

Adapting the Cognitive Interview for Victims of Sexual Assault

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Abstract

Effective investigative interviewing of adult victims of sexual assault is critical, as often little or no evidence exists other than the victim's memory of the event. Here we describe a multi-disciplinary approach to conducting the interview, based on our collective understanding as cognitive psychologists, clinical and forensic psychologists, and veteran police investigators. The resulting interview protocol and essential supporting training program combine (a) the Cognitive Interview technique, which has demonstrated effectiveness with victims and witnesses of other crimes, as modified based on (b) common effects of severe stress on behavior and cognition, especially their neurobiological bases and memory processes, and (c) extensive police experience of conducting interviews with adult victims of sexual assault. We also include observations from having conducted many training programs with police on the 'Cognitive Interview Adapted to Trauma' (CI-AT) and preliminary results from a survey of trainees. We conclude the chapter with recommendations to guide future progress.

Keywords:

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Trauma

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Stress

Memory

Neurobiology

Eliciting information from a victim of sexual assault is essential in criminal investigations, as often no evidence exists other than the victim's account. The assault is frequently committed in private, with no witnesses or physical evidence. Compounding the investigator's dilemma, the victim almost certainly will have found the experience highly stressful. Furthermore, in many instances, and especially when the perpetrator and victim are in an intimate relationship, the assault may occur repeatedly, which militates against victims remembering details of a specific episode.

Our approach to addressing these challenges, as reflected in the structure of this chapter, required coordinating the unique skills and contributions of all the authors. Ron Fisher (cognitive psychologist) described the evolution of the Cognitive Interview (CI) protocol and the empirical research to validate the technique, both in laboratory experiments and in field studies. Jim Hopper (clinical psychologist) then explained the neurobiological background to understand how trauma commonly influences victims' cognition and behavior. Lynne Bibeau (forensic psychologist within a police organization) and Jennifer Chez (Sergeant/Detective) then adapted the CI to trauma (CI-AT) based on those common cognitive and behavioral impacts and on their extensive investigative experience of interviewing victims of sexual assault. Finally, Charles Viau-Quesnel (cognitive psychologist) coordinated a survey to examine how police investigators who were trained in the CI-AT assessed its value. We conclude the chapter by offering some comments on the future of investigative interviews in sexual crimes.

Cognitive Interview

The success of many criminal investigations depends heavily on the quantity and quality of information provided by cooperative victims and witnesses. However, historically, police investigators were provided with minimal training to interview cooperative victims and witnesses; most of their training was directed toward other aspects of police work (e.g. relevant laws, writing

reports) or interrogating suspects (Molinaro et al., 2019). Given their minimal training to interview cooperative information sources, it is not surprising that police investigators used sub-optimal interview techniques, e.g., asking too many closed questions particularly at the beginning of the interview, interrupting witnesses during their narratives, etc. (Fisher, et al, 1987). As these dysfunctional techniques disrupt memory retrieval, Fisher and Geiselman devised the CI in an attempt to facilitate witness recall. The resulting technique was based on scientific principles of cognition—and hence, the name “Cognitive Interview.” The original version of the CI (Geiselman, et al, 1984) focused exclusively on the witness’s memory retrieval, but it soon became apparent that other psychological processes were also important to witness reporting. Specifically, an ‘enhanced’ version of the CI was developed that also incorporated scientific principles of social psychology (the social dynamics of how the witness and interviewer interact with one another) and communication (how witnesses communicate their knowledge to the interviewer; Fisher & Geiselman, 1992). Below, we provide a brief primer in the core principles of the CI, but see Fisher and Geiselman (1992) for a more complete description, and Fisher and Ashkenazi (2023) for recent updates to the procedure.¹

Social Dynamics. For the interviewer and interviewee to work in a harmonious relationship with one another, they must develop rapport. The interviewer must see the interviewee as not only a repository of information, but also as a person who may have experienced a stressful event, with its attendant emotions. Ideally, the interviewee will take an active role during the interview and generate extensive information, and not merely provide brief answers to the interviewer’s questions. The interviewer can accomplish these goals by instructing the interviewee appropriately (e.g., “you know

¹ The CI has evolved over time, as new component elements were added and other elements were modified (for a review of the CI’s evolution, see Fisher & Ashkenazi, 2023). Rather than describe all the component elements that constituted the CI in any one study, we provide the bibliographic reference for each of the described studies and we encourage the reader to peruse carefully the methodology employed in each study.

what happened, and I don't, so I expect you to do most of the talking, and I'm going to listen to you"), not interrupting the interviewee's narrative, and asking mainly open-ended questions. This is in contrast to the more traditional approach of interviewers asking many closed-ended questions, which often constrain interviewees to provide only brief answers.

Memory. Interviewers can assist interviewees to remember more effectively by instructing them to (a) reinstate the context of their earlier experience (e.g., by instructing them to think about their earlier thoughts and sensations at the time of the critical event—the encoding specificity principle (Tulving & Thomson, 1973), (b) close their eyes, as that facilitates concentration and blocks out interference (Vredeveldt et al., 2011), (c) search through memory repeatedly and in many different ways (e.g., visually and auditorily), and (d) report the information to reflect its current accessibility—even if not in chronological order. The interviewer should ask questions that are related to the interviewee's current thoughts (witness-compatible questioning) to take advantage of the resultant information's heightened accessibility. In order to discourage interviewees from guessing, interviewers should avoid asking suggestive questions and instruct interviewees not to guess.

