

**WHITE PAPER**

**A Review of ‘Understanding the Neurobiology of Trauma  
and Implications for Interviewing Victims:’  
Are We Trading One Prejudice for Another?**

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## Introduction

Over the past several years, a movement for trauma-informed care has emerged from what proponents have identified as the need to recognize and treat survivors of sexual assault in a manner that does not re-victimize them during care, treatment and subsequent investigations. While there clearly is a need to avoid re-traumatization of victims during treatment and investigative interactions, a closer examination of the evidence supporting the training and use of trauma-informed practices is needed before relevant reforms are made to the criminal justice process. This is particularly true for the use of trauma-informed approaches during sexual assault investigative interviews, where proponents claim that such methods improve impartiality and fairness, which in turn, increase just outcomes in sexual assault cases.

The issue at hand, as noted by the authors of the training bulletin, “Understanding the neurobiology of trauma and implications for interviewing victims” (Wilson, Lonsway, and Archambault, 2019<sup>1</sup>), is that victims of sexual assault often are misunderstood – or even not believed -- when they give an account of their experiences to criminal investigators. The claim is that some of the misunderstanding and/or disbelief comes from the investigator being ill-informed about how trauma affects the brain. Thus, Wilson et al. (2019) offer a description of brain functions in cases of trauma in general (layperson) terms, to help the reader avoid these misperceptions. Most of the training bulletin, in fact, is a description of how the brain works; rather than “be limited to ‘soft science (i.e., social science) when describing the nature and impact of trauma...[they offer a] discussion using ‘hard science’ (i.e., changes in the brain during and following trauma),” apparently under the assumption that neuroscience is more convincing than psychology.

What follows here are (I) comments on the authors’ strategy of offering anecdotes to illustrate various points, although we understand that these are assumed to have some pedagogic value, followed by (II) challenges to their assertion that understanding brain processes is a necessary precursor to a reliable and valid (and appropriately sensitive) investigative response to an alleged assault. We then (III) review the authors’ descriptions of brain anatomy and functions as these relate to trauma. The description offered by Wilson et al. (2019) is at a level so general (and without specific references) that a detailed critique was sometimes difficult. We offer commentary (IV) on the relevance of understanding brain anatomy to conducting effective investigative victim interviews, and whether such an education is necessary or even useful (apart from as a persuasive medium). More importantly, we address the central question (V) of whether memories are impacted by trauma in such a manner that peculiar techniques are necessary for recall of those memories.

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<sup>1</sup> This report lists 2016 as its publication date. It is available on the End Violence Against Women International (EVAWI) website (<https://www.evawintl.org/Library/Detail.aspx?ItemID=842>) that describes the report as updated in July 2019. As far as we can tell, there are only relatively minor editorial differences between the two versions.

The last sections of our paper provide what we expected Wilson et al. (2019) to do, but did not: (VI) a description how an undue emphasis on brain science increases the likelihood of making assumptions about the victims (and suspects) of sexual assault that may hinder an investigation. We offer some suggestions about how to recognize and avoid these biases. Finally, (VII) we briefly describe interview methods that can be used appropriately with victims – as well as witnesses and suspects. The Cognitive Interview (Fisher & Geiselman, 1992) was constructed specifically for victim and witness interviews. The Cognitive Interview has much in common with the National Institute of Child Health and Human Development (NICHD) Investigative Interview Protocol (e.g., Lamb, Orbach, Hershkowitz, Esplin, and Horowitz, 2007), constructed in part because of highly publicized instances of “the counterproductive ways in which alleged victims of sexual abuse are sometimes interviewed” (Lamb et al., 2007, p. 2).

