

Student Critique of Kevin D's Proposal

Your background information on dopamine, serotonin, ASR, and PTSD is good and succinct. You mention all the major points relevant to the topic and your logic is easy to follow. However, the introduction leaves me wondering whether the proposal is relevant to the ear, other than just the acoustic startle reflex (which has motor components as well). I feel as though to make this proposal more relevant to the Neurobiology of *Hearing* course, one would have to find a way to manipulate the organs of the ear or some other part of the auditory pathway and tie it in with the ASR. Although it may be deduced, I feel as though the significance should be more clearly stated – the treatment of PTSD could be highlighted more. The dopamine modulation of ASR is interesting, are there specific regions of the brain where the dopamine levels have the greatest impact on ASR? Does it have to do with reward pathway in which dopamine is greatly implicated?

Your proposal has a testable hypothesis. Perhaps, it could be phrased a little better to make the meaning more clear. Are you trying to determine whether measuring ASR can predict SSRIs' effectiveness as a treatment for PTSD? If so, the title for the proposal does not seem to fit as well and the background information should include more on this matter; more than just "and may be manifested as a decreased ASR."

Your experimental design includes the components necessary to test the hypothesis (measuring ASR and measuring levels of dopamine and serotonin in the brain) and therefore is suitable for how I interpreted the hypothesis.

Your expected results seem to address a different hypothesis and experimental design. You mentioned in the background that SSRIs have already been used as effective drugs to treat PTSD. In addition, your source entitled "Exaggerated Acoustic Startle Reflex in Gulf War Veterans With Posttraumatic Stress Disorder" already addresses the question whether PTSD patients will exhibit increased ASR compared to a control group. I think in this section, or earlier, you could make it clear that the new, original idea that you are addressing is that measuring ASR can determine the effectiveness of SSRIs in PTSD patients (if that is the hypothesis you were aiming for). I would have expected the expected results to be more about whether ASR of PTSD patients is somehow correlated with SSRI treatment (that after treatment, decreased ASR of PTSD patients can predict effectiveness)? These two ideas seem to be disjoint in this section, while I had initially interpreted the proposal as addressing them together.

In your "Conclusions and Implications" section, I am not sure whether I understand exactly what the aim of your proposal is and whether it is original enough when compared to your sources. However, I found the following statement effective and important: "In addition, this study does not control for sensorineural or conductive hearing loss among PTSD patients; this is especially relevant to combat veterans who may have been injured in situations that damaged their hearing,

thus affecting their ASR because they cannot hear the stimulus as well. Further studies would have to control for such a variable.” Pointing out the need to control for such a variable is important, and you might want to consider accounting for it in your experimental methods instead of simply stating it. On the other hand, you could have used this variable of hearing loss among PTSD patients to make your experiment more original and to add something new to this topic area.

Overall, I thought your proposal was concise and hit a lot of the important points (such as a testable hypothesis and clear background information). I think your idea is strong and interesting, and very relevant to today. However, I think the main weakness of this proposal is lack of relevance to the Neurobiology of Hearing class. I would have wanted to see something more related to the ear (structure/physiology of IHC, OHC, cochlea, VIIIth nerve, etc.) other than a motor reflex to an auditory stimulus (ASR).