UNDERSTANDING THE IMPACT OF DIGITAL FORENSIC ANALYSTS' EXPERIENCES OF WORKING WITH ONLINE CHILD SEXUAL EXPLOITATION AND ABUSE

by

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Thesis Overview

This thesis has been submitted towards the requirements of the Doctorate in Clinical Forensic Psychology and consists of three chapters.

The first chapter consists of a systematic literature review, which included 13 published research studies exploring digital forensic analysts' experiences of working with online child sexual exploitation and abuse and child sexual exploitation materials. The review has a specific focus on understanding the psychological impact this work can have, and how analysts manage the complex demands of this job. Five themes were identified which reflected the emotional, cognitive, and behavioural changes recognised and experienced from working in this role.

The second chapter is an empirical research study which adopted an Interpretative Phenomenological Analysis (IPA) approach, to explore digital analysts' personal experiences of working in this role, how they feel it has impacted them, and how they manage this. Seven digital forensic analysts were interviewed. Three group experiential themes were identified which captured the complex challenges faced from working in this role, and its perceived impact on analysts' wellbeing and relationships. The third, and concluding chapter, contains two press releases which provide an accessible and succinct overview of both the review and empirical research study.

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Contents

List of Illustrations

a) Chapter I: Literature Review

b) Chapter 2: Empirical Research Paper

List of Tables

a) Chapter I: Literature Review

b) Chapter 2: Empirical Research Paper

CHAPTER I

SYSTEMATIC LITERATURE REVIEW

THE IMPACT OF WORKING WITH CHILD SEXUAL EXPLOITATION MATERIAL ON ANALYSTS' PSYCHOLOGICAL WELLBEING: A SYSTEMATIC REVIEW

Abstract

Digital forensics analysts are a specialist group of police staff who identify and classify child sexual exploitation material (CSEM) and prepare reports for the courts on the basis of illegal material found on suspects' devices. Working with this type of material may significantly affect analysts' wellbeing. The purpose of the present literature review was therefore to systematically search the existing research, to provide an overview of the current knowledge and understanding about the impact of working with this type of material has on analysts, and what coping strategies they may employ to manage the associated challenges. Three databases were searched (PsychINFO, Embase, and ProQuest), and a final set of 13 articles were included in the review. Seven articles employed a quantitative methodology, five employed a qualitative methodology, and one employed a mixed-method design. All were of a moderate to high quality. Five themes were identified, namely: (i) *coping strategies*, (ii) *impact on self*, (iii) *organisational challenges*, (iv) *psychological impact*, and (v) *relationships*. Analysts were found to experience burnout, secondary traumatic stress, and reduced job satisfaction, as a result of working with CSEM. Findings are discussed with a view to highlighting practical implications, and suggestions for future research.

Introduction

Prevalence of Online Child Sexual Exploitation and Abuse

Online child sexual exploitation and abuse (OCSEA) is a significant challenge we face in society in current times. Since the 1990s, police forces have witnessed considerable growth in the possession, production, and distribution of child sexual exploitation material (CSEM), which depicts horrific acts of online abuse (Krause, 2009). The prevalence rates of online abuse are difficult to establish, given that they rely on victims being aware of what has happened to them, and reporting the abuse. The Internet Watch Foundation (IWF; 2020) estimated in 2020 that 153,383 reports were assessed and confirmed to be exploitation material. Current data recorded by the National Society for the Prevention of Cruelty to Children (NSPCC; 2021) indicated a 16% increase in the number of offences relating to online abuse being reported. A total of 10,391 offences of online abuse were reported by 43 police forces across the UK for 2019/2020, compared to 8,807 offences recorded in 2018/2019. This total included all sexual offences that involved an online element. The Home Office statistics, in 2019, highlighted the national scale of online abuse, reporting that 450 potential perpetrators were arrested, and over 600 children were safeguarded every month. In the UK, it is estimated that approximately 80,000 individuals present a sexual threat to children online (Home Office, 2019). It is suggested that the number of offences is reflective of the rapid advancements of internet technologies, and the ever-increasing accessibility of the internet to users across the world, making exchanging exploitation materials more feasible and online forums more accessible (Krause, 2009). In this review, I refer to these criminal behaviours (OCSEA) via the general umbrella term ‘online abuse’ and to the materials produced (CSEM) as ‘exploitation materials’, in order to reduce the number of abbreviations and acronyms in the text.

Working with Child Sexual Exploitation Material

Due to the rise in exploitation materials circulating around the world, there has been an increased demand for police forces to respond to this significant risk to children. As a result, forces have developed a role specifically to investigate online abuse (Krause, 2009). Within the existing literature, a number of different terms have been used to describe the same or similar job roles to that of a digital forensic analyst (a term used in the UK), including: (i) Internet Crimes against Children (ICAC), (ii) Internet Child Exploitation (ICE) Investigators, (iii) Crimes against Children (CAC), (iv) Computer Forensic Examiner, (v) Digital Crime Investigators[1]. It is unclear as to how the responsibility within each role differs in terms of the extent to which they are viewing, identifying, and classifying exploitation materials. The process of assignment to this new role is based on a combination of factors, including, but not limited to, police officers' previous experience of working with online abuse, competence in technology, willingness to volunteer, or resource and staff capacity (Krause, 2009).

Digital analysts are routinely exposed to exploitation materials as a core part of their professional duties. Their role involves a variety of tasks, including, but not limited to: (i) reading victim statements, (ii) identifying and viewing exploitation materials (still images and videos), and (iii) classifying this material according to level of severity (Category A, Category B, and Category C, according to the UK's classification system; Sentencing Guidelines Council, 2014). Krause (2009) reported a number of factors that were found to be associated with stress and considered unique to the role of digital analysts (see Table 1).

[1] For the purpose of the present literature review, we will be using the term '<u>digital analyst</u>*'* to refer to this group of professionals.

Table 1

Factors Identified to be Associated with the Role of Digital Analysts (p.22, Krause, 2009)

Factors specific to the role of Digital Analyst
Repeated exposure to obscene content
Pressure to cover leads, make cases, save live victims
Relative novelty of investigative approach and techniques
Dependence on technology and IT support personnel
Need for encryption, need for defensible online legend/persona
Constantly changing "cyber landscape"
Unusual time demands of online chat
Inter-jurisdictional cooperation and coordination

Despite a recognition that digital analysts are at psychological risk as a result of working with potentially traumatic material, the current literature has predominantly focused on exploring this in professional groups, such as social workers and therapists working with child sexual abuse cases, arguably because their roles involve directly working with victims and perpetrators of online abuse (e.g. through interviews; Caringi et al., 2017; Choi, 2017; Marchand et al., 2015). In contrast, digital analysts work is indirect, investigating the material that depicts online abuse. According to Bourke and Craun (2014), watching videos of a child being abused is one of the most stressful experiences in policing, which highlights the importance of developing a greater understanding of the psychological impact of working with and being exposed to this type of material.

Psychological Risks

There is a wealth of studies that explore the risk of secondary traumatic stress (STS) and burnout. STS refers to an individual experiencing a group of symptoms comparable to Post Traumatic Stress Disorder (PTSD) as a result of indirect exposure to trauma (Bourke & Craun, 2014). It has been suggested that professional groups working with children at risk of abuse (physical and/or sexual) are at an increased risk of developing STS, burnout, or PTSD as a consequence of both direct and indirect exposure to potentially traumatic events as a part of their job (Anderson et al., 1991; Brown et al., 1999; Caringi & Hardiman, 2012; Caringi et al., 2017; Conrad & Kellar-Guenther, 2006; Haslam & Mallon, 2003; Naturale, 2007; Regehr et al., 2002).

Conrad and Kellar-Guenther (2006) conducted a quantitative study, using the Compassion Satisfaction and Fatigue Test (Figley & Stamm, 1996). Among 363 Colorado child protection workers, 34.2% (n = 124) met the threshold for 'extremely high risk' of compassion fatigue in comparison to 0% for 'extremely high risk' of burnout. Furthermore, 37% (n = 134) fell into the clinical range of emotional distress linked to STS, which was associated with being exposed to the pain and suffering of traumatised children. The differences between compassion fatigue and burnout were suggested to be linked to the high staff turnover rates (*Med* = 22%) reported (Cyphers, 2001), due to staff leaving before symptoms escalated and resulted in burnout. High rates of compassion satisfaction mediated the risk for both compassion fatigue and burnout.

Similarly, Caringi and Hardiman (2012) examined STS across a sample of 103 New York State child welfare workers. Findings highlighted that 75% (n = 77) displayed significant levels of STS, and 50% (n = 52) presented symptoms similar to PTSD. Furthermore, Caringi et al. (2017) elaborated upon Caringi and Hariman's (2012) study, recruiting a larger sample, 256 child welfare workers. Out of 256, 15 engaged in follow-up

interviews. A mixed-method design aimed to examine levels of STS, burnout, and compassion satisfaction, with a particular focus on understanding how organisational factors and peer support mitigated the risk of these. Findings indicated that 41.7% (*n* = 107) displayed mild or high levels of STS, and 35.7% (*n* = 86) displayed STS symptoms indicative of PTSD. The mean score (m=37.85) on Compassion Satisfaction suggested that the majority of participants experienced a level of pleasure from their work, supported by the low levels of burnout found across the sample. Use of peer support and professional support (counsellor) were considered important to help manage stress related to their work.

Based on the current literature, there are known psychological risks highlighted for other professional groups working with abused children, which has the potential to be traumatic. These risks are likely to parallel the risks for digital analysts, as the traumatic events reported to be the most stressful by other professions all involved children, and more specifically, children who had experienced abuse, neglect, and suffering (Conrad & Kellar-Guenther, 2006; Regehr et al., 2002). Frequent exposure to exploitation materials is likely to be both cognitively and emotionally demanding, causing psychological and somatic symptoms associated with stress, including: intrusive thoughts, disturbed sleep, and changes in mood (Edelmann, 2010; Hajkak & Olvet, 2008). Supporting evidence was found by Brady (2017), who examined 443 ICAC investigators in the US. Their findings indicated that one in four reported low levels of compassion satisfaction, and higher levels of STS and burnout.

Some organisations, including the Metropolitan Police Child Protection and Computer Forensic units have recognised the psychological demands of working in this area, and subsequently responded by dedicating resources for training, wellbeing programmes, and opportunities for counselling, to anyone routinely exposed to exploitation materials (Edelmann, 2010; Metropolitan Police, 2019). However, a potential concern is that police

officers, as a professional group, work within a culture where there still appears to be an existing stigma associated with mental health, and a perception that seeking mental health support is considered a weakness (Farrell et al., 2018; Papazoglou & Tuttle 2018). Consequently, this influences how seeking support is perceived, and affects how many police officers seek professional support (Edwards & Kotera, 2021). Additionally, the literature illustrates an increase in maladaptive coping strategies within police officers as a way to manage stress, including: using alcohol, illicit substances, withdrawing from others, and avoidance (Daly, 2005; Follette et al., 1994).

The barriers to engaging in therapy, combined with an increase in potentially harmful coping strategies, emphasises the need to develop a better understanding about the associated risks of working with exploitation materials, and how these may impact psychological wellbeing. This will ensure that appropriate support and resources can be implemented to create a safer working environment for this group of professionals. With the continuous advancements in technology and increase in the statistics reported for offences relating to online abuse, the demand for digital analysts will continue to rise, highlighting the need to prioritise research in this area.

Aims of Review

The aim of the present literature review was to provide an overview of what the current literature highlights about the impact of working with exploitation materials on digital analysts' psychological wellbeing, and how they cope with the challenges posed as part of their role. More specifically, this literature review aimed to: (i) explore the psychological impact of working with online child sexual exploitation and abuse on digital analysts, and (ii) better understand what is known about analysts' ways of managing and coping with the physical, cognitive, and emotional demands of their role.

Method

Scoping Review

A review of the existing literature was conducted in May 2020. The Cochrane Database of Systematic Reviews, the Database of Abstracts of Reviews and Effects, and the Campbell Collaboration of Systematic Reviews were searched for current reviews. No published or in progress reviews were identified.

Search Strategy

A preliminary scope of the literature, relevant to the research question, was completed using PsychINFO to help identify appropriate key terms for a comprehensive search to be conducted across multiple electronic databases. Search terms were truncated (*) to capture all variations of spellings, and to ensure all relevant papers were identified. The search terms used are presented in Table 2.

Table 2

Search Terms and Strategy

Child Sexual Exploitation Material	Professional Group	Psychological Impact & Ways of Coping
1. Internet child exploitation 2. Child exploitation indecent images of children 3. Child sexual abuse images online 4. Child sexual abuse imagery 5. Child sexual abuse material	6. Police 7. Internet child exploitation investigators 8. ICE investigators 9. Digital forensic investigators 10. Forensic analysts 11. Digital forensic examiners	12. Emotion management 13. Emotional impact 14. ICE investigators reactions 15. React* 16. Coping strateg* 17. Cop* 18. Stress management 19. Wellbeing
Search Strategy		
(1 or 2 or 3 or 4 or 5) AND (6 or 7 or 8 or 9 or 10 or 11) AND (12 or 13 or 14 or 15 or 16 or 17 or 18 or 19) Limits applied: English Language AND Human Participants		

These search terms were inputted separately into three electronic databases, namely PsychINFO, Embase and ProQuest, via the OVID search platform. The databases were selected due to the links they have to psychology and criminology. All papers retrieved from

the searches were transferred to REFWORKS (a reference software). The search was restricted to the English language and human participants. However, no other limits were applied (e.g. year of publication, country the study was conducted in). This was to ensure that the search was broad and identified the maximum number of relevant papers.

Inclusion/Exclusion Criteria

The PICOS model (Participant, Interventions, Comparators, Outcomes, Study Design; Huang et al., 2006) was used to develop a set of inclusion and exclusion criteria to help identify papers most relevant to the research question. The inclusion and exclusion criteria are presented in Table 3.