Note: we use the term “victim” in this review as this is the term used in a recent bulletin by Haskell and Randall (2019) published by the Department of Justice Canada.<sup>2</sup> As they did, we acknowledge that during the investigative process, “alleged victim,” “complainant,” or “witness” are likely better characterizations than simply “victim” because an investigation of sexual assault should proceed with as few presuppositions about the status of the complainant (or alleged attacker) as possible. Thus, for purposes of this review, when referring to the impacts of assault, we use the term “victim,” and when referring to the complainant of a sexual assault, we use the term “alleged victim.”<sup>3</sup>

## **I. The Use of Case Examples as Evidence Rather Than Illustration**

A general concern we have with regard to the training bulletin is the development of broad conclusions drawn from case examples and their use to support assertions made within the document. As written, the bulletin does not provide sufficient evidence to support conclusions reached on the basis of the anecdotes. The authors use case examples or narratives to illustrate their belief that special training is required to conduct victim interviews because narratives, by their nature, are persuasive. For example, the bulletin opens with descriptions of three cases where sexual assault victims were not believed by investigators during interviews and concludes from these illustrations that “victims of sexual assault and other crimes have been subject to interview techniques that are at best ineffective -- and at worst inappropriate or even abusive” (p. 5). The bulletin does not describe any of the interview techniques used by the investigators, and instead, relies on

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<sup>2</sup> The bulletin written by Haskell and Randall (2019) for the Department of Justice Canada appears similar in scope and intent to the paper by Wilson et al. (2019) reviewed here. The Canadian review succinctly describes the traumatic impact of sexual assault on victims (including myths and misunderstandings about how sexual assault affects victims), the neurobiological impact of trauma on the brain, how trauma affects memory and recall, and promising practices when interviewing sexual assault victims, with each section appropriately referenced while keeping anecdotal narratives to a minimum. We do not, as Haskell and Randall do, support Forensic Experiential Traumatic Interview (FETI) as an interview method (FETI lacks the empirical support of the Cognitive Interview and the NICHD Protocol) but the review might otherwise be useful.

<sup>3</sup> We concur that when speaking to a complainant, it is imprudent and it may appear unsympathetic for a police investigator to use the term “alleged (or reported) crime” (Wilson et al., 2019, p.38). However, when speaking about the complaint to others, “alleged” is the appropriate term.

the disbelief of victim statements as proof of the need for improved interviewing methods.

Further, because narratives focus on experiences instead of general truths, the stories are seen to support the accuracy of the narrative claims. Curtis (1994) noted that many narratives, such as the case examples in the Wilson et al. (2019) bulletin, link their events into a cause-and-effect relationship. Despite a number of other possible causes for the outcomes (e.g., poor interview training, malingering on the part of the victim), these types of cause-and-effect narratives encourage conclusions that are viewed as justified by and inevitable based upon the narrative. It is the combination of the inevitability of the cause-and-effect description with the lack of a need for justification that allows narrative conclusions to be believed as evidence and make countering their claims difficult (Graesser and Ottati, 1995). This issue is compounded by research suggesting that people are more willing to accept evaluations from narratives than from more logical-scientific arguments (Green and Brock, 2000; Slater and Rouner, 2002) and that a narrative can be persuasive even if the audience knows that the narrative is fictional (Green and Brock, 2000). Thus, the use of anecdotes, case examples, and narratives should be made carefully, ensuring that they neither purposefully nor inadvertently lead readers to inaccurate or unsubstituted conclusions.

## **II. Understanding Brain Processes as a Necessary Precursor to a Robust Investigation of Sexual Assault**

The authors justify the need for interviewers to better understand the neurobiology of trauma (and “critical improvements in the way interviews are conducted” [p. 5]) by focusing on “common victim reactions and behaviors (p. 7).” There are a number of issues with this justification:

- The authors do not describe the prevalence of “common reactions and behaviors” (i.e., how many victims of sexual assaults show reactions, behaviors, and neurostructural changes?) to support the need for improved investigator training on the neurobiology of trauma.
- The authors describe the experience of trauma as a single experience, however, individual experiences of trauma may be due to a single event or multiple, repeated, or prolonged events, each with implications for potential neurostructural changes. Such experiences can include interpersonal assaults, which are events that occur (and often reoccur) between the victim and a person familiar to them (e.g., spouse, parent), such that the experience is repeated or sustained (SAMHSA, 2014). This issue is critical to the authors’ description for the neurobiology of trauma (see below).
- The authors acknowledge that trauma is a “fundamentally subjective event (p. 6),” recognizing that an event that is traumatic to one person may not be to another and that due to individual differences, not all brains respond to trauma in the same way. It would be appropriate, therefore, for the authors to describe in some detail

factors that do affect the impacts of trauma (see SAMHSA, 2014, Exhibit 1.1-3 for a list of social-ecological variables that influence the experience of trauma), as it could be expected that knowledge of these would be useful to an investigation of an alleged assault. The authors have omitted such descriptions from the bulletin.

