

Secondary Traumatic Stress and Burnout among Law Enforcement Investigators Exposed to Disturbing Media Images

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Abstract This study examines the psychological impact of viewing disturbing media on investigators engaged in computer forensics work. Twenty-eight federal law enforcement personnel who investigate Internet child pornography cases completed measures of secondary traumatic stress disorder (STSD) and burnout. Substantial percentages of investigators reported poor psychological well-being. Greater exposure to disturbing media was related to higher levels of STSD and cynicism. STSD and burnout scores were related to increased protectiveness of family, reliance on co-workers, general distrust, and turnover intentions. On a positive note, investigators scored high in professional efficacy, indicating they feel their work makes a difference. Furthermore, personnel with supportive relationships scored lower on both STSD and burnout.

Keywords Child pornography · Secondary trauma · Burnout · Police stress

Introduction

The Internet has profoundly affected the ways that people live, work, play, and socialize. Unfortunately, the Internet

has also affected the ways, and ease with which, people commit crimes. One particularly unsettling outcome of the Internet expansion is an increase in the distribution, exchange, and collection of child pornography (Biegel 2001; Wells et al. 2004). For example, Wortley and Smallbone (2006) report that some Internet child pornography sites receive up to one million hits per month. Further, it is difficult to estimate the true prevalence of Internet child pornography because owners of websites containing child pornography frequently change website addresses to avoid detection (Mears et al. 2008). Nevertheless, the Internet is now the primary means by which images of child exploitation are distributed (Silverman and Wilson 2002).

As child pornography becomes more easily accessible, law enforcement officers have had to increase the time they spend investigating child pornography cases and greater numbers of law enforcement personnel are engaged in this work (Finkelhor and Ormrod 2004; Krause 2009). While there have been a variety of studies of the negative effects of child pornography on the consumers of the images (Seto et al. 2006), there have been very few studies of the effects that these disturbing images may have on the law enforcement agents who investigate child pornography cases. With this in mind, the present study examined the experiences of employees who investigate child pornography in a federal computer forensics lab. More specifically, this study tested the extent to which exposure to disturbing media images leads to investigator burnout and secondary traumatic stress disorder symptoms.

Stress and Law Enforcement

Since the 1970's, hundreds of studies have examined the causes and consequences of stress in law enforcement

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occupations. Within this literature, researchers have proposed various taxonomies of law enforcement-related stressors (e.g., Abdollahi 2002; Hart et al. 1995; Toch 2002). These taxonomies vary from study to study, but generally include some combination of organizational stressors (e.g., supervisory practices and bureaucracy), personal stressors (e.g., work-life conflict), external stressors (e.g., negative attitudes of the public towards law enforcement), and task stressors (stressors intrinsic to the job such as shift work, the risk of violence, and other traumatic stressors).

The most frequently researched task stressor in law enforcement samples has been exposure to traumatic events (Figley 1995), and many of these studies have focused on the risk of developing post-traumatic stress disorder (PTSD) (Carrier et al. 2000; Liberman et al. 2002; Malach-Pines and Keinan 2007; Plaxton-Hennings 2004). Post-traumatic stress disorder is an anxiety disorder that involves the continued re-experiencing of a traumatic event, avoidance of reminders of the trauma, intense fear, helplessness, and hyper-vigilance in the aftermath of distressing events including military combat, sexual assault, serious automobile accidents, or natural disasters (APA 1994). Researchers have recognized for some time that even highly trained first responders are at risk for developing PTSD in the wake of traumatic experiences (e.g., Fullerton et al. 1992; Gersons 1989).

Recently, researchers have also begun to recognize that helping occupations can expose employees to traumatic events indirectly when employees spend significant time listening to or reviewing evidence of traumatic events experienced by victims (Figley 1995; Pearlman and Saakvitne 1995). As a result, researchers have focused their attention on the ways that working with victims of traumatic events can be traumatizing for law enforcement agents, social workers, and therapists (e.g., Hart et al. 1995). In addition, law enforcement officers rarely experience a single traumatic event (whether directly or indirectly) but rather, a series of such experiences may have a cumulative effect over the course of a career (Marshall 2006). A variety of different terms have been proposed to describe the effect of this indirect exposure via proximity to the victim of a traumatic event.