Communication. In addition to retrieving information from memory, interviewees must also communicate their recollections, preferably in extensive detail. Many civilians are not used to describing events in great detail because most conventional (non-criminal) social interactions are brief and undetailed. However, interviewees can be 'trained' to provide more detail if the interviewer provides an example of a very detailed response (about an unrelated topic), referred to in the literature as a 'model statement' (e.g., Leal et al., 2021). Civilians may also not know which aspects of a crime are important to convey, and so they may withhold critical details they mistakenly believe are unimportant. To overcome such underreporting, civilian interviewees are encouraged to report everything they remember, whether important or not. Reporting in detail may also be challenging

because some interviews are conducted in the interviewee's non-preferred language or/and some aspects of events are difficult to describe verbally (e.g., odors, actions). In such circumstances, interviewers can assist interviewees to communicate their recollections more effectively by encouraging them to use non-verbal forms of expression (e.g., sketching a scene, using a timeline, or acting out events).

Several traditional laboratory experiments have compared the effectiveness of the CI with more conventional law enforcement interview protocols—the 'SI,' sometimes referred to as a "standard" interview and sometimes as a "structured" interview. In the typical laboratory study, college students were shown a videotape of a simulated crime and then were interviewed either with a CI or SI. Many variants of the traditional laboratory experiment were tested: The interviewees were students or non-students; the critical event was a videotape of a crime, a car accident, or a live, innocuous event; the interval between the critical event was either immediate or delayed by up to a few days; the interviewers were trained students or professional law enforcement officers, etc. Over the past 35 years of testing, and approximately 120–140 different laboratory experiments, the CI has almost universally elicited considerably more information than the comparison interview, and at equivalent accuracy rates (generally ranging between approximately 75% to 100%); see Köhnken, et al., 1999; and Memon et al. (2010) for meta-analyses; and Fisher & Ashkenazi, 2023 for a recent review).

Laboratory testing of the CI has been extensive, and the findings consistently support the technique. However, all the laboratory testing just described was conducted under conditions of low stress, and hence we did not know whether the CI would be successful under conditions of high stress, as would be expected in cases of sexual assault.

In the laboratory study that comes closest to testing the CI under stress, Ginnet and Verkamp (2007) exposed participants to a video of a road accident that was accompanied by low or high stress. Stress was manipulated experimentally by attaching electrodes to the participants under the guise of either sending (fictitious) electric shocks during the video (high stress) or to monitor passively the participants' physiological responses (low stress). Participants were then interviewed with a CI or SI for their memories of the road accident. The CI elicited more relevant details than the SI for both the low- and high-stress conditions, suggesting that the CI may be valuable in real-world conditions of high stress. Two limitations, however, suggest caution in interpreting the results. First, the source of stress (attached electrodes) was not an integral part of the to-be-remembered event (road accident) but was an incidental aspect of the experimental context—as opposed to a sexual assault where the stressor is the assault itself. Second, because of the ethical constraints of laboratory research, the intensity of the stressor was orders of magnitude lower than would be expected in a sexual assault.

Realistically, the only ethical and practical way to compare the CI with a control interview is to test them in real-world situations of naturally occurring stressful situations. Four such experimental field studies that fulfil those conditions entailed memory for crime (Clifford & George, 1996; Colomb et al, 2013; Fisher, et al, 1989) or road accidents (Dodier et al, 2021), both of which are inherently stressful events (see Fisher & Geiselman, 2019, for a more thorough review of the CI in stressful situations).

The first major criminal investigation that tested the CI examined robbery cases that took place in Miami (Fisher, et al, 1989). Sixteen experienced detectives from the Robbery Division of the Metro-Dade Police Department participated in the study; approximately half were trained to conduct the CI, and half were not trained in the CI. All the detectives tape-recorded their interviews with victims and witnesses of robbery. We assessed the effectiveness of CI training by comparing the CI-

trained group with the untrained—but equally experienced—group, and also by comparing the CI-trained group to themselves, before and after training. In both comparisons, the CI-trained group elicited between 50% - 60% more information than the untrained group or the pre-trained group. Accuracy of the witnesses' reports, which was assessed by examining corroboration with other witnesses' reports, was high and slightly higher for the post-trained group (.945 corroboration rate) than the pretrained group (.930 corroboration rate). (See also Ashkenazi & Fisher, 2022 for high corroboration with reliable information sources and Diamond et al, 2020, where recall of naturally occurring real-world events is very accurate.)

Clifford and George (1996) conducted a similar field study in England with 28 experienced, police officers who were assigned randomly to be trained either in the CI, Conversation Management (CM: a clinically guided technique to provide interviewers with social and communication skills (Shepard, 1993)), a combination of CI + CM, or a Control group (no specialized training). The police officers submitted their tape-recorded interviews (of witnesses and victims) regarding various (unspecified) crimes both before and after training. The CI group changed their interviewing styles dramatically from before training (many closed questions, very few open-ended questions) to after training (fewer closed questions, more open-ended questions). They also collected considerably more crime-related details after training than before training. The other three groups (a) did not change their interviewing styles from before to after training (mainly closed questions, very few open-ended questions), and (b) did not collect more information after training than before training.