- The authors focus on the potential effects of trauma on victims but make no mention of resilience and its effects on victim reactions, behaviors, and neurostructural changes. By doing so, as written, the authors seem to treat all incidents of trauma as inducing post-traumatic stress disorder (PTSD) (e.g., "...brain circuitry established during a sexual assault will not just 'go away,' simply because the assault ended (p. 8)". In fact, SAMHSA (2014) reports that most individuals are resilient despite experiencing traumatic stress, an aspect of trauma that investigators should be aware of, lest they make unwise assumptions about the status of the victim. Genetic, biological, psychological, and historical factors influence each individual's resilience to trauma. In addition, resilience is not a constant – it can wax and wane based upon a number of factors both internal and external to the individual. Research suggests that instead of specific individual traits that are predictive of resilience to trauma, more general characteristics such as individual neurobiological characteristics (Feder, Charney, and Collins, 2011), flexibility in adapting to change, beliefs prior to trauma, sense of self-efficacy, and ability to experience positive emotions (Bonanno and Mancini, 2011) influence resilience.
- Beyond a passing mention that drugs or alcohol affect brain responses to trauma and threats, the authors do not provide any consideration of potential comorbidities with traumatic stress. For example, SAMHSA (2014) notes that there is a bidirectional relationship between experiences of trauma and substance abuse (which can cause neurostructural changes) and between experiences of trauma and mental illness (which is known to be correlated with neurostructural and/or neurochemical changes). Additionally, substance abuse increases one's vulnerability to the effects of trauma, and reduces one's ability to take actions that might reduce the impact of the trauma. On the other hand, experiencing a traumatic event increases the likelihood of substance abuse, which in turn, increases the likelihood of experiencing trauma. A similar relationship is seen with mental illness and experiencing trauma.
- The authors do not describe how investigators are to determine which victims are experiencing trauma and which are not (i.e., if new methods are developed based upon the neuroscience of trauma, when should these special trauma victim interviews be conducted when not every victim experiences trauma or trauma-related brain changes?).

### III. Over-Simplification and Errors in Descriptions of Brain Processes

A large portion of the bulletin consists of a description of brain functions in nontechnical (layperson) terms, in an attempt to help the reader better understand how trauma appears to affect the brain. Specifically, the bulletin describes attention, perception, memory (encoding and retrieval), and emotions. Each of these cognitive processes have been extensively researched and their corresponding cortical areas identified through neuropsychological and neuroimaging studies. We have a good understanding how certain disease processes, for example, affect these processes. What is less understood, however, is the effects of subjective experience on these processes. For example, we may know how a lesion to the hippocampus (an objective event) may affect memory, but we do not know how a subjective event (traumatic for one, not traumatic for another) may affect memory. Over-generalizations and assertions in the bulletin that cannot be supported by current science make some of these descriptions problematic for the intended audience(s), and problematic for this review because the descriptions are offered at a general level and without specific references.