The two most commonly researched constructs are *vicarious traumatization* and *secondary traumatic stress*. While the two concepts have been used interchangeably by some researchers (Charlton 2009), there are important conceptual differences between the two (Baird and Kracen 2006; Thomas and Wilson 2004). Researchers studying STS and STSD suggest that just as direct experience of trauma can lead to PTSD, indirect experience of trauma can lead to secondary traumatic stress disorder (STSD; Figley 1995). The symptoms of STSD are virtually identical to the

symptoms of PTSD (Bride et al. 2004; Figley 1995). On the other hand, vicarious traumatization involves a transformation of self-image and world view as a result of working with trauma victims (Pearlman and Saakvitne 1995). Despite these conceptual distinctions, both terms reflect harmful responses to work with trauma victims. Although we are examining STSD in this paper, we draw on research on both vicarious traumatization and STS as the existing empirical research demonstrates sufficient overlap in terms of their correlates with other variables (Baird and Kracen 2006; Jenkins and Baird 2002). Both secondary traumatic stress disorder and vicarious traumatization have been examined in child protective services and counseling occupations (e.g., Cornille and Meyers 1999; Steed and Downing 1998) and in law enforcement. (Brown et al. 1999).

A somewhat less acute effect of working with victims is burnout (Burke 1993; Goodman 1990; Malach-Pines and Keinan 2006, 2007). Burnout is the feeling of, “being at the end of one’s rope.” It is the result of chronic work stress and is particularly common in jobs where employees have frequent and highly emotional interaction with their customers, clients, or patients (Maslach et al. 2001; Zapf et al. 2001).

Most researchers conceptualize burnout as a multidimensional construct consisting of exhaustion, cynicism, and a decreased sense of personal accomplishment (Maslach et al. 1996). Exhaustion is the principal dimension of burnout. When employees say they are, “burned out,” they are usually referring to a feeling of exhaustion (Maslach et al. 2001). The cynicism dimension reflects a disengagement from or lack of enthusiasm about one’s work. Reduced personal efficacy is indicative of burnout when individuals no longer feel that they are making a meaningful contribution on the job (Maslach et al. 2001).

Although burnout manifests itself at the individual level, risk factors for burnout may be a result of individual factors (e.g., age, personality), occupational factors (e.g., high levels of emotionally demanding interactions), organizational factors (high workloads, role stressors, unfairness, lack of social support, lack of adequate rewards and recognition, and lack of autonomy; Lee and Ashforth 1996; Maslach et al. 2001), or an interaction between individual and organizational/occupational factors. In other words, a lack of fit between individual needs or abilities and occupational or organizational demands can increase the risk of burnout (Maslach et al. 2001).

Existing research demonstrates that these burnout risk factors are prevalent in law enforcement occupations. For example, Gibson et al. (2001) demonstrated that law enforcement officers experience unfair employment practices and lack of participation in decision making while Violanti (1993) found poor social support to be common in police work. Band and Sheehan (1999) identify lack of

management commitment and support, as well as role conflict due to interagency collaborations, as critical stressors in undercover law enforcement work.

Law enforcement officers who investigate computer crimes such as the dissemination of child pornography are likely to face many of these same burnout risk factors. Jewkes and Andrews (2005) note that online child pornography investigation units often lack necessary human and technological resources leading to high workloads. Also, the culture of the police force, according to Jewkes and Andrews, does not value cyber-investigations in the same way that it values more hands-on police work leading to poor social support and role conflict. In addition, such investigations often involve the collaboration of multiple agencies often in different countries each with their own set of policies and procedures leading to bureaucratic nightmares and role conflict. Furthermore, employees are likely to suffer from misfits between job demands and abilities as the technological skills necessary to track cybercriminals do not necessarily coincide with the skills for other types of law enforcement work (Jewkes and Andrews 2005).

Incidence of Secondary Trauma and Burnout

Researchers have recorded substantial rates of secondary trauma among clinicians, crisis counselors, and child services workers. For example, Cornille and Meyers (1999) found that 37% of their sample of child protective service workers who interview child abuse victims were experiencing clinically significant levels of STSD. Similarly, in a study of child protection caseworkers, Conrad and Kellar-Guenther (2006) reported that almost 50% were at high or extremely high risk of compassion fatigue, a construct related to STSD and burnout. Brown et al. (1999) indicated that 40% of police officers they studied were experiencing levels of psychological distress above a clinical threshold. Taken together, these studies suggest substantial numbers of people in at-risk occupations may be experiencing significant symptoms of STSD or related problems.

Negative Effects of Exposure to Disturbing Media

There is no existing research identifying the incidence of secondary trauma or burnout among employees who investigate child pornography cases (Krause 2009). Two existing studies of child pornography investigators include discussions of secondary trauma but the studies are qualitative in nature (Burns et al. 2008; Stevenson 2007) and do not actually assess whether investigators are suffering from STSD.

Burns et al. (2008) interviewed 14 Internet child pornography investigators from the Royal Canadian

Mounted Police using the critical incident method. The authors identified a number of negative outcomes reported by these investigators including a greater awareness of the scope of Internet child exploitation, physical and emotional symptoms, intrusive thoughts about cases while not at work, stigma, isolation from others who could not understand the investigators' work, an inability to discuss the investigators' work for fear of traumatizing other people, concerns about and reliance on other team members, and an increased protectiveness of their own and other children. Although there was no direct assessment of STSD among these investigators, the effects identified by Burns et al. are clearly consistent with STSD symptoms. In addition, the physical and emotional symptoms and increased protectiveness are suggestive of the burnout dimensions of exhaustion and cynicism.