The third CI-criminal investigation study, conducted by Colomb et al. (2013) in France, expanded on the earlier crime investigation studies in that it compared the effectiveness of the CI with a Standard Police Interview (SPI) and a Structured Interview (SI). French military police interviewed victims and witnesses of various crimes, including some cases of sexual harassment and

violence. The CI was found to elicit considerably more crime-relevant details than the SPI and the SI, but most relevant for the current chapter, the advantage of the CI was greatest when gathering information from victims (cf. bystander witnesses).

Whereas experimental field studies allow researchers to examine more extreme conditions than are typically permitted in laboratory studies, they still suffer from the concern that the participants—here the investigators—usually know that they are part of a research study, with all of its attendant limitations (e.g., Hawthorne effect, Parsons, 1974). One way to overcome this limitation is to examine real-world disasters in which the investigators are not aware that they are participating in a research study, but rather that they are performing their natural investigative function. One recent study that used this approach (an archival analysis of interviews that were conducted as CIs or as control interviews) examined investigations of terrorist activities in Israel, where the investigators' only concern at the time was to solve the acts of terrorism (Ashkenazi & Fisher, 2022). It was not until several years later that the archived data were examined to assess the relative value of the different interviews.

Ashkenazi and Fisher (2022) examined 60 cases of terrorism (e.g., shootings, knifings, explosions in public locations) in which Jewish and Arab victims and witnesses were interviewed initially by experienced Israeli security officers using their standard techniques—which were quite good and adhered to generally accepted principles (rapport, mainly open-ended questions, avoid suggestive questions, etc.). Half of the interviewees (N=30) were interviewed a second time in the standard fashion and the other half were interviewed a second time with a CI. Of the 60 interviewees, 58 recalled some new details on the second interview that they did not recall initially, demonstrating the common phenomenon of reminiscence. Critical for the CI-SI comparison, interviewees who received the CI on the second interview recalled almost four times as many new

details ($M = 42.43$) as those receiving the SI on the second interview ($M = 11.83$). An important novel element of the study is that the data were coded not only in terms of the absolute number of new details reported, a traditional measure of interview effectiveness, but also in terms of the utility of the details to further the investigation. Utility was assessed by having two senior investigators who were blind to the interviewing conditions rate the new details on a 1 to 10 scale of utility (to help solve the case). The new details elicited by the CI were rated much higher ($M = 8.16$) than the new details elicited by the SI ($M = 5.07$). We recommend that future researchers adopt a similar approach of measuring not only the quantity of details elicited but also their utility for real-world investigators (see Fisher & Ashkenazi, 2024).

We have described here several kinds of research paradigms to assess the CI with people in stressful situations: Traditional laboratory experiments, field studies, and archival analysis. Each paradigm has its limitations: Traditional laboratory experiments have limited external validity; field studies may suffer from Hawthorne effects; archival analyses may not account for many variables correlated with the predictor variable. Hence, we should not be overly influenced by any one study. However, when the same pattern occurs across research paradigms, we can be more confident of the manipulation's effectiveness. In the case of testing the CI, we can be reasonably confident that it works effectively to enhance witness recall, and with reasonably high accuracy.

The CI was designed to be used for witnesses to a variety of events: Crimes, accidents, workplace experiences, conversations, etc. As noted above, the technique was based on several underlying cognitive and social processes. But it was not designed initially, nor was it revised, with the intent of interviewing people who were highly or traumatically stressed, as is very common for sexual assault victims. We, therefore, set out to adapt the CI in light of the scientific knowledge about sexual assault victims.

Adapting the CI and Incorporating Knowledge of Severe Stress and Psychological Trauma

Although not all sexual assault victims experience severe or traumatic stress during assaults (or when being interviewed), many do (American Psychiatric Association, 2013; Campbell et al., 2001). Developing the CI-AT has required incorporating empirical findings on how severe stress commonly affects cognition and behavior, as well as memory encoding, storage, and recall. The ‘CI-AT’ also incorporates knowledge of interpersonal dynamics commonly experienced by traumatized people, especially sexual assault victims, during violent events and within investigative interviews. Critically, the CI-AT is more than a collection of recommended interviewing techniques. It requires understanding the common impacts (such as cognitive) of severe stress and trauma-related interpersonal dynamics. Most important, it requires utilizing that knowledge during interviews – to listen for potential indicators of common impacts of severe stress; to avoid assuming those cognitive, behavioral, and memory impacts mean that no assault had occurred or an interviewee is not credible; to inform follow-up prompts; and to help the interviewees feel understood, safe, and supported to recall and to report what they have experienced.

Brain-Based Impacts of Severe Stress During Sexual Assaults that Inform the CI-AT

For each of the common brain-based impacts learned about during CI-AT training, there are three ways the training imparts essential knowledge and realistic expectations (not assumptions) about sexual assault victims’ actual cognitions, behaviors, and memories. First, the trainers reference well-established research findings on common impacts of severe stress and their neurobiological bases; for example, impaired cognition and behavior that is reflexive or habitual, both resulting from defense circuitry dominance and prefrontal cortex impairment. Second, the trainers point to and elicit discussion of both parallels and differences between (i)

investigators' own prior experiences of such impacts during high-stress events (especially in their roles as law enforcement officers or military personnel) and (ii) those commonly reported by sexual assault victims. Trainers provide that knowledge and facilitate those discussions for each of the common impacts of severe stress on cognition, behavior, and memory. Third, professional actors seek to reproduce real police investigative interviews of sexual assault victims, thereby enabling investigators to practice identifying those common impacts and using CI-AT techniques to elicit details about them with supervision and coaching from trainers.