Table 3

Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
Include study if it meets **ALL** of the following criteria: • Participants in the study must be working with or exposed to CSEM • Studies' focus was on participants' strategies to cope with the demands of the role • Studies must focus on coping and/or emotion management AND compassion fatigue, secondary traumatic stress, burnout and/or vicarious trauma	Omit study if it meets **ONE** of the following criteria: • Participants in the study do not work with or are exposed to CSEM • Psychological wellbeing is not the main focus of the study • Full text is unavailable • Unpublished papers

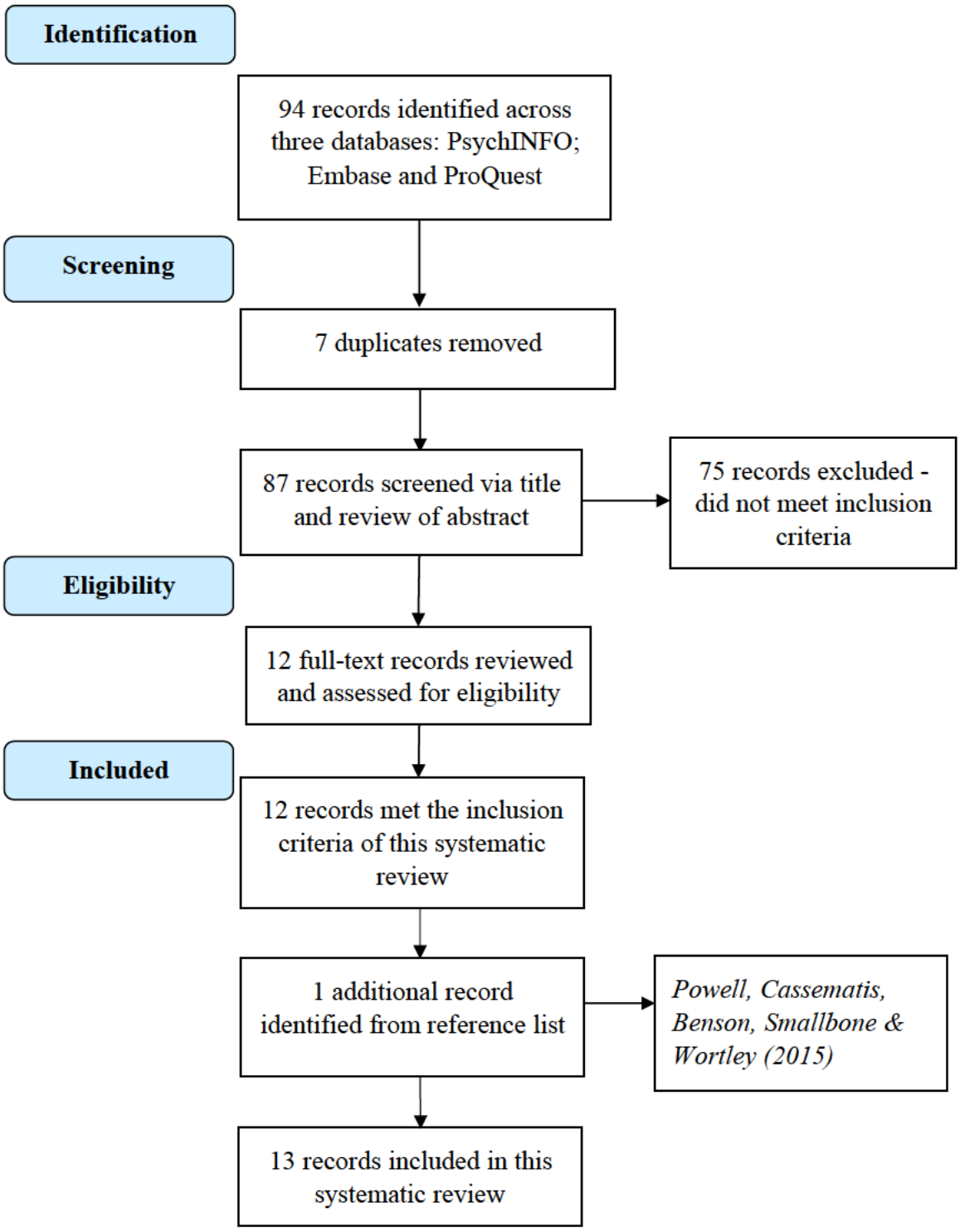
- Peer-reviewed papers

Systematic Screening Process

The systematic screening process is presented in Figure 1.

Figure 1

Screening Process PRISMA Flow Diagram



The screening process was completed across four phases: (i) Phase 1: Seven duplicates were removed; (ii) Phase 2: 87 titles and abstracts of papers were reviewed to assess their eligibility using the inclusion and exclusion criteria; and (iii) Phase 3: 12 full texts of the eligible papers were examined to ensure they fully met the inclusion criteria, and (iv) Phase 4: Reference lists of all 12 papers included in this review were screened for additional papers. If there was ambiguity about a paper's relevance and appropriateness to be included, this was discussed with the research supervisor to reduce the risk of selection bias. The search strategy generated 94 papers, of which 12 met the inclusion criteria, and one additional paper was included from the reference lists of the 12 included papers. As a result, 13 papers were included for review.

Data Extraction and Characteristics of Papers

The 13 papers included in the review are summarised in Table 4, and presented in alphabetical order.

Table 4

Data Extraction for Included Studies

Author, Year of publication & Country[1]	Sample size (N) & Population	Aim(s)	Study design	Main findings, Conclusions & Directions for future research
1. Bourke & Craun (2014), US	N = 600 **Demographic variables**: *Job Role:* Internet Crimes Against Children (ICAC) investigators Commander (*n* = 32) Investigator (*n* = 415) Forensic Examiner (*n* = 30) Prosecutor (*n* = 22) Did not report role (*n* = 102) *Gender:* Males (*n* = 396) Females (*n* = 147)	1. To what extent do ICAC personnel exhibit symptoms consistent with STS? 2. What coping mechanisms are related to STS in ICAC personnel? 3. How is STS related to ICAC personnel's' work satisfaction and general worldview?	Quantitative online survey Participants recruited via email Analysis - Backward stepwise regression **Measures:** - COPE scale - Alcohol & tobacco use questionnaire - International Physical - Activity questionnaire - Secondary Traumatic Stress Scale - Reactions to Disturbing Media Scale - Marlowe-Crowne Social Desirability Scale (short version) - Job satisfaction and pride questions.	**Key Findings:** 508 ICAC personnel scored in the 'mild' range or lower for STS 92 ICAC personnel scored in the 'severe' range. *Factors contributing to higher STS:* - Viewing disturbing material - Frequency of exposure to the material - Increased use of tobacco/ alcohol - Use of denial to cope with stress. *Factors contributing to lower STS:* - Positive supervisory support - Higher social desirability - Outside social support

	Did not report (*n* = 57) *Age*: Not recorded *Race:* African American (*n* = 10) Asian (*n* = 4) Latino/ Hispanic (*n* = 25) White/ Caucasian (*n* = 481) Did not report (*n* = 80) *Average length (years) working in child exploitation:* 5.2			- Co-workers to rely on *Impact of STS:* - General distrust of world - Over protectiveness - High turnover **Conclusions:** The sample of ICAC personnel appeared to cope well with the stress of ICAC duties. Results highlight the importance of the presence of a strong social support network and support via supervision forums. **Future research:** Longitudinal studies would be beneficial to examine the psychological consequences over time.
2. Brady (2017), US	N = 443 **Demographic variables:** *Job Role:* Internet Crimes Against Children	1. Identify key factors associated with an increased risk of adverse outcomes. 2. To explore the individual, operational and organisational	Quantitative online survey Participants recruited via email Analysis - Regression **Measures:** - The Professional Quality of Life Scale (ProQOL-V)	**Key Findings:** *Factors linked to higher levels of STS:* - Personal history of trauma - Frequently overwhelmed - Low organisational support - Working cases with young victims

	(ICAC) investigators *Gender:* Males (*n* = 311) Females (*n* = 122) *Age:* 18-29 *(n* =19) 30-39 (*n* = 165) 40-49 (*n* = 176) 50+ (*n* = 73) *Race:* White (*n* = 400) Non-white (*n* = 33) *Time (years) working in CAC:* 0-5 (*n* =206) 6-10 (*n* =141) 11-15 (*n* =55) 16+ (*n* =31)	factors influencing the professional quality of life among ICAC personnel	- Self-Care Practices Questionnaire - 9 work related questions	- Frequent indirect exposure to crimes against children *Factors linked to lower levels of STS:* - Being male - Feeling supported outside of work *Factors linked to higher levels of burnout:* - Frequently overwhelmed - Low organisational support - Frequent indirect exposure *Factors linked to lower levels of burnout:* - Strong social support system - Frequent use positive coping strategies *Factors linked to higher levels of Compassion Satisfaction (CS):* - Home support - Frequent use of positive and spiritual coping mechanisms - Feel supported by organisation **Conclusions:** ICAC personnel appear to be at an increased risk of STS and

				burnout (1 in 4 reported low levels of CS and high levels of STS & burnout). Social support and positive coping strategies help mitigate the risk of STS and burnout. **Future research:** The need for more longitudinal designs & control groups to better understand the onset, stability and development of STS and burnout over time.
3. Burns, Morley, Bradshaw & Domene (2008), Canada	N = 14 **Demographic variables:** *Job Role:* Internet Child Exploitation (ICE) investigators *Gender:* Males (*n* = 4) Females (*n* = 10) *Age range (years):* 25 – 52 years (*m* = 40.1) *Race:* Not recorded *Average length (months) working in ICE:*	To identify what helps and hinders coping among members working in an ICE team.	Qualitative design. Used semi structured interviews Analysis - Critical Incident Technique (CIT)	**Key findings:** Five themes were identified: *1. Impact of working in ICE* - Awareness of the horror/ scope of work - Physical and emotional impact on self and home - Intrusive images and thoughts about the material - Inability to talk about the images, - Increased protectiveness & paranoia regarding children *2. Viewing Strategies* - Gradual introduction to images

	2 – 36 (*m* = 14.5)	- Mental preparation - Dissociation - Compartmentalization - Take regular breaks - Focus on evidence, remain analytical *3. Personal strategies* - Hobbies - Intense exercise - Listen to music - Set boundaries *4. Mitigating Factors* - Supervision - Humour - Sense of control - Pre-candidate selection - Organisational support - Social support - Psychological support *5. Risk factors* Other police teams and professional groups having a limited understanding about the role of ICE teams. **Conclusions:**

				Factors most likely to impact ICE investigators wellbeing included those who spent a lot of time viewing exploitation materials, of an intense nature, and not taking breaks. A high level of supervision and good organisational support is required to mitigate the risks of potential trauma from exposure. **Future research:** To explore the experiences of other ICE teams to see how they compare, identifying similarities and differences.
4. Burruss, Holt & Wall-Parker (2017), US	N=360 **Demographic variables:** *Job Role:* Internet Crimes against Children (ICAC) teams *Gender:* Males (*n* = 308) Females (*n* = 52) *Age:* Not reported *Race:*	1. Greater exposure to CAC material will increase the experience of trauma. 2. The more the ICAC teams are exposed to trauma, the more they will	Quantitative design Approximately 1200 online surveys distributed to law enforcement personnel Analysis – Structural model **Measures:** - Secondary Traumatic Stress Scale - Coping Scale	**Key findings:** Exposure to CAC material was the only variable found to be a significant predictor of secondary traumatic stress. **Conclusions:** Findings supported the research hypotheses. Those that were exposed to more CAC materials, reported increased levels of

	Not reported *Average time working with ICAC*: Not reported	increase coping behaviours. 3. Exposure to CAC material will have an indirect effect of increasing coping behaviours through experiencing trauma.	- 4 items asked about video files, images, e-mail, or internet browser history	secondary trauma, and coping behaviours. ICAC personnel valued wellness programs and psychological counselling to help reduce the likelihood of STS. **Future research:** To assess the efficacy of wellness programs. Future studies to include broader samples and additional measures to measure risk of PTSD.
5. Fortune, Rooney & Kirwan (2018), Ireland	N=5 **Demographic variables:** *Job Role:* Child Abuse Investigator Computer Forensic Examiner Investigator Digital Crime Investigator Digital Crime Trainer *Gender:* Males (*n* = 4) Female (*n* = 1) Age range (years): 38 – 51 Race not reported	To explore the psychological aspects of cybercrime, development of practical recommendations for law enforcement agencies internationally.	Qualitative design Used semi-structured interviews Analysis - Thematic	**Key findings:** 3 themes identified: *1. Coping Strategies & Motivation* - Personal Strategies (e.g. talk to colleagues, healthy lifestyle, mental preparation, take breaks) - Organisation Strategies (e.g. rotation policies, psychological support, psychological screening recruitment) - Mediating risk factors (meaning in role, enjoy the challenge, community)

	Range (years) working with CEM online: 3 – 15	*2. Stressors* - Nature of material (unique stressor to this role) - Managerial Issues (poor management) - Incongruence between workload and resources (resources/ budgets incompatible with evolving technology) *3. Training* - Inadequate technical training - quality ranged from excellent to outdated & ad hoc - Need for non-technical training to focus on self-care and emotional awareness - Need for management training **Conclusions:** Study adds a diverse perspective to previous literature due to international and cross-organisational nature. Research draws on personal experiences of investigators.

				Developed practical recommendations for CAC investigator units **Future research:** To evaluate pilot programs. Geographical and organisational diversity were evident in interviews, however, research on a larger scale including quantitative measures and longitudinal studies would help to consider causation.
6. Holt & Blevins (2011), US	N = 56 **Demographic variables:** *Job Role:* Digital Forensic Examiners (DFE) *Gender:* Males (*n* = 45) Females (*n* = 11) *Age range (years):* 22 – 55 years (*m* = 39.2) *Race:* White (*n* = 40) Non-white (*n* = 16) *Range (years) working in agency:*	To explore the levels and sources of stress and job satisfaction among DFEs, including ways they cope with stress.	Quantitative design Online survey distributed via e-mail Analysis - Regression **Measures:** - Job Satisfaction measure (drawn from the Quality of Employment Survey) - Work Stress measure - 16-item coping scale	**Key Findings:** *Job Satisfaction* - 93% of the sample reported at least 'somewhat satisfied' with jobs. - Almost ½ of the sample reported 'very satisfied'. - 75% of the sample stated that they would take the same job again. *Stress* - Overall sample – moderate work stress (just under the cut off stress index 13.3/ 14)

	0 – 35 (*m* = 9.65)	- 68% reported they were under a lot of pressure at work - 51.8% reported many aspects of their job upset them - 80% felt calm & at ease while working - More years with the agency and role conflict were positively related to work stress. *Coping strategies most commonly used:* - Distraction/ Suppression - Talk with others - Withdrawal/ Escape *Coping strategies used by more than half:* - Working harder - Try to forget things - Activities/ hobbies - Separate personal and work life *Coping strategies used by a small proportion:* - Alcohol - Smoking - Medication **Conclusions:**

				Increasing evidence to suggest DFE's experience high levels of stress and burnout as a consequence of working with CSEM. **Future research:** To help clarify the relationship between coping strategies and job stress among specialized police populations.
7. Hurrell, Draycott & Andrews (2017), England & Wales	N = 101 **Demographic variables:** *Job role:* Child Sexual Abuse (CSA) investigators across 43 police forces in England and Wales *Gender:* Males (*n* = 42) Females (*n* = 59) *Age range (years):* 26 – 65 *Race:* White (*n* = 100) Not reported (*n* = 1) *Time (years) working in CAC:*	1. Identify prevalence rates of STS in CAIU police officers in the UK. 2. Does increased exposure to CSEM increase levels of STS. 3. Is there a relationship between individual	Quantitative design Anonymous online survey Analyses – Correlations & multiple regression **Measures:** - Exposure to CSA questionnaire - Secondary Traumatic Stress Scale (STSS) - Hospital anxiety and depression scale (HADS) - Brief COPE inventory	**Key findings:** *STS* - 34.6% met the criteria for being indicative of PTSD - No significant relationship between demographic variables and STS levels. - Significant relationship between anxiety, depression, coping strategies (positive & negative) and STS. - Higher levels of STS and the level of exposure to CSA. *Anxiety* - 11.9% met the criteria for anxiety.