Stevenson (2007) conducted semi-structured interviews with 12 supervisors of teams investigating online child sexual abuse in the United Kingdom. These participants were unique in that, in addition to being required to view images themselves, they were also responsible for supervising employees doing the same work. Stevenson reported that almost all of the investigators reported emotional distress in response to certain images. Furthermore, the degree of emotional distress appeared to be related to the duration of exposure and the intensity of exposure. Additionally, investigators reported intrusive thoughts about images they had viewed, concern about how their own behavior around children might be interpreted, an increased awareness of the inhumanity that exists in the world, concerns about inappropriate sexual thoughts, feeling stigmatized by employees from other departments who are not engaged in the same type of work, exhaustion, overwork, and a feeling that management does not support their work. In their roles as supervisors, the interviewees in Stevenson's study also reported concern about the emotional well-being of their staff, a sense of responsibility for that well-being, a lack of training in how to support people doing this sort of work, and a lack of resources from senior management in relation to supporting the welfare of their employees.

Although these two studies of Internet child abuse investigators are both qualitative in nature and neither directly assesses burnout or STSD, they both clearly indicate exposure is related to distress and many of the relevant symptoms of burnout or secondary trauma. Both studies also identify more specific responses to working with disturbing media that need to be systematically and empirically addressed by researchers including increased protectiveness of children, decreased trust in the general public, and concerns about and reliance on co-workers.

Although there are few studies of the impact of viewing disturbing media in the workplace, we can gain some

understanding by drawing from a body of research on the effects of secondary exposure to trauma in other occupations. In a national survey of female psychotherapists working with sexual abuse survivors, Brady et al. (1999) found that those employees whose caseloads had a greater percentage of survivors, those who had worked with more survivors over the course of their careers, and those who were exposed to graphic details about the abuse, experienced elevated PTSD symptoms. In another study of sexual abuse counselors, Schauben and Frazier (1995) found that exposure (as measured by percentage of survivors in the counselor's caseload) was positively related to vicarious trauma but was not related to burnout.

PTSD, Burnout, and Turnover Intentions

Numerous studies, including a meta-analysis by Lee and Ashforth (1996), have linked burnout to employees' turnover intentions. Lee and Ashforth's meta-analysis indicates significant corrected mean correlations between turnover intentions and emotional exhaustion ($r_c=.44$), cynicism/depersonalization ($r_c=.31$), and lack of professional efficacy ($r_c=.16$). In child protective occupations, Dickinson and Perry (2002) found that burnout was related to turnover intentions and actual turnover among child welfare workers. Similarly, crisis-line volunteers who are exposed to the details of callers' traumatic experiences often report symptoms consistent with burnout and PTSD. These symptoms include feelings of fatigue, negative emotions, intrusive thoughts, and questions about their competence dealing with callers. In addition, burnout clearly contributes to crisis-line employees' decisions to leave (Cyr and Dowrick 1991; Kinzel and Nanson 2000).

The Present Study

In the current study, employees of a federal law enforcement agency completed measures of exposure to disturbing media, burnout, PTSD, and turnover intentions. These investigators are responsible for searching the computers (and other electronic media) of suspected criminals to find evidence of criminal and counterintelligence activities. Some investigators investigate child pornography cases. These employees search active, hidden, and erased files to find evidence that an electronic device has been used to view, store, or distribute child pornographic images. The investigators surveyed in this study spent 7 to 8 hours each day, year-round, searching electronic media files. They would locate anywhere from 0 to 10,000 images on each computer (although a few computers would have over 100,000 images). An overly-conservative estimate is that the investigators assigned to child pornography cases would view 25,000 disturbing images per work-year. It should be

noted that although a large percentage of the files found involve images of the exploitation of children, images were not restricted to child abuse. The tendency for suspects who collect child pornographic images to also collect images of extreme violence, lethal violence, and unusual sexual activity among consenting adults is consistent with earlier research indicating that sexual offenders often engage in a variety of paraphilic behaviors (Abel et al. 1988).

Hypotheses

The following hypotheses were tested in the present study:

- H1: Investigators will experience moderate to high levels of PTSD and burnout.
- H2: Exposure to disturbing media will be positively correlated with PTSD symptoms and burnout.
- H3: PTSD and burnout will be positively related to turnover intentions.
- H4: PTSD and burnout will be positively related to increased protectiveness, reliance on coworkers, and distrust of the general public.

Method

Participants

Twenty-eight out of 33 eligible investigators at a federal law enforcement agency participated in the study (response rate = 84.8%). The majority of participants were male (75.0%) and married (75.0%). Almost half of the participants (42.9%) had been with the agency between two and five years, and eight employees (28.6%) had been there for more than five years. The sample consisted of both sworn law enforcement agents and civilian contractors with expertise in computer science.