All elements of the CI-AT are based on non-controversial empirical research on the immediate brain-based impacts of severe stress. Centrally important is the *defense circuitry*, a well-studied collection of brain areas that work together to assess for danger (Pellman & Kim, 2016). Once danger or attack is detected, the defense circuitry alters the functioning of other circuitries and bodily systems. Those alterations enable survival and effective coping during that event (Kozłowska, 2015; Wirz et al., 2018), and they enhance the encoding and storage of information that may support survival and coping during similar future events (McGaugh, 2015).

Common impacts on cognitive functioning. Defense circuitry activity during acute stress or trauma alters functioning of the prefrontal cortex, a brain area that supports 'executive functions' including voluntary attention and rational thought. Research has shown an inverted-U response, with improved prefrontal cortex functioning at moderate stress levels and increasing impairment at the highest levels (Arnsten, 2015).² The combination of defense circuitry dominance and prefrontal cortex impairment in states of severe stress reduces or eliminates voluntary and deliberate control of one's attention (Arnsten, 2015). The defense circuitry automatically directs attention to details that it appraises, moment by moment, as relevant to

² Unless otherwise indicated, from here on "stress" refers to stress severe enough to result in defense circuitry dominance of the brain, significant impairment of executive functions, and alterations of memory processing.

survival and coping (Mather et al., 2016). That can include painful sensations, indicators of impending worse violence, and in states of dissociation (see below) otherwise irrelevant details like a spot on the wall. Knowing this helps investigators to understand why a victim did not attend to/notice details that could be helpful to the investigation, or why a victim did not respond to aspects of an assault that the investigator might otherwise assume would elicit a behavioral response. It also helps to prevent unjustifiably doubting the credibility of interviewees who do not recall details the investigator would otherwise assume they must have noticed and would remember.

Because prefrontal cortex impairment reduces capacities for reasoning and planning, it can result in simple and repetitive, sometimes irrational thoughts. Examples from traumas experienced by law enforcement and military personnel and sexual assault victims: A soldier stuck on the thought “we’re dead, we’re dead,” for several seconds after his commander yelled orders for a counterattack; a sexual assault victim repeatedly thinking “surely he can’t see it, surely he can’t see it,” after a masseuse lifted her leg and a sheet to completely expose her genitalia. Knowing that such impairment is common during assaults helps investigators understand why victims had thoughts and made decisions that would otherwise seem incredible (e.g., the finding of our survey of CI-AT trainees, reported below, who reported that such knowledge helped them to better understand victims’ reactions). Rather than responding to reports of such thoughts during the assault as reasons for doubt, investigators can see them as potential indicators of severe stress and impairment and then prompt the interviewee for more details.

Common behavioral (non)responses: reflexes and habits. Stress-induced prefrontal cortex impairments generally shift control of behavior to brain circuitries that can rapidly generate,

select, and execute reflex and habit responses (Arnsten, 2015). Evolution has selected for human brains that can survive situations in which relatively rational and slow responses could mean death. Kozłowska and colleagues (2015) have reviewed the characteristics and neurobiology of freezing, tonic immobility, and collapsed immobility – three reflexive immobility responses implemented by the defense circuitry, as discussed below. Other researchers have shown and reviewed the evidence that stress shifts the brain to reliance on habit memory and behavior (Packard et al., 2018; Schwabe & Wolf, 2009). Translating this scientific knowledge, CI-AT trainers refer to “survival reflexes” and “self-protection habits.” Those simple terms help investigators to recognize potential indicators of common reflex and habit responses associated with severe stress and to elicit more details about them.

Freezing is the first reflexive response in many sexual assaults. Victims may say “I froze” to refer to a variety of potential (non)responses. Scientifically, however, freezing refers to a well-studied response to detecting danger, one characterized by sudden onset of behavioral inhibition and associated neurobiological, cognitive, and physiological changes (Roelofs, 2017). In CI-AT training, investigators learn that freezing can unfold in one to three phases – detection freezing, shocked freezing, and no-good-choices freezing – and what those phases can look like (Hopper, 2018). This enables investigators to recognize potential indicators of those phases of freezing, if they occurred, and to elicit more detailed and useful information about them. This, in turn, helps interviewees to feel understood and to be more forthcoming about such things, which can yield details of responses that are inconsistent with enjoyable consensual sex but consistent with nonconsent and assault.

Reflexes are hard-wired in the defense circuitry and need not be learned. In contrast, while the habit circuitry is part of the brain’s ‘hardware,’ habit behaviors are learned (Wood &

Runger, 2016). CI-AT trainees learn that habit behaviors during high-stress experiences can be understood as ‘software’ that runs on the habit circuitry. Trainees find it particularly helpful to consider the differences (and similarities) between the habit behaviors of victims during sexual assaults and those of law enforcement and military personnel during traumatic experiences. Most investigators have received training to ingrain effective habit behaviors for use in dangerous situations, habits that usually emerge when needed on the job. But most sexual assault victims have never received training to instill effective habit behaviors for resisting assaults (Senn et al., 2017). As a result, victims instead commonly engage in habits that they have learned but which are ineffective for ending sexual assaults. That is, they often find themselves engaging in previously learned habits of polite and passive resistance, even submission, especially during assaults by people they know and trust (Clay-Warner, 2002; Hollander, 2018). These include habits of passive responding to people with more power than them, people who abused them in childhood, or people who previously subjected them to unwanted sexual advances, but unlike the perpetrator of the assault, desisted in response to signals of nonconsent and passive resistance. Such domination and submission can be based on social power imbalances such as sex, race, wealth, and sexual orientation (Armstrong, Gleckman-Krut, & Johnson, 2018). Indeed, perpetrators commonly select their victims based on such power differentials and exploit their habitual submissive behaviors and reduced credibility as people with less power and greater stigmatization (Beauregard, Rossmo, & Proulx, 2007; St. George, 2023). Understanding these concepts is an effective antidote to the common belief that people typically respond during sexual assaults with fighting or fleeing. It helps investigators to see why assault victims are actually often passive and submissive rather than forcefully resistant, and it can prevent unwarranted disbelief of such victims, which can derail an interview (Campbell et al., 2001;

