



End Violence Against Women International
(EVAWI)

Statement on Trauma- Informed Responses to Sexual Assault

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About End Violence Against Women International (EVAWI)

EVAWI was founded in 2003 by Sergeant Joanne Archambault, who retired from the San Diego Police Department after serving almost 23 years in law enforcement. During the last 10 years, she supervised the Sex Crimes Unit. During her decades of work, Sergeant Archambault saw a critical need for training in sexual assault investigation. Resources were available for professionals in health care, victim advocacy and social services, however, criminal justice professionals desperately needed training to improve the investigation and prosecution of sexual assault. EVAWI was created to fill that void, and Sergeant Archambault (Retired) has led the organization since its inception.

Dr. Kim Lonsway is also a Founding Board Member and current Research Director for EVAWI. She brings to this role decades of experience with research and practice in the field of sexual assault and criminal justice responses. She has also trained thousands of professionals across the country and around the world, and volunteered for over 15 years as a victim advocate for rape crisis centers in two different communities. In 2012, she was awarded the first-ever Volunteer of the Decade Award from the Sexual Assault Recovery and Prevention (SARP) Center in San Luis Obispo, California – an award specifically created to recognize Lonsway’s years of service and dedication.

Since EVAWI was founded in 2003, we have received more than \$8.9 million in public and private funding, and provided training and technical assistance to tens of thousands of professionals. In 2018 alone, 3,200 professionals registered for our OnLine Training Institute (OLTI), completing 69,945 hours of training; in addition, 20,412 professionals registered for our webinars, completing 30,567 hours of training. That same year, our website had 355,236 unique visitors and a total of 7.6 million page views; visitors downloaded an average of 1,000 online resources per day. More than 50,000 professionals subscribe to our email list, and that number continues to grow.

EVAWI’s mission is to improve criminal justice responses, which we accomplish by working with professionals inside and outside that system. We do not focus on civil litigation, campus disciplinary procedures, or Title IX adjudication. We will therefore refrain from explicitly commenting on trauma-informed practices in those contexts. However, a good interview is a good interview, regardless of whether it is conducted by a police investigator, a civil attorney, or a campus administrator. To that extent, we offer our expertise in the hopes of clarifying the issues and conveying accurate information.¹

About Dr. Jim Hopper

Dr. Jim Hopper is the nation’s preeminent translator of relevant neuroscience knowledge for professionals who investigate, prosecute, and adjudicate sexual assault and other forms of interpersonal violence, including its implications for conducting effective and unbiased investigative interviews. He currently serves as an independent consultant and Teaching Associate in Psychology in the Department of Psychiatry of Harvard Medical School. For over 20 years Dr. Hopper’s research, clinical practice, and consulting work

¹ For more information about EVAWI and our Board and staff, please visit our website: www.evawintl.org.



have focused on the psychological and biological effects of child abuse, sexual assault and other traumatic experiences. He has conducted research on various aspects of child abuse and sexual assault, including the neurobiology of psychological trauma, unique effects of sexual abuse on males, and the nature of traumatic memories. As a clinician Dr. Hopper works with adults who have experienced abuse as children and assault as adults. In his forensic work, both criminal and civil, for which he is retained by prosecutors, plaintiffs and defense attorneys, Dr. Hopper testifies on short- and long-term impacts of child abuse and sexual assault.²

Introduction to Trauma-Informed Practices in Sexual Assault Investigation

We are writing this paper in response to a statement released by ATIXA on “Trauma-Informed Training and the Neurobiology of Trauma.” However, we want to open with a general statement about the value of trauma-informed practices for sexual assault interviews and investigations. These apply regardless of whether the investigation is conducted for criminal justice purposes, civil litigation, or campus Title IX adjudication.

For many years, empathic, talented and conscientious investigators have been following practices that are now described as “trauma-informed.” For example, they were patient and compassionate with victims, they provided flexibility in the way victims were asked to recall and relay events, they included victim advocates in investigative interviews, and they recognized that their interactions with victims, regardless of the judicial outcome, could help them begin a healing journey by affording them simple dignity. For most of these investigators – and other professionals at the time – the psychological effects of trauma were not as well understood as they are today. Still, the best investigators used these methods anyway, believing through insight and experience that they were good for victims, and good for interviews; they were simply the right thing to do. Fast-forward to today, and it’s clear we’ve benefitted enormously from more sophisticated theory and practice based on the relevant neuroscience.