Measures

Participants completed a survey to assess their exposure to disturbing media, secondary traumatic stress disorder, burnout, turnover intentions, and other responses to disturbing media exposure. In addition, participants responded to demographic items and five open-ended questions about the effects of disturbing media, coping strategies used, and ways in which the organization could help investigators.

Exposure to Disturbing Media Participants responded to three items about their exposure to disturbing media. Participants reported the number of child pornography cases they had investigated. The mean number of child

pornography cases worked was 52.30 (SD=61.58). Participants also indicated how long they had been working with disturbing media at the agency, and how long ago they were first exposed to child pornography while an employee. Response options for these items ranged from none/never to more than five years.

Secondary Traumatic Stress Disorder STSD was assessed using the Secondary Traumatic Stress Scale (STSS; Bride et al. 2004). The STSS consists of 17 items assessing Intrusion (five items), Avoidance (seven items), and Arousal (five items). Items were scored on a five-point scale ranging from 1 (*never*) to 5 (*very often*). Intrusion items included, “Reminders of my work upset me,” and, “I thought about my work when I didn’t intend to.” Avoidance items included, “I had little interest in being around others” and “I wanted to avoid working on some cases.” Arousal items included, “I felt jumpy,” and “I expected something bad to happen.” Although Bride et al. (2004) identified three distinct but related subscales in the STSS; subscale intercorrelations in the present study were all greater than .89. Thus, scores on the three subscales were collapsed into one overall STSS score. This is consistent with results of a confirmatory factor analysis by Ting et al. (2005) who found that a single factor solution was the best fit for the data. Coefficient alpha for the total STSS scale was .97.

Burnout Burnout was assessed using the 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). Items were scored on a seven-point scale ranging from 0 (*never*) to 6 (*everyday*). Exhaustion items included, “I feel emotionally drained from my work,” and “I feel used up at the end of the workday.” Cynicism items included, “I have become less interested in my work since I started this job,” and “I doubt the significance of my work.” Professional Efficacy items included, “I can effectively solve the problems that arise in my work,” and, “I feel I am making an effective contribution to what this organization does.” Reliability estimates for the three subscales were .90 (exhaustion), .85 (cynicism), and .69 (professional efficacy). These are consistent with reliability estimates reported by Maslach et al. (1996).

Turnover Intentions Turnover intentions were assessed with three items adapted from Abrams et al. (1998). The items included, “I’d like to work in this role at the agency until I retire,” “I think about leaving the agency or switching roles at the agency” and “In the next few years, I intend to leave the agency or switch roles within the agency.” Items were scored on a five-point Likert scale ranging from 1 (*strongly*

disagree) to 5 (*strongly agree*). The reliability estimate for this turnover intentions measure was .83.

Reactions to Disturbing Media We developed a set of items to assess how exposure to disturbing media affected the relationships and general adaptation of employees. These items were scored on a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Because there were too few subjects to empirically define subscales, we grouped these items into subscales based on item content. The four subscales formed were supportive relationships, protectiveness, coworker relationships, and distrust of the general public.

The *supportive relationships* subscale consisted of six items that assessed the extent to which employees felt that their loved ones were open and understanding about the nature of their work. An example item is, “My friends and family object to the work that I do” (reverse-scored). Internal consistency reliability for the supportive relationships measure was .75. The *protectiveness* subscale consisted of six items assessing whether their work led employees to feel an increased need to shield their loved ones, especially children, from harm. An example item is, “Since working here, I become nervous when my child is around other adults.” Reliability of the protectiveness subscale was .89. Four items comprised a *coworker relationships* scale. These items assessed the nature of employees’ relationships with one another. An example item is, “Only my coworkers really understand what I go through on a daily basis.” The coworker relationships measure had a reliability of .62. The *distrust of general public subscale* included six items assessing whether working at the computer forensics laboratory led employees to feel more negative about people in general. An example item is, “As a result of my work, I have a difficult time trusting other people enough to make new friends. These items had a reliability of .86. These items appear in Table 1.

Demographics In addition to the measures above, participants responded to demographic items about their age, sex, marital status, number of children, education level, employment status (contractor versus employee), and organizational tenure.