Campbell, Lapsey, & Wells, 2020; Lapsey, McMahon, & Campbell, 2024; Mourtgos, Adams, & Mastracci, 2021).

Tonic immobility and *collapsed immobility* are brain-based *extreme* survival reflexes that tend to happen later in sexual assaults, e.g. after some active or passive resistance. They are extreme because, in contrast to freezing, they involve extreme circumstances, such as perception of inescapability or fear of death, and extreme impacts on physiology, consciousness, and behavior. In tonic immobility, the body is literally paralyzed, and muscles are rigid; in collapsed immobility blood pressure and heart rate drop, one may feel faint or pass out, and muscles are limp.³ Kozlowka and colleagues (2015) detail the neurobiology of these responses, which are extremely disturbing experiences and often confusing for victims, who typically had no idea such responses were possible. If investigators do not know about tonic and collapsed immobility, they cannot notice indicators of them (e.g., feeling faint or passing out associated with collapsed immobility), let alone follow up with prompts to gather more information about them. They are likely to doubt the credibility of people who report them (Augustyn, Pinchevsky, & Li, 2024; Campbell, Lapsey, & Wells, 2020). In contrast, investigators who do know about these responses can help victims who report them to feel understood, thus safer, less stressed and more cooperative. This can allow investigators to elicit more details that can help prosecutors, judges, and juries to better understand what happened during an assault.

Dissociation is a common response during high-stress events that can include experiencing the event and oneself as unreal, and a lack of awareness of emotions and body sensations (Bovin & Marx, 2011). People may say, when recalling dissociation, “I spaced out” or

³ Watching and discussing videos of animals and people entering, being in, and emerging from states of tonic or collapsed immobility, including people on amusement park rides, is a particularly effective part of CI-AT training. Playlists are available on YouTube and easily accessed by trainees via QR codes on training slides and handouts.

“I was only aware of a spot on the wall.” Just as a dissociated soldier may not feel shrapnel wounds until a battle ends, a victim may not notice vaginal penetration. Critically, dissociation may or may not overlap with reflex and habit responses, so trainees learn to listen for and elicit details of various potential combinations. This helps them to notice key aspects of victims’ experiences and behaviors during assaults, and to elicit details that reflect the real-world complexity of victims’ responses. Again, this can help victims feel understood, safe, and willing to provide additional information.

The overlap of dissociation with habit behaviors is called ‘dissociative autopilot’ because habits are enacted without any experience of choice or agency (Marmar et al., 1994; Marmar, Weiss, & Metzler, 1997; Pietkiewicz, Duszkiewicz, & Tomalski, 2023). For example, some soldiers praised as heroes protest, “I’m no hero. The training kicked in. I was on autopilot.” It is essential for investigators to understand that sexual assault victims may not only have engaged in habits of submission, but in habitual sex acts. That can happen not because a victim was consenting, but rather because she was sexually experienced enough for those behaviors to be habits that could be automatically and involuntarily enacted in a state of dissociative autopilot (Griffin, Resick, & Mechanic, 1997). Certainly, sex acts engaged in during dissociative autopilot can complicate investigations. But understanding these behaviors prevents one of the most harmful things an investigator can do: Fail to notice and elicit more information about dissociative autopilot, assume that such sex acts had to be voluntary and consensual, and conclude that no assault happened or that the case must be doomed.

Common impacts of stress on memory formation: central vs. peripheral details. The CI-AT addresses memory encoding and storage, including two critical and scientifically well-established points: The brain never encodes and stores every detail of any event; thus, all event

memories are incomplete and fragmentary. Many researchers define ‘central details’ as those which receive greater allocations of attention and attributions of significance – as an event unfolds, based on appraised relevance to survival and coping – than ‘peripheral details’ (Levine & Edelstein, 2009; Kensinger, 2009; Reisberg & Hauer, 2004). Furthermore, memory researchers have long known that stress tends to amplify those differential allocations of attention and significance, and thereby to enhance the differential encoding and storage of central over peripheral details (Christianson, 1992; Herten et al., 2017). The neurobiology of this is well-studied (Clewett et al., 2018).

This distinction helps investigators understand that the central and peripheral details of the victim’s experience during the event are often very different from what the investigator might assume were central and peripheral (see, e.g., Lonsway & Archambault, 2023, for a recent training bulletin on this issue). Indeed, it can be disastrous to assume, even implicitly, which details were central and peripheral for a particular victim during a particular assault. This can be seen from a real case in which the victim focused on a light across the room while being raped, averting her gaze from the perpetrator’s terrifying face, which she could not recall except for a menacing look in his eyes. Critically, the impacts of peritraumatic dissociation on memory formation (see above) can be simply a matter of attention allocation and significance attribution – away from sensory details, external or internal, that would otherwise be expected to have captured attention, to have had significance attributed to them, and to have been encoded and strongly stored in long-term memory.