	>0-5 (*n* =7) 0.5-2 (*n* =24) 2-5 (*n* =36) 6-10 (*n* =18) 11-15 (*n* =10) 16-20 (*n* =5) Did not report (*n* =1)	variables and STS.		*Depression* - 5.9% met the criteria for depression. **Conclusions:** First study to consider STS in police officer working in CSEA in the UK. No other existing research to make direct comparisons. **Future research:** To consider organisational structures that may have impacted on the development of STS.
8. Perez, Jones, Englert & Sachau (2010), US	N = 28 **Demographic variables:** *Job role:* Federal law enforcement investigators *Gender:* Males (*n* = 21) Females (*n* = 7) *Age:* Not reported *Race:* Not reported	1. Investigators will experience moderate to high levels of STSD and burnout. 2. Exposure to disturbing media will be positively correlated with STSD	Mixed Method design Online survey 5 open ended questions Analysis – Correlation **Measures:** - Survey to assess exposure to disturbing media - Secondary Traumatic Stress Scale - Maslach Burnout Inventory-General Survey - Turnover intention questions	**Quantitative Key Findings:** - Moderate to high levels of STSD and burnout were reported - Time working with disturbing media significantly and positively correlated to STSD, yet not significant with burnout. - Positive correlations between turnover intentions and STSD, exhaustion and cynicism. *STSD*

	Time (years) working in unit: 2-5 (*n* = 20) 5+ (*n* = 8)	symptoms and burnout. STSD and burnout will be positively related to turnover intentions. STSD and burnout will be positively related to increased protectiveness, reliance on co-workers and distrust of the general public.	- Reactions to disturbing media questions - Supportive relationships subscale **5 open ended questions:** How has work affected your relationships with family and friends? How has work affected your relationships 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 agency could do to help you cope with the negative aspects of your job?	- 5 law enforcement investigators experienced high levels of STSD - 5 law enforcement investigators experienced moderate levels of STSD. *Burnout* - 15 law enforcement investigators met the threshold for high exhaustion - 12 law enforcement investigators met the threshold for high cynicism - 5 law enforcement investigators met the threshold for low professional efficacy *Healthy Psychological Wellbeing linked to:* - presence of supportive relationships. *Poor psychological wellbeing linked to:* - Feelings of increased protectiveness - Increased reliance on co-workers -Sense of distrust of the public. **Qualitative Key Findings:**

		- 25% reported this type of work did not affect their relationships. - 18% reported more withdrawn from family and friends - 36% reported increased protectiveness of children - 46% reported viewing images was the most difficult thing about work - 32% workload and management issues were difficult *Coping mechanisms identified:* - Hobbies - Humour - Social support - Leave work at work - Religion - Focus on the positive impact on society **Conclusions:** First study to assess quantitatively the levels of burnout and STSD who view disturbing media. The experience of burnout and STSD was found to be related to

				length of time working with disturbing media. Findings suggest the need to minimize employee exposure to disturbing images. Findings highlighted a need to receive more training in coping strategies to manage this work. **Future research:** Useful to identify what other factors, other than social support, reduces psychological harm. Further research needed to determine whether viewing sexual victimisation of children has different effects compared to other forms of disturbing media. Further research to explore sexual health concerns such as loss of sexual desire or inappropriate sexual thoughts.
9. Powell, Cassematis, Benson, Smallbone & Wortley	N = 32 **Demographic variables:** *Job Roles:* Computer analyst (*n* = 3)	To explore police officers' perceptions of the challenges and work	Qualitative design. Used a semi-structured interview schedule Interviews were conducted via telephone	**Key Findings:** 3 themes were identified**:** *1. Work relationships*

(2013), Australia	Detectives (*n* = 23) ICE supervisors (*n* = 4) ICE trainers (*n* = 2) *Gender:* Males (*n* = 22) Females (*n* = 10) *Age:* Not reported *Race:* Not reported *Range (years) working as an ICE investigator:* 1 – 25 (*m* = 5.02)	stressors of working in Internet Child Exploitation (ICE) investigation.	Analysis - Thematic	- Teamwork was considered important to cope with stressors, boost morale, share experiences - Team leader's personality and competence were considered important *2. Workload & Resources* Factors that were considered a consistent strain were: - The work volume - Insufficient time - Limited resources - Inadequate funding - Long work hours *3. Physical environment* Open plan spaces were considered not appropriate for ICE investigations due to the limited privacy **Conclusions:** First study to use a broad research framework to examine full range of stressors that ICE investigators face (organisational and operational).

				Findings supported existing theoretical explanations regarding workplace traumatisation. Findings highlighted the need for holistic intervention models to assist the prevention and management of stress related to ICE investigation. **Future Research:** No future research suggested.
10. Powell, Cassematis, Benson, Smallbone & Wortley (2014), Australia	N = 32 **Demographic variables:** *Job role:* Internet Child Exploitation (ICE) investigators Roles: Computer analyst (*n* = 3) Detectives (*n* = 23) ICE supervisors (*n* = 4) ICE trainers (*n* = 2) *Gender:* Males (*n* = 22) Females (*n* = 10) *Age:* Not reported *Race:*	To explore coping related strategies of ICE investigators.	Qualitative design. Used a semi-structured interview schedule Interviews were conducted via telephone. Analysis - Thematic	**Key Findings:** - 30 out of 32 ICE investigators reported not experiencing any negative impact on their mental health. - 31 reported that they would recommend this type of work to others. - 7 out of 30 knew of colleagues who had left ICE work due to the nature of the material and organisational stressors. - Individual suitability to ICE investigation can change over time. - Effective collegial relationships provide a core framework for personal coping

	Not reported *Range (years) working as an ICE investigator:* 1 – 25 (*m* = 5.02)	- Enhanced organisational debriefing requires greater communication and establishment of trust *Impact of the work* - Personal changes (change in behaviour/ personality) - Negative affect (aggression, irritable, anxiety, fatigue) - Avoidance of work tasks (absent, reluctance of new work, sloppy paperwork) *Coping Strategies identified:* - Informal briefing - Talking (family or colleagues) - Black humour - Peer mentoring - Time limits on exposure to ICE material - Able to switch off - Exercise - Alcohol - Distraction **Conclusions:** Study has shown that Australian investigators are generally similar to North America in relation to

				methods of coping and perceptions of organisational support. Study provided greater elaboration to the benefits of collegial support for coping within ICE investigation environments. **Future Research:** No future research suggested.
11. Powell, Cassematis, Benson, Smallbone & Wortley (2015), Australia	N = 32 **Demographic variables:** *Job role:* Internet Child Exploitation (ICE) investigators Roles: Computer analyst (*n* = 3) Detectives (*n* = 23) ICE supervisors (*n* = 4) ICE trainers (*n* = 2) *Gender:* Males (*n* = 22) Females (*n* = 10) *Age:* Not reported	1. To understand further the impact of working in the area of ICE investigation. 2. To explore the ICE investigators perceptions of and reactions to viewing child exploitation material	Qualitative design. Used a semi-structured interview schedule Interviews were conducted via telephone Analysis - Thematic	**Key Findings:** - ICE investigators felt that they did not pose any greater risk of harm than other policing roles. - ICE investigators felt that the risk was lower in comparison to those working face to face with victims of assault. *Desensitisation of material* - Some ICE investigators felt the process of becoming desensitised led to an un-empathetic, hardened, and flippant attitude - Some found the process of becoming desensitised helpful

	Race: Not reported *Range (years) working as an ICE investigator:* 1 – 25 (*m* = 5.02)	and increased capacity to engage in the material *Adverse Reactions* Range of reactions associated to viewing online CSEM: - Disgusted - Disturbed - Repulsed - Sad - Nauseas - Angry - Shocked - Arousal *Longer-term symptoms:* - Antipathy - Sleep difficulties - Difficulty switching off - Intrusive thoughts/ flashbacks - Reduced interest in intimacy - Negative view of the world - Greater distrust - Overprotectiveness *Factors influencing reactions:* - Age of victim (under 6 most disturbing) - Age difference between victim and perpetrator

- Degree in which the act violated conventional norms
- Emotional reactions of victims
- Absence of victim distress
- Type of ICE material
- Emotional distance

Conclusions:
ICE investigators experience salient emotional, cognitive, social, and behavioural consequences as a result of viewing ICE material.
Such responses can be short or long term.

Future Research:
To further investigate the development of decision trees to assist officers in deciding whether audio content is useful for the investigation.

To explore the issue of arousal further as this may be impacting productivity or be a source of concern/ distress for investigators.

12. Seigfried-Spellar (2017), US	N = 129 **Demographic variables:** *Job role:* Law Enforcement Officers-only (*n* = 71) Digital Forensic Examiners (DFE)-only (*n* = 20) Both DFE and investigators (*n* = 38) <u>Law Enforcement Officers-only sample (n = 71)</u> *Gender:* Males (*n* = 51) Females (*n* = 20) *Age:* 25-34 (*n* = 13) 35-44 (*n* = 29) 45-54 (*n* = 27) 55+ (*n* = 2) *Race:* White (*n* = 65) Hispanic or Latino (*n* = 5) Asian (*n* = 1) *Time working in unit:* Not reported	1. To identify any differences in psychological well-being or job satisfaction. 2. To identify any differences in coping mechanisms. 3. To assess attitudes toward psychological treatment, as well as availability of psychological resources for digital forensic examiners and/ or investigators working child sexual exploitation cases	Quantitative design Online survey Analysis – Multinominal logistic regression **Measures:** - Coping mechanisms (version of Hold & Blevins, 2011 scale) - Psychological health and wellbeing questions - PTSD checklist-Civilian version (PCL-C) - 5 items from the Quality of Employment survey (Quinn & Shephard, 1974)	**Key Findings:** *Seeking counselling* - The group that worked <u>both duties</u> sought counselling more often. - 9.3 % personally sought counselling/ treatment. - 16.1% reported counselling was a mandatory requirement for a DFE position *PTSD* - A small significant relationship between those working both duties and experiencing PTSD symptoms were found. - <u>DFE-only</u> and <u>Investigator-only</u> groups had significantly lower scores on STS and higher scores on job satisfaction scores in comparison to <u>both duties group</u> - Greatest impact found was for those conducting <u>both duties</u>: - Increased scores of worthlessness - Decreased levels of concentration - Unlikely to work harder - Lower job satisfaction

	Digital Forensic Examiners (DFE)-only sample (n = 20) *Gender:* Males (*n* = 17) Females (*n* = 3) *Age:* 25-34 (*n* = 7) 35-44 (*n* = 8) 45-54 (*n* = 4) 55+ (*n* = 1) *Race:* White (*n* = 15) Hispanic or Latino (*n* = 3) Black (*n* = 2) *Time working in unit:* Not reported Both DFE and investigators sample (n = 38) *Gender:* Males (*n* = 36) Females (*n* = 2) *Age:* 25-34 (*n* = 12) 35-44 (*n* = 12) 45-54 (*n* = 11) 55+ (*n* = 3) *Race:*	*Coping Strategies identified across all three groups:* - Work harder - Try to forget about it - Activities/ hobbies - Talk to spouse - Religion - Alcohol (identified only by both duties group) **Conclusions:** The current study addressed the limitation in the existing literature by comparing the psychological wellbeing of law enforcement personnel working child sexual exploitation cases as either the investigator, DFE or both. The study found differences based on the duties performed. Findings suggest that despite presence of emotional distress or poor coping strategies, they are not likely to seek professional help from mental health services. Number of explanations for resistance for seeking professional support included

	White (*n* = 35) Hispanic or Latino (*n* = 1) Black (*n* = 1) Asian (*n* = 1) *Time working in unit:* Not reported			social stigma, labelled as weak or non-resilient. **Future Research:** The need for continued research, to better understand the ways law enforcement personnel, performing different duties as DFE's or investigators, cope with work-related stress. More research is needed to understand the impact of providing mental health resources to law enforcement personnel performing different duties (investigator or DFE).
13. Tomyn, Powell, Cassematis, Smallbone & Wortley (2015), Australia	N = 241 **Demographic variables:** *Job role:* Internet Child Exploitation (ICE) investigators (*n* = 139) Non-ICE police officers (*n* = 102) Mainstream Australian adults (*n* = 55,697) <u>ICE sample (n = 139)</u>	To explore whether working in child abuse investigation compromises psychological well-being.	Quantitative design Online survey **Measures:** - The Personal Wellbeing index (PWI)	**Key Findings:** - Mean subjective wellbeing (*m* = 3.29) for ICE investigators was above Australian mainstream sample. - Only 3 out of 139 ICE investigators scored very low on the personal wellbeing index (PWI). - No significant differences found between ICE and non-ICE investigators on the following variables:

	Gender: Males (*n* = 86) Females (*n* = 52) Did not report (*n* = 1) *Age range (years):* 24 – 58 (*m* = 38) *Race:* Not reported *Average length (years) in current role:* 3 <u>Non-ICE sample (n = 102)</u> *Gender:* Males (*n* = 66) Females (*n* = 36) *Age range (years):* 21 – 55 (*m* = 40) *Race:* Not reported *Average length (years) in current role:* 6 <u>Mainstream Australian adults (n = 55,697)</u> *Gender:* Males (*n* = 27,292) Females (*n* = 28,405)	- Standard of living - Health - Achieving in life - Relationships - Safety - Community - Future security - PWI total **Conclusions:** Current findings found that ICE investigators are coping well with the challenges they face in their daily work. Similar results were found in the non-ICE police officer sample The findings suggest that maintenance of ICE investigators social well-being is supported by served through policies and practices that promote job satisfaction. **Future Research:** No future research suggested.

	Age range (years): 18 – 76 (*m* = 50) *Race:* Not reported

Note. [1] The study numbers used in Table 4 are referenced throughout the review.

Consideration of Papers using Recurrent Samples

Three papers (9, 10, 11) reported on studies that were conducted by the same author and used the same sample of 32 ICE investigators from Australia. The decision was made to include all three papers, rather than omit two of the studies, because even though the same sample was used, the research objectives for each study were different. The study in 2013 (9) aimed to explore the challenges and work stressors as perceived by the participants; whereas the authors in the study in 2014 (10), examined the coping strategies implemented in relation to managing work stressors related to exploitation materials; and finally, in 2015 (11), the authors focused on developing a better understanding of the participants' experiences of investigating exploitation materials.

Country of Origin

Six studies were conducted in the US (1, 2, 4, 6, 8, 12), four studies in Australia (9, 10, 11, 13), one study in Canada (3), one study in Ireland (5), and one study in England and Wales (7). To date, the majority of studies have been conducted in the US and Australia, potentially limiting our ability to generalise findings in light of the likely differences in policies, procedures, and practices of working with exploitation materials in police departments across the world.