Yet the utility of this science for investigators is not so they can “explain” or label any particular behavior. The true value is threefold. First, this knowledge helps investigators and others to listen more perceptively to a victim’s (or a complainant’s) description of their responses during a sexual assault and their memories in general. That is, knowing about prefrontal cortex impairment, freezing, habit behaviors, tonic immobility, collapsed immobility and dissociation, central vs. peripheral details, and time-dependent effects of stress on memory encoding and storage – all of that knowledge enables interviewers and adjudicators to *perceive* and *potentially gather more information* about such things (without having to explain or diagnose them, which is a mistake, as we discuss later). Second, by expanding the range of behaviors that might be viewed as “normal” among sexual assault victims, investigators can avoid wrongly misinterpreting them as signs of deception. In other words, such information may not necessarily add to the credibility of any victim statement, but it might help to avoid unjustifiably discrediting it. This critical point is made in ATIXA’s position statement, and we wholeheartedly agree. Third, this knowledge can help to inform professional and investigative practices, as we will also

² For more information, please see Dr. Hopper’s website: <https://www.jimhopper.com/>.



describe later. However, it is worth noting at the outset that many of these practices were discovered and recommended long before we had science to back them up.

Points of Consensus and Concern with ATIXA's Position Statement

In their position statement, ATIXA makes a few other valid points with which we agree: (1) the impacts of trauma can be faked; (2) reports of such impacts should not be interpreted as direct evidence of sexual assault for the purposes of criminal, civil, or campus investigation or adjudication; and (3) training on the neurobiology of trauma should accurately reflect well-established findings of scientific research, and the application of that knowledge should be unbiased and remain within appropriate limits.

Unfortunately, the ATIXA statement also includes some claims and arguments that are grossly misleading, patently false, and/or irrational. For example, it is simply not true to say that we can only use neuroscientific findings to understand the behaviors of sexual assault victims if the studies were conducted using fMRI on a recently assaulted person. This is wrong in two respects: First, when it comes to sexual assault investigations and adjudications, the most relevant and well-established neuroscientific research covers the basic parameters of how brain function is altered by acutely stressful (including traumatically stressful) experiences *as they are occurring* – not after they have passed. Second, many post-assault responses (including sometimes misunderstood behaviors such as nervous laughter or emotional numbing) are biologically complex phenomena that can result from a variety of interacting psychological, interpersonal, and social processes and are more difficult to connect directly to neuroscientific knowledge.

Nor is there any scientific basis for the belief (implicit in ATIXA's statement) that the traumatic stressor of being sexually assaulted impacts the brain any differently than other traumatic events, in terms of basic and well-established neurobiological parameters: impairment of the prefrontal cortex; shifting control of attention, thought, and behavior from the prefrontal cortex to the defense circuitry and habit circuitry; and the time-dependent effects of stress on memory encoding and storage. As any scientist who studies these matters knows, the process of evolution has selected for certain characteristics of mammalian and primate brains that respond in the same basic ways to any traumatic stressor, even if the details can be extremely varied.

Although not explicitly stated, the logical implication of ATIXA's argument is that the only way to truly understand the impacts of sexual assault on people's brains would be to scan their brains (or otherwise collect neurobiological data) *while they're being sexually assaulted*. This is completely at odds with reality. Researchers will never have people sexually assaulted in their laboratories, which would be unethical. But such abhorrent scenarios aren't needed for researchers to understand the fundamental neurobiological responses to being attacked in that way or any other, including physical assault and military combat. The false implication of ATIXA's argument is that we will *never* understand the basic neurobiology of people's responses during sexual assault and other traumatic events, which is patently untrue.

Statement Lacks a Basic Understanding of Scientific Principles and Terminology

There are several other claims and arguments in ATIXA's statement that show a lack of basic understanding of scientific principles and findings. Remarkably, this includes the definition of "trauma" they use as a foundation for their position statement:

ATIXA is using 'trauma' in this position statement as a term of art, referring to a set of autonomic, neurological responses to the brain's perception of an existential threat (p.2).

Yet this is not how psychological trauma is defined by scientists in the field of traumatic stress,³ nor how it's defined in the *Diagnostic and Statistical Manual of Mental Disorders (DSM 5)*.⁴ Furthermore, ATIXA defines this "term of art" (not science) with reference to the very neurobiological impacts that their position statement claims are not yet known.

Also telling is the word "neurological" in their definition. That's the wrong term in this context, since "neurology" is the field of medicine dealing with non-psychiatric brain disorders, which does not involve research on how brains respond to traumatic stress.

In short, ATIXA's definition reveals fundamental misunderstandings of the relevant terminology and science. There are numerous other statements in ATIXA's paper that illustrate a similar lack of basic understanding. We will mention a few examples below, but most will go without comment to prevent our own statement from being far too long. It is essential to note the seriousness of these concerns, however, since a primary goal of their position statement is to question the credibility of the relevant neuroscience and criticize others for promulgating misinformation and misinterpretations in their work.

