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Vicarious Trauma via the Observation of Extremist Atrocities: A Rapid Evidence Assessment

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EXECUTIVE SUMMARY

Bottom Line Up Front (BLUF): Members of the DHS workforce and terrorism researchers are systematically exposed to the propaganda, ideologies, and psychologies of actors who seek to launch terrorist attacks. This content is inherently value-laden and possibly personally troubling, causing these individuals to confront potential violations of their “sacred” or “protected” values such as the preservation of life (e.g., Tetlock et al., 2000). Here we present the result of a Rapid Evidence Assessment (REA) which sought to review research across multiple fields of work in which individuals are exposed to traumatic imagery or events. This REA found that there is a small body of extant research focused on a few key domains (namely digital forensic and internet child sex abuse prevention) that has explored the significant psychological trauma caused by exposure to extreme content. This body of literature emphasizes the importance of gaining clarity on the nature of trauma that is caused and the role of different forms of media on traumatic outcomes (e.g., observing Reddit forums vs., watching beheading videos). However, this review also identifies a series of factors that can impact the degree of harm caused by exposure to this content. These factors include the nature of the content, individual traits, and the individual’s social and work environment.

Overall, this REA has identified a range of immediate research needs to extend or apply this research to the DHS workforce. These include:

1. Disaggregating the relationship that exists between the various possible forms of trauma and the specific forms of media that are consumed.
2. Exploring the degree to which cognitive resilience strategies, such as those identified within Crime Scene Investigator (CSI) staff are effective.
3. Validate the degree to which organizational dynamics can negatively or positively impact the manifestation of trauma in the workforce. These include issues of culture and workload. The presence of these organizational barriers within DHS needs to be explored, and if present, mitigated.
4. While largely untested, several articles included suggestions for interventions that could increase resilience. These largely center on the importance of debriefing. Future research should investigate how effective debriefs can be structured and implemented within the DHS workforce to support the development of resilience by those who are exposed to such harmful content online.

Impact on DHS capabilities: Research identified as part of this REA outlines the negative implications of individual trauma and the important role of the organization in mitigating trauma. Specifically, factors at the organizational level such as workload management, job rotation, and organizational culture were identified as playing a potentially important role in protecting employees from trauma. Furthermore, some studies showed that experiences of secondary trauma stemming from exposure to traumatic imagery was correlated with turnover intentions. As such, to maintain a safe and effective workforce in the face of such extreme pressures, it is important that DHS emphasize the need to protect workers from the negative impacts of exposure to traumatic content and imagery.

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CHAPTER ONE: JUSTIFICATION

Trauma in the Counterterrorism Workforce

The Department of Homeland Security's (DHS) workforce is challenged each day with safeguarding Americans from myriad threats to personal safety, democracy, and national security posed by terrorists both domestically and abroad (DHS, 2021). Preventing acts of terrorism requires the complex and rigorous scientific study of terrorism in all its varied manifestations, necessitating the recruitment, selection, and retention of a high-functioning and resilient workforce. Terrorism researchers must systematically evaluate the propaganda, ideologies, and psychologies of actors who seek to launch terrorist attacks. This content is inherently value-laden and possibly personally troubling, causing these individuals to confront potential violations of their "sacred" or "protected" values such as the preservation of life (Tetlock et al., 2000). Indeed, prior research has highlighted the significant trauma that conducting terrorism research can cause to the researcher (Conway, 2021; Massanari, 2018), establishing clearly that there are inherent psychosocial risks embedded into the nature of this essential work. However, despite this acknowledgement there remains no consensus or systematic study on the forms of trauma that terrorism researchers are exposed to, how such trauma may differentially manifest as a product of the type of research that is conducted, or the short- and long-term personal and workforce consequences of trauma exposure.

Research in management and organizational psychology has consistently demonstrated the negative impact that psychosocial occupational hazards have on individuals and their work lives. Hazards such as emotional labor, work-life conflict, and job strain are commonly associated with burnout (Ahola & Hakanen, 2007; Brotheridge & Grandey, 2002), stress (Lourel et al., 2015), depression (Toker & Biron, 2012), and alcohol abuse (Grandey et al., 2019), as well as increased turnover intention (de Croon et al., 2004), absenteeism (Gil-Monte, 2008), and counterproductive work behaviors (Fox et al., 2001). The experience of such hazards and their damaging outcomes are predicted in large part by aspects of job design and fundamental work structure. The form and requirements of particular jobs are known to increase the likelihood that the individuals performing them experience subject-specific traumas. For example, individuals employed in customer service roles are more likely to have issues with emotional labor and its outcomes due to the highly interactive and interpersonally oriented structure of the work (see Brotheridge & Grandey, 2002; Grandey & Gabriel, 2015). Hence, it is incumbent upon employers, via organizational researchers, to develop an empirically sound perspective on the psychosocial risks posed by the occupations under their purview.

Observation of Extremist Atrocities

Terrorism research requires individuals to frequently interact with content related to human suffering, violence, torture, and death. This subject matter is intense and value-laden, with the potential to cause significant distress among those who are consistently engaged with it. Prior research has found that individuals who witness or are party to actions that violate deeply held moral values may be subject to intense and specific forms of psychological trauma. These traumatic experiences may amount to an experience of "moral injury," a constellation of damaging psychological and physiological outcomes which can manifest similarly to post-traumatic stress disorder (Barnes et al., 2019; Litz et al., 2009). Research in occupations such as healthcare (Borges et al., 2021; Murray et al., 2018), police service (Kalkman & Molendijk, 2021; Papazoglou & Chopko, 2017), and the military (Nash & Litz, 2013), which regularly face the potential for violations of similar values, has established those moral injuries occur as

an outcome of traumas generated in the work environment. Moreover, there is increased likelihood among those employed in these contexts for burnout (Currier et al., 2015; Murray et al., 2018), increased turnover intention (Hamric, 2012), and a choice to exit a profession entirely (Corley, 2002; Santoro, 2013) as a direct outcome of morally injurious experiences. Similar risks are likely highly salient among the terrorism research workforce yet may at present go unrecognized or miscategorized as alternative forms of occupation-related stresses (e.g., Dean et al., 2019; Talbot & Dean, 2018). Thus, it is a strategic imperative for DHS and other organizations actively engaged in hiring, training, and supporting terrorism researchers to develop a perspective on factors that place these individuals at risk for, or make them resilient to, psychosocial traumas at work.