Study Samples

The combined sample size of the 13 studies was 2009 participants (excluding the duplicate samples of 10, 11). The participants were recruited from specialised police departments with a focus on online abuse. The professional titles used to describe their roles appeared to be agency and country specific. Of the 2009 participants: 1043 were Internet Crimes Against Children (ICAC) investigators, 360 were Crimes Against Children (CAC) investigators, 287 were Internet Child Exploitation (ICE) investigators, 186 were Digital

Forensic Examiners (DFE), 101 were Child Sexual Abuse (CSA) investigators, 28 were Law Enforcement Officers, one was a Computer Forensic Examiner, one Child Abuse Investigator, one Investigator, and one Digital Crime Investigator. The smallest sample size was a qualitative study (5) that included five participants (examiner, child abuse investigator, computer forensic examiner, investigator, and digital crime investigator), each recruited from different police departments across four different countries (Europe; *n* = 2, United States, Australia, and Canada). The largest sample size was a quantitative study that had recruited 600 Internet Crimes Against Children (ICAC) investigators in America (1). One study (13) used a control group of non-ICE investigators (*n* = 102), working in other police departments to compare their wellbeing against ICE investigators (*n* = 139).

Demographic Characteristics

The participants recruited across the 13 studies were predominantly male. A combined total (excluding the duplicate samples of 10, 11) was 1030 males and 539 females. One paper (4) did not report the gender of their sample; however, the author stated that the majority of participants were male, consistent with the unbalanced ratio in other studies. This reflects that ICE teams appear to be primarily male at present, and that there may be a risk of gender bias that will affect the generalisability of psychological risks to all female ICE investigators. The age range of the combined sample ranged from 21-65 years. The average number of years worked in a digital analyst unit ranged from 1.2 years to 7 years (mean = 4.1 years).

Outcome Measurements

Of the 13 papers included in this review, seven studies were quantitative (1, 2, 4, 6, 7, 12, 13), five studies were qualitative (3, 5, 9, 10, 11), and one study used a mixed-method design (8). The authors in these studies used a wide range of psychometric measures

to assess a number of psychological concepts that contribute to, and impact, wellbeing, including: (i) mental health (STS, burnout, anxiety, depression), (ii) coping strategies, (iii) reactions, and (iv) job satisfaction. The psychometric measures used across the studies were reported to have high levels of reliability and validity.

Quality Appraisal of Studies in this Systematic Review

For this review, the QualSyst checklist, developed by Kmet et al. (2004), was used to appraise the quality of the quantitative papers (n = 7), the Critical Appraisal Skills Programme (CASP; 2008) checklist was used to appraise the quality of the qualitative papers (n = 5), and the Mixed Method Appraisal Tool (MMAT; Hong et al., 2018) was used to appraise the quality of the one paper which used a mixed-method design. These tools were selected because they were applicable to a wide range of study designs and have been used in a number of published studies. Additionally, each tool appraised the quality in relation to the studies' internal validity, reliability of results and clinical applications, as well as relevance to practice. A copy of each of these quality appraisal tools can be found in Appendix A (QualSyst), Appendix B (CASP), and Appendix C (MMAT).

Quality Scores for Quantitative Papers

The QualSyst checklist consists of 14 items which are rated using scores ranging from 0 to 2 (2 = 'yes', 1 = 'partial', 0 = 'no'), or classified as not applicable (N/A). This provides an overall quality rating score, excluding any of the items that were not deemed applicable. Quality judgements, for each criterion, were based on the extent in which each paper's design, method, and analyses mitigated the risk of errors and bias. All papers which evidenced the criterion in sufficient detail were rated a 2 (yes). Papers which made reference to the criterion, however, the information provided was minimal or lacked detail were rated a 1 (partial).

Table 5 presents, in alphabetical order, an overview of the quantitative papers appraised by the QualSyst checklist.

Table 5

Overview of Quality Appraisal for Quantitative Studies using QualSyst Checklist

QualSyst Checklist Quality: 2=**Yes**; 1=**Partial**; **0=No**	Studies						
	1. Bourke & Craun (2014)	2. Brady (2017)	4. Burruss, Holt & Wall-Parker (2017)	6. Holt & Blevins (2011)	7. Hurrell, Draycott & Andrews (2017)	12. Seigfried-Spellar (2017)	13. Tomyn, Powell, Cassematis, Smallbone & Wortley (2015)
1. Question / objective sufficiently described?	2	2	2	2	2	2	1
2. Study design evident and appropriate?	2	2	2	2	2	2	2
3. Method of subject/comparison group selection or source of information/input variables described and appropriate?	2	2	2	2	2	2	2
4. Subject (and comparison group, if applicable) characteristics sufficiently described?	2	2	2	2	2	2	2
5. If interventional and random allocation was possible, was it described?	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6. If interventional and blinding of investigators was possible, was it reported?	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7. If interventional and blinding of subjects was possible, was it reported?	N/A	N/A	N/A	N/A	N/A	N/A	N/A

8. Outcome and (if applicable) exposure measure(s) well defined and robust to measurement / misclassification bias? Means of assessment reported?	2	2	2	2	2	2	1
9. Sample size appropriate?	2	2	2	1	2	2	2
10. Analytic methods described/justified and appropriate?	2	2	2	2	2	2	2
11. Some estimate of variance is reported for the main results?	2	2	2	2	2	2	2
12. Controlled for confounding?	2	2	2	2	1	2	2
13. Results reported in sufficient detail?	2	2	1	2	2	2	1
14. Conclusions supported by the results?	2	2	2	2	2	2	2
Total Score	**22/22**	**22/22**	**21/22**	**21/22**	**21/22**	**22/22**	**19/22**

Overall, six out of the seven papers were appraised to be of a high quality (1, 2, 4, 6, 7, 12), and the remaining paper (13) was appraised to be of a relatively good quality. Three out of the seven papers (1, 2, 12) considered all of the 11 applicable items, scoring 2 on all the relevant items. The research aims were clearly stated for all but one paper, and the study designs selected were all considered appropriate. The characteristics of the participants were satisfactorily described. The sample sizes were deemed to be adequate for the purpose of the research objectives for the majority of studies, however, one was considered too small. The selection of psychometric measures met the reliability and validity standards and were all defined in sufficient detail. The analyses implemented for all of the studies appeared appropriate in relation to answering the research questions, and the results were clearly presented and described well. The majority of the studies controlled for confounding variables. The use of random allocation and blinding of participants was not necessary in all seven papers, and therefore these three items were all rated 'not applicable'. The conclusions drawn by all seven papers appeared comprehensive and supported by the results presented, including recommendations for future research and clinical implications.

Quality Scores for Qualitative Papers

The CASP checklist consists of items which are rated as 'Yes', 'Partial', 'No' or 'Cannot Tell'. The overall quality was appraised and rated as high, medium, or low. Table 6 presents, in alphabetical order, an overview of the qualitative papers appraised by the CASP checklist.

Table 6

Overview of Quality Appraisal for Qualitative Studies using the CASP checklist

CASP Checklist	Studies				
	3. Burns, Morley, Bradshaw & Domene (2008)	5. Fortune, Rooney & Kirwan (2018)	9. Powell, Cassematis, Benson, Smallbone & Wortley (2013)	10. Powell, Cassematis, Benson, Smallbone & Wortley (2014)	11. Powell, Cassematis, Benson, Smallbone & Wortley (2015)
Quality: **Yes**; **Partial**; **No**; Cannot tell Section A: Are the results valid?					
1. Was there a clear statement of the aims of the research?	Yes	Yes	Yes	Yes	Yes
2. Is a qualitative methodology appropriate?	Yes	Yes	Yes	Yes	Yes
3. Was the research design appropriate to address the aims of the research?	Yes	Yes	Yes	Yes	Yes
4. Was the recruitment strategy appropriate to the aims of the research?	Partial	Partial	Yes	Yes	Yes
5. Was the data collected in a way that addressed the research issue?	Yes	Yes	Yes	Yes	Yes
6. Has the relationship between researcher and participants	No	No	No	No	Partial

been adequately considered?					
Section B: What are the results?					
7. Have ethical issues been taken into consideration?	No	Partial	Partial	Partial	Partial
8. Was the data analysis sufficiently rigorous?	Yes	Partial	Yes	Yes	Yes
9. Is there a clear statement of findings?	Yes	Partial	Yes	Yes	Yes
Section C: Will the results help locally?					
10. How valuable is the research?	Yes	Yes	Yes	Yes	Yes
Appraisal Rating	**Medium**	**Medium**	**High**	**High**	**High**

Overall, three out of the five papers were appraised to be of a high quality (9, 10, 11), with the other two papers being appraised as medium quality (3, 5). All five papers had clearly defined and presented appropriate research aims and implemented appropriate and suitable qualitative designs. The main areas which affected the quality of the papers included: (i) not conducting or providing sufficient information about an appropriate recruitment strategy; (ii) not considering the relationship between the researcher and participant and describing the factors that may have influenced the risk of researcher bias, including how this potentially impacted the findings; and (iii) not considering ethical issues. This latter area may have been due to a lack of reporting, rather than not considering any ethical issues, which affected the ability to rate this item as any higher than 'partial' for those that had made brief references (5, 9, 10, 11).

Quality Scores for Mixed-Method Paper

The MMAT was originally developed in 2009, then revised in 2011 (Pace et al., 2012), and again in 2018 (Hong et al., 2018), resulting in the current version. The MMAT is designed to appraise mixed methodological design studies and consists of items which are rated as 'Yes', 'Cannot Tell' or 'No'. This provides an overall quality rating of high, medium, or low. Table 7 presents the one paper that used a mixed-method design.

Table 7

Overview of Quality Appraisal for Mixed-Method Study, using the MMAT checklist

MMAT Checklist Quality: **Yes**; **Partial**; **No**; Cannot tell	Study 8. Perez, Jones, Englert & Sachau (2010)
1.1 Are the sources of qualitative data (archives, documents, informants, observations) relevant to address the research question (objective)?	Yes
1.2 Is the process for analysing qualitative data relevant to address the research question (objective)?	Yes
1.3 Is appropriate consideration given to how findings relate to the context, e.g. the setting, in which the data were collected?	Yes
1.4 Is appropriate consideration given to how findings relate to researchers' influence, e.g. through their interactions with participants?	No
1.5 Is there a coherence between qualitative data sources, collection, analysis, and interpretation.	Yes
4.1. Is the sampling strategy relevant to address the quantitative research question (quantitative aspect of the mixed methods question)?	Yes
4.2. Is the sample representative of the population understudy?	No
4.3. Are measurements appropriate (clear origin, or validity known, or standard instrument)?	Yes
4.4. Is there an acceptable response rate (60% or above)?	Cannot Tell
4.5 Is the statistical analysis appropriate to answer the research questions?	Yes
5.1 Is the mixed methods research design relevant to address the qualitative and quantitative research questions (or objectives), or the qualitative and quantitative aspects of the mixed methods question (or objective)?	Yes
5.2 Is the integration of qualitative and quantitative data (or results*) relevant to address the research question (objective)?	Yes
5.3 Is appropriate consideration given to the limitations associated with this integration, e.g. the divergence of qualitative and quantitative data (or results*) in a triangulation design?	Cannot tell

5.4 Are divergences and inconsistencies between quantitative and qualitative results adequately addressed? 5.5 Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?	Yes **Moderate to High Quality**

In summary, this paper (8) was appraised to be of a moderate to high quality. Adopting a mixed-method approach seemed appropriate to meeting the study's research questions. Appropriate psychometric measures that were credited for their reliability and credibility were used, and correlation analyses were conducted. The choice of analysis appeared appropriate and relevant to answering the four research questions.

Results

Five themes were identified from the 13 papers which appear to reflect the challenges and highlights experienced by digital forensics analysts working with exploitation materials in relation to psychological wellbeing. The quality of all 13 papers were appraised as high (n = 9), moderate to high (n = 1) and medium (n = 3). The high to medium quality found for all papers suggested that appropriate methodologies and analyses were used, increasing the confidence and validity in the findings and conclusions found. Therefore, all 13 papers were retained in the review, and the results reported were considered with equal weighting.

Coping Strategies

Nine papers (1, 2, 3, 4, 5, 6, 8, 10, 12) measured and identified what coping strategies were considered pertinent by participants to help maintain psychological wellbeing, and manage the complex demands of working with online abuse and exploitation materials. The range of coping strategies identified by participants were grouped into personal strategies, those relating to managing the task (grading exploitation materials), and organisational strategies. They are presented in Table 8.

Table 8

Summary of Digital Analysts' Coping Strategies (1, 2, 3, 4, 5, 6, 8, 10, 12)

Personal Strategies	Viewing Strategies	Organisational Strategies
Monitor self	Gradual exposure to images	Range of tasks
Hobbies	Mental preparation	Use of psychological
Exercise	Take breaks	support offered
Listen to music	Analytical approach	Use of supervision offered
Grounding activities (e.g.	Set specific times to view	Debriefs (informal, formal)
yoga, meditation, walks)	material	
Leave work at work	Avoid viewing material	
Distraction	when tired/emotional	
Talk to others (spouse,	Dissociate/compartmentalise	
family, friends)	Desensitisation	
Work harder	Limit the number of hours	
Drink alcohol, smoke, use	working on case material	
prescribed medication		
Use of supportive		
relationships		
Use of humour		
Religion/spirituality		
Supress feelings/withdraw		

As illustrated in the table above, the majority of personal coping strategies were

considered healthy ways of managing the demands of a challenging, high-pressured job. A large proportion highlighted talking to others, however, there were differences in terms of who participants sought support from. Some reported that talking to their spouse, family or friends helped, yet others were worried that sharing their experiences from work would traumatise others, and therefore preferred to talk to work colleagues (8). For example, "I don't want to weigh my wife down with all the stuff…why torture her with the crap?" (10, p. 36). Furthermore, using colleagues as a source of support was consistently considered valuable as they were perceived to be the best people to empathise and fully understand the challenges associated to the job (9).

Only a small proportion of participants reported drinking alcohol, smoking, or using prescribed medication (e.g. sedatives), which ultimately has the potential to result in negative consequences (1, 6, 10, 12). More specifically, Seigfried-Spellar (2018) who compared law enforcement officers-only (n = 71), digital analysts-only (n = 20), and both (n = 38), found that 55% (n = 21) working both duties used alcohol as a way to cope with this job. However, the digital analyst-only group did not report alcohol as a coping strategy; suggesting that this increase may not be linked to working specifically with online abuse and exploitation materials.

In terms of the task of viewing exploitation materials, the majority of participants found it beneficial to detach themselves from their own emotions in order to remain objective when screening exploitation materials. In addition, they found deadlines, taking regular breaks, and limiting the amount of time spent on screening exploitation materials helpful (3, 6). The issue of becoming desensitised to exploitation materials was highlighted by the majority of participants in Powell et al.'s (2015) study. Some participants described the consequences of desensitisation as developing an "un-empathetic hardened and flippant attitude" (p.106), yet

concerns were highlighted in regard to both becoming desensitised to the material and reducing empathy: "To become desensitised is the wrong way to go…I think if you lose that empathy of kids suffering, your work suffers" (p. 106). In contrast, others viewed desensitisation not as a reduction of empathy but a necessary process to help increase their ability to cope with viewing exploitation materials, and being able to consistently apply a logical and analytical approach towards the investigation (3, 11).