With all this in mind, we will address some of the substantive points made in the ATIXA position statement and highlight more responsible ways of applying this science to inform sexual assault responses and investigations.

ATIXA's Position Statement Appears to be Promoting and Selling a Product

The ATIXA statement appears to make the following argument, with a series of pseudo-logical leaps, none of which are justified by science or practice. It goes like this:

- (1) The neurobiology of trauma is a "nascent body of knowledge," so "most conclusions are premature" about how the brain responds to trauma (p.5).

³ For example, the International Society for Traumatic Stress Studies (ISTSS) defines traumatic events in this way: "Traumatic events are shocking and emotionally overwhelming situations that may involve actual or threatened death, serious injury, or threat to physical integrity." See <http://www.istss.org/public-resources/what-is-traumatic-stress.aspx>.

⁴ According to the American Psychiatric Association, the definition of trauma in the DSM-5 requires "exposure to actual or threatened death, serious injury or sexual violence." See https://www.psychiatry.org/File%20Library/Psychiatrists/Practice/DSM/APA_DSM-5-PTSD.pdf.



- (2) Scientific findings on the neurobiology of trauma are therefore being misinterpreted and misapplied in training, and this equals bias.
- (3) Thus, *any* training about or based upon the neurobiology of trauma research is biased, and institutions should fear litigation if they utilize or rely on it.

Why is the specter of litigation raised in ATIXA's position statement? Perhaps, given the timing, the statement's primary purpose is actually to promote a product: Version 2.0 of their "Investigation in a Box Toolkit," which is available for \$499 for nonmembers.⁵ The statement is actually rather transparent in its attempt to capitalize on this fear of litigation. This is its conclusion:

In summary, we are on the trauma learning curve, and need to be cautious of making premature conclusions. We need to wait for this body of knowledge to mature and ripen. Perhaps the effective tools of measurement have not been invented yet. Regardless, for now, we need to aim to implement reputable trauma-informed investigation and interviewing practices and techniques. You will find many of them detailed in version 2.0 of the ATIXA Investigation in a Box Kit, which will be released in the fall of 2019. At the same time, we need to resist biased and biasing trainings and the temptation to allow evidence to be influenced by conclusions about the neurobiology of trauma that are not empirically-supported (p.7).

Sadly, ATIXA is not alone in advancing this flawed line of argument. We are very concerned that these confused red-herring claims are increasingly being promoted across the country, and that they have the potential to undermine our progress in improving criminal justice, community, and campus responses to sexual assault. For these reasons, we are compelled to address their position statement within a larger context.

The Science Underlying the Neurobiology of Trauma is Robust and Reliable

In their position statement, ATIXA states that "we understand perhaps 1/100th of 1% of what we need to know and may someday understand about how the brain responds to trauma" (p. 5). Of course, it is impossible to estimate how much we know (because we don't know what we don't know). But their point isn't a statistical one, it's rhetorical: Their "1/100th of 1%" statement simply minimizes the science and casts doubt on any inferences made from it. Yet the reality is the scientific research on the brain impacts of acute stress and trauma are both robust and reliable, as evidenced by the decades of unchallenged work published in prestigious peer-reviewed journals.

⁵ According to ATIXA's website, the Investigation in a Box is available free of charge to "premium members" of their organization, which requires an annual membership fee of \$999/year for individuals and \$2,999/year for institutions, or \$4,999/year for institutions with a "super premium" membership. Individuals and institutions at other membership levels receive a 15% discount off the price of the toolkit. The price for nonmembers is \$499. See <https://atixa.org/products-and-services/investigation-in-a-box/>.



For the purpose of this document, we will generally define the *neurobiology of trauma* as a science-based understanding of: (1) How brains and bodies respond to acutely stressful and traumatic events such as a sexual assault, *as they are happening*, and (2) How these experiences of extreme stress are encoded, stored, and potentially retrieved from memory. Dr. Jim Hopper briefly summarized the research encapsulated by this definition in a 2018 article for *Psychology Today*.⁶

To illustrate, in 2015 the *Harvard Review of Psychiatry* published a thorough review of the neuroscientific and behavioral research on various “survival reflexes” (or “animal defense responses”) exhibited by humans and animals in traumatic situations.⁷ The lead author of that article, Dr. Kasia Kozłowska, an international expert in the field, referenced over 200 other scientific publications. Yale neuroscientist Dr. Amy Arnsten, the world’s leading expert on stress-induced impairment of the prefrontal cortex, in 2009⁸ and 2015⁹ published comprehensive reviews of the extensive research on how stressful experiences can impair functioning of the rational prefrontal cortex and lead people to rely on more automatic responses such as habits and reflexes.