Open-Ended Questions Participants were also asked five open-ended questions that allowed them to elaborate on the areas covered by the survey. These questions included, “How has your work affected your relationships with family and friends?” “How has your work affected your relationship with your children?” “What is the hardest thing about your work?” “What helps you the most in coping with your work?” “What is the most beneficial thing the

Table 1 Reactions to disturbing media subscales and items

<i>Supportive Relationships</i>	
My friends and family object to the work that I do. (R)	
I talk to my spouse/significant other about my feelings about work.	
My friends and family don't want me to talk about what I do. (R)	
As a result of my work, I am more appreciative of my relationships.	
I talk to my friends (non-work friends) about my feelings about work.	
I feel comfortable being intimate with my spouse/significant other.	
<i>Protectiveness</i>	
Since working here, I have become more protective of my spouse/significant other than I used to be.	
Since working here, I become nervous when my child is around other adults.	
I am concerned about the type of material that my children are exposed to through the media (movies, TV, music, Internet) since I started working here.	
I am more protective of my children than before I started working here.	
Since working here, I have become less comfortable with my children using the Internet.	
<i>Co-worker Relationships</i>	
I worry about how this work is affecting some of my co-workers.	
Only my co-workers really understand what I go through on a daily basis.	
I have a special bond with my co-workers because of the work that we do.	
I talk to my co-workers about my feelings about work.	
<i>Distrust of General Public</i>	
I have become a more negative person since starting this job.	
As a result of my work, I have a difficult time trusting people enough to make new friends.	
I assume the worst about people I meet.	
As a result of my work, I have a difficult time forming new romantic relationships.	
I have difficulty trusting other people's motives.	
My work has made me more cynical.	

agency could do to help you cope with the negative aspects of your job?"

Procedure

Copies of the survey were mailed to the participants' supervisor. The survey packet included a cover letter, an informed consent form, and a return envelope. In the cover letter, the researchers instructed all employees who wished to participate to sign the informed consent form and seal it in one envelope. Employees were then invited to complete the survey packet and seal it in a separate envelope with no identifying information. Employees who did not wish to participate were instructed to seal the blank informed consent form in one envelope and the blank survey in the other

envelope. All sealed envelopes were returned to a drop box at the work site. This procedure ensured that employees participated voluntarily and protected employees' anonymity.

Results

Descriptive Results

The first hypothesis addressed whether employees were experiencing STSD and burnout. The mean STSD score was 36.11 ($SD=18.06$) with a maximal possible score of 85. Bride (2007) identified scores above 38 as moderate STSD and above 49 as high STSD. Using these criteria, even though the average score does not meet the standard for a moderate level of STSD, 18% of employees ($N=5$) were experiencing high levels of STSD and another 18% ($N=5$) were experiencing moderate STSD. Furthermore, mean STSD levels reported in other research using social workers ($M=29.5$; Bride et al. 2004) and forensic interviewers of child abuse victims ($M=34.2$; Perron and Hiltz 2006) were slightly lower.

Mean scores for this sample on the three burnout dimensions are in Table 2. Means on the cynicism and exhaustion subscales are in the high burnout range identified by Maslach et al. (1996). Furthermore, these means are higher than the means for any of the nine samples described by Maslach et al. (1996). The mean on the professional efficacy dimension was on the high-end of the average range. Using Maslach et al.'s criteria, 54% of employees ($N=15$) were in the high exhaustion category, 43% of employees ($N=12$) were in the high cynicism category, and 18% ($N=5$) were in the low professional efficacy category. (Low scores on professional efficacy indicate high burnout). These results support Hypothesis 1

Table 2 Means and standard deviation of study variables

Variable	<i>M</i>	<i>SD</i>
1. Time with DM	4.29	1.21
2. First DM exposure	4.25	1.43
3. DM Cases	52.30	61.58
4. STSD	36.23	18.06
5. MBI-EX	17.82	7.67
6. MBI-CY	11.18	7.74
7. MBI-PE	27.57	4.93
8. Turnover Intent	10.75	3.12
9. Support	20.33	4.48
10. Protectiveness	18.14	4.74
11. Coworkers	14.25	2.84
12. Distrust	17.04	5.16

as a substantial portion of the participants were experiencing moderate to high levels of STSD and burnout.

Correlational Results

All correlations appear in Table 3. The second hypothesis tested whether exposure to disturbing media was related to STSD and burnout. Time working with disturbing media was significantly and positively correlated with STSD ($r=.39, p<.05$) but not with any burnout dimensions. Time since first exposure to disturbing media was significantly correlated with STSD ($r=.40, p<.05$) and with cynicism ($r=.40, p<.05$). The number of disturbing media cases worked was not related to either burnout or STSD. Overall, there is some support for the hypothesis that employees with more exposure to disturbing media reported higher levels of STSD.

The third hypothesis examined whether STSD and burnout were related to turnover intentions. There were positive correlations between turnover intentions and STSD ($r=.51, p<.01$), exhaustion ($r=.47, p<.05$), and cynicism ($r=.47, p<.05$). Employees who were experiencing greater levels of STSD, exhaustion, and cynicism also reported that they were thinking about leaving their roles at the agency. These results support Hypothesis 3.