Regarding the strategies identified in relation to the organisational context, participants reported varying their tasks at work from one day to another, and accessing debriefs with managers and colleagues, as helpful. There were contradictory findings around whether seeking psychological support (e.g. counselling, psychological intervention) and using supervision offered by organisations was considered valuable. Whether psychological support was mandatory varied between organisations (12), however, there was a sense that support was being offered as a 'tokenistic' gesture rather than it being provided because organisations recognise its value and need (p. 37, 10). The findings suggest that the need to seek external support was associated with negative connotations, such as signs of vulnerability, not coping and incompetence (10). In addition, participants reported concerns around the therapist not understanding the challenges associated with the job, and breaches of confidentiality, particularly where psychological support was offered internally (10).

Impact on Self

It is apparent across all 13 papers, that, investigating cases that involve exploitation materials is physically, emotionally, and cognitively demanding. The psychological impact on participants has been found to have a number of negative consequences which some participants considered to be short-term and others longer-term, as well as changes in personality and behaviours that felt difficult to manage. Participants

reported similar experiences in relation to: intrusive thoughts, flashbacks, insomnia, increased paranoia, hypersensitivity to threat, becoming withdrawn, loss of motivation, loss of sexual desire, and a general negative view of the world (1, 8, 11). Participants also reported that their work impacted on their ability to trust others, being more protective over their children, and placing more restrictions on them (1, 3, 8, 11).

Participants described a sense of feeling overwhelmed as they frequently experienced a range of difficult emotions from investigating exploitation materials, including: extreme fatigue, anger, guilt, sadness, helplessness, shock, and disgust (8, 10, 11, 12). The emotional responses were influenced by several factors: the age of the victim, the age difference between the victim and the offender, the presence of visible distress by the victim, and how much the exploitation materials violated societal norms (e.g. unusual fetishes, sadistic behaviours, bestiality; 11). Experiencing sexual arousal was highlighted in two papers (10, 11), and was reported to be associated with feelings of shame and guilt in participants for acknowledging that a physical reaction may occur as a result of viewing material similar in nature to adult pornography. According to Powell et al. (2014), "arousal to the material is definitely not discussed…" (p. 36), which is further reflected in the absence of a consideration of this aspect in other studies. Yet, despite the range of challenges attached to working with exploitation materials, participants reported a high level of job satisfaction and pride in their role (1, 2, 10): "There's a huge sense of satisfaction from locking up someone that you know is abusing children…I find that very rewarding." (10, p. 38).

Organisational Challenges

There was a consensus among participants across all 13 papers that organisations play a key role in promoting staff's psychological wellbeing. Findings illustrated that organisations who acknowledged the stressful demands associated with the role were supportive and made

their staff feel valued and appreciated. This contributed to high job satisfaction and meditated the risk of psychological harm (6). For example, staff valued policies where they were able to rotate between departments and change roles, although this was not possible across all organisations (5, 8).

A large proportion of participants described experiencing difficulties within their organisations, specifically in relation to: poor management, having limited awareness of their needs, offering inappropriate support, and inadequate working environments (e.g. open plan office, limited privacy, distractions). Factors which contributed to feelings of being undervalued, an increased level of work stress, and reduction in job satisfaction, especially in light of the long hours and high workload (8, 9). For example:

> "You might be looking at child exploitation material in the morning for three hours and because of the workload you can't then go and take a couple of hours to just be by yourself, have a coffee somewhere, make sure you're feeling happy." (9, p. 549).

In contrast, other participants did report positive experiences of working within their organisations, in relation to good management and team leaders, which were both considered to be important in helping to reduce levels of stress (9).

Three papers (3, 5, 9) referred to training in relation to managing staff wellbeing. The availability of relevant training and the quality thereof appeared to vary: "There's definitely a big hole in training in relation to investigating and analysing, and managing exposure to child exploitation material" (9, p. 550). A small proportion of participants reported that the training they received was relevant and of a high quality. However, others described the training as outdated and ad-hoc, affecting their ability to stay up to date with technological advancements (5). Staff who received training opportunities reported that this, combined with having the

necessary resources, and access to psychological support, helped them to effectively cope with the role (3).

Three papers (3, 5, 10) highlighted the benefits and potential concerns in relation to psychological screening as part of the recruitment process. Fortune et al. (2018) suggested that such a process helped select candidates based on particular characteristics, personality traits, and experiences that may help cope with the complex demands of this role. Factors considered desirable included: (i) a background in criminal investigation or technology, (ii) previous exposure to sexual crimes, (iii) making use of a range of effective coping strategies, (iv) demonstrating intrinsic motivation, and (v) being resilient. Some participants recognised the value of a screening process, however, suggested that this may be too simplistic and would benefit from a longer process with multiple components including an interview (10). Furthermore, a wider issue was highlighted in Burns et al.'s (2008) study in relation to the individuals responsible for making decisions around candidate selection. They were described to often not work in the area, and therefore have a limited understanding of the qualities needed to manage the challenges faced when working with exploitation materials.

Psychological Impact

Anxiety and Depression

A small proportion of participants reported mental health difficulties, including heightened levels of anxiety, and depression (6, 7, 10). Hurrell et al. (2017) measured symptoms of anxiety and depression using the Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1986), and found that out of 101 participants, 11.9% (n = 12) met the criteria for anxiety, and 8.9% (n = 9) fell into the 'severe' range. The proportion of participants displaying symptoms of depression was found to be lower (5.9%; n = 6), and none fell into the 'severe' range. Furthermore, two participants reported work-related

psychological difficulties, as a result of which one ICE investigator subsequently left (due to being diagnosed with a psychological condition; 10).

Organisations that deal with and investigate online abuse were frequently described by participants as high-pressured and stressful environments to work in, involving completing tasks that could be upsetting and disturbing (i.e. exploitation materials; 1, 3, 5-6, 8). In a study by Holt and Blevins (2011), across a sample of 56 digital analysts, 68% (*n* = 38) reported experiencing elevated levels of pressure at work. Participants who had worked in the role for longer, or experienced lower levels of job satisfaction, were more likely to suffer from higher levels of stress (6).

Burnout

Two papers examined the risk of burnout as a consequence of working with exploitation materials (2, 8). The presence of moderate to high levels of burnout were associated with (i) limited support from the organisation, (ii) frequently feeling overwhelmed, and (iii) indirect (online) exposure to exploitation materials. Participants in the two studies scored particularly high on three domains: (i) exhaustion, (ii) cynicism, and (iii) low professional efficacy, all of which were associated with a higher likelihood of experiencing burnout. Perez et al. (2010) recruited 28 federal law investigators (whose role involved searching active, hidden, and erased files to investigate which devices had been used to view, store, or distribute exploitation materials), found that 54% (*n* = 15) reported high levels of exhaustion, 43% (*n* = 12) high levels of cynicism, and 18% (*n* = 5) low professional efficacy. Exhaustion and cynicism were further significantly associated with intentions of leaving. Based on Perez et al.'s (2010) qualitative findings, 46% (*n* = 10) reported viewing exploitation materials as the most difficult and distressing element of their work: "watching innocent children abused by someone who knows better", and "there are some things you

cannot unsee" (p. 120). Despite the known risks of burnout, having a strong external support system and hobbies, and drawing on religion and humour, were found to mitigate the risk (8).

Secondary Traumatic Stress

Six papers (1, 2, 4, 7, 8, 12) explored the risk of STS as a consequence of working with exploitation materials. It refers to a range of symptoms which are experienced following indirect exposure to trauma. The findings demonstrate inconsistencies between participants' experiences of STS. More specifically, Bourke and Craun (2014) used the Secondary Traumatic Stress Scale (STSS; Bride et al., 2004), and found that 84.7% (*n* = 508) of their ICAC investigators reported 'low' to 'mild' STS, with the remaining 15.3% (*n* = 92) meeting the criteria of 'severe' STS. Regression analyses identified two significant predictors of STS: (i) viewing disturbing material, and (ii) frequently being exposed to exploitation materials. Similarly, Perez et al. (2010) used the same scale as Bourke and Craun (2014) and found that out of 28 law enforcement officers who had been exposed to exploitation materials, 64% (*n* = 18) did not experience symptoms of STS, 36% (*n* = 5) met the criteria for 'moderate' severity, and 18% (*n* = 5) met the criteria for 'high' severity. Correlational analyses highlighted that time spent working with disturbing material was significantly associated with STS, consistent with Bourke and Craun's findings. Factors associated to reducing the risk of STS included: (i) being male, (ii) having supportive relationships, (iii) having positive supervision, (iv) having good working relationships, and (v) using effective coping strategies, such as hobbies, humour, and social support (1, 2).

Furthermore, four papers identified that higher levels of STS were associated with an increased risk of developing PTSD. Hurrell et al. (2017) found that out of 101 CAIU police officers, 34.6% (*n* = 35) reported symptoms of STS which met the clinical criteria indicative of PTSD. A multiple regression analysis identified that exposure to CSEM, anxiety, and

depression, significantly predicted STS. Burrus et al. (2018) examined experiences of vicarious trauma and coping behaviours across a sample of 360 digital forensic examiners, and found that exposure to exploitation materials was significantly associated with STS. Lastly, in the Seigfried-Spellar (2017) study, participants who performed both duties (digital analyst and law enforcement officer; n = 38), were found to be at higher risk of developing STS, and scored lower on job satisfaction, than those solely undertaking either role. Overall, a number of factors were found to have a significant positive correlation with higher levels of STS, including: (i) length of time working with disturbing material, (ii) first exposure to disturbing material, (iii) turnover intentions, (iv) previous history of trauma, (v) spirituality/religion, (vi) frequently feeling overwhelmed, (vii) limited organisational support, and (viii) working on cases involving young child victims (2). The following factors were not negatively correlated with STS: (i) positive coping strategies, (ii) number of own children, (iii) number of weekly hours spent working on cases of online abuse, and (iv) regular exposure to exploitation materials (2, 4, 7, 12).

While mental health difficulties were acknowledged by a proportion of the participants (6, 7, 10), this was not the case for all who worked with online abuse (6, 11, 13). More specifically, 80% (n = 45) of digital analysts reported that they felt "calm and at ease while working" (p. 241, 6). Powell et al. (2014) interviewed 32 ICE investigators, of which 94% (n = 30) reported experiencing no negative consequences on their mental health , and 97% (n = 31) would recommend this line of work to others. Similarly, Tomyn et al. (2015) examined the wellbeing of 139 Australian ICE investigators, using the Personal Wellbeing Index (PWI; International Wellbeing Group, 2013). The PWI calculates an average life satisfaction score based on seven life domains: (i) standard of living, (ii) health, (iii) achieving in life, (iv) relationships, (v) safety, (vi) community connection, and (vii) future security. Out

of 139, 98% (*n* = 136) scored highly on the PWI across all domains but were found to score particularly high for future security, community connection, and safety in comparison to non-ICE police officers (*n* = 102). Furthermore, ICE investigators reported that they believed that they were less likely to be at risk of psychological harm in comparison to officers working in face-to-face roles with child victims (11).

Relationships

Four papers (8, 9, 10, 11) highlighted the impact working with exploitation materials had on participants' relationships. Perez et al. (2010) asked 28 federal law investigators two open-ended questions about how their work affected their personal relationships, and found that while 25% (*n* = 5) reported no effects, 18 % (*n* = 4) recognised that they had become more withdrawn, two reported conflict and friction in their relationships (as spouses became jealous and angry as a result of them thinking that partners were watching pornography at work), and one described losing interested in being intimate as a result of their work (8).

There was consensus across the four papers that positive relationships with colleagues were key to mitigating the risk of psychological harm. Having a shared understanding and supporting one another seemed to help with managing the demands at work, and boosting staff morale (8, 10). However, positive working relationships were not present in all organisations, and this was therefore identified as a reason for high staff turnover rates (9), further impacting on teams forming cohesion and developing trust.

Discussion

Summary of Findings

The present review explored the experiences and effects of working with online abuse and exploitation materials for 2009 participants across 13 papers. Five themes were identified,

namely: (i) *coping strategies*, (ii) *impact on self*, (iii) *organisational challenges*, (iv) *psychological impact*, and (v) *relationships*. These themes reflected the challenges faced by digital analysts, and provided an overview of our current knowledge and understanding of how working with exploitation materials may impact on their psychological wellbeing.

Psychological Impact of Working with Child Sexual Exploitation Material

The majority of papers included in the present review highlighted that those working with exploitation materials are at greater risk of psychological harm to a certain degree at some point during their employment. Both short and long-term behavioural, cognitive, and emotional consequences were reported as a result of working with exploitation materials. The consensus is that this line of work can, at times, be overwhelming and often elicit a range of strong, difficult emotional reactions towards the material, including disgust, anger, and sadness (10, 11). A large proportion of participants recognised that working in this role had impacted their view of the world, and ability to trust others (1, 8, 11). It is not surprising that such changes in cognitions were found, especially given that they are frequently investigating cases involving sexual crimes against children where perpetrators are in positions of power, making analysts question people's integrity (Burgess et al., 2008).

The results of the review indicate that working with online abuse and exploitation materials has the potential to increase the risk of burnout and STS, affecting analysts' overall wellbeing (2, 4, 7, 8, 12). This is consistent with previous research that suggests that police staff working in the area of online abuse are at an increased risk of developing STS and symptoms of burnout (Follette et al., 1994; Powell & Tomyn, 2011; Way et al., 2004). However, it is important to note that not all participants met the threshold for STS and burnout. One explanation for this is that exposure to trauma affects everyone differently. Whether or not someone develops a traumatic response to what they are exposed to depends,

in part, on several factors, including personal characteristics, sociocultural factors, and levels of resilience (Huber-Lang et al., 2018).

Acute responses, such as flashbacks, intrusive thoughts, insomnia, or mood disturbances, are natural reactions to potentially traumatic events, in this case frequently viewing and being exposed to exploitation materials (Thomas, 2019). If these responses occur frequently, become pervasive and lead to an increase in cognitive distortions and negative appraisals (e.g. 'the world is no longer safe'), it is likely they will lead to a series of problematic and cognitive long term difficulties that may be indicative of PTSD (Ehlers and Clark, 2000). Symptoms are likely to be enhanced by the development of dysfunctional coping strategies, including thought suppression, avoidance, or desensitisation (Ehlers and Clark, 2000). As a result, it is important to monitor analysts' reactions, responses, and potential symptoms, to ensure that frequency and severity do not begin to cause distress, or become pervasive across their professional and personal lives. Additionally, there are a number of psychological interventions, including Trauma-focused cognitive behavioural therapy (TFCBT) and eye movement desensitisation and reprocessing (EMDR) that are recommended for PTSD by the NICE guidelines (2018), and have been evidenced to be effective (Bisson et al., 2007). However, the challenge posed for this group of professionals is that they will continue to be exposed to traumatic material, unless they remove themselves from the situation (i.e. leave the job), which potentially will affect the clinical benefits of such interventions. It may be helpful to focus the interventions provided on stress management and relaxation rather than focusing specifically on trauma symptoms (Bisson et al., 2007).

