

Case Analysis: Summative Assessment

Brain and Behavior

Dr. Joelle Dayan

(15% of Final Grade)

The Problem Under Investigation

As a neuropsychologist specializing in the neurological bases of Post-Traumatic Stress Disorder, you have been asked to investigate the case of Jared, a young adult who has been struggling with the effects of PTSD since his return from Afghanistan 3 years ago. Despite several attempts at treatment, Jared's symptoms have only worsened, and Jared (and his therapist) are worried that he will seriously hurt someone if his symptoms don't get under control. His current therapist believes that perhaps the problem is that previous theories of PTSD do not fully explain its underlying neurological bases. However, new research has emerged, and you think that taking a closer look at this new research might help you to propose a new, more comprehensive theory regarding how PTSD develops, which may ultimately help to find new treatments for this disorder.

To develop this new, comprehensive theory, you must use the following sources:

- Your course textbook, class notes, and other activities done during the semester
- Jared's case study found on page 6 of this document
- DSM-V diagnostic criteria for PTSD found on page 8 of this document
- The article "What's really going on in PTSD brains? Experts suggest new theory" (2016), found on page 11 of this document.

Using evidence from Jared's case study report, the article, and your textbook, you will write a 1500-1700 word report geared to other neuropsychologists who are looking forward to hearing about your new insights regarding the roots and development of PTSD. Your report must address the questions below.

The following questions represent the sections of your report. Thus, make sure to provide a subtitle prior to each section. The subtitle should consist of no more than 3-4 words that represent the content that is being discussed in that particular section.

Discussion questions:

1. Provide a description of Jared's symptoms, identifying the following:
 - a. A description of Jared's main PTSD symptoms: Compare Jared's symptoms to the DSM-V diagnostic criteria for PTSD (See DSM-V criteria for PTSD on page 6 of this document). Through this comparison, you must decide whether Jared meets the criteria for a diagnosis of PTSD.

- b. Events that might have triggered the onset of Jared's PTSD
 - c. Early life factors that might have placed Jared at risk for PTSD
 - d. A description of the present contexts or triggers for which Jared's current symptoms are likely to occur
 - e. Attempts that Jared has made to cope with his PTSD symptoms
2. What role might epigenetics play in Jared's case of PTSD? Is there any evidence that early life experiences might have produced epigenetic changes that might have made Jared more prone to developing PTSD? Explain how these epigenetic changes might have occurred. (Refer to module 4.1 of your textbook, as well as class notes and in-class activities related to epigenetics).
3. Explain the initial stress response that would have occurred at the moment when Jared was faced with enemy mortar. Make sure to explain the roles of the various brain areas involved, as well as the roles of the neurotransmitters and hormones that would be activated. In what ways was this initial stress response beneficial for Jared? (Refer to chapter 11, Emotional Behaviors, of your textbook)
4. Explain the role of the following brain areas in the main PTSD symptoms that Jared is presenting (Refer to chapter 2 (pg 52), chapter 3, chapter 11, and chapter 12). Show how each of these brain areas contributes to Jared's symptoms.
 - a. Amygdala
 - b. Hippocampus
 - c. hypothalamus
 - d. Prefrontal cortex
 - e. Neurotransmitters & hormones
5. Using information from the textbook (chapter 11), class notes, and the article provided, explain how Jared's PTSD might be explained by a. fear conditioning model, and b. amygdala activation model. Explain why neither of these models is sufficient to explain the onset and maintenance of PTSD.
6. How does the contextual processing model proposed by Liberzon offer a more complete understanding of the brain circuitry involved in the development and maintenance of PTSD. Show how this model may account for Jared's symptoms.