Other reviews written by Dr. David Diamond and colleagues in 2007¹⁰ and Dr. Lars Schwabe in 2017¹¹ summarized and synthesized numerous studies showing that the onset of stress can first enhance the encoding of information into memory, and then switch to impairing encoding as the stressful condition continues. Hundreds of other studies demonstrate that the “central details” of any event, including traumatic ones, can be strongly encoded and stored, because they have the most attention and/or emotional significance at the time.¹² On the other hand, “peripheral details” may be poorly encoded and stored, or not at all, by someone experiencing any event, especially a traumatic one. Peripheral details are more likely to quickly fade in memory, rendering them unavailable for later recall or vulnerable to being recalled inconsistently. Indeed, the differential encoding and storage of central vs. peripheral details is *even greater* for stressful and

⁶ Jim Hopper (January 22, 2018), [“Sexual assault and neuroscience: Alarmist claims vs. facts.”](#) *Psychology Today* (online).

⁷ Kasia Kozłowska, Peter Walker, Loyola McLean and Pascal Carrive (2015), [“Fear and the defense cascade.”](#) *Harvard Review of Psychiatry*, Volume 23, Issue 4, pages 263-287.

⁸ Amy Arnsten (2009), [“Stress signaling pathways that impair prefrontal cortex structure and function.”](#) *Nature Reviews Neuroscience*, Volume 10, Issue 6, pages 410-422.

⁹ Amy Arnsten (2015), [“Stress weakens prefrontal networks: Molecular insults to higher cognition.”](#) *Nature Neuroscience*, Volume 18, Issue 10, pages 1376-1385.

¹⁰ David Diamond, Adam Campbell, Collin Park, Joshua Halonen and Phillip Zoladz (2007), [“The temporal dynamics model of emotional memory processing: A synthesis on the neurobiological basis of stress-induced amnesia, flashbulb and traumatic memories, and the Yerkes-Dodson law.”](#) *Neural Plasticity*, 60803, 1-33.

¹¹ Lars Schwabe (2017), [“Memory under stress: From single systems to network changes.”](#) *European Journal of Neuroscience*, Volume 45, Issue 4, pages 478-489.

¹² Linda Levine and Robin Edelstein (2009). [“Emotion and memory narrowing: A review and goal-relevance approach.”](#) *Cognition and Emotion*, Volume 23, pages 833-875; Mara Mather and Matthew Sutherland (2011), [“Arousal-biased competition in perception and memory.”](#) *Perspectives in Psychological Science*, Volume 6, Issue 2, pages 114-133.



traumatic events and is just as true for soldiers' memories of combat as it is for anyone's memories of sexual assault. As scientists who study this know, that's simply how evolution has shaped our brains to encode and store information, especially for stressful and traumatic experiences.

In other words, the neuroscientific conclusions regarding trauma and memory are neither "conjectural" (p. 3), nor awaiting proof, like Copernicus' sun-revolving earth, as ATIXA claims. It is also a total misrepresentation to suggest that the research relies exclusively or even primarily on laboratory rats. In some areas, many if not most of the studies were conducted with primates or humans (for example, those cited in Dr. Arnsten's reviews). As for the research on how stress enhances the differential encoding and storage of central vs. peripheral details, those studies *all* rely on the use of human subjects, as do the past 10 years of research on how sleep affects the retention of central vs. peripheral details, including the chemicals involved.^{13 14}

Whatever ATIXA or other critics might suggest, there is no question that the existing science on the neurobiology of trauma is solid. In fact, as Dr. Hopper concluded, "Not only is the science strong – it keeps getting stronger."¹⁵

Science Helps to Understand Common Responses of Sexual Assault Victims

Equally important, neuroscience has been tremendously helpful for increasing our understanding of the behaviors sexual assault victims frequently exhibit just before and during an attack. Without this understanding, many of these behaviors often "make no sense" to professionals and others, which can lead people to unnecessarily question both a victim's credibility and the legitimacy of their report.

To illustrate, if responding professionals do not know anything about brain-based responses to sexual assault (such as freezing, passive habit behaviors, dissociation, tonic immobility, or collapsed immobility), they might wonder why a victim did not resist the assault – and question whether this means the sexual contact was consensual. Similarly, if they don't understand basic information about the functioning of the brain's hippocampus and the distinction between central vs. peripheral details, they might question why the victim can't remember what seems (to the investigator during an interview, but not to the victim's brain at the time) like basic or crucial details about the assault, while recalling what

¹³ To review the sleep research, see Jessica Payne and Elizabeth Kensinger (2018), "[Stress, sleep, and the selective consolidation of emotional memories.](#)" *Current Opinion in Behavioral Sciences*, Volume 19, pages 36-43.