Aims and Scope

Despite the significant psychological risk posed for those who are exposed to terroristic content and the acts of terrorist offenders, there is little psychological theory regarding the specific nature of trauma that they will experience, the environmental and individual conditions that will amplify or buffer against this trauma, and the likely long-term behavioral and psychological outcomes of repeated exposure.

As such, we seek to conduct a rapid evidence assessment (REA) to identify the extant literature which can be used to support immediate efforts to identify the nature and sources of trauma in the DHS workforce. Specifically, this REA will explore:

- What theories currently exist which conceptualize trauma that stems from vicarious observation of extremist atrocities?
- In what similar domains (if any) have researchers conceptualized the trauma that stems from vicarious observation of extremist atrocities?
- What is the current evidence base for these theories?
- What are the immediate research needs to extend or apply this research to the DHS workforce?

CHAPTER TWO: METHOD

Definition of Core Concept

Vicarious trauma is defined as profound changes in an individual's perception of self which results in disruptions of cognitive schemas related to identity, memory, and belief system (Trippany et al., 2004), and it is most often referred to in a therapeutic context in which "the emotional residue of exposure that counselors have from working with people as they are hearing their trauma stories and become witnesses to the pain, fear, and terror that trauma survivors have endured" (American Counseling Association, 2011, as cited in Knodel, 2018, p. 4). While the term *vicarious* is useful here, it alone is insufficient in focus. Specifically, for the purposes of this focused review we identify two core constructs that are critical to the definition of trauma within the DHS context, namely, remote observation and inability to intervene:

- (1) The *remote* observation of terrorist atrocities (in action or spoken word; e.g., sharing image of acts of harm and/or discussing an ideology)
- (2) The *inability to intervene* or in any way affect the on-going event.¹

Literature Review Methodology: Rapid Evidence Assessment

We used a Rapid Evidence Assessment (REA) methodology to provide a thorough overview of the available research relating to vicarious trauma that occurs from the observation of atrocities. REAs have been proposed as a solution to the tension that exists between conducting comprehensive reviews and delivering timely advice to policy makers on emerging issues (Thomas et al., 2013). REAs offer a rigorous review of a given topic within a condensed timescale and are frequently used in healthcare. REAs are of particular relevance for policy research as they address the concerns of fast-moving policy issues while trying to maintain the rigor of a full systematic review (Burton et al., 2007; Hailey et al., 2000; Khangura et al., 2014). Here, we followed the standard REA methodology developed by Government Social Research in conjunction with The Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre) which is within the Social Science Research Unit at the Institute of Education, University of London.²

This REA followed the standard procedure of developing search strings, developing inclusion and exclusion criteria, conducting database searches and searches of grey literature, screening of abstracts and assessing the suitability of studies for inclusion in the REA and retrieving full texts for inclusion. In line with Thomas et al. (2013), this REA focused on one database (Google Scholar). This is based on prior research demonstrating that restricting searches to only the most relevant databases did not adversely affect the results of REAs (Watt et al., 2008).

In total, six undergraduate researchers were trained in REA methodologies, and their results were checked by an academic expert (the lead author). The research team developed a preliminary series of search strings and engaged in a preliminary search of the evidence. These search strings operated along two axes: the first axis was related to types of trauma (e.g., post-traumatic stress disorder, moral distress, depression) and the second axis was related to domains of work (e.g., criminal justice, healthcare, national security, content moderator). The results of these preliminary searches are:

Domain	Articles returned
Criminal Justice	615,000

¹ We acknowledge that in the case of an analyst, it is possible to intervene and prevent future actions, but the actions that are being observed in that moment, we assume are more-often not able to be impacted (e.g., monitoring an extremist chat forum).

² For guidance see Collins et al., 2015.

Military	7,318,200
Healthcare	8,082,770
National Security	417,534
Child Protection	393,494
Social Services	2,108,627
Content Moderator	130,199
Total hits identified	19,065,824

Based on this first wave of search terms and a preliminary review of the papers identified, the research team developed a refined list of types of trauma and domains. Both trauma type and domain ranged in specificity (e.g., “healthcare,” “content moderator,” or “911 dispatch”). The final search strings used for this REA were:

Trauma-related search strings: “moral injury,” “moral distress,” “post-traumatic stress disorder,” “grief,” “trauma,” “burnout,” “mental health,” “behavioral health,” “self-harm,” “depression,” “occupational health,” “suicidal ideation,” “resilience,” “stressor,” “vicarious trauma,” “secondary trauma,” “compassion fatigue,” “psychological mortality,” “ontological security.”

Domain-related search strings: “COVID-19,” “criminal justice,” “content moderator,” “digital forensics,” “disturbing images,” “child protection,” “social services,” “elder care,” “forensic nurse,” “trauma counsellor,” “healthcare,” “coroner,” “crime scene investigator,” “drone operator,” “CCTV operator,” “911 dispatch.”

For the literature search, each trauma-related search string was used in conjunction with each domain (e.g., “depression” and “forensic nurse”). Given the authors’ a priori assumption that there is a lack of directly applicable research, these search terms were designed to be as broad as possible to maximize likelihood that potentially relevant research was identified.

For each search term, a research assistant screened the results to identify potentially relevant research for further review. This was done to provide a more relevant evidence base for the synthesis stage. In line with REA methods used elsewhere (e.g., Wedlock and Talpey, 2016), only the first 50 “hits” from any search string were reviewed. This was done to make the project manageable within the given time frame. After reviewing the first 50 hits, the evidence was screened in two stages. First, a “first pass”, occurred which included reading only the title or headline of the evidence found. A “second pass” then involved reading the abstract or first paragraph to ensure that the research was clearly relevant. The inclusion criteria were based on the two dimensions identified above, namely that the research must address (1) trauma caused by (2) the *remote* observation of atrocities in which the individual was (3) *unable to intervene*.

Once a final list of articles was identified that had passed first and second screens for relevance, data extraction and evaluation of evidence was undertaken. Here, key data was extracted from each paper including study aims/research questions, the type of study, the research methods used (if any), the sample (and sampling strategy), a summary of data collection and analysis, a summary of findings, any noted limitations of the study, and the implications/conclusions drawn by study authors.

Total Articles Identified

Taken together, this coalition of extant literature and concurrent assessment of the strength of evidence allow the research team to answer the stated research questions: (1) What theories currently exist which conceptualize trauma that stems from vicarious observation of extremist atrocities? (2) In what similar

domains (if any) have researchers conceptualized the trauma that stems from vicarious observation of extremist atrocities? (3) What is the current evidence base for these theories? (4) What are the immediate research needs to extend or apply this research to the DHS workforce? Below we outline the workflow for the REA.