Time-dependent effects of stress on encoding and storage. Findings from several laboratories indicate that stress onset is initially associated with enhanced encoding, especially for central details, but sometime later associated with impaired encoding (Diamond et al., 2007).

The later-phase impairment occurs because storage of information encoded during the first phase is being prioritized over the encoding of new information (Schwabe et al., 2012). Basically, in dangerous situations it is adaptive to extract and prioritize the storage of early details that are more likely, in the future, to have survival value by enabling prediction and avoidance. CI-AT training refers to a ‘super-encoding phase’ followed by a ‘minimal-encoding phase.’ Investigators who understand these common time-based impacts of stress on memory formation will have realistic expectations of victims’ memories for details from later in an assault. They will not assume that recalling very few details means those details are less accurate.

Post-Event and Post-Traumatic Factors that Inform the CI-AT

Stress during attempted recall can impair recall. Recall is a function of retrieval conditions, which can facilitate or inhibit recall. CI-AT trainees learn that retrieval conditions include *cues*, such as an investigator’s question or prompt, and *contexts*, such as the interview room or the crime scene. Critically, although stress during an event usually enhances the storage of central and early-event details, stress at the time of recall is an internal biological context that can impair recall, including recall of central details (Gagnon, & Wagner, 2016; Wolf, 2017). Sexual assault victims may be particularly vulnerable to stress-induced recall impairments when interviewers do not understand victims’ assault responses or memories and otherwise do not help them feel safe during the interview. It is essential for investigators to understand this; otherwise, they are likely to misinterpret the meaning of victim difficulties with recall, including difficulties that they, the interviewer, may be causing by stressing the victim.

Trauma-Informed Interviewing and Trauma-Related Interpersonal Dynamics. “Trauma-informed” has been defined expansively and concisely. In broad terms, it includes recognizing the impact of violence on experiences and behaviors, creating a safe atmosphere, empowering

victims by maximizing choices and control, and minimizing the potential for re-traumatization (Elliot et al., 2005). Herman (1992) has emphasized that interpersonal violence involves the relational dynamics of *disconnection*, in which perpetrators relate to victims without empathy, as objects rather than people; and *disempowerment*, or overwhelming victims with threats, coercion, force, and impairments caused by extreme stress and/or incapacitating substances. In contrast, connection and empowerment are fundamental dynamics of interpersonal interactions that support healing and justice for traumatized victims, thus it is essential that interviewers relate to victims in ways that are connected and empowering. Doing so increases the likelihood that they will feel safe enough both to recall the most details possible and to disclose them to the investigator (Lonsway & Archambault, 2023).

Finally, CI-AT training teaches that effective interviewers empower interviewees by supporting their needs for *autonomy* and *competence*, two empirically validated fundamental human needs (Deci & Ryan, 2008). Supporting autonomy includes providing sufficient information about the interview for interviewees to give informed consent to participate and allow them, as much as possible, to choose when to take breaks, where to sit, what to drink, etc. Supporting competence includes offering opportunities to recall in the ways they can, and not expecting or pushing them to recall in ways that exceed their current capacities (which may be limited by impacts of stress on memory formation during the event or by interpersonal dynamics during the interview).

Cognitive Interview, Adapted to Trauma (CI-AT)

Having laid the conceptual foundation, we now turn to describing the CI-AT procedure for interviewing people who report being victims of sexual assault. The CI-AT contains six

phases: 1. Introduction, 2. Free recall, 3 Focused recall of sensations, thoughts and feelings, 4. Focused recall of event segments, 5. Verification, and 6. Conclusion.

Introduction: The goals for opening the interview are to promote interviewees' well-being and to maximize their capacity for recall. In our experience, establishing good investigator-interviewee rapport is not achieved by small talk or chatting with the interviewee. That approach can appear to the interviewee as being inappropriate, forced or not genuine, and it may be unproductive in terms of time utilization, especially because interviewees can quickly become fatigued during emotionally difficult interviews. Instead, the CI-AT addresses interviewees' and especially victims' needs. Investigators should introduce themselves (experience related to the case file or the special unit) and, if applicable, explain why the interview is to be video recorded (if true). They should also express appreciation to the interviewee for being willing to be interviewed.

From the outset, victims have a critical need for the investigator to reduce potential sources of stress. For example, sexual assault victims may blame themselves for not remembering more details about the assault and the perpetrator characteristics. To reduce performance pressure and stress, investigators should tell interviewees to report only what they are *able to* remember about the event. The CI-AT is also designed to reduce the stress of deciding to share—rather than not report—details about which they are not clear or sure, but nonetheless might be corroborated or crucially important to the investigation. Specifically, the instruction not to guess, which is part of the traditional CI, is not used with the CI-AT. Instead, interviewees are told to report information about which they are uncertain—and to indicate that uncertainty—and that the *investigation* may or may not corroborate such information but, for the *interview*, everything is important.

Investigators should also acknowledge and normalize that interviewees, especially sexual assault victims, may experience strong emotions during the interview. Doing this reduces stress and reassures interviewees who might otherwise suppress their emotions and withhold important information associated with difficult emotions. Investigators should avoid causing interviewees negative interpersonal experiences, including feeling judged or disbelieved. If such feelings are experienced during the interview, the interviewer can attend to the interviewee's experience of being judged or disbelieved and rephrase questions or comments as needed. On the positive side, investigators should attempt to enhance interviewees' autonomy, initially by indicating that the investigator will respect their pace and give them some control over decisions of when to take breaks, go outside for a while, and even end the interview.