¹⁴ As another point of clarification, ATIXA offers a quote from the National Center for State Courts (NCSC) in their position statement, claiming that "Most of the research on the neurobiology of sexual assault is on adult survivors of childhood assaults" (p. 3). This is not true. The research being referenced is actually on *post*-traumatic neurobiological impacts; this is not typically what people mean when they refer to the "neurobiology of trauma," which relates to neurobiological processes taking place *during* the traumatic event. As noted earlier, the studies on neurobiological processes triggered during stressful events have been conducted with a range of subject populations, including humans, primates, and other animals.

¹⁵ Jim Hopper (January 22, 2018), "[Sexual assault and neuroscience: Alarmist claims vs. facts.](#)" *Psychology Today* (online).

might seem to be insignificant information in great detail. If they don't understand that the hippocampus often goes into a minimal-encoding mode after an initial super-encoding mode, it won't make sense when a victim is able to recall a great deal about the initial moments of the sexual assault, but very little about later aspects. Too often, this behavior leads investigators to believe that a victim is being "selective," and therefore untruthful about the information they are relaying during an interview

Time and time again, we hear law enforcement professionals describe how this information has helped them to better understand victim responses, behaviors, and memories, and to view their interactions in a radically different way. For example, when EVAWI first published our Training Bulletin, [Understanding the Neurobiology of Trauma and Implications for Interviewing Victims](#), we received a great deal of positive feedback. However, most compelling were the comments from law enforcement professionals describing an epiphany in their understanding. For example, a Police Academy Administrator at a state Peace Officer Standards and Training (POST) agency said:

I spent about 10 years of my law enforcement career as a criminal investigator, and I want to tell you that I wish your article was available then, as I find it a most valuable tool containing knowledge that every law enforcement officer should be trained in.

Since this Training Bulletin was first posted on our website in November 2016, it has been downloaded more than 25,000 times, and it is consistently the single most downloaded document from our Resource Library (which includes about 1,000 resources). In the first 9 months of 2019, for example, this one document was downloaded more than 4,000 times, an average of 17 times *every single day*.

As professionals, policymakers, and the public have focused attention on the low rates of reporting, investigation, prosecution, and conviction for sexual assault, it has become increasingly clear that a critical step in creating change is improving the way sexual assault victims are interviewed. Better interviews result in more thorough investigations that can effectively exclude suspects, gather evidence to establish probable cause when a viable suspect is identified, and support referrals for prosecution with a better chance of holding more offenders accountable. Training in some well-established basics of neurobiology can be helpful in supporting this effort. Just as fingerprints and DNA transformed the way crimes are investigated, an understanding of the neuroscience basics and the impact of trauma can transform the way sexual assault victims are interviewed and cases are investigated.

A Personalized Attack is Unnecessary and Inappropriate

Before moving on to additional discussion of the issues, we want to pause to make an important point with reference to ATIXA's position paper. We share ATIXA's concern that many people who currently train and potentially testify regarding the neurobiology of trauma do not actually understand the relevant science. However, we believe it is totally unnecessary and inappropriate for ATIXA to personalize their statement by naming Dr. Rebecca Campbell (repeatedly) as the single representative of this entire realm of

trauma-informed training, especially since she is no longer training on this topic. In their position statement, ATIXA unfairly gives readers a caricatured image of Dr. Campbell, who is actually one of the most qualified, rigorous, and visionary researchers in the sexual assault field.

The personal attack on Dr. Campbell is particularly remarkable, because ATIXA opens their statement with a quote for which they do not provide a citation, they claim, because “it is out-of-print” and because “there is no desire by ATIXA to subject specific authors or practitioners to condemnation for well-intentioned materials that no longer withstand modern scrutiny.” The bald hypocrisy of this statement is stunning given that Dr. Rebecca Campbell is personally named *seven times* as the only individual singled out for criticism. This type of personal attack has the potential to impede constructive progress in the field, by discouraging others from working in this area and striving to responsibly learn and apply scientific knowledge to improve criminal justice practices.

The bottom line is this: If an individual or organization disagrees with specific training points, or wishes to debate specific points about the appropriate interpretation of science, these challenges should be made and defended based on science. ATIXA provides no scientific evidence in their position statement to challenge Dr. Campbell’s training, and only cites a misleading and discredited article from *The Atlantic’s* website.¹⁶

Furthermore, in contrast to the repeated references to Dr. Campbell and unnamed “others” who teach and apply this science, the ATIXA statement only mentions Dr. Jim Hopper – for years the most authoritative translator of relevant neuroscience on stress, cognition, behavior, and memory to sexual assault – in two footnotes. Their statement never refers to the writings and videos Dr. Hopper has made freely available to the public on his website,¹⁷ his *Psychology Today* blog,¹⁸ and his *YouTube* channel,¹⁹ including his science-based, well-referenced rebuttal of the highly misleading *Atlantic* web piece by Emily Yoffe,²⁰ upon which ATIXA, unfortunately and to the detriment of their own credibility, appears to have relied.