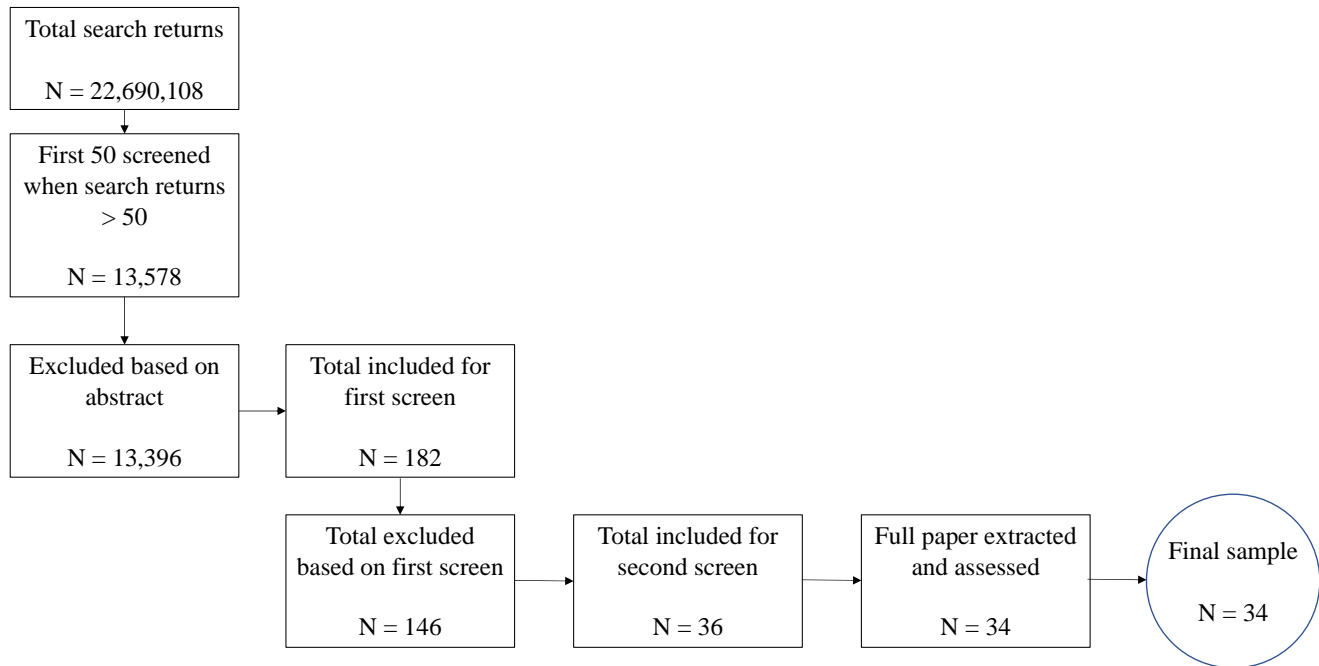


Figure 1: Rapid Evidence Assessment Work Flow

Limitations of the REA Methodology

While there are many benefits to the REA methodology, there are some important limitations to keep in mind. First and foremost, a REA uses less time and resources than a full systematic review. As such, it is possible that some literature is missed (especially if it is not catalogued on the electronic database used here). Second, the topic of this REA is both broad and incredibly specific, meaning that there is a volume issue. Specifically, as you will see below, the established search terms yielded over 22 million results, when only the first 50 results resulted in 13,578 abstracts being reviewed (5.98% of all returned “hits”). Furthermore, this REA is focused on a very specific, and indeed rare, context in which someone is charged with remotely observing contents and material that are of a sufficiently traumatic nature that they can cause significant psychological harm. These domains are both rare and accordingly unlikely to be studied (much less have empirical data). It is important that these factors are taken into account when considering the generalizability of the results of this REA.

CHAPTER THREE: RESULTS

Screening Results

Taken together, the combined search terms of 19 trauma types and 16 work domains resulted in a total 22,690,108 returned Google Scholar results.³ The full distribution of these results across the varied search terms are outlined in Table 1, and Figures 2 and 3.

With regard to the overall focus of research in this domain, there are clear areas that have (logically) received a significant proportion of the research effort to date. Principally, the two predominate areas of extant research are related to healthcare and COVID-19. In this instance, COVID-19 is also largely centered within healthcare as a significant portion of the identified papers related to the trauma experienced by those working within healthcare during the COVID-19 pandemic. The significant number of publications related to the trauma of COVID-19 is unsurprising given the known focus of academic research on the topic during this time (see Ioannidis et al., 2021). With regard to the trauma types, it is unsurprising that the largest bodies of results yield from the broadest conceptualizations of trauma (e.g., “mental health,” and “trauma”). However, when it comes to more focused trauma types, depression and burnout appear to have received the most significant attention to date.

Taken together this implies, unsurprisingly, that the largest bodies of literature to date are focused on healthcare and COVID-19. Further, there is a body of pre-existing literature that has touched on issues of trauma for those who must observe atrocities vicariously, namely those involved in digital forensics, drone operations, CCTV monitoring, and content moderation.

Figure 2: Google Scholar returned results by work domain

³ We use the phrase “returned Google Scholar results” to reflect the fact that there is likely significant overlap between and within work domains and trauma types for papers. As such, these results merely imply an overall body of focus, and should not be viewed as a definitive number of total relevant papers.