It is noteworthy that there was a small proportion of participants who reported no or minimal signs of struggling or distress from engaging in this field of work. However, the methodologies used in the relevant studies relied heavily on self-reported information,

through psychological measures and interviews. This poses a high risk of socially desirable responding, and is likely to be an under representation of symptoms, given the stigma around mental health and wellbeing in policing culture (Edwards & Kotera, 2021). This may also offer an explanation as to why this review illustrates contrary evidence in relation to whether seeking psychological support is deemed beneficial or not. Therefore, even though a small proportion of participants have reported little or no negative consequences in relation to their psychological wellbeing it does not mean that we can confidently say that digital analysts do not pose a risk of psychological harm as a consequence of working with online abuse.

Furthermore, despite the psychological impact and consequences referred to across the papers included in the present review, it is important to highlight that some participants still portrayed a high level of job satisfaction, pride, and commitment to their job, even reporting that they would recommend the profession to others (1, 6, 11). In fact, a sense of pride for the work undertaken appeared to act as a protective factor against psychological harm. The evidence provided to the courts to inform decisions around prosecution and sentencing, has the potential to reduce the number of perpetrators causing harm to children. This resulted in a strong sense of reward and accomplishment, which made the job feel worthwhile and outweighed the challenging aspects of the job (1).

Coping with the Complex Demands of the Role of a Digital Forensics Analyst

It is apparent from the present review that analysts made use of a wide range of coping strategies. The majority of the strategies were considered proactive ways in managing the complex demands of the role, and ensuring that a good work/life balance was maintained (1, 2, 3, 4, 5, 6, 8, 10, 12). Those employed most frequently, and deemed to be most effective, included: hobbies, exercise, and religion (3). Having a strong social support network was further considered valuable by a large proportion of participants. However, the presence of

such a support network did not necessarily relate to participants using it to discuss work-related issues, but mainly for being part of supporting a good home life (3, 6, 10). This is further supported by previous research which suggests that police officers who drew on their social support circles displayed lower levels of psychological distress (Davidson & Moss, 2008). The use of humour was further identified by some participants as important, again supported by previous research which identified that 'dark' humour was commonly used in roles that involved exposure to potentially traumatic events (3,6,10). There is a sense that this type of humour is a form of distraction that helps analysts escape the shocking nature of the material they view and are exposed to. Other coping strategies participants reported to be beneficial involve those that help them to mentally prepare themselves for the task of viewing disturbing material. These included gradual exposure, taking regular breaks, and viewing material at particular times in the day (3).

It is of note that a small proportion of participants reported coping strategies that may raise concerns if they became a long-term way of coping with symptoms of stress, including alcohol, medication, and becoming desensitised from the material, be it on a conscious or subconscious level (6, 10, 11, 12). This contradicted Daly's (2005) findings, which found that police officers were more likely to develop maladaptive coping strategies to manage stress. Therefore, the results from the present review may not be representative of the population of digital analysts internationally, especially in light of the methodological limitations of the papers, and the stigma around mental health and wellbeing in policing.

Although merely one paper (8) made reference to the impact this type of work had on employees' personal relationships, it is highly likely given all the difficulties identified in this review including: psychological, emotional, behavioural, and cognitive changes, that the

effect on personal relationships is greater than evidenced. This may be due to the other studies not directly examining this area.

Limitations

A strength of the present review is that all 13 studies were of moderate to high quality. Despite this, all five qualitative studies had not considered, or only partially considered factors to mitigate risk of researcher bias. To improve quality of future studies, it would be important for future researchers to recognise the relationship between the researcher and participants and ensure steps are taken to ensure interpretations are credible and fair. Additionally, the seven quantitative studies (1, 2, 4, 6, 7, 12, 13), and one mixed-method study (8), used a range of standardised psychometric measures (e.g. Secondary Traumatic Stress Scale, Bride et al., 2004; COPE inventory, Carver, et al., 1989; Hospital Anxiety and Depression Scale, Zigmond & Snaith, 1983) to assess various psychological concepts associated with wellbeing, and different job satisfaction measures, making the comparing and generalising of findings somewhat difficult. Furthermore, these measures are entirely based on information self-reported by participants, and therefore susceptible to social desirability bias. It is more likely that participants under-reported symptoms they may be experiencing for several reasons, including fear around feeling stigmatised, concerns around breaches of confidentiality, lack of insight about their symptoms, and anxieties around being perceived incompetent and unable to meet the demands of their job.

In addition, some papers lacked a clear description of the role undertaken by the group of participants recruited, including how much time they spent viewing and exposed to exploitation materials. Such differences in roles makes it difficult to directly compare, however, it may offer an explanation for the contradictory evidence found between trauma-related symptoms and psychological difficulties reported in the findings. Both sample sizes

and the number of years participants had been working in the area of online abuse varied significantly across studies, and merely one study used a control group. As a result, the mediating role of these factors could not be examined, and caution should therefore be taken when interpreting the results, and generalising the findings across police departments worldwide.

Furthermore, samples primarily recruited white, male participants, limiting the diversity and ability to generalise findings. Due to the imbalance of gender ratios, inconsistent collating and or reporting data on age, race, and how long participants have been working with online abuse across the studies, it was difficult to ascertain whether such variables impacted upon the type or effectiveness of coping strategies participants used. The evidence available suggested that males were more equipped to manage better, as they were more able to distance themselves from the emotion and adopt an analytical approach (2, 10). Yet a proportion still displayed vulnerabilities of psychological harm (1, 2, 4, 6, 8) despite using such strategies that have been found to be effective to cope with exploitative materials (1, 2, 3, 4, 5, 6, 8, 10, 12). A hypothesis for such differences could be that the males who had children, found the role more difficult as they were unable to switch off work when at home, and vice versa; thus, not being able to maintain a healthy work, life balance. Similar to gender, evidence for age also remains inconclusive, as some studies highlighted that being younger reduced the risk of psychological harm as they have been exposed to less disturbing material (6). In contrast to other findings, which indicated, that younger staff are at greater risk of harm due to having a limited repertoire of effective coping strategies (2), and therefore older staff have developed a range of effective ways to cope such as desensitisation and compartmentalising (3).

Directions for Future Research

Taking into consideration the limitations highlighted above, future research would

benefit from adopting a longitudinal design, including using larger and more diverse samples. This would help strengthen conclusions, and ascertain whether the risk of psychological harm is associated with working specifically with exploitation materials, or other more personal and organisational challenges. It is important that further research in this area does not lead to organisations over-pathologizing symptoms that have been reported and that we normalise some of the symptoms reported, rather than interpret it as a sign of psychopathology. Longitudinal studies would provide more meaningful data in terms of better understanding and determining any changes to psychological wellbeing, in the context of managing the challenges of the job, over the course of a certain period. It would also be beneficial for future research to examine the more long-term consequences of working with exploitation materials, the impact this has on analysts' ability to carry out and fulfil their role, and the overall effect of this on their perceived quality of life. This would help identify and signpost to appropriate psychological interventions and support which specifically addresses the needs of digital analysts who are exposed daily to traumatic material.

Practical Implications

Despite not truly understanding the severity and extent to which individuals who are working in the area of online abuse, specifically with exploitation materials, are experiencing stress-related symptoms. It is quite apparent from the results of the present review that this professional group are vulnerable to some degree of psychological harm. It would therefore be appropriate to recommend that police departments provide both internal and external support to their staff. This may be in the form of regular bespoke training to new recruits, longer-term employees, and family members/partners, to help raise awareness around the complexities and potential negative consequences associated with working in this area. Furthermore, having up-to-date training, in line with technical advancements, is likely to

increase job satisfaction (as employees will feel more equipped and competent to face the challenges), and reduce high staff turnover rates. Finally, conducting pre-employment screenings is currently not being undertaken consistently across organisations due to limited resources, and high demands to fill vacancies (Fortune et al., 2018). Some participants in the present review valued this process, and proposed that this become a mandatory part to the recruitment process to aid wellbeing (3). However, caution needs to be taken that such practices do not promote discrimination against mental health within the workforce.

Conclusion

In summary, the methodological limitations, and somewhat contradicting findings highlighted in the present review illustrate that this line of work can affect individuals differently. Despite having a shared experience of working in the area of online abuse and exploitation materials, which makes it difficult to draw conclusions about how analysts are affected psychologically. Despite this, the tentative conclusions have provided a good foundation for future research to build upon, and for police departments to consider developing certain policies and practices to protect against the known risks of psychological harm posed to this professional group.

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CHAPTER II

EMPIRICAL PAPER

UNDERSTANDING PERSONAL EXPERIENCES OF DIGITAL FORENSIC ANALYSTS' DAILY WORK: AN INTERPRETATIVE PHENOMENOLOGICAL ANALYSIS

Abstract

Digital forensic analysts are a specialist group of police staff who investigate cases of online child sexual exploitation and abuse which entails depicting child sexual exploitation material (CSEM) from vast amounts of images, classifying these according to severity and preparing reports for the courts. The existing literature examining this phenomenon has suggested that this group of professionals are at a greater risk of psychological harm as a consequence of indirect exposure to trauma. Working with this type of material has the potential to significantly affect analysts' wellbeing. However, the research in this area remains limited, particularly qualitative designs. We do not have a robust understanding of the impact on analysts of working with this type of material, and what coping strategies they may employ to manage the associated challenges. This study adopted a qualitative approach, using Interpretative Phenomenological Analysis (IPA) to explore the digital analysts' personal experiences in relation to how they feel that working in this role on a daily basis has impacted them and in what ways they manage this. Seven digital analysts from a Digital Forensic Unit in England consented to participate and were interviewed. Each interview followed the process of IPA. Three group experiential themes were identified, namely: (i) *You cannot unsee the "darker side of life", (ii) Conflicted feelings towards the job, and (iii) Feeling overlooked by the organisation*. Digital analysts were found to experience symptoms comparable to burnout and secondary traumatic stress as a result of working with CSEM. The findings identified highlighted practical implications, and suggestions for future research.

Introduction

Prevalence of Online Child Sexual Exploitation and Abuse

Over the years, the use of internet has become embedded in people's everyday lives, as the Office of Communications (OfCom) in 2019 indicated that nine out of ten UK households had access to the internet. It was documented that children had reported experiences of exposure to offensive language, and friend's requests on social media forums from unknown individuals over the last 12 months (OfCom, 2019). The use of internet has become an increasingly popular way to solicit children for online child sexual exploitation and abuse (OCSEA), and the evidence indicates that this is at a concerning, and growing rate (The European Union Agency for Law Enforcement Cooperation, EUROPOL, 2018). Online abuse encompasses a wide range of criminal behaviours including production, preparation, and dissemination of child sexual exploitation material (CSEM) and identifying children for sexual intent, whether that be non-contact or contact (May-Chahal & Palmer, 2018). In this paper, I refer to these criminal behaviours (OCSEA) via the general umbrella term 'online abuse' and to the materials produced (CSEM) as 'exploitation materials', in order to reduce the number of abbreviations and acronyms in the text.

It is difficult to establish accurate estimates to understand the true extent of online abuse. The statistics are based on self-reporting data and therefore rely on these children to firstly, recognise their experience as online abuse and, secondly, overcome any fears about reporting the abuse. However, the National Society for Prevention of Cruelty to Children (NSPCC) data in 2021, found a 16% increase in the number of offences relating to online abuse. In 2019/2020, a total of 10,391 offences of online abuse were reported by 43 police forces across the UK, compared to 8,807 offences recorded in 2018/ 2019 (NSPCC, 2021).

Similarly, the Internet Watch Foundation (IWF) estimated in 2020, that 153,383 reports were assessed and confirmed to be exploitation materials. The Home Office's statistics, in 2019, highlighted the national scale of online abuse, reporting that every month, 450 potential perpetrators were arrested, and over 600 children safeguarded.

Internet technology is rapidly evolving and is an online platform that can be easily abused when unmonitored, increasing the risk of online abuse. The internet makes it simple to produce, disseminate, and access exploitation material. Data from police forces confirm that exploitation materials are often produced in one country but disseminated across multiple countries (Krause, 2009; Carr, 2019). In terms of accessibility, Brown et al. (2020) conducted a quantitative study in Australia to examine the financial transactions for live online abuse in the Philippines. Their findings confirmed that online abuse and exploitation materials are accessible worldwide and affordable to most. This magnifies the demand of online abuse and will continue to be a significant global issue if not met with greater consequences under the legal systems for these perpetrators.

The Role of a Digital Forensic Analyst (digital analyst)

In response to this significant issue, UK police forces have recruited staff specifically to investigate online abuse, named digital analyst, with the aim to address the risk and safeguard children. Within the existing literature, different terms have been used to describe the same or similar job role in other countries, including: (i) Internet Child Exploitation (ICE) Investigators, (ii) Computer Forensic Examiner, (iii) Digital Crime Investigators[2]. A digital analyst's role involves screening vast numbers of images to depict illegal content, grade these based on severity (Category A, Category B, and Category C, according to the UK's

[2] For the purpose of the empirical paper, we will be using the term 'digital analysts' to refer to this group of professionals.

classification system; Sentencing Guidelines Council, SHC; 2014), and prepare reports for the courts. Subsequently, digital analysts are exposed daily to exploitation materials of varying degrees of severity, in addition to other images which may not specifically be child related but still themes of a disturbing nature (e.g. adult pornography, violence, bestiality, animal cruelty; Krause, 2009).

Risk of Psychological Harm to Digital Analysts

The majority of the current literature has focused on exploring the impact, in particular, the risk of secondary trauma and burnout, on professional groups (e.g. social workers, therapists, front line police officers) that directly work with child victims and perpetrators of online abuse (Abdollahi, 2002; Caringi et al., 2017; Choi, 2017; Marchand et al., 2015). These professional groups are exposed to potentially traumatic events through hearing a child's account of online abuse, or supporting the victim to process their experience, and have been found to be at an increased risk of experiencing symptoms of secondary traumatic stress (STS) and burnout (Way et al., 2004). Whereas digital analysts do not work directly with the victims and perpetrators of online abuse, instead they investigate exploitation materials, however, the nature of their work is likely to elicit similar symptoms associated with STS, including intrusive thoughts, disturbed sleep, and changes in mood (Edelmann, 2010; Hajkak & Olvet, 2008). Therefore, the risks identified in the current literature for other professional groups are likely to parallel the risks for digital analysts. To affirm this, individuals working in other professions reported that any event which involved children was perceived to be the most traumatic and stressful, and more specifically, children who had experienced abuse, neglect, and suffering (Conrad & Guenther, 2006; Regehr et al., 2002).

To date, the role of a digital analyst has been described as one of the most stressful experiences in policing, specifically watching videos of a child being abused (Bourke &

Craun, 2014). The current literature that has focused on digital analysts working with online abuse, has provided evidence which suggests that they are considered a high-risk group of psychological harm as a consequence of working with exploitation materials which require regular psychological screening and support (Chouliara et al., 2009; College et al., 2000; Perez et al., 2010; Wolak & Mitchell, 2009).