¹⁶ ATIXA’s position statement cites an article written by Emily Yoffe and published online by *The Atlantic* in 2017, to suggest that some researchers question inferences made on the basis of neuroscience and the impact of trauma on memory. Yet Dr. Hopper concluded in an online article published by *Psychology Today* that: “Contrary to her story’s title and subtitle, she [Yoffe] does not discredit or even assail the well-established neuroscience on how severe stress and trauma can, in fact, ‘impede the ability to resist or coherently remember sexual assault.’ Instead, she raises concerns about the *teaching* of that science to campus staff, police, and others who are striving for best practices in responding to reports of sexual assault.” As noted here, we share some of these concerns about how this science has been inaccurately taught and misapplied by those with insufficient preparation. See Emily Yoffe (September 8, 2017), “[The bad science behind campus response to sexual assault.](#)” *The Atlantic* (online); Jim Hopper (January 22, 2018), “[Sexual assault and neuroscience: Alarmist claims vs. facts.](#)” *Psychology Today* (online).

¹⁷ See <https://www.jimhopper.com/sexual-assault-and-the-brain>.

¹⁸ See <https://www.psychologytoday.com/us/blog/sexual-assault-and-the-brain>.

¹⁹ See <https://www.youtube.com/c/JimHopperPhD>.

²⁰ Jim Hopper (January 22, 2018), “[Sexual assault and neuroscience: Alarmist claims vs. facts.](#)” *Psychology Today* (online).

The Importance of Properly Applying Science to Practice

Having said all this, we agree with ATIXA that the scientific literature is currently being misinterpreted and misapplied in some trainings, and this can yield inaccuracies and inappropriate conclusions during the course of a sexual assault investigation. The reality is that some people who are teaching, and potentially testifying on the neurobiology of trauma, do not have sufficient background or expertise in the area, and they have not carefully examined the original research – or at least scientifically sound reviews of it – let alone analyzed appropriate versus inappropriate applications. This can result in inaccurate information being passed along, sometimes in ever-widening circles, as one professional shares their misinterpretations or misinformation with others during a training or more informally through word-of mouth.²¹

In addition, findings from neuroscience are sometimes oversimplified and/or overgeneralized. For example, stress and trauma doesn't simply "impair" the brain or memory; the processes involved are complex, and they have a range of intersecting impacts. Similarly, neurobiology doesn't explain everything in terms of how victims respond during and after a sexual assault. We have already described the areas where neuroscientific research is extremely well-established, in explaining processes involved in how brains respond during stress and trauma, and how stress and trauma can impact post-traumatic memory storage and retrieval. Not as advanced, however, are the neurobiological bases of *post*-traumatic behaviors.

Therefore, the sweeping generalization that the application of this knowledge "has gotten way ahead of the actual science" (p. 2) is neither accurate nor fair. This depends entirely on what knowledge is being applied. There is only a problem when someone is teaching or testifying about neurobiological knowledge they don't truly understand, and as a result getting the science and its application wrong.

Particularly concerning is the over-application of this science, when investigators or other non-clinicians use it to "diagnose" victim responses (such as freezing, tonic immobility, or collapsed immobility). This is clearly unjustified and inappropriate. As taught in any report writing class, it is not the investigator's job to explain or label victim responses; the goal is simply to document the victim's statements and observable behaviors, and leave the interpretation to others. To illustrate, investigators should not write in their report that the victim "went into tonic immobility" or "experienced fragmented memory," unless this is exactly what the victim said (which is unlikely). Instead, investigators should focus on documenting how victims describe their own experience, with quotation marks to indicate their exact wording. In addition, investigators should document the victim's demeanor

²¹ Some of the writings that professionals should read, understand (at least the gist), and apply appropriately are cited in this document, including scientific literature reviews authored by Dr. Amy Arnsten (see footnotes 8 and 9), Dr. Kasia Kozłowska (footnote 7), Dr. David Diamond and colleagues (footnote 10), Dr. Lars Schwabe (footnote 11), Drs. Linda Levine and Robin Edelstein (footnote 12), Drs. Mara Mather and Matthew Sutherland (footnote 12) and Drs. Jessica Payne and Elizabeth Kensinger (footnote 13). Also essential are the writings of Dr. Jim Hopper (footnotes 15-18) and an EVAWI training bulletin entitled, [Understanding the Neurobiology of Trauma and Implications for Interviewing Victims](#).

and behaviors, with concrete and objective wording that is free of interpretation. For example, rather than saying that the victim “exhibited dissociation” during the interview, the investigator should simply document that the victim “did not make eye contact,” “stared at the wall throughout the interview,” “exhibited flat affect,” “spoke without any emotional expression,” etc.