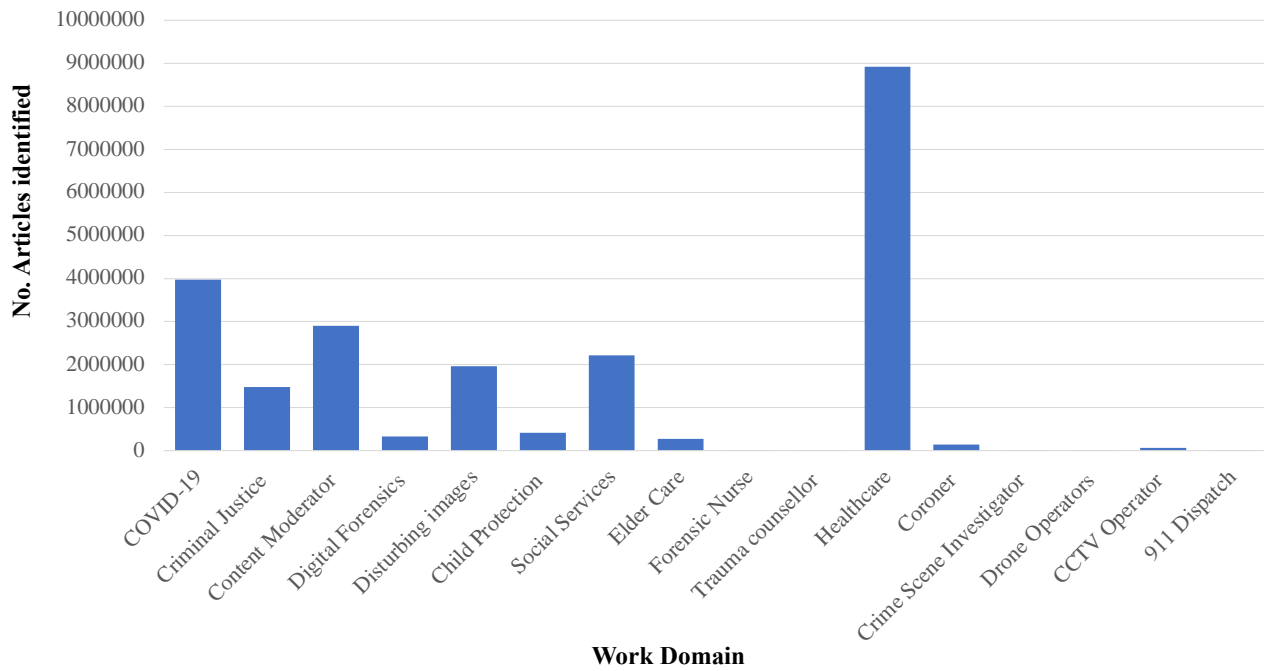


Figure 3: Google Scholar returned results by trauma type

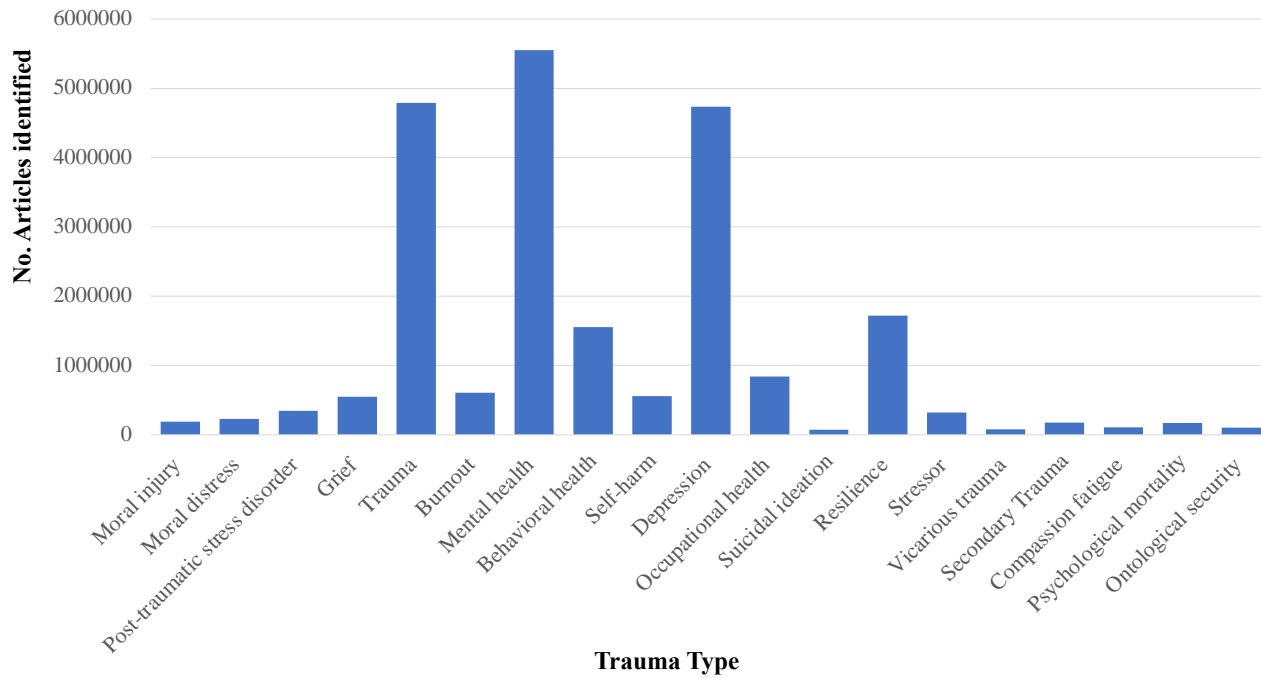


Table 1: Total Google Scholar results by trauma type and work domain

	COVID-19	Criminal justice	Content moderator	Digital forensics	Disturbing images	Child protection	Social services	Elder care	Forensic nurse	Trauma counsellor	healthcare	Coroner	Crime scene investigator	Drone operators	CCTV operators	911 dispatch	Total
Moral injury	5020	14600	36,300	17500	107,000	375	829	80	4	5	6150	105	3	100	42	4	188117
Moral distress	6780	690	57,200	13000	129,000	631	1540	330	43	3	18200	152	1	7	119	5	227701
Post-traumatic stress disorder	39200	36000	37,800	19900	42100	16700	33400	1070	347	221	114000	3170	103	254	1430	67	345762
Grief	44100	42100	38,900	13400	167000	17900	58200	4370	185	232	135000	21500	191	142	4130	83	547433
Trauma	1560000	274000	119,000	21600	187000	78300	223000	7170	1730	554	2270000	30700	652	541	11800	514	4786561
Burnout	110000	27900	72,000	5960	24500	12200	42600	6360	225	169	300000	1860	100	94	1570	86	605624
Mental (and/or behavioral) health	120100	690000	632,000	36300	336000	144000	1180000	22600	1580	381	2350000	25700	383	245	13600	413	5553302
Behavioral Health	445000	30400	701,000	26800	156000	6820	32100	110	9	74	155000	1500	37	27	286	122	1555285
Self-harm	24500	29000	164,000	24900	198000	13800	26200	490	219	32	68600	5840	39	21	2070	32	557743
Depression	1190000	174000	413,000	20300	222000	57500	332000	20800	828	315	2260000	33400	385	218	11600	203	4736549
Occupational health	101000	26600	225,000	21700	78600	4950	47200	3770	110	30	325000	3560	62	33	2210	67	839892
Suicidal ideation	35700	21500	3,310	5360	1900	255	766	23	1	1	3320	287	1	25	449	50	72948
Resilience	167000	79200	134,000	24500	74100	43500	193000	20300	228	246	781000	6400	162	309	13200	178	1720023
Stressor	33500	19400	105,000	16900	30300	6250	23600	2520	64	105	79300	1780	64	97	828	35	319743
Vicarious trauma	17800	3870	16,200	2600	21800	2860	3850	103	102	129	7160	302	28	6	114	11	76935
Secondary Trauma	4110	3640	49,900	18700	83900	2910	3620	86	76	115	8420	248	32	4	132	15	175908
compassion fatigue	19900	4120	19,600	2330	27500	3450	5680	404	71	133	25100	388	29	9	203	19	108936
Psychological mortality	42400	801	56,800	17200	34400	665	10	181	9	4	15500	201	0	0	0	0	168171
Ontological security	9670	1690	22,600	16800	45700	413	2020	113	0	1	3710	114	637	5	2	0	103475