The final hypothesis tested whether STSD and burnout were related to other reactions to disturbing media, including supportive relationships, protectiveness, co-worker reliance, and distrust of the general public. As expected, employees whose loved ones were supportive of their work reported lower levels of STSD ($r=-.50, p<.01$), and exhaustion ($r=-.49, p<.01$), and greater levels of professional efficacy ($r=.49, p<.01$). In other words, the presence of supportive relationships in the lives of agency employees was related to better psychological well-being.

Feelings of increased protectiveness, increased reliance on co-workers, and a sense of distrust of the general public were related to poorer psychological well-being. Specifically, increased protectiveness was positively related to STSD ($r=.63, p<.01$), exhaustion ($r=.51, p<.05$), and cynicism ($r=.43, p<.05$). Reliance on co-workers was positively related to STSD ($r=.42, p<.05$), exhaustion ($r=.51, p<.01$), and cynicism ($r=.44, p<.05$). An increased sense of general distrust was positively related to STSD ($r=.81, p<.001$), exhaustion ($r=.75, p<.001$), and cynicism ($r=.76, p<.001$), and negatively related to professional efficacy ($r=-.44, p<.05$). All the significant relationships reported here were in the hypothesized direction.

Qualitative Results

Participants were asked five open-ended questions about their work experiences. Seventy-five percent of respondents ($N=21$) provided information on at least one of these questions. Two questions were related to how employees' work affected their non-work relationships. Although 25% of respondents reported that their work did not affect their relationships with family and friends, 18% reported that they were more withdrawn from their family and friends as a result of their work. For example, one respondent stated, "I am burned out and I am depressed so I don't participate with them." Two employees indicated that their spouses had expressed feeling jealous or angry that the employees view pornography at work. One employee reported that, "My wife has a problem with me viewing pornography of any kind. When I've talked to her about work (barely) she has interrupted me in order to insult me about what I've viewed. I have learned not to talk to her about any of it due to these situations." One employee reported a loss of sexual desire as a result of his work.

Table 3 Intercorrelation of study variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Time with DM	–											
2. DM exposure	.81**	–										
3. DM Cases	.48*	.49**	–									
4. STSD	.39*	.40*	.14	.97								
5. MBI-EX	.00	.07	-.07	.74**	.90							
6. MBI-CY	.29	.40*	.11	.80*	.57**	.85						
7. MBI-PE	.00	.15	.00	-.46*	-.37*	-.42*	.69					
8. Turnover Intent	-.02	.11	-.14	.51**	.47*	.47*	-.27	.83				
9. Support	.13	.19	.07	-.50**	-.49**	-.36	.49**	-.46**	.75			
10. Protectiveness	.48*	.36	.32	.63**	.51*	.43*	.05	.22	-.03	.89		
11. Coworkers	.11	.29	.10	.42*	.51**	.44*	-.17	.27	.00	.32	.62	
12. Distrust	.20	.25	.14	.81**	.75*	.76**	-.44*	.35	-.45*	.61**	.61**	.86

Employees' open-ended responses about their relationships with their children were consistent with the survey results in that the most common response was an increased sense of protectiveness. Thirty-six percent of respondents ($N=10$) indicated this protective response. Examples of this include employees being, "a bit more cautious about the things I let them do, places they go, and clothes they wear." Another employee reported, "At times I have to stop and remind myself that these are my kids and intimacy within proper bounds is ok."

Not surprisingly, many employees (46%) indicated that actually viewing the images was the most difficult thing about their work, e.g., "watching innocent children abused by someone who knows better." However, 32% of employees also indicated that workload and management issues were important difficulties they encountered at work. In terms of disturbing media, most of these responses specifically cited the child pornography images as opposed to other disturbing images, e.g., violence or pornography involving adults. Other responses spoke more generally about the distressing nature of the images they view. As one employee stated, "There are some things you cannot unsee." For some, distress was exacerbated by a perception that caseloads were too high and that management did not understand how the work was affecting employees. This is best summed up by one employee who wrote, "Time and production are all that count for them. I personally believe that management has no care about what we do or how it feels to do what we do."

Employees reported using a variety of coping strategies to help them with their work, most notably social support, humor, and hobbies. Social support from family, friends, and co-workers was noted by 36% of the respondents as their most effective coping strategy. Specifically, employees noted the ability to joke with their co-workers as important. Twenty-five percent of employees mentioned their off-work hobbies (e.g., exercise, music, car repair) as their main coping mechanism. Several employees focused on the separation of work and family roles. These responses indicated the importance of, "leaving work at work," and "realizing that what I view does not belong to me." Other coping strategies mentioned included religion, focusing on the positive impact their work has on society, and focusing on compensation.