Investigators must also inform interviewees about the interview process, including not to expect a question-and-answer format, but rather that they will be doing most of the talking. Finally, during this opening phase the investigator needs to ask if the interviewee *still wants to do the interview*. Often, they are rather surprised at being asked to give their consent, because they perceive the investigator as an authority figure, and they assume that they must submit to being interviewed. This simple question, coupled with an affirmative response, helps to support the interviewee's autonomy. Indeed, in the moment they confirm their willingness to continue there often is a palpable shift in their attitude and behavioral engagement

Free Recall. In our experience of investigating sexual assault cases, interviewees usually attempt, in response to an open-ended and non-leading question, to describe the event they experienced. To avoid burdening the interviewee to provide more extensive details than they are capable of reporting, and potentially creating a sense of failure, the CI-AT uses the following free recall prompt: "Tell me everything you are *able to* remember about the event, about your

experience. Begin *where you want* and end *where you want*; the order (or chronology) is not important.” Informal feedback from several interviewees suggests that, with this prompt, interviewees are less likely to feel pressure to be ‘perfect.’ They can go back and forth in time, and they can recall bits and pieces of information, consistent with how high-stress experiences are often encoded and stored (Christianson, 1992; Herten et al., 2017).

Focused Recall of Sensations, Thoughts, and Feelings. Our experience suggests that interviewees’ initial free recall report of the critical event is often incomplete, fragmentary, and organized idiosyncratically. Therefore, the investigator provides additional prompts for the interviewee to recall information from particular sense modalities, e.g., visual, auditory, tactile and internal experiences (e.g., thoughts)—any of which could be relevant to the investigation. In order to minimize any expectations that the interviewee must provide details to every prompt, the prompts are prefaced by the phrase “what if any,” e.g., “What if any visual images are you able to recall?” The “what if any” preface allows for the possibility that no additional details will be recalled in the prompted modality.

In most cases, investigators should first demonstrate an example of an appropriate recollection, which focuses on one sensory modality but also includes other sensations and some internal experiences. Victims are then given the “what if any” prompt for a particular sensory modality (e.g., “sounds”) and are asked to direct their attention back to their experience of the event by prioritizing that particular sense. This is repeated for each sensory modality and for internal body sensations, feelings, and thoughts. Our experience is that interviewees often begin by focusing on one sense but add associated information from other senses.

The investigator should not interrupt, but continues to ask about senses and internal experiences, one by one, to make sure the interviewee focuses their attention on and attempts to

recall each of them. Some sensations and experiences are more likely to yield more new information than others, and this can be idiosyncratic. In one case, a victim who had been attacked with cayenne pepper reported the pepper only in relation to its taste, during that part of this CI-AT phase, but not when she recalled other bodily sensations (e.g., visual or tactile). Investigators should be thorough and cover all sensory modalities and internal experiences.

Focused Recall of Event Segments: Interviewees almost never convey all of their knowledge in the initial free recall and focused recall phases. Similarly, those prior recollections may be unclear, and the investigator may not understand everything the interviewee was trying to convey. Therefore, it is often valuable for investigators to re-probe experiences that the interviewee described earlier, but perhaps incompletely, to elicit additional information, or to clarify the account so far provided within the interview. Investigators must decide which earlier-described events within the interview should be re-probed, and in what order. Investigators should re-probe first the most important segment—from their perspective—and then proceed to other segments based on their assessed importance to the investigation. In most cases, only a few segments need to be re-examined. Re-probing earlier described segments can often yield either new information or clarification of the earlier account. When redirecting the interviewee to the earlier described segment, it is best to use their own words, as such self-generated cues are particularly effective (Wheeler & Gabbert, 2017).

Verification. If a colleague is monitoring the interview, the investigator should check with the colleague to determine whether all the critical elements of the event have been covered, and whether anything else needs to be elaborated upon or clarified.

Conclusion: At the close of the interview, investigators should inform interviewees that they may later recall more details (or even corrections to details provided) after the interview is over,

and if or when that happens, they expect interviewees to call them. Finally, the conclusion should also include concern for the interviewee's safety returning home and their well-being over the coming hours and days, since they may be emotionally distressed and physically exhausted. Social support is important and there should be easy access to professional support (e.g., a victim advocate, a counselor).

Throughout the CI-AT, the interviewers' questions and instructions should be trauma-informed. It is essential to phrase questions in ways that reduce the potential for revictimization. Investigators administering the CI-AT should anticipate that certain questions may create discomfort or worse, and explain, before asking them, why that particular question is important to the investigation and that it is *not* an indication of doubting or blaming the interviewee. This is to avoid invoking or imposing myths related to sexual assault, for example with a question about the clothes the person was wearing, which could be perceived as attributing blame for the assault. Within the CI-AT structure investigators learn to use trauma-informed questions, for example not to use "why" questions, because they are frequently perceived as critiques, blame or judgment (Lonsway & Archambault, 2023). Thus, instead of asking, "Why did you stay in the car when [the perpetrator] went into the store...?", the interviewer should inquire "what if anything" the victim was "*feeling or thinking*" at that particular moment – and if so, ask them to describe, explain, or otherwise say more about those thoughts and feelings.