First Pass: Results

Two Emerging Fields of Study

Overall, 182 articles were identified as relevant and subject to full review. A review of these articles made clear the importance of two predominant emerging factors within the trauma science literature: (1) COVID-19 and (2) the expansion of interest in moral injury. In total, 30 of the 182 identified articles (16%) were specifically focused on COVID-19, and 8% specifically focused on moral injury. We provide an overview of both, and the implications of each for DHS, below.

Trauma Caused During the COVID-19 Pandemic

The recent incursion of the 2019-2020 novel coronavirus pandemic (COVID-19) has placed unprecedented pressure on global healthcare systems and those who work within them (Ferguson et al., 2020). To date, psychologists have mobilized an immense amount of intellectual and empirical resources toward understanding the stress and strain caused by the COVID-19 pandemic (Lee et al., 2020), causes of infection-related anxiety (McKay et al., 2020), fear of COVID (Mertens et al., 2020), and the effect of COVID-19 on other damaging behaviors such as substance abuse (McKay & Asmundson, 2020). A COVID-19 stress scale has also been developed to identify individuals in need of pandemic-related mental health services (Taylor et al., 2020). Healthcare workers have been placed in unprecedented circumstances and subjected to a wide range of novel situations for which there are no clear guiding principles. Moreover, these circumstances often force healthcare workers to make decisions, ranging from the administration of life-saving medication to the allocation of personal protective equipment, where all choices are high-risk and may result in profoundly negative outcomes.

In our sample, studies explored the trauma faced by individuals in a range of positions who were involved in the response to the COVID-19 pandemic in varying ways. Overall, the majority of these studies focused on the trauma suffered by those working within the healthcare system during the COVID-19 pandemic (Elbay et al., 2020; Greenberg et al., 2020; Khalafallah et al., 2021; Pearman et al., 2020; Tsamakis et al., 2020). These included studies focused on the decisions healthcare professionals were forced to make (Akram, 2021; Rashid et al., 2022) and the effect of witnessing death and bereavement in collaboration with a loss of contact to social support systems (Ansari, 2022). Elsewhere, studies looked at the prevalence of psychological traumas such as post-traumatic stress (Liang et al., 2020) and burnout in healthcare workers during the COVID-19 pandemic (Franceschi & Brandes, 2021; Pekevski, 2022). Studies also looked at how psychological traumas were differentially experienced between different work types (Salopek-Žiha et al., 2020) and between workers of different genders (Canal-Rivero et al., 2022). Overall, this research confirms that the experience of working within, and observing, the COVID-19 pandemic caused a wide range of traumas to those involved, including PTSD, burnout, secondary trauma, and moral injury (see below).

Moral Injury and ‘Injuries of the Soul’

A second emerging body of study related to moral injury. Moral injury is the lasting emotional, psychological, social, behavioral, and spiritual impact of actions or decisions that violate an individual's core moral values or their behavioral expectations of themselves or others (Litz et al., 2009). In contrast to post-traumatic stress disorder (PTSD), which is often the result of a traumatic threat to physical safety, moral injury occurs as a result of experiences in high-stakes situations that contravene one's deeply held moral framework; that is, beliefs about right and wrong that a person has long held as sacred (Boudreau, 2011; Dombo et al., 2013; Meagher, 2015). The resulting psychological trauma stems from the discrepancy that exists between their core beliefs about themselves and the world and the actions that occurred during an event (Currier et al., 2015, p. 26). Those with moral injury report feelings of guilt, shame, rage, depression (Kopacz et al., 2016; Shay, 2014), and a loss of trust in one's own (or others')

capacity to be ethical due to violations of one's sense of meaning and personal integrity (Drescher et al., 2011).

The experience of moral injury has been shown to result in long-term negative outcomes for both psychological and physical health. Feelings of guilt and shame, which coincide with a rise in withdrawal behavior, are common among those subjected to moral injury (Currier et al., 2019). Work by Papazoglou and colleagues (2019) identified six cues of potential moral injury including social and behavioral problems, trust issues, self-deprecating emotions and cognitions, spiritual and existential crises, psychological disturbance, and unwanted re-experiencing of injurious events in the form of nightmares, flashbacks, or intrusive thoughts. Alexander and Klein (2009) describe similar psychological effects after a morally injurious event and include anxiety, hyperarousal, hypervigilance, and an increase in alcohol consumption as potential cues that trauma from moral injury is present. The risks of moral injury may also extend to self-harm (A. O. Bryan et al., 2014; C. J. Bryan et al., 2018). Although our current understanding of moral injury has been predominantly developed from research with soldiers and veterans, the onset of COVID-19 caused a rapid uptick in the interest in and study of moral injury (Shortland et al., 2020).

Here, a range of articles were identified that focused on moral injury experienced during the COVID-19 pandemic. These include articles that seek to conceptualize moral injury (Akram, 2021), as well as to communicate what moral injury is and why it is relevant to the pandemic (Koenig & Al Zaben, 2021). The most common article type was identifying symptoms of moral injury and the experience of morally injurious events (MIEs) in those who worked within the healthcare profession during the COVID-19 pandemic (Hagerty & Williams, 2022; Kamkar et al., 2020; Rashid et al., 2022). Elsewhere, articles were identified that measured the emergence of moral injury in military personnel (Molendijk, 2018), police officers (Doyle et al., 2021), civilians who observe international conflict (Subotic & Steele, 2018), and child protective service workers (Haight et al., 2017).

Overall, many of the identified articles on COVID-19 and moral injury were not included in the second screening because they violated the second and third inclusion criteria of the study, with the studies including individuals who did not observe the trauma remotely, and in many cases, were able to intervene. However, these two bodies of research are important and relevant because they represent a monumental shift in the attitude towards psychological trauma that centers on the experience of events that violate values that we hold as protected (Tetlock, 2003). This represents a critical extension to current views of trauma that stem from directly experiencing traumatic events (e.g., PTSD), or chronic trauma from chronic exhaustion and a low sense of achievement/personalization (e.g., burnout). Thus, while most of this work identified research which does not focus on remotely observed atrocities, the research stemming from COVID-19 pandemic related to moral injury will likely be increasingly relevant to the DHS workforce.