When asked what management could do to help alleviate their stress, employees suggested reduced workload (25%), job rotation (21%), and increased management concern (18%). Specifically, employees indicated that they need more time on some cases, and that changes in procedures sometimes lead to increased workload because work has to be redone. Responses about job rotation specifically mentioned a need to cycle people out of roles involving child pornography images. Some employees mentioned that

they would like to see more concern from management about morale, depression, anger, and the need for professional counseling and/or team building for increased morale. Some participants requested that management make a greater effort to let employees know the outcomes of cases they had worked and to provide more time off work.

Discussion

Although law enforcement agencies need individuals to view potentially disturbing images for investigative purposes, there is little research examining the impact of such work on individuals' psychological well-being. This study was the first to assess quantitatively the levels of burnout and STSD among employees who are required to view disturbing media.

We found that these employees were experiencing substantial rates of burnout and many were at risk for STSD. In particular, levels of exhaustion and cynicism were quite high. Although mean levels of STSD are only in the moderate range, it is noteworthy that these participants score higher than a sample of forensic interviewers of child abuse victims (Perron and Hiltz 2006). One might expect individuals who interact directly with traumatized individuals to be at greater risk. However, forensic interviewers never actually witness the victimization taking place, while the investigators who participated in this study view both still and video image of the crimes. Furthermore, the video images often have an audio component as well. One respondent indicated that the sound of children being abused was the most difficult thing about the work. This was also noted by many of the investigators interviewed by Stevenson (2007) including one who noted, "...when you're laying in your bed at 3 o'clock in the morning, after the kids have woken you up, it's not the images that come into your brain, it's the voices (p. 27)."

As expected, the experience of burnout and STSD is related to length of time working with disturbing media. Similar findings were reported in numerous studies of sexual assault counselors (Brady et al. 1999; Schauben and Frazier 1995) and Stevenson (2007) reported greater emotional distress among those investigators with greater exposure to child pornography cases.

On a practical level, the results of this study suggest a need to minimize employee exposure to disturbing images. As the need to investigate this type of crime is unlikely to diminish, law enforcement organizations must find other means of reducing exposure. One possibility is to limit the length of time that workers can remain in such roles or to limit the number of cases to which an individual is assigned. While some federal agencies limit the length of time than an employee can be assigned to these types of

cases, the agency involved in this study does not have a time limit. However, there have been some technological advances since the time that data was collected that allows investigators to avoid exposure to some images. The agency started using software that automatically downloads all image files from a suspect's computer and then compares the images to the National Center for Missing and Exploited Children database of known child pornography images. Once the computer makes a match with a known image, the illegal image from the suspect's computer is saved in a file. Although this process does not completely eliminate the need for investigators to search computers, the new system reduces exposure and this is a step in the right direction.

Unfortunately, the images do not disappear once they are identified. The investigators must pass files on to field investigators at local agencies. The field investigators review the files and in some case transcribe the dialog from films to build a case against the suspect. A field agent may be assigned one or two child pornography cases every few years. It is unclear whether this intermittent but intense exposure to child pornography may have more negative effects than chronic exposure. Researchers will need to determine whether occasional exposure is more or less psychologically harmful than regular exposure. It is possible that individuals who work regularly investigating child pornography become desensitized to the material to a certain degree making them able to function more effectively and with fewer detrimental effects. An individual who works with such material once or twice a year may find the material more shocking and may suffer more psychological distress.

On a more positive note, employees are not uniformly distressed. Low levels of professional efficacy are indicative of burnout, but mean professional efficacy was in the high range in our sample. This suggests that employees feel they are making a positive impact with their work. They are helping to protect society from people who commit horrible crimes. Law enforcement organizations can capitalize on and foster this sense of accomplishment among these employees by prominently displaying successful prosecutions that have resulted from the investigators' work, and routinely calling attention to the importance of the work that they do.

Another positive is that employees with more supportive relationships outside of work experienced less distress in the form of burnout and PTSD. Research has long noted the beneficial effects of social support in a wide variety of settings, including the treatment of PTSD (Ozer et al. 2008).

While many of the investigators in this study reported that they did have supportive relationships, some did not. In the open-ended responses, some investigators mentioned withdrawing from loved ones, which would obviously impair their ability to receive support. Others mentioned

spousal jealousy over the investigators viewing pornography at work. Given the known benefits of social support, this suggests several possible interventions. First, investigators may need to receive more training in coping skills that emphasizes drawing on one's support networks. Second, agencies may need to provide educational sessions for family members so that they have a greater understanding of the work the investigators do, the critical role the investigators play in prosecuting these cases, the possible effects of that work on the agent, and how they can best provide support to their loved one. Third, investigators and supervisors may need training in recognizing the signs of distress in co-workers or subordinates, providing support as needed and making recommendations for professional help when needed. This would be especially beneficial for investigators whose support systems outside of work are lacking. Programs that include some of these components (e.g., monitoring employees for signs of distress, peer support) do exist (see Krause 2009), however, there are no published research reports regarding their effectiveness at mitigating psychological distress among investigators.

