prior to the choice of acoustic stimuli compared to prior to no-stimulus control. A Monte Carlo method was used to assess statistical relevance of the data.

Two sets of data were collected to ascertain any Decision Augmentation Theory effects (i.e., experimenter psi): Condition A with 16 stimuli/participant and Condition B with 48 stimuli/participant.

The best participant produced a pre-stimulus effect size of 1.02 ($z = 2.05$, $p = 0.02$); however, the results across all 34 participants were disappointing. Combining the two conditions resulted in a total stimuli count of 518 contrasted with 512 silent controls. The effect sizes were 0.043 and 0.006 for Conditions A and B, respectively, which indicated there was no observed prestimulus pulse rate response to acoustic stimuli compared to controls.

It is difficult to ascribe a meaning to a null result; however, we do consider a number of potential explanations.

- We did not screen participants for native ability in this particular setup, so it remains possible that we did not have psi talent in the participant pool.
- Contrary to expectations, heart rate may not be subject to prestimulus response effects.
- This particular study was plagued with difficulties from its inception. Some of these issues arose because we were not well trained in heart-rate measures and analyses. The result was that we had to restart the study learning as we went. This had two important side effects. The first is that it sharply reduced the available participant pool from which we could draw, and secondly and most importantly it had a demoralizing effect on the researchers.

This last point requires further discussion. It is a well-established effect that set and setting play an important role in experimental psychology and perhaps a determining role in parapsychological experiments. One of the strongest effects in the PSI literature is the so-called sheep/goat effect which may be a strong manifestation of this effect

Because of the frustrating beginning to the study and because our team is strongly accustomed to obtaining positive results, we all became discouraged and less attentive to this study. Perhaps at a minimum this contributed to the null result or, at worst, maybe "caused" the null result.

Area(s) of interest:

Application of Decision Augmentation Theory to prestimulus response data

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