Second Pass: Results

Thirty-six articles were screened and assessed in full. The work domains of these articles ranged from drone warfare to digital forensics and interrogation interpreters, however all (to varying degrees) conceptualized the trauma caused by the remote observation of atrocities that the individual was unable to directly intervene in. Two articles, on further assessment were excluded due to violating the principle of separation from the traumatic event. The review of these articles highlights three major findings that are outlined below. First, the most relevant bodies of literature relate to niche fields that have received minimal research and attention, despite the significant trauma experienced by those who work within them. These include the domains of content moderation, digital forensics, medical examiners, and internet child abuse investigators. Secondly, there is a diverse range of trauma forms that have been identified as occurring within these populations. While there may be some overlap between them, the traumatic outcomes of these individuals include secondary traumatic stress, compassion satisfaction, moral injury, and vicarious trauma. Finally, and of greatest utility to DHS, is that a small subset of the identified literature outlines factors at the environmental and individual level, as well as possible interventions, that can impact the

degree to which these traumatic workplace events result in negative outcomes for the individuals. We outline each of these three major findings below.

Relevant Work Domains

There are several work domains in which workers are forced to observe atrocities, in which some (though minimal) research has sought to measure the degree of trauma caused by these experiences. Doyle et al. (2021) investigated the prevalence of moral injury and trauma in Internet Child Abuse Teams (ICAT). Semi-structured interviews with six ICAT members found that many exhibited significant psychological damage consistent with secondary trauma and moral injury. For example, consider the following exchange (Doyle et al., 2021; p. 7):

Participant: It [the image] was a torture and, err, rape and mutilation of...a couple of months old, I think [crying].

Interviewer: It does sound so terribly distressing.

Participant: It was done with such malice, hate and you just...[crying]...I couldn't get my head around it at all, not at all... [crying] Yeah, that one did [coughs], I couldn't, erm, [coughs], I had...I had to go home and I, err, I couldn't go to work the next day. I remember just waking up and I actually cried and I didn't know why I was crying in the morning, when I got up to work and it took me a minute to realise that's what it's about and I couldn't...I couldn't go to work.

Interviewer: Did you have any therapeutic support for it?

Participant: No, no I had a day off (MI036).

Similar forms of trauma were identified by other researchers in those who are required to observe images of child pornography. Perez et al. (2010) studied 28 federal law enforcement personnel who investigate internet child pornography and found a high prevalence of secondary traumatic stress disorder (STSD) and burnout among their sample. Furthermore, almost half of the sample (46%) indicated that viewing the images was the most difficult thing about their work.

Elsewhere, Dubberley et al. (2015) explored the prevalence of trauma in those who engage in “eyewitness media” — namely the journalists, humanitarian, and human rights professionals whose job it is to seek out, verify, and edit disturbing and traumatic raw images captured and posted online. These individuals are required to view traumatic images of death and unimaginable horror all day every day while often located thousands of miles away from where the actual horrors occur (Dubberley et al., 2015). Based on an online survey of 209 individuals, over 40% reported that viewing distressing eyewitness media has had a negative impact on their personal lives, and many reported suffering from vicarious trauma, PTSD, and self-referral to professional counselling. This finding is especially relevant given the high degree of overlap with those that are likely under the purview of DHS. For example, some of the most traumatic material cited by interviewees in this study included “pictures of amputations, dead bodies, the aftermath of explosions and attacks,” “the bombing of nine children in a car,” and “videos of men accused of homosexuality being thrown off five-story buildings by IS.” All of which are widely shared on social networks that focus on violent extremism (see Cottee, 2022).

In addition to witnessing digital media, some research explored the psychological impacts of hearing recounting of atrocities. Middleton et al. (2022) conducted qualitative interviews with nine forensic interviewers throughout one western state in the United States. They found that the trauma the interviewers experienced occurred in three domains: within the interview, outside the interview but at work, and in their personal lives. Additionally, the forensic interviewers' reports outlined four distinct elements of vicarious trauma, regardless of which realm they were in: triggers, coping strategies, cognitive dissonance, and syncretism. Triggers relate to factors within the interview that would stimulate trauma in

the interviewee. Coping strategies relate to the responses to the stress that the interviewers learned to engage in to minimize the stress of the role. These responses included (a) shifting into a mode within the interview setting, (b) becoming hyper-competent within their professional role as a forensic interviewer, (c) engaging in high-risk behavior as a way to cope with stress outside of their work role, and (d) disassociating from reality outside of their workplace (Middleton et al., 2022). Cognitive dissonance refers to the trauma that resulted from having to sit and listen to the stories of the victim while not being able to help the victim. Syncretism is the process through which individuals achieve complete self-realization and build a social structure in which the physical, mental, and spiritual needs of all people can be fulfilled. In the case of the interviewers this was most often challenged by failings in the system that prevented them from fully protecting and helping the victims.

Elements of vicarious trauma	Realm	Properties
1. Triggers	a. Within the interview	Disclosures of severe physical/sexual trauma; tentative disclosures; child's physical and emotional response
	b. Outside: Professional role	Viewing photos and images; working in isolation
	c. Outside: NonProfessional role	Forensic interviewer's personal trauma history
2. Coping strategies	a. Within the interview	Shifting into a mode to a) modulate <i>emotionality</i> b) engage <i>cognitively</i>
	b. Outside: Professional role	Becoming hypercompetent
	c. Outside: Nonprofessional role	Engaging in high-risk behavior; disassociating
3. Cognitive dissonance	a. Within the interview	Gathering necessary details for the case vs. attending to child's emotional needs
	b. Outside: Professional role	Taking in anger and injustice vs. moving on
	c. Outside: Nonprofessional role	Being constrained vs. being a change agent
4. Vicarious trauma presents barriers to syncretism	a. Within the interview	Losing credibility and trust
	b. Outside: Professional role	Losing sense of reality: post-interview
	c. Outside: Nonprofessional role	Struggling to feel benefits of the work role/helplessness and despair

Table 2: Elements of vicarious trauma reported by Middleton et al. (2022).