Limitations and Future Directions

We were only able to collect data from 28 participants. Although this represented a large portion of the agency employees who are engaged in this work on a full-time basis, it does limit the analyses we can conduct and the conclusions that we can draw from the research. On the other hand, there are few organizations that have sizable samples of employees doing the same type of work with the level of exposure that this group has and it is the largest quantitative study of this issue that we are aware of. Nevertheless, larger scale studies with greater numbers of participants need to be conducted to enable greater confidence in the results of this study.

In addition to the sample size, there are methodological limitations to this study. Most notably, we are limited in our ability to draw causal conclusions from this research. Additional studies employing control groups and longitudinal designs are sorely needed. Many of the employees in this study had extensive and chronic exposure to disturbing media. It would be useful to compare these employees to others who have either occasional exposure to a case that involves child pornography or some other disturbing visual evidence or to those employees who never encounter such evidence. Given the current design, we cannot rule out the alternative hypothesis that the negative outcomes discussed in this paper are the result of law enforcement work, in general, rather than representing a specific response to exposure to child pornography and other disturbing media. Research that incorporates such a comparison group will be a valuable contribution to this literature.

Furthermore, longitudinal studies can address several important concerns about this topic. First, these studies can assess personnel prior to exposure and provide surveillance of their psychological well-being over time. Such studies will help us understand the development of any negative symptoms over time and the precipitating factors. More importantly, such studies will provide important data that will allow staff to intervene when professional help is required. Secondly, longitudinal studies are necessary to test the effectiveness of any of the interventions mentioned above, such as educational programs for family or training programs for computer forensics investigators or their supervisors. Third, due to the lack of published quantitative studies regarding this type of work, there were no existing measures with which to assess changes in relationship quality, protectiveness, or distrust of the public related to disturbing media exposure. The items created for this study may not have fully captured all the important aspects of investigators' work situations or all the ways in which the work affected investigators. Several comments in the open-ended portion of the study revealed issues that should be included in future research. For example, participants raised concerns about organizational issues such as managerial support, workload, and job design that were not included in the survey. Researchers should assess these variables directly. This would enable researchers to compare the relative effects of more traditional work stressors with the effects of exposure to disturbing media. This is especially important as there is a large body of research linking these traditional work stressors to burnout (e.g., Lee and Ashforth 1996; Maslach and Leiter 2008; Shirom et al. 2006).

Research in occupations that deal with traumatic stressors suggests that the more "ordinary" job stressors may be more important to employees than traumatic stressors. For example, Malach-Pines and Keinan (2007) found that Israeli police officers working during a violent Palestinian uprising reported more stress due to poor salaries ($M=4.03$ on a five-point scale) and workload ($M=3.70$) than to, "encounters with difficult events and horrible sights," ($M=3.05$) or the need to use force in the course of their jobs ($M=2.68$). Also, Brough (2004) found that organizational stressors and traumatic stressors explained similar amounts of variance in psychological strain in a sample of police officers and fire fighters in New Zealand.

Because of the dearth of research on this topic, many important and interesting questions remain. For example, it would be extremely useful to identify factors, other than social support that minimize the potential for negative consequences. Also, in this study we considered the impact of child pornography; however, the employees in this study were also exposed to a wide range of violent and pornographic images. The Burns et al. (2008) and Stevenson (2007) studies specifically focused on child pornography. Additional

research is needed to determine whether there are unique effects of viewing the sexual victimization of children as opposed to other forms of disturbing media. While many of the respondents in our study indicated that viewing child pornography was the most difficult part of their work, they were not asked to consider only child pornography cases when responding to the questionnaire items.

Another area that should be addressed in future research is sexual health concerns such as loss of sexual desire or inappropriate sexual thoughts. These were not addressed in the survey but were raised by respondents in the open-ended questions. Some of the supervisors in Stevenson's (2007) interviews also reported that they were concerned about inappropriate sexual thoughts of their own or of their employees in response to these images.

Finally, not all law enforcement personnel investigating crimes against children on the Internet do so by viewing disturbing images. In some cases, law enforcement officers log in to Internet chat rooms posing as children in "sting" operations trying to identify would-be predators. While this is quite distinct from viewing images of abuse, the potential for development of secondary trauma, burnout, and other detrimental consequences among these officers should be investigated as well.

Conclusion

This paper provides empirical data on the poor psychological well-being of law enforcement employees investigating computer child pornography cases in terms of both burnout and secondary traumatic stress. Furthermore, investigators with poorer psychological health were likely to also experience a sense of increased protectiveness of loved ones and increased distrust of others. Nevertheless, both quantitative and qualitative data in this study suggest that employees feel they are making an important contribution with their work and that supportive relationships at work and at home are important resources in mitigating any negative effects of this work. Continued study of personnel engaged in computer child pornography investigations is critical.

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