A number of studies have consistently found that this job has had a negative impact on an emotional, cognitive, and interpersonal level (Edelmann, 2010), thus affecting their overall wellbeing. Some symptoms described, parallel the symptoms often presented with STS and burnout including: intrusive thoughts, flashbacks, insomnia, paranoia, hypersensitivity to threat, becoming withdrawn, mistrusting, and viewing the world through a cynical lens (Bourke & Craun, 2014; Burns et al., 2008; Krause, 2009; Perez et al., 2010; Powell et al., 2015). Brady (2017) examined 443 ICAC investigators in the US and found that one in four reported low levels of compassion satisfaction, and higher levels of STS and burnout.

Furthermore, Ahern et al. (2016) interviewed 5 social workers and 10 police officers to explore their experiences of working with child abuse, some of which involved online abuse. The theme of helplessness was identified, due to feeling unable to protect these children from abuse. Subsequently, they detached from their emotions as a way to manage. This was supported by other studies, which considered it a helpful way to mentally prepare themselves and get in the 'right' headspace before viewing exploitation materials (Burns et al., 2008; Holt & Blevins, 2011). In contrast, others found it challenging to detach from their emotions as viewing exploitation materials evoked strong emotions including anger, guilt, and disgust (Perez et al., 2010; Powell et al., 2014, 2015; Seigfried-Spellar, 2017).

Some of the current literature highlighted a variety of coping strategies used by digital analysts to effectively manage investigating online abuse. Some of which included: talking to

others, taking regular breaks, and having a variation of tasks to break up viewing exploitation materials (Burns et al., 2008; Holt & Blevins, 2011; Powell et al., 2013, 2014). Yet, the evidence available still highlights vulnerabilities of psychological harm for this professional group despite them utilising such strategies that have been found to be effective to cope with exploitation materials (Bourke & Craun, 2014; Brady, 2017, Burruss et al., 2017; Perez et al., 2010).

Whilst there is an existing evidence base that has examined the impact of working as a digital analyst with the aim to better understand the associated psychological risks, there remains little understanding into how this group of professional's copes with the complex demands of this role, and in what ways it truly impacts their wellbeing and quality of life. The research that has been conducted has been primarily quantitative and has a number of methodological limitations. The majority were correlational designs, meaning that causal links cannot be made, influencing the ability to draw concrete conclusions from the data. Additionally, it is likely that participants under-reported psychological symptoms for several reasons, including fear around feeling stigmatised, concerns around breaches of confidentiality, and lack of insight about their symptoms (Papazoglou & Tuttle, 2018). Conclusions drawn are unlikely to be an accurate representation of the true impact this job causes.

To date, five qualitative studies have specifically focused on understanding digital analysts' experiences of working with online abuse. These research studies have provided valuable information about the psychological aspects of working in this role, adding a diverse perspective across police forces internationally. Findings consistently highlighted that working with online abuse and exploitation materials had negative consequences on their wellbeing. Participants recognised the influencing role an organisation has in terms of

mitigating the risk of psychological harm (Burns et al., 2008; Fortune et al., 2018; Powell et al., 2013, 2014, 2015). Differences found, related to the severity of changes identified and long-term consequences (Powell et al., 2014, 2015). Current findings informed recommendations to help police forces consider appropriate practices, including support, training, and supervision, to ensure psychological safety is maintained (Burns et al., 2008; Fortune et al., 2018; Powell et al., 2013, 2014, 2015).

This topic area warrants further attention. It is recognised that this area would benefit from longitudinal research, however, due to the restraints of time and resources this was unable to be conducted at this time and remains an area of future research. However, further qualitative research exploring this phenomenon would be highly beneficial to gain a greater understanding and sense of the complexities faced working as a digital analyst. This study will offer an up to date perspective of the challenges experienced in relation to wellbeing and impact, as some of the current qualitative research is quite outdated, dating back to 2008 (Burns et al., 2008). Additionally, out of the five studies, only one has been conducted in the UK, Ireland, the other four were Australia (n=3) and Canada (n=1). This makes it difficult to implement findings across to UK police forces as there are likely to be differences, regardless of how slight these may be, due to different police policies and procedures internationally. Therefore, this qualitative study will be the first to recruit digital analysts working in a police unit based in England, meaning that the findings reported, and recommendations suggested will have more weight to influence change for the development of UK policies in relation to staff wellbeing and mitigating risk of psychological harm. Additionally, the understanding of mental health, staff wellbeing, and the impact potentially traumatic working roles can have on someone can be perceived and understood very differently between nationalities and countries, highlighting a further need for another UK based qualitative study to be conducted.

Additionally, the roles varied within samples of participants recruited, (e.g. child abuse investigator, computer forensic examiner, digital crime investigator; Fortune et al., 2018), which could potentially influence the findings and conclusions drawn as it was difficult to ascertain the nuisances between job role responsibilities (i.e. frequency of exposure to exploitation materials, number of cases on caseload, involvement in warrants).

The analytical approaches used across the current qualitative studies predominantly used thematic analysis (n = 4), only one using the critical incident technique (CIT). Thematic analysis (TA) is valued for its flexibility, simplicity, and ability to develop a number of themes based upon patterns formed across a dataset in a range of contexts (Braun & Clarke, 2006) such as interviews (Niland et al., 2014), and focus groups (Neville et al., 2015). Despite the strengths of TA, there are limitations which could be addressed by adopting an alternative analytical approach such as interpretative phenomenological analysis (IPA). TA does not take one theoretical position, and therefore the focus in which the data is interpreted, and themes developed can vary. Whereas, IPA is centred around collating rich data to capture an understanding of the individuals' experiences. IPA would enable the researcher to reflect on the shared themes, whilst holding an idiographic focus sensitive to the relational and organisational context, and variation of experiences shared across participants (Smith et al., 2022). Therefore, the current research would benefit from an IPA study to explore in depth digital analysts' experiences.

Aims of the project

Online abuse is a significant global issue and with the rapid advancements in technology, children continue to be at risk. This means that digital analysts' are under enormous pressure to investigate vast amounts of online abuse cases, all of which involve

viewing exploitation materials. The existing literature has provided a good foundation to understanding the impact this work has and the potential psychological harm it can cause. However, further research, particularly qualitative, would add credibility, enhance awareness, and provide clarity about the risks of psychological harm posed to digital analysts' from investigating online abuse. With the aim to help navigate the development of appropriate support systems and relevant training packages to help ensure the welfare of digital analysts is prioritised. A consequence, if appropriate procedures are not in place, is the likelihood that digital analysts will experience adverse effects from viewing exploitation materials, which will result in high sickness rates, and redeployment (Tehrani, 2011). Therefore, it was felt appropriate to address this through conducting a qualitative approach, using IPA to explore the digital analysts' personal experiences in relation to how they feel that working in this role on a daily basis has impacted them and in what ways they manage this.

Method

Interpretative Phenomenological Analysis (IPA)

IPA is a qualitative research approach that is "concerned with the detailed examination of human lived experience" (Smith et al., 2022, pg. 26). IPA examines the meanings attached to a person's phenomenology, through the process of interpretation (hermeneutics). A double hermeneutic approach is applied whereby both the researcher and participants try to make sense or interpret the person's lived experience (Smith & Osborn, 2003). The researcher is only able to interpret and meaning make from what the participant shares, making the participant's meaning-making first order and the researcher's second order (Smith, 2019). Finally, a good IPA study needs to be focused on an idiographic level, starting with a detailed analysis for each case, moving across cases identifying similarities and differences, and

illustrating patterns of shared experiences (Smith et al., 2022). Hence, IPA was felt an appropriate approach for this research project as it allowed for in-depth exploration of digital analysts' accounts, of how they feel this work has impacted them.

Design

This research project utilised a qualitative research design using an IPA approach. The project involved purposive sampling. This method was appropriate to ensure a homogenous group of digital forensic analysts were identified to share their personal experiences of working in this role, giving an insight into the meaning they attach to their experiences in relation to the personal consequences and impact.

Ethical approval from the University of Birmingham's Ethics Committee (Appendix A) was granted. All ethical issues relevant to the project were considered, and appropriate measures were put in place, including informed consent, confidentiality, anonymity, and ensuring that participation did not cause distress. An additional research risk assessment and mitigation plan was completed to ensure the project adhered to COVID-19 government guidelines to maintain a safe research environment.

Participant Recruitment

A purposive sampling method was utilised to identify digital analysts. A number of inclusion and exclusion criteria were identified to assist the recruitment process. The inclusion criteria are outlined in Table 1.

Table 1

Inclusion criteria and rationale

Inclusion Criteria	Rationale
Participants must be working with child sexual exploitation material (CSEM)	There was no requirement for the participant to have worked with CSEM for a particular length of time. Therefore, any participant currently working with CSEM in the identified Digital Forensic Unit in England were included
Participants must be able to speak and understand fluent English	Due to the small scale of this qualitative project, utilising interviews. There was no resource available to pay for interpreters and transcribers for non-English speaking participants
Participants must be able to provide informed consent	It was required for all participants to be able to provide informed consent to participate in the research project
Participants must be physically well to participate, including symptom free of COVID-19	It was required for all participants to complete a COVID-19 screening questionnaire 24 hours prior to participating in the research project. This was to ensure that all participants felt well enough to engage in the interview process

Participants were recruited from a Digital Forensic Unit in England. A named contact at the unit liaised with me and my research supervisor to arrange a visit, where we informed potential participants about the project and provided them with an information sheet (Appendix B). Any participants interested to engage in the project were asked to contact me via email. If they agreed to participate, a consent form was completed (Appendix C) and a date and time convenient for the participant was arranged for me to attend the unit. A COVID-19 screening questionnaire (Appendix D) was completed with the participant 24hours prior to completing the interview.

Sample

Seven digital analysts agreed to participate in the project. The distribution of gender, and time worked as a digital analyst (in years) are outlined in Table 2.

Table 2

Demographic variables of participants (n=7)

Demographic Variable	
Gender	Male (*n*=4) Female (*n*=3)
Length of time working as a digital analyst (years)	0 – 5 (*n=2*) 5 – 10 (*n=2*) 10 + (*n*=3)

The length of time participants had worked as a digital analyst ranged from 3 – 15 years (*mean* = 9 years). Due to the small number of digital analysts working within one unit, no further demographic information was collated to ensure participants anonymity and confidentiality was maintained.

Data Collection

I used a semi-structured interview schedule to explore participants' experiences of working as a digital analyst (Appendix E). In addition, I invited each participant, at the beginning of the interview, to create a visual representation of the different domains important to their life. To support this, the table was set with pre-printed icons, paper for drawing, and coloured pens (see Appendix F for an image of the set up). This approach to interviewing is called *relational mapping* (Boden et al., 2019), and is used to support participants in reflecting on the social and relational context of an experience. The mapping exercise was optional, but all participants engaged in this element.

Creative interview strategies such as relational mapping are compatible with the principles of IPA (Smith et al., 2022). For this project, the relational maps were primarily used as a scaffold to facilitate discussion and exploration of the topic. I was aware that this professional group might not have talked often about the psychosocial impact of their work. It seemed likely that they would benefit from visual cues to help them fully explore and verbalise their experiences (Boden & Eatough, 2014; Morrey et al., 2021). Therefore, the relational maps were not analysed as a primary data source in their own right.

All interviews took place at the unit, in a private room. Only the participant and I were present at the time of the interview. All interviews were audio recorded, and lasted approximately 60 to 90 minutes.

At the end, many participants reflected on their interview experience as positive. Some reported that my approach was personable, supporting the development of rapport, and creating a safe space for participants to share their experiences. Whilst some participants enjoyed using the creative tools, others preferred to limit their interaction with the creative tools.

Data Analysis

No participants withdrew within the two week period following the interview; therefore, all seven participants interviews were transcribed verbatim. Pseudonyms were used to maintain participants confidentiality. Analysis of each transcript followed the process of IPA outlined in Figure 1.

Figure 1

Process of IPA, based upon steps described in Smith et al. (2022)

i) **Reading and re-reading**: this step involves 'immersing oneself in the original data' (Smith et al., 2022, p.78). This step helps to ensure the participant becomes the focus of the analysis as you become familiar with the data. Some of my own initial reflections about the transcript were noted down at this step.

ii) **Exploratory noting**: this step allows you to become increasingly more familiar with the data as you examine the semantic content and language used in the transcript. These exploratory notes were developed by documenting comments on the right-hand side of the transcripts (see Appendix G for an example). The focus of the exploratory notes included:

   a. Descriptive comments – focused on describing the things that matter to the participant (key objects of concern, such as relationships, processes, places, events, values, and principles)
   b. Linguistic comments – focused on the language (e.g. pauses, laughter, repetition, tone) and metaphors used by the participant
   c. Conceptual comments – focused on what the meaning is of those things that matter for the participant (e.g. what those relationships, processes, places etc. are *like* for the participant).

iii) **Constructing experiential statements**: this step involves consolidating and crystalising your thoughts, in the attempt to reduce the volume of detail in an analytical way, whilst maintaining the meaning. An experiential statement should relate directly to the participant's *experiences*, or to their experience of sense making (see Appendix H for an example).

iv) **Searching for connections across experiential statements**: this step involves mapping your experiential statements in a way that you think the statements fit together. You may discard some experiential statements at this stage. A helpful process to achieve this is by cutting up each experiential statement and move them around, whilst searching for connections.

v) **Naming the personal experiential themes (PETS) and consolidating and organising them into a table**: this step involves labelling the clusters of experiential statements to describe its characteristics (see Appendix I for an example).

vi) **Continuing the individual analysis of other cases**: this step involves repeating the process (steps I – V) above for each individual transcript but 'being cautious about simply reproducing ideas' (Smith et al., 2022, p.99).

vii) **Working with the PETs to develop group experiential themes across cases**: this final step aims to examine the patterns of similarities and differences across the PETs to develop Group Experiential Themes (GETs). The GETs reflect the shared and unique characteristics of the experiences across cases (see Appendix J for an example).

Once each transcript had been analysed, I created a case summary for each participant which included a table of their personal experiential themes (PETs) and sub-themes, followed by a summary of my reflections following the interview. All PETs and sub-themes were cut out and organised into reoccurring themes across all participants data. I documented which participants contributed to each of the group experiential themes (GETs) and sub-themes. Quotations which reflected the main claims and concerns from the interview transcripts were incorporated into the results section (see Appendix K for an example).

Validity, Triangulation, and Reflexivity

Whilst IPA is an explorative approach, it is important that interpretations made from the data were plausible and credible, in line with good practice guidelines (Pistrang & Barker, 2005). I conferred with my research supervisors at several intervals throughout the duration of this study, in an attempt to ensure that my interpretations of the data, process of coding, analysis and development of GETs and sub-themes were fair. To further enhance the rigour of the analysis phase, I attended fortnightly IPA workshops which offered guidance on the IPA process and met with a current clinical forensic doctoral student to discuss the grouping of PETs and GETs.