Overall, then, there is a range of research in work domains that place their workers in similar challenging domains to those in DHS. Most of this research stems from those who work on child sex abuse cases, examine child sex abuse images, and/or interview victims of child sex abuse. Elsewhere, some work has been conducted on those who are involved in visual media related to acts of war (referred to eyewitness media). This review also unsurprisingly identified research on the role of secondary trauma in drone pilots, however unlike the research cited above, this research often involved narrative reviews (Pinchevski, 2016; Saini et al., 2021). Taken together, this body of literature reinforces that the exposure to atrocities is sufficiently traumatic to cause a range of traumatic outcomes in the individuals. Furthermore, the consequences of this trauma can be experienced both at work and outside of work. However, it is clear that despite the significant personal trauma reported by these individuals there remains a paucity of research on both the specific nature of the content that causes trauma and the relationship between this exposure and the exact form(s) of trauma experienced.

Forms of Traumatic Outcome

In addition to multiple relevant work domains emerging within this review, it is also clear that there are several consistent forms of trauma that have been studied within this domain. These include moral injury (outlined above), secondary traumatic stress, burnout, mental resilience, emotional disengagement, post-traumatic stress disorder (PTSD), and emotional exhaustion.

Several studies used secondary traumatic stress (STS) disorder to conceptualize the negative psychological consequences of exposure to images of atrocities. STS has been defined as “the natural, consequent behaviors and emotions resulting from knowledge about a traumatizing event experienced by

a significant other. It is the stress resulting from helping or wanting to help a traumatized or suffering person” (Figley, 1999, p. 10). Research has explored the degree to which the outcomes of STS are equal to those of primary traumatic stress (i.e., the individual who experienced the atrocity), finding that the symptoms and severity of secondary traumatization parallel those observed in persons directly exposed to trauma (Chrestman, 1995). Perez et al. (2010) used the Secondary Traumatic Stress Scale (STSS; Bride et al., 2004) in a sample of law enforcement personnel. The STSS consists of 17 items assessing Intrusion (five items), Avoidance (seven items), and Arousal (five items). Tehrani (2016) also used the STSS in a study of internet child abuse investigators. Elsewhere, MacEachern (2011) used a slightly more informal version of the STSS in a study of police officers who work on child protection. Other researchers (e.g., Doyle et al., 2021; Dubberley et al., 2015) observed outcomes like STS but did not directly measure STS using a formal scale.

A second common construct was burnout. Burnout has drawn substantial research attention in organizational science (e.g., Demerouti et al., 2001; Maslach & Leiter, 2008), and is understood to be a negative outcome of high job demands and is likely to co-occur in the work domains identified here. Doyle et al. (2021) identified narratives of burnout, as well as an inevitable acceptance of it, in his interviews. In this study the ICAT officers accepted that their role would inevitably result in burnout, and there will come a point in which they will be “incapacitated again” (p. 11). As with the study of STS, Perez et al. (2010) measured burnout using Maslach Burnout Inventory – General Survey (MBI-GS; Maslach et al., 1996). The MBI-GS consists of 16 items assessing Exhaustion (five items), Cynicism (five items), and Professional Efficacy (six items). Although interestingly, they did not find that burnout was associated with exposure to images of child sexual abuse. Sollie et al. (2017) did not directly measure burnout in their sample of crime scene investigators but reported that, “the work had led to burnouts for six of the 30 respondents” and “participants also reported that they knew several CSIs who had suffered from burnout issues in recent years” (p. 1587). MacEachern (2011) found that 36% of their sample of police officers who work on child protection reported suffering from burnout. Finally, Levin and Greisberg (2003) found that attorneys working with traumatized clients reported higher levels of burnout than mental health providers and social service workers. Saini et al.’s (2021) commentary on drone pilots also references the likely role that burnout plays in their job. What is clear from the above research is that burnout is a clear and pressing issue in work environments where people are often forced to confront atrocious images/acts. However, there is no clear answer of causality. What this means is that it is equally viable that exposure to such images causes burnout, and that the concurrent burnout experienced from working in high stakes environments amplifies the effect of exposure on other traumatic outcomes.

Elsewhere, researchers have highlighted a range of relevant traumatic outcomes (Saini et al., 2021). These include mental resilience, emotional disengagement, PTSD, and emotional exhaustion. However, in these instances these forms of trauma were not measured directly. This suggests a fundamental issue in the current state of the literature, in that the prevalence and degree of common trauma types is not being systematically measured in quantitative studies with a suitable number of participants but is instead being evidenced by interpretation of individual experiences collected through qualitative interview methods.

Mitigating Factors

Perhaps one of the most important findings of the REA is the degree to which the negative impacts of exposure to traumatic images and content range due to individual and environmental level intrapersonal differences. For example, Doyle et al.’s (2021) study of ICAT team members found that the degree to which the individual identifies with the contents of the images impacted its effect. For example, one interviewee recalled,

“I just feel myself kind of being a bit more disturbed when the images come up in front of me [...] particularly seeing just, little girls’ genitalia. [W]hen I didn’t have my own kids, I could just do the task at hand, and [...] didn’t really think about them too much, because I didn’t deal with, I didn’t see those things in my house (MI022).”

Furthermore, Dubberley et al. (2015) reported that trauma was experienced more acutely when the exposure to the image was expected. Dubberley also reported the negative impact of sound on participants experiences of trauma. This makes sense given the role of sound in creating immersive experiences elsewhere (Cummings & Bailenson, 2016). Their interviewees also reported the negative role of emerging technologies. For example, the introduction of the WhatsApp web client onto news desks and new tools to index human rights violations are having a particularly adverse impact upon staff due to the immediacy of the images and the sheer volume that people were exposed to. In addition to this, their survey identified the role of organizational culture in that, in some cultures, there was a “tough up or get out” culture in which discussing vicarious trauma was viewed as virtually a complete taboo. Based on their interviews, they identified several overarching factors that impacted the degree of trauma experienced. These included:

- When they were not expecting to see something horrific.
- When they were repeatedly exposed to distressing content.
- When they were looking for or at distressing content which was then not subsequently used in news output, reporting, or advocacy campaigns.
- When content reminded the individual of personal experiences or was in some way connected to them.
- When the audio in a video contained sounds of human suffering such as screaming or people begging for their lives.

Unsurprisingly, several studies also highlighted the role of workload on trauma. Individuals interviewed by Doyle et al. (2021) noted that:

“[W]e have six weeks in which to review the data and that’s not only doing the grading of the images, but it’s reviewing the chat logs, the web history, all the technical data that’s been extracted as well’ (183MI). A solution, according to the ICAT officers, was the provision of additional staff as this would enable ‘a bigger break in the middle, time to decompress, you know’ (036MI), by reducing the time spent viewing images.”