- The bulletin contains statements that are concerning as written, such as, "...many responses to trauma...are often automatic...many of the circuits that condition or response to trauma have been ingrained or "baked" into the brain (p. 7)." It is unclear which responses to trauma are assumed to be automatic and ingrained into the brain. There are many examples of similar statements throughout the bulletin.
- The impacts of trauma on memories and recall *are widely variable*. The stress accompanying and resulting from trauma may produce strong memories (McGaugh, 2000; McGaugh and Roozendaal, 2002), impair memories (Salehi, Cordero, and Sandi, 2010), have no effect on memories (Shermohammed, Davidow, Somerville, and Murty, 2019), or increase the possibility of false memories (Strange and Takarangi, 2012). Sometimes people remember more than what was there (boundary extension; Intraub, Gottesman, Willey and Zuk, 1996) and sometimes less (boundary restriction; Takarangi, Oulton, Green, and Strange, 2016). In addition, the types of effects that stress exerts on memory appear to depend critically on several factors related to the person (such as a history of previous assaults; Bolstad and Zinbarg, 1997) and the nature of the experience, such as whether the attack was by a stranger, included weapons, and resulted in physical injury (Bownes, O'Gorman, and Sayers, 1991), and even whether or not the victim disclosed information about the assault (Ullman and Filipas, 2001).
- The authors describe one of the roles of the prefrontal cortex (PFC) as being to integrate "memory data into narrative 'stories' (p. 9);" however, recent research shows that the neural networks involved in narrative formation are currently unknown. Neuroimaging research suggests that the integration of various pieces of information for a narrative involves the functional teaming of posterior cortical networks while narrative coherence involves the frontoparietal network (Assouline and Mendelshon, 2019), not just the PFC.

- Similarly, Wilson et al. (2019) state that if one is “not focused on something, it probably won’t get encoded into memory, so you won’t remember it (p. 9)” when they describe the role of the PFC in attention. Although deliberate attention is generally needed for the formation of explicit or declarative memory, nondeclarative or implicit memories can form without conscious attention (Squire and Zola-Morgan, 2015). Additionally, although held for only brief periods of time, sensory memory, which allows us to retain pieces of the large amounts of information gained through our senses that we encounter throughout the day (Siegler and Alibali, 2005), does not require conscious attention. The oversimplification of cognitive processes by Wilson et al. (2019), such as memory; is problematic; for a review of current models of memory, see Camina and Güell (2017).
- The description of “attachment circuitry,” defined as that “which allows us to connect emotionally with other human beings” (p. 18), does not appear to be based on current findings. The authors claim that in most sexual assaults, “activating this attachment circuitry both creates confusion in the brain and suppresses our defense circuitry (p. 18).” The authors also describe how fear during sexual assaults is felt at a visceral or gut level and the combination of confusion and fear triggers a “powerful sense of mental defeat, where the victim’s brain appraises the sexual assault as inevitable and escape as impossible (p. 19).” Although research exists on the interaction between trauma experiences and attachment, this work focuses on the effects of such experiences in early life, particularly at the hands of a caregiver (e.g., Opendak and Sullivan, 2016). We were unable to find any evidence that attachment creates “confusion” in the brain and suppresses the defense circuitry in adult victims of sexual assault or victims of single incident traumas, nor any evidence to support their claims that a victim brain’s feels “mental defeat” during the assault. In reviewing literature on attachment and trauma, we discovered research showing that seeking interpersonal attachment and support after a traumatic experience has a number of positive effects, including the amelioration of both experiential and neural-level fundamental stress responses (Coan, Schaefer, and Davison, 2006), reduced attentional bias to threat (Mikulincer, Gillath, and Shaver, 2002), enhanced prosocial behavior (Mikulincer, Shaver, Gillath, and Nitzberg, 2005), reduced pain perception (Master et al., 2009), and diminished pain-related neural activation (Eisenberger, Jarcho, Lieberman, and Naliboff, 2006). Thus, interpersonal attachment seems to be important for recovery after traumatic experiences.
- The description of survival reflexes, while generally accurate, includes unnecessary rhetoric. For example, in the discussion of tonic immobility, the authors state that victims are “totally ‘present’ for, and tormented by, the horrifying bodily sensations and emotions... (p. 20).” Instead, it would be beneficial for Wilson et al. (2019) to focus on scientific findings to make their point. Tonic immobility has been documented in the animal kingdom for over three centuries, and is defined as an innate behavioral response identified by a

temporary loss of physical responsiveness to external stimulation that occurs in response to extreme threats (Ratner, 1967).