Adapting the CI to trauma seeks to give investigators more realistic expectations of victims' responses and memories, and their experiences and behaviors during the interview, all of which can reduce or eliminate unwarranted doubts about their credibility that could otherwise corrupt the interview. A good experience of being understood, at the first step of the legal process, is not only likely to increase the effectiveness of the investigation (Mourtgos et al.,

2021). It may also contribute to the victim's trust in the legal system, and to their recovery from the traumatic impact of the crime.

As with the basic CI, the CI-AT is not a recipe that must be followed in a formulaic fashion as if it were a fixed recipe. Unanticipated events invariably occur, and interviewers must use their better judgment to adapt to the unexpected. Doing so may entail considerable decision-making while conducting the interview, and to some degree makes the technique not perfectly reproducible across interviews. But the flexibility, when combined with the basic tools and insights into trauma, may well make the protocol even more effective and useful in real-world cases.

Survey of CI-AT Training

In the province of Québec, Canada, all police investigator training is conducted through the Québec National Police Academy. Starting in October 2023, CI-AT training was offered here to investigators. The training usually consisted of a full-day presentation including theory, examples, and demonstrations, followed by a half-day of practice with actors in which investigators sought to implement the CI-AT with feedback from expert trainers. Because of availability constraints, some groups of investigators received a shortened version of training, consisting of either a full or a half day of theoretical presentation without actors for practice. As of September 2024, 148 investigators had taken part in the full one-and-a-half day training period on the CI-AT, which included simulated interviews with professional actors.

An invitation to complete an anonymous survey was sent to 124 investigators who had completed the training at least three months prior sending the survey. The three-month delay allowed investigators to reflect on how the training influenced their post-training interviews. The aims of the survey were to assess their perception of the CI-AT in their practice and to thus

improve training. Preliminary results (n = 62; response rate for investigators who actually received the full training was 31%) currently indicate that, since training, 82% of respondents had used the CI-AT with a victim and/or a witness. Due to the specialized nature of investigating traumatic crimes, namely sexual assault, 13 investigators reported already having used the CI-AT more than 10 times with victims or witnesses in the span of a few months.

First, we asked investigators to compare their experiences with the CI-AT to their previous interviews with interviewees reporting experiencing other highly stressful crimes. Overall, investigators reported improvements in the amount and relevance of the information elicited. They also reported that the quality of the relationship with the interviewee was better. Compared to their previous interviews with interviewees who reported experiencing other highly stressful crimes, the CI-AT was described as similar or slightly improved, in terms of duration, cognitive effort for the interviewer, and flexibility of the procedure. In summary, investigators indicated that the CI-AT is no more resource intensive than their 'usual practice,' but yields better information and a better interpersonal dynamic.

Second, all respondents reported that the training components on "the neurobiology of trauma" (i.e., the effects of severe stress on cognition and behavior) and on the relation between stress, trauma and memory helped them to better understand interviewees' reactions and memories. Indeed, 95% of trainees reported that those components "helped" or "helped a lot" and less than 5% chose "a little." These findings, along with reports that CI-AT training helped them to better manage interviewees' emotions and reactions during the interview, seem to validate the importance of trauma-informed investigative interviewing training to cultivate understanding, empathy, and effectiveness with victims.

Third, we asked investigators to assess how difficult it was to apply each phase of the CI-AT in practice. All phases, on average, were rated as either “very easy” or “easy,” with the exception of Phase 3, Focused recall of sensations, thoughts, and feelings. This phase was appraised as somewhat difficult to implement by approximately one third of respondents. We believe this underlines the importance of incorporating practice interviews in CI-AT training, for example to help interviewers with mastering this part of the interview, and with managing their potential discomfort, given that this phase often requires interviewees to share troubling and unpleasant experiences in detail.

Overall, these preliminary survey results lead us to believe that the CI-AT is well suited to real-world implementation by investigators and to their needs and constraints. Although further research is needed to confirm this initial impression, investigators clearly reported that they judged the CI-AT an improvement over their standard practices, because it yields better information and creates a better relationship with the victim, without having the drawbacks of being difficult to implement or requiring a long duration.

Future Directions

Although the survey feedback from investigators who have had CI-AT training is encouraging, obviously we need more empirical evidence to evaluate the training. Specifically, we need more objective measures of the CI-AT’s effectiveness. How does the CI-AT compare to the basic’ CI or modified versions of the CI (e.g., Palena, et al, 2024; Paulo et al, 2017) and whatever is the standard training provided to sexual assault investigators, in terms of the amount and accuracy of information gathered, and more importantly its utility to support effective prosecution of cases? Other measures are equally important: Interviewees’ interpersonal experiences (e.g., feeling understood vs. misunderstood) and willingness to participate in the

investigative and criminal process; and prosecutors, ' defense attorneys' and judges' perceptions of the procedure.

As more investigators go through CI-AT training and as more CI-ATs are conducted, we expect to receive additional feedback about both the CI-AT protocol itself and the training procedures. Currently, the training is provided by the Québec National Police Academy, but we hope that other institutions will also provide such training, and perhaps even modify it slightly based on their experiences. We hope they will share with us their successes, failures, and insights.

The success of the CI-AT thus far has resulted, in part, from the multi-disciplinary nature of the team that worked on it: theoretical, research and practitioner psychologists, along with experienced law enforcement personnel. We strongly encourage other groups to break through traditional boundaries and extend their potential by collaborating with others outside their areas of expertise and familiarity.

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