Campbell and Bishop (2019) examined Australian corrective service employees and found that greater caseload and longer tenure both predicted increased rates of vicarious trauma. Tehrani (2016) factored in the role of personality and found that among 126 internet child abuse investigators, there was a higher incidence of STS in investigators who were female, introverted, and neurotic. In their study of attorneys, Levin and Greisberg (2003) found that workload and a lack of supervision were associated with greater levels of STS and burnout.

Research also identified some protective factors. Perez et al. (2010) found that employees whose loved ones were supportive of their work reported lower levels of STS, suggesting that the presence of supportive relationships in the lives of agency employees was related to better psychological well-being. Interviewees for Doyle et al. (2021) also highlighted the role of a good healthy lifestyle and exercise. Specifically, Doyle et al. (2021) reported that there was consensus among the participants that exercise played an important role in defusing emotional energy and anxieties.

Finally, a few studies identified here outlined potential interventions, although it is important to mention that no study identified measured the effectiveness of any form of intervention. Sollie et al. (2017)

highlighted a range of potential activities at the individual and organizational level that crime scene investigators used to mitigate the violent crime scenes. Interestingly, the outlined prescriptions include a range of cognitive activities including preparatory visualization (mentally preparing for the crime scene before entering), emotional distancing, and strict management of thoughts while at the crime scene (such as staying task-orientated and being in a calm state of mind), seeking meaning and sensemaking, and seeking social support through sharing of emotions. The role of sharing and seeking social support could potentially be of significant utility given the ease with which such practices can be integrated within current after-action review policies and their demonstrated success at increasing resilience in stressful, demanding environments.

Taken together, the research identified in this REA reinforces that the severity and impact of exposure to traumatic images online will be impacted by a range of factors associated with (1) the nature of the material, (2) the individual (psychologically and socio-demographically), (3) the cognitive resilience strategies the individual uses, and (4) the working environment the exposure occurs within. These findings provide significant promise, if replicated within the domain of the counterterrorism workforce, because they highlight potential risk factors to identify those at the greatest risk, as well as potential interventions that can be used as starting points to build resilience among the workforce.

CHAPTER FOUR: CONCLUSIONS

There has been a recent expansion in the awareness of the traumatic psychological consequences suffered by those who are required to observe atrocities as part of their job. To protect the United States from a range of malevolent actors, members of the national security workforce and national security research infrastructure are continuously exposed to the propaganda, ideologies, and psychologies of actors who seek to launch terrorist attacks. These activities range from reading manifestos and monitoring forums to analyzing propaganda, interviews, and crime scene information. Such action, unsurprisingly, takes a toll on the individual, and anecdotal evidence from those who have worked in the field abounds regarding the psychological challenge of dealing with such material (e.g., Cottee, 2022; Winter, 2022). Despite this, there has been little systematic study of the nature of psychological trauma (and its consequences) that stems from these experiences. As such, in this report we outline the results of a rapid evidence assessment which sought to answer four key questions:

- What theories currently exist which conceptualize trauma that stems from vicarious observation of extremist atrocities?
- In what similar domains (if any) have researchers conceptualized the trauma that stems from vicarious observation of extremist atrocities?
- What is the current evidence base for these theories?
- What are the immediate research needs to extend or apply this research to the DHS workforce?

With regard to the predominant theories, there is an emerging body of work, driven largely by the COVID-19 pandemic, which focuses on moral injury as a traumatic outcome of observing atrocities. Moral injury is an incredibly relevant theory and is already used to explain the psychological trauma experienced by drone pilots (Saini et al., 2021). However, when it comes to the wider research identified here, STS and burnout were not only commonly cited, but also measured within samples of internet child abuse teams. While it is clear that all three forms of trauma are relevant, more research is needed to unpack the relationship between co-occurring trauma types, and also how different forms of material could result in various forms of trauma. For example, while monitoring a Reddit thread of involuntary celibates (INCELS) may be likely to cause degrees of moral injury, coding and analyzing beheading videos and battlefield GoPro footage may be more likely to cause STS. Both of which may then be amplified by, or contribute to, burnout.

With regard to the domains of relevance, what is interesting is that despite the significant amount of research that focuses on trauma and the workplace, there were only a few domains that repeatedly arose as relevant to the very confined inclusion criteria used here. Often the most similar domain was the investigation of child sex abuse (CSA). CSAs are a highly relevant domain on many fronts. First, acts of CSA are abhorrent and (like acts of terrorism) cause a visceral reaction in any viewer. Secondly, there is a large digital element in CSA (often referred to as “Indecent Images of Children;” Long et al., 2016), meaning that individuals are often forced to observe CSA materials online as part of investigations and cases. However, it is important to mention that despite its relevance, the trauma experienced by the CSA workforce is still largely understudied.

In terms of the evidence base, one of the important findings of this REA is that the studies identified, while a small collection, were largely empirical. This REA identified research on those working

in CSA, police departments, digital forensics, eyewitness media, attorneys, crime scene investigators, and forensic interviewers that collected primary source data. In many cases this did include surveys of the individuals using standardized measures of trauma as well as measurement of relevant individual, social, and environmental factors (e.g., Perez et al., 2010). Elsewhere, large-scale surveys were completed (Dubberley et al., 2015). This provides a methodological warrant for future studies interested in the counterterrorism workforce which should seek to replicate the methods used in the studies identified here.

What Next?

This REA has identified a range of immediate research needs to extend or apply this research to the DHS workforce. These include:

1. Disaggregating the relationship that exists between the various possible forms of trauma and the specific forms of media that are consumed.
2. Exploring the degree to which cognitive resilience strategies, such as those identified within Crime Scene Investigator (CSI) staff, are effective.
3. Validate the degree to which organizational dynamics can negatively or positively impact the manifestation of trauma in the workforce. These include issues of culture and workload. The presence of these organizational barriers within DHS needs to be explored, and if present, mitigated.
4. While largely untested, several articles included suggestions for interventions that could increase resilience. These largely center on the importance of debriefing. Future research should investigate how effective debriefs can be structured and implemented within the DHS workforce to support the development of resilience by those who are exposed to such harmful content online.

Taken together, the results of this REA reinforce that there is a currently understudied threat of trauma existing within the DHS workforce. While research elsewhere has begun to measure how repeated exposure to extreme images can cause traumatic outcomes at the individual level, more research needs to be done to make sure that the DHS workforce is able to quickly and effectively identify the job roles and individuals who are at the greatest risk of suffering trauma. This must then be partnered with evidence-based interventions aimed at increasing resilience pre, during, and post exposure.

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