We found two studies on the measurement and correlates of tonic immobility during sexual assault that indicate that the prevalence of tonic immobility during sexual assaults is anywhere from 37% to 70% per self-report (Abrams, Hons, Carleton, Taylor, and Asmundson, 2009; Möller, Söndergaard, and Helström, 2017). We should note that tonic immobility has primarily been studied in animals, where immobility is a common adaptive defensive behavior when a potential threat is detected (Maser and Gallup, 1977). Human studies of tonic immobility rely on retrospective self-report and psychometric measures because it is obviously impossible to study tonic immobility during a traumatic experience. Some, such as Volchan et al. (2011), have used proxy measures such as amount of body sway (horizontal upper body movement while standing still), heart rate, and heart rate variability to identify tonic immobility in individuals with PTSD. The relevance of such research to victims of sexual assault is unclear. Interestingly, Wilson et al. (2019) choose to use the term, “collapsed immobility”(p. 16) to describe what the medical literature terms, “vasovagal syncope,” or in layperson’s terms, “fainting.” The literature does support the finding that fainting is considered a survival reflex that may occur during sexual assault.

- The authors incorrectly name and describe “habitual behaviors” demonstrated by sexual assault victims. Habitual behaviors are considered to be reactive and inflexible (Gillan, Otto, Phelps, and Daw, 2015; Wood and Rüniger, 2016). The authors identify “never to act rudely (p. 22)” as an example of a habitual behavior that a sexual assault victim might engage in. Clearly, the decision to not act rudely does not meet the definition of a habitual behavior.
- The authors also claim that Broca’s area (important for the production of speech) becomes impaired during traumatic experiences. We could not find evidence showing that Broca’s area is affected *during* such experiences. Instead, there is research that there is a decrease in activation of this area in people suffering from PTSD when exposed to their own trauma script (Rauch et al., 1996). We should note that there is some evidence of unique identifiable speech patterns and tone in individuals suffering from PTSD. In a small sample of participants, Marmar and his colleagues were able to use artificial intelligence to distinguish voices with or without PTSD with 89% accuracy (Marmar et al., 2019). As a side note, the authors use an example from a movie to illustrate (incorrectly), what they term, “habitual speech” which goes to our concern regarding their use of narratives and anecdotes to illustrate their points throughout the bulletin.

#### **IV. An Undue Emphasis on Brain Science Increases the Likelihood of Hindering an Investigation**

Along those lines, we assert that making assumptions about the status, characteristics, and memory facilities of an alleged victim based on what we may presume to know in

general about brain processes, risks making the investigation biased. How might this happen?

- *Confirmation bias.* Confirmation bias occurs when an investigator seeks information to confirm what he or she already knows, and is blind or indifferent to evidence to the contrary (Kassin, Dror, and Kukucka, 2013; Nickerson, 1998). Wilson et al. (2019) assert that “an impaired prefrontal cortex [also] means that we lose the ability to control our attention and encode memory data into an integrated narrative (p. 15).” As an example of confirmation bias, an investigator trained to assume this view of the impacts of trauma on how an alleged victim will tell their story might look for a narrative that lacks coherence – and assume that a victim that offers a coherent, logical, highly detailed account of an assault is being deceptive.

It is important to note here that even using the term “victim” to refer to someone who has alleged a sexual assault is an instance of confirmation bias – if the investigator assumes that a complainant has been victimized and/or traumatized, he or she will make assumptions about the incident that are problematic to a fair and just investigation. We do not assert that a victim should be treated as if he or she is lying, but that they should be approached in an unbiased manner, in the same way that the alleged attacker should be approached: as a person who has a story that must be heard as well as possible, in order to understand what is true. A humane and respectful attitude towards an alleged attacker is consistent with good interviewing (as described below); in fact, individuals who have been convicted of sexual assaults report that they were more likely to admit to their crimes if the interviewer treated them humanely (Guðjónsson and Sigurdsson, 1994; Sigurdsson and Guðjónsson, 1996).