Besides being the most ethical and appropriate way of documenting victim behaviors, this style of documentation also avoids the scenario where an investigator (or other non-clinician who uses such terminology in their report) is called into court to defend their “diagnosis” – on the basis of science they might not be able to explain. It also avoids mislabeling a behavior, or incorrectly explaining a behavior based on the neurobiology of stress or trauma when it is actually due to some other cause. For example, trauma can certainly cause gaps and inconsistencies in memory, but so can alcohol or drug use, inappropriate or even abusive interviewing tactics, and many other factors. Investigators should not play the role of scientists or clinicians; they are factfinders, and their critical value lies in their ability to accurately gather, investigate, and document information.

Trauma Symptoms Do Not Prove or Disprove a Sexual Assault

Perhaps our main concern, however, is one we share with ATIXA: that neurobiological processes should not be used as direct evidence of a sexual assault, for the purpose of criminal, civil, or campus investigation or adjudication. Neuroscience can certainly help investigators and others understand why victims of sexual assault might behave and remember in the ways they do, and it can also inform the strategies used to conduct an interview and the investigation. However, the responses and memories themselves do not prove that the assault was – or was not – committed, or that it took place as described.

This can be illustrated with one common response: Gaps or inconsistencies in a victim’s memory of sexual assault. In the past, these gaps and inconsistencies have often been interpreted as evidence of deception, even though there is no scientific basis for this, because normal memory functioning, as well as the impacts of stress and trauma, can cause such gaps and inconsistencies simply as a function of the differential encoding and storage of central vs. peripheral details. This is one of the primary gifts from the neurobiological research; it can validate people’s responses to sexual assault, and their memories of the event – both in their own eyes, as well as the eyes of others, such as investigators and other responding professionals – all with the credibility of science.

However, the presence of these gaps or inconsistencies should not be viewed as direct evidence of a sexual assault, just as they cannot be seen, on their own, as evidence of lying. Otherwise, we would find ourselves in the untenable position of defending why an *absence* of gaps or inconsistencies for another victim wouldn’t call their credibility into question.²² As ATIXA states in their position paper:

²² Other examples can be used to illustrate the same point. For example, if we claim that flat affect exhibited by a victim in one case is clearly indicative of a sexual assault, because we know that flat affect is possible, then we can’t turn around and claim that hysteria or crying is just as indicative of the same experience with another victim.

Missing information should not be held against someone, if it is missing as the result of trauma, but trauma itself does not provide a rationale for bolstering credibility in the absence of evidence (p.11).

Or, more to the point, as Dr. Hopper has noted: “Such gaps and inconsistencies are never, on their own, proof of *anyone’s* credibility, innocence, or guilt.”²³

An Understanding of Trauma Should Inform Investigative Practices

These quotes provide a perfect transition to our next point, because they raise the question of whether there is *other evidence* that can corroborate a report of sexual assault, beyond victim statements. This is another area where neuroscience can be helpful, by informing strategies for interviewing sexual assault victims and following up on that information to conduct thorough and unbiased sexual assault investigations.

The detailed interview with a sexual assault victim is arguably the most critical component in an effective sexual assault investigation. It directs the investigator where to collect evidence, identifies possible witnesses and suspects to interview, and it can serve as corroborative information in and of itself. Unfortunately, interviews conducted by law enforcement and Title IX investigators with victims of sexual assault often have been ineffective at best – and inappropriate or even abusive at worst. In EVAWI’s training materials, we seek to outline the most effective techniques for interviewing survivors in a way that maintains their dignity, increases their willingness to participate in the criminal justice process, and maximizes probative evidence. As explained above, these techniques can be improved with an understanding of the neurobiology of trauma.

For example, one fundamental problem with these interviews is that victims are often asked to recount their memories of the sexual assault in a way that is inconsistent with how those memories were encoded and stored, as well as the reality that stress (often experienced during the interview as well as the sexual assault) impairs memory retrieval.²⁴ Victims are also typically asked to provide their narrative in sequential order, and interviews frequently rely heavily on “who, what, when, where, and why” questions, as well as questions that assume the centrality of details that were actually peripheral details for the victim at the time of the assault.

As a result, questions asked by investigators often don’t “make sense” to sexual assault victims given what they can actually remember, and the statements they make in such traditional investigative interviews often don’t “make sense” to investigators. Instead, victims’ honest answers and statements in response to this type of questioning raises unwarranted suspicion in the minds of investigators, prosecutors, judges, and jurors, as

²³ Jim Hopper (January 22, 2018), [“Sexual assault and neuroscience: Alarmist claims vs. facts.”](#) *Psychology Today* (online).