- *Stereotypes.* Similarly, investigators are well-advised to be aware of their own stereotypes regarding those who assault and victims of assault (e.g., Schuller, McKimmie, Masser, and Clippenstine, 2010). That is, what generalizations does the investigator make about people who are alleged victims or about people who allegedly assault? Expectations based on such generalized knowledge will affect how the investigator sees both, and how he or she responds to them (e.g., Donnelly and Kenyon, 1996). These biases can have subtle yet powerful effects on an investigation. For example, they may affect how an investigator approaches those whom they interview, the words they use and the questions they ask.
- *False information effect.* Considerable research has demonstrated what is called the false information effect (Loftus, 2003). This occurs when information provided after an event interferes with memory of the event. Criminal investigations are vulnerable to false information effects when the investigator asks specific questions rather than letting an alleged victim tell their story. For example, based on a description of how trauma might affect brain processes (such as that offered by Wilson et al., [2019, pp. 2 and 16]), an investigator might ask about experiences of “dissociation,” “tonic immobility,” or “collapsed

immobility.” An alleged victim who is feeling unsure and is unfamiliar with police questioning might search for memories of such experiences even when they did not occur.

## **V. Do Trauma Victims Require Special Interview Methods to Assist in a Criminal Investigation?**

In this review, we do not comment on therapies helpful to trauma victims (for such guidelines, see for example, American Psychological Association [2017] and Institute of Medicine [2011]). Our comments are confined to criminal investigative processes.

The goal of a criminal investigation is to gather as much evidence as possible regarding the event under investigation. Victims of sexual assaults may be traumatized in ways similar to victims of other kinds of potentially traumatic events, such as child neglect, other kinds of emotional or physical abuse, family/domestic violence, other interpersonal violence, school and community violence, serious accidental injury, catastrophic medical illness, traumatic bereavement, or mass casualty events (Cook, Newman, and Similoa, 2019). Examination of studies across these domains did not reveal any evidence to support the notion that victims of potentially traumatic events require interview methods that are different from those that have been shown to be most effective for accounts of events that are presumably not traumatic. In fact, one of the most robust – and most studied – methods of interviewing victims and witnesses, the Cognitive Interview, was constructed specifically for such interviews, as part of a request to the academic and scientific community by the U.S. Department of Justice to construct an interview protocol that was different from the accusatorial protocols common to American police departments (Kelly and Meissner, 2015; Meissner, et al., 2014). Previous reviews of interview protocols purported to be especially useful to trauma victims (e.g., the Forensic Experiential Trauma Interview; Meissner, 2014) also have failed to support the assertion that memory processes (encoding, consolidation, or recall) are so unique in instances of trauma that special protocols are necessary or even useful. What is necessary, of course, is to approach the subject of an investigative interview – whether they be an alleged victim, alleged witness, or alleged attacker – with humanity, respect for their rights as a person, and in as unbiased a manner as possible.

## **VI. Conclusions: Is it Essential for Investigators of Sexual Assault to Understand Brain Processes?**

As Wilson et al. (2019) and others (e.g., Haskell and Randall, 2019; Lonsway and Fitzgerald, 1994; Lonsway & Archambault, 2012; Temkin & Krahé, 2008) note, victims of sexual assault may not behave as expected. For example, they may “have difficulty talking about “what happened next” during the sexual assault and their interview may include details that they are unable to sequence and violations of expectations” (Wilson et al., p. 37). We agree that such interviews often will proceed in unexpected ways. Wilson et al. (2019) assert that understanding brain processes associated with trauma will assist an investigator in avoiding erroneous expectations (“neuroscience research is now fostering a better understanding of the impact that trauma has on crime victims, and this

has the potential to yield a number of critical improvements in the way interviews are conducted,” p. 5). We do not argue with the assertion that investigative processes regarding sexual assaults need to be informed by science.

Unfortunately, the neurobiology of trauma information provided in the Wilson et al. (2019) bulletin does not contribute in any meaningful way to justify the need for trauma-informed interviewing methods. The authors fully acknowledge that the experience of trauma is extremely subjective. SAMSHA (2014) notes that many individuals who report traumatic experiences show few or no lingering symptoms, thus the true magnitude of the issue is difficult to quantify. Further, a number of biological, social, and ecological factors (both internal and external to the individual) influence the experience of trauma. For example, research has indicated that resilience, use of psychopharmacologic substances (e.g., drugs, alcohol), and frequency and type of trauma all affect the subjective experience of trauma, however, none of these mitigating factors are described in the Wilson et al. (2019) bulletin.

The meaning of our current understanding of the brain, as described above, for investigations of assault is difficult to ascertain because the impacts of traumatic experiences on memories and recall are variable, as noted. This means that an investigator who makes assumptions about the status of an alleged victim risks biasing the investigation in ways that increase the likelihood that either the innocent will be found guilty or the guilty will go free.

As noted, there may be a tendency for an investigator trained in the (apparent) neuroscience of trauma to expect particular symptoms and make assumptions about a victim that, although likely in general, may not be true for that particular person. Wilson et al. (2019) assert that understanding brain processes provides sufficient protection (“an understanding of neuroscience and the impact of trauma can transform the way victims are interviewed,” p. 38). In fact, assertions about brain processes in instances of trauma runs the risk of leading an investigator to assume that he or she knows how the case should proceed, what the victim feels, or what should happen with respect to the suspect.

Finally, an undue emphasis on generic brain processes risks another kind of prejudice, which is that someone who alleges to be a victim of a sexual assault should exhibit the behavioral symptoms associated with the brain processes described. It also suggests that investigators are able to determine if the alleged victim is experiencing trauma and can appropriately apply a trauma-informed interviewing protocol if warranted. As explained above, exchanging one bias for another is not likely to improve investigative processes or advance the cause of justice.

## VII. Science-Based Interviewing

What kinds of investigative strategies and interview protocols can provide the best protection against decision errors such as those described above – i.e., what can investigators do to both identify the guilty and also protect the innocent? Wilson et al. (2019) note that “better interviews are essential to improve law enforcement investigations and criminal prosecutions” (p. 38), but they do not take advantage of

current science to provide some general guidelines about what kinds of “better interview” methods might be applicable. We briefly describe some science-based strategies that might be useful.

- The biases described above often are difficult to avoid because they are implicit and therefore frequently unrecognized by decision-makers (Greenwald and Krieger, 2006). Teamwork is one way to identify such biases (Richards and Pherson, 2010); if possible, an investigator should work with others to systematically distinguish among (i) what is known as fact about a case (e.g., information that has been or can be confirmed by a reliable data source, such as a date of birth, residence, etc.), (ii) what has been heard from human sources (which often is the only kind of evidence available in sexual assault cases; e.g., Spohn and Holleran, 2001), and (iii) the inferences that are made based on (i) and (ii). Making assumptions explicit via a team discussion can help avoid confirmation biases and stereotyping (Wells & Brandon, 2018).
- The sciences of interpersonal social dynamics (e.g., Abbe and Brandon, 2012), memory (Fisher and Geiselman, 2010) and communication (e.g., Richardson, Taylor, Snook, and Conchie, 2014) have shown that the most effective way to get an accurate and complete account of an event – and avoid these and other biases – is to create a situation where the individual can best tell their own story, in their own words, and at their own pace. Rather than ask questions, the investigator should listen. This sounds easy, but it is contrary to what many police investigators are taught and what they most often do (e.g., Snook, Luther, Quinlan and Milne, 2012). It is not what we see in the media, which is an officer hovering over a suspect, firing questions at him or her.
  - The Cognitive Interview, a protocol originally developed for interviews of victims and witnesses (Fisher, Geiselman, and Armador, 1989; Fisher and Geiselman, 1992; see Latts & Geiselman, 1991, for examples of the use of the Cognitive Interview for rape victims), is a method of interviewing that allows – and encourages – the interviewee to tell their own story with as little interference as possible. It has been shown in many studies in both the laboratory and in the field to produce between 30% and 80% more details about an event than other interview protocols (Köhnken, Milne, Memon, and Bull, 1999; Memon, Meissner and Fraser, 2010). The heart of this methodology is that the investigator explains to the subject that he or she is there to listen, and not to ask questions (the investigator is not the only one who expects to ask questions; subjects of interviews expect the same thing). Using the science of social dynamics, the interviewer gives the interviewee the autonomy to tell their story as they remember it. Encouraging autonomy builds rapport between the subject and the investigator and has been shown to result in a subject providing more information (Vallano and Compo, 2015). The subject is told that they should tell their story as they remember it, even if it is out of order; even if they forget something at one point and then remember it later, they should feel free to include this (but that if they do not remember something,