²⁴ For authoritative reviews, see Stephanie Gagnon and Anthony Wagner (2016), [“Acute stress and episodic memory retrieval: Neurobiological mechanisms and behavioral consequences.”](#) *Annals of the New York Academy of Sciences*, Volume 1369, Issue 1, pages 55-75; also Oliver Wolf (2017), [“Stress and memory retrieval: Mechanisms and consequences.”](#) *Current Opinion in Behavioral Sciences*, Volume 14, pages 40-46.

well as other responding professionals (like medical forensic examiners), and even loved ones. When interviewing techniques are based on an accurate understanding of trauma, and informed by the relevant neurobiological research, interviewers can ask questions in a way that is more in line with how traumatic memories are actually encoded, stored, and retrieved, and they can elicit more accurate information, which in turn can lead to more thorough evidence-based investigations.

An understanding of trauma can also help investigators avoid poor interviewing practices such as constantly interrupting the victim, asking leading questions, or pushing for peripheral details that may never have been encoded or retained by the victim – all based on erroneous beliefs about how memory works, including how it's impacted by stress. Indeed, these practices can *create* the very inaccuracies and inconsistencies that are held against victims and used as a basis for questioning their credibility or concluding the report is “unfounded.” This is particularly true for peripheral details and time sequence information, but it can even be true for central details when leading questions are asked – and especially if these questions are asked repeatedly, because eventually most victims will submit to the pressure and provide some type of answer just to get the investigator to move on.

The science can also help investigators to better understand victim statements and responses in the context of how the brain shifts toward reflexive and habitual behaviors during a traumatic event. Again, this can help to “make sense” of behaviors that might otherwise be confusing to those listening to a victim or complainant's narrative. This also creates an environment that feels safer for victims, which helps them to continue participating in the investigation and allows them to provide the best information possible at the time. This, in turn, can lead to additional information, evidence, and corroboration, including information about the suspect(s) and any potential witnesses. It all stems from a safe and nonjudgmental orientation, which is focused on *carefully listening to victims* and documenting what they say, without leaping to premature conclusions or judgments.

But the victim interview is not the only step in a thorough sexual assault investigation; it is just the starting point. A thorough investigation should include numerous additional steps. For example, investigators will need to gather and review background information and evidence such as: criminal history checks, crime scene diagrams, and 911 calls, in addition to other phone calls, text messages, photographs, security tapes, reports from a medical forensic exam, etc. They will also need to interview the suspect(s) and any witnesses. An understanding of trauma, including the neurobiology of trauma, can inform

the ways in which these other forms of evidence are collected, documented, and – perhaps most important – interpreted within the context of a sexual assault case.²⁵

Conclusion

EVAWI strongly believes that trauma-informed initiatives are vital to our country's progress in responding to sexual violence. To be truly trauma-informed, interviewing and investigative practices must be guided by the scientific literature – including the relevant neurobiological literature – on how stress and trauma affect attention, cognition, behavior, and memory processes.

Yet this does not mean the investigator assumes that a crime was committed, that the elements of an offense have been met, or that the suspect, whoever that might be, is guilty of committing a crime. It isn't a matter of one or the other. Practices that are informed by an understanding of trauma – including the fundamental neurobiological processes – do not automatically mean the investigation is biased. Only with a thorough, professional, and unbiased investigation will those questions be answered.

²⁵ ATIXA repeats an argument originally made by the US Air Force that one particular approach to trauma-informed interviewing (the Forensic Experiential Trauma Interview, or FETI) has not been evaluated, and should not be adopted on this basis. We agree that evaluation can be beneficial for every aspect of our professional responses, yet this argument is just another red herring because the vast majority of practices related to sexual assault response and investigation have never been evaluated, including the traditional interviewing techniques FETI was designed to replace. In fact, very few officers and investigators have historically received any training at all to improve their skills at interviewing victims or witnesses. Most of the training they did receive was on "Interview and Interrogation," which focused almost exclusively on suspects, so it should come as no surprise when many investigators apply these interrogation skills to their interviews with victims and witnesses. Yet these practices were not evaluated either, except for the various sources documenting the poor quality of many sexual assault interviews and investigations. As the Air Force report quote points out, some investigators have received training in Cognitive Interviewing (CI), which has been rigorously evaluated, but very few follow the entire methodology as it was originally proposed, because it is extremely time consuming and for years the authors of the CI methodology required a series of mandatory steps with little flexibility for investigators. In reality, most investigators simply pull from a "grab bag" of strategies and tactics when interviewing victims, and ATIXA's own "Investigation in a Box" kit, however well organized, is such a grab bag.