which is to be expected, they should just say that they do not remember, rather than guess or make something up in order to please the investigator). The investigator listens, perhaps taking notes for items to follow up on later. Once the subject has told what she or he can remember, the investigator simply pauses and asks, "is there anything else?" If there is time, the investigator can ask the subject to tell their story again, on the basis of the fact that simply telling the story is likely to prompt additional memories (Fisher and Geiselman, 1992).

There are several mnemonics that are part of a more expanded Cognitive Interview that build further on how memory works and facilitate communication of the memories that are recalled. These have been shown also to have some therapeutic value (e.g., Shepherd, Mortimer, Turner and Watson, 1999) and to elicit additional memories about the event within a context of "therapeutic jurisprudence" (Fisher and Geiselman, 2010, p. 321). We refer the reader to descriptions of these tactics as they are provided in published reports showing their efficacy (e.g., Fisher and Geiselman, 2010; Rivard, Fisher, Robertson, and Mueller, 2014).

- The Cognitive Interview has much in common with the National Institute for Child Health and Human Development Investigative Interview (NICHD) Protocol, developed in the 1990s for interviewing children who were victims of sexual assaults (e.g., Bull, 2010; Lamb et al., 2007). Using this protocol, the interviewer begins by explaining his/her role and building rapport by asking the child about salient issues in the child's life. Open-ended questions are asked, followed by more specific questions only if the more general ones do not assist in resolving an allegation. The child is encouraged to respond with, "I don't know," to questions he or she cannot answer, rather than to guess, and is given the autonomy to tell the interviewer they "got it wrong," if that is what they perceive. Detail is encouraged with comments such as, "tell me even if you think I already know" (Faller, 2015).

## **Recommendations**

The purpose of the present analysis is to review the Wilson et al. (2019) bulletin. Therefore, we do not purport here to provide a general review of trauma-informed victim interview methodologies. However, it is apparent to us that the challenges that victims of sexual assault often face when encountering the criminal justice system – being misunderstood, assumed to be lying, or even being retraumatized (Lonsway and Archambault, 2012; Temkin and Krahe, 2008) – deserve the attention of the general public and law enforcement in particular. The paper offered by Wilson et al. (2019), reviewed here, as well as similar documents (e.g., Haskell and Randall, 2019; SAMHSA, 2014) are an important step towards recognition of the frequent manner in which victims of sexual assault are misunderstood when they are interviewed by police investigators.

Wilson et al. (2019) attempt to address this problem via a generalized description of putative brain processes engaged by trauma. In so doing, they assume that all victims of sexual assault are traumatized, which is contrary to evidence (e.g., SAMHSA, 2014). In addition our review of the relevant science uncovered no data supporting the view that recall in victims of sexual assault is unique or that special interview methods are required for such victims. On the contrary, there is substantive evidence that interview methods such as the Cognitive Interview and the NICHD Investigative Interview Protocol are suitable and effective for such victims (Fisher & Geiselman, 2010; Lamb et al., 2007). Although it is outside the scope of this review, we recommend that these protocols be offered to those who investigate the criminal prosecution of alleged assaults.

Trading one prejudice (that victims of sexual assault are lying or somehow responsible for their attack) for another (that understanding brain processes related to trauma will fix inappropriate investigative interviewing tactics) is not what we recommend. Instead, investigators should approach each case of sexual assault without presuppositions regarding the alleged attacker's guilt or innocence, and in a manner that is also respectful towards the alleged victim. There are extant science-based interview protocols (e.g., Fisher and Geiselman, 2010; Lamb et al., 2007) and investigative methodologies (e.g., Wells and Brandon, 2018; Brandon and Wells, 2019) that can assist in this effort.

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