The 'double hermeneutic' element within IPA is important to acknowledge for the interpretation phase, as this process involves both the participants and the researcher trying to make sense of the meaning (Smith & Osborn, 2003). Whilst completing this research project, I was a Clinical Forensic Trainee Psychologist. I have worked with a range of individuals across their lifespan with enduring and complex needs, including offending behaviours, some of which were of a sexual nature towards children. Whilst I have a strong interest in working with offenders and supporting rehabilitation, I am also enthusiastic about understanding how

we support and maintain healthy wellbeing in the staff working with these individuals. I have had experience of supporting various staff teams, and witnessing the effects of burnout from working in high pressured jobs. I was mindful that my previous work experience and existing psychological knowledge about the risks of secondary trauma and burnout did not influence my interpretations of the data. I have attempted to hold my views and presumptions in my conscious awareness throughout the analytical process through documenting my own reflections following each interview. This allowed me to identify anything that appeared important to the participant, and the non-verbal and strong emotional reactions witnessed during the interview, as these nuances often get lost once the data has been transcribed. This can be important to consider when interpreting the person's experiences.

Results

Interview Data

A range of topics and experiences important to digital analysts were discussed during the interviews. Through completing the process of IPA, several reoccurring experiences were found across participants' accounts. These were clustered into three group experiential themes (GETs) and four sub-themes which reflected the consequences and impact associated to working in this role, and how they managed this work, in line with the research project aims. Table 3 outlines the structure of the themes.

Table 3

Structure of Themes

Group Experiential Themes	Sub-Themes
1. You cannot unsee the "darker side of life" (Danny, p.34)	1.1 The work shapes your social and personal relationships 1.2 Struggling to manage/ decompress from this kind of work
2. Conflicted feelings towards the job	
3. Feeling overlooked by the organisation	3.1 Support systems were perceived as not genuine 3.2 The organisation is driven by a business mentality

Each of the themes are discussed in detail below. A selection of quotes from the participants have been used to capture the narrative.

GET 1: You cannot unsee the "darker side of life" (Danny, p.34)

This GET reflects the idea that working in this specialised role heightens your insight into the prevalence of online abuse and the risks towards children. A commonality across participants was their experiences of hypervigilance, being alert to any sign indicative of online abuse. This was exacerbated by feelings that you *cannot escape* from online abuse and as a result this work has impinged on their home lives in some way. For example, Riley explained that "it is everywhere to be honest, you can't get away from it" (p.20). Similarly, Alex described "they're everywhere" (p.19).

Some participants described viewing exploitation materials as "disgusting" (Alex, p.10), "quite disturbing" (Jess, p.5) and "really awful, horrible" (Charlie, p.11). It was evident that one of the consequences of being frequently exposed to exploitation materials was how it changed the way they viewed the world. Most participants adopted a more cynical outlook

due to thinking that the world is “a bit of a sick place” (Alex, p.42). A good example of highlighting this was evidenced by Sam:

> “You just see this like this underbelly of people that you are exposed to all the time, and I know it is like a warped version of it not everyone is like that - most are decent nice people (laugh) er - but yeah you get a bit afraid of going to certain places because you think you are going to encounter these people…but yeah I think you do naturally get a bit risk averse” (Sam, p.58)

Sam acknowledged that the daily exposure to exploitation materials reminds you of the significant global issue and warps your view of the world, which was shared by others (e.g. ‘I have sort of a negative view on society and people you know because I’m fully aware of the actual extent of the problem’ – Charlie).

1.1 The work shapes your social and personal relationships

It was evident from participants that their experiences of working in this role influenced their relationships with intimate partners, children, or friends. Their cynical outlook led to some participants feeling like they did not know who to trust. In the following extract, Danny describes this unwillingness to trust others:

> “I dealt with the guy who should be the pillar of society and it makes you very distrusting of everybody so yeah in that respect I am cynical, I am mistrusting erm I am always thinking I kind of think you know even when people are genuinely nice to you I’m thinking well ‘What are you after?’… especially when you are dealing with people in here who are doctors, surgeons, senior police officers they are from all walks of life and it makes you think you can’t trust anybody really” (Danny, p.34)

Danny's sense of mistrust here was shared by other participants (e.g. 'There is nowhere that is actually completely safe' – Jo). It was often combined with a feeling of constant hypervigilance. Perceiving the worst in all situations, led to most participants pre-judging others based on their work experiences, and for most these judgements evoked feelings of guilt. One example from Jo reflects this:

> "I have judged somebody unfortunately which I shouldn't have done erm or should have just taken the time to you know to just get to know them more really and not kind of assume things that I shouldn't assume. Erm so yeah that is definitely something that I would like to change" (Jo, p.41)

Other participants spoke directly about guilt (e.g. 'I feel guilty I think, for thinking bad things about them' – Alex), but here Jo reflects more closely on what this guilty feeling entailed, a sense of seeing oneself doing what one *should not do* (in this case, judging, assuming the worst in others). For others, it was *other people's* view of their behaviour which was a source of concern. A good example to illustrate this was evidenced by Charlie:

> "I remember this one incident where there was a little toddler sort of climbing up this- obviously nothing to do with me, I was there with my own kids, but there was this toddler nearby and it was climbing up this climbing frame and I saw him fall and I went to grab him and then I stopped and allowed him to fall over because I thought like it was this natural thing that I can't touch somebody else's kid which is ridiculous isn't it you know I was like 'What you doing dick you know that he could have hurt himself', you know obviously there would have been no issue at all there but I was thinking 'How is that going to be perceived? Or how is that-'thinking I am touching their kid or something" (Charlie, p.16)

Charlie's sense of being over cautious due to the fear of being judged by others ('How is that going to be perceived?') was shared with others (e.g. 'One of the little girls got really scared and wanted to sit on my lap and I thought I do not want to do that' – Sam). This line of work left participants acting in ways that went against their moral compass of protecting others.

There was a consensus across participants that working in this job created a strong urge to protect others. Being protective for some was displayed within their parenting styles; some of them stated that on reflection they may have been over-protective. However, it was felt necessary at the time to ensure their child's safety. Safety was prioritised, even if implementing more cautious restrictions resulted in conflict with their partners, as explained here by Alex:

> "I've locked it all down so I have made sure that unless she is on a skype conversation with her friend that I'll make sure the webcam is disabled and that she can't get into the settings and things like that and I erm and I wouldn't ever let her take her laptop up to her bedroom without me, like it always needs to be in the living room…I was talking to another mum at the school gates actually a couple of days ago she was saying Ooh I just let my daughter go upstairs and get on with it' and I was thinking but then I didn't want to say, I didn't want to go 'Well you should keep an eye on her' - I wouldn't do that, I just think she- because she doesn't know the dangers but then I don't want to come across as this (pause) paranoid person" (Alex, p.18)

Alex's hypervigilance to the risks associated with online abuse, heightens their awareness about the ways in which children are solicited. Whereas, others not working in this role are likely to be naïve to these risks. Alex's cautious parenting style was deemed necessary to manage the risk and was a shared experience across those participants who had children,

however, the extent to how restrictive they were varied.

Feeling a duty to protect was extended to friends and family members by protecting them against the truth. Four participants described consciously avoiding discussing work topics and sharing details as they did not want to "put unnecessary stress or worry on to them" (Jo, p.4). Participants believed that it would not be beneficial for any partner or friend to hear the details about the exploitation materials they view as it would only inflict worry. This was described by Danny: "People outside of work I sometimes think ignorance is bliss so why talk to them about this stuff anyway they don't need to" (p.23). This was further supported by Jess:

> "I try and not to discuss erm the work I do with my friends or my partner in any great detail. I don't really go into the specifics of what we do here. No one wants to know about that. I don't want them to even imagine erm from a description I give you know I a 6 month baby being raped I don't want anyone to see that erm in their head so I don't discuss those sorts of things with them erm and I wouldn't you know me being exposed to that type of material is my choice for me erm and I am not going to expose someone to that kind of mental image because they didn't choose this job I did" (Jess, p.10)

This urge to protect others within their relationships was described as creating distance for some between them, their friends, and partners. There was an overarching feeling that those not working in this job or unable to relate to the role did not truly understand the rationale behind their decisions, and behaviours which led to arguments. Riley explained that this job "has had a bit of a negative impact on my family life because I have become more protective of certain things…me and my partner have had an argument about this" (p.11). Therefore, it is understandable why the majority of participants focused on seeking support

from those who had a shared understanding, whether this be a trusted colleague or a partner that worked or works in a similar profession. Participants felt that this was necessary to feel connected and have meaningful conversations to manage the challenging aspects of the role. Danny, for example, emphasised the importance of having someone in their support network that had knowledge of the role so that they could vent about their anger and frustration directed towards the perpetrators. Venting was considered a helpful process to move forward (p.28). Participants only appeared to seek support from others if the job was particularly disturbing, for example, a live abuse case. Yet even then, details would not be shared, illustrated by Charlie: "we have got a good relationship, we have got that trust but erm yeah I wouldn't be happy discussing in detail about it" (p.13). This appeared to be underpinned by this sense of needing to protect others from additional harm.

Despite this sense of trust described between colleagues, one participant (not identified here for confidentiality purposes), shared their fear (when they started) of becoming sexually aroused from the legal pornographic content that is within the material viewed. Additionally, there were concerns about whether watching certain legal pornographic material would impact intimate relationships and libido over time. It was explained that this was never something discussed with anyone, which reflects how sensitive this topic is to raise and discuss, and shows that there are limits to what can be talked about within a team.

To summarise, this sub-theme reflected on the long term changes that the job was perceived to have caused, including the way that analysts' perceived the world as dangerous, and mistrust in others. The number of cases that involved suspects who had been working in positions of trust (such as teachers and police) contributed to this belief that the world is a dark place. There was a consensus that it was participants' duty to protect others from these risks.

1.2 Struggling to manage/ decompress from this kind of work

The majority of participants reported having a 'good' work life balance which was rated as high importance. However, the challenges described in their experiences implied that this may actually be an idealised view of wanting work to be completely separate and not necessarily reality. Only two acknowledged the difficulties of achieving this balance, yet it was evident that participants felt the need to create distance from their work in some way due to concerns about what physical, emotional, or psychological impact this work currently is or could cause in the future, as was highlighted here by Jess:

> "Separating work from home life it is taking its toll and I am increasingly erm desensitized to it erm and consciously trying to make an effort to care about what I am doing at work whereas caring about what I do used to be second nature I used to be very (cough) very keen without having to consciously make an effort to be keen" (Jess, p.7)

Participants reported that they felt desensitised by the material. They described how, over time, they came to see the images as 'merely' evidence, rather than as real. This shared experience was illustrated here by Danny, who said "it is an image on a screen do you know what I mean…because I can detach myself from this because it's not a human being in front of me" (Danny, p.26). Other factors such as the familiarity of the material and being focused on meeting the threshold of a criteria made 'picture collector' jobs more manageable. It was felt these had none or insignificant impact on the participants and was reflected by Charlie, who said "I think images, still images, erm don't affect me now whereas when I first started doing the job it obviously did" (p.31).

A difference to highlight, is that a proportion of participants felt that the exposure to exploitation materials, in an office felt safer, and therefore manageable, in comparison to

previous jobs which felt had a greater psychological impact. Good examples to highlight this are explained by Danny and Sam:

> "I'll be honest, I have seen worse on the streets working as a police officer than I've seen in here because to me this isn't real, it is an image on a screen do you know what I mean. It is not the same as having somebody who has been crushed under a bus you know taking their last breath and you're with them. I found that more difficult…things like that have a bigger effect on me than this because I can detach myself from this because it's not a human being in front of me. Yeah it's a representation rather than the actual you are not in the room with them do you know what I mean you know the smells, the sounds" (Danny, p.26)

> "I know other jobs that I have done in the police I have been assaulted and been involved in things that were maybe quite dangerous… whereas here I might be exposing myself to indecent images and stuff but ultimately I am not being harmed you know I don't feel like I am being harmed and physically harmed at the least anyway so yeah I would rather have that then potentially being assaulted or something worse" (Sam, p.38)

Danny's experience of feeling safer in this role was associated to this sense of psychological safety. Sitting behind a computer screen functioned as a protective element as he has not witnessed the reality of a traumatic event, such as the sounds, smells, and worst case death. Even though Sam also shared experiences of feeling safer, this was within the context of physical safety because exposure to exploitation materials does not pose a risk to him physically.

Despite this idea that you can cognitively detach to reduce psychological impact, this seemed only somewhat effective for still images. All participants described the emotional

challenges when grading live abuse cases as it became more difficult to remove the real element, particularly if they had to watch with audio as highlighted by Danny, “videos are different because you have got sound and movement and that is more impactive” (p.27). There was this sense that it was almost impossible to watch a video and compartmentalise it as ‘merely’ evidence. It appeared to be these types of jobs that started to intrude on participants personal lives as they felt too difficult to switch off from the intrusive thoughts. For one participant, they also highlighted other types of jobs which, similarly, to live abuse cases, felt just as challenging to manage:

> “I think it’s not always indecent images that are the worst thing erm it could be stories you know and sometimes words and descriptions can be a lot more real than actually looking at images erm so reading some chat logs you know they are always quite difficult erm you know where there is some grooming going on or just some really nasty stuff, like some hard core sex story going on that is just awful” Charlie, p.29

It appears apparent that any job which blurred the boundary and made it challenging for them to detach from the fact that they are investigating child abuse, increased the impact caused. There were mixed experiences shared in regard to supporting other teams in the community (e.g. warrants, sex offender management visits). Alex described this experience as uncomfortable going into perpetrators houses because it felt exposing and crossed the boundary, “I really don’t like doing it because it blurs those lines” (p.14). Whereas, for some, going out on warrants was welcomed because it provided them with variety in their day and time away from grading exploitation materials. A good example is illustrated by Riley:

> “I prefer going out on warrants erm because I am not sitting in the office all day every day. I think that is the biggest one and it just every job is different so although it is all

child abuse orientated every single job is different so yeah you are potentially seeing the same stuff but it's a different place, different house, different person erm and potentially a different way that it has got there so you are using all your like suppose your technical background to like identify the stuff straight away and then it helps the investigation officer" (Riley, p.19)

This sense of needing time away from grading was referenced by many due to it being "physically and mentally draining" (Jo, p.23), especially if you have a number of consecutive positive grading jobs. As a result, the majority reported intentionally selecting a fraud or murder job as a break from exploitation materials, having time to reset, illustrated by Danny and Jo:

"We are supposed to take the jobs in order as they come in the queue; 'yeah I want a break from this now, so I am going to take this fraud job and the next job that is a harassment I'm going to take this and oh that's a murder I'm going to have that one,' so I did 2 or 3 jobs that weren't related to that, almost as a reset" Danny, p.40

"Let's get you a fraud job, let's get you a job of a different type to give you that break so you have got that head space because sometimes we do have 2 3 jobs that are just positive in terms of containing that material I mean constantly looking at it and it can it is mentally draining as much as people go you sit in an office for 8 hours a day yes you do that and you do that but to actually physically have to go through that material and look at it and grade it is physically and mentally draining" Jo, p.23

In combination with strategies that participants found effective to do at work to cope, all participants highlighted ways they manage at home to ensure work does not intrude. For some, living a physical distance away from work was found beneficial as the commute home

from work was a “window of time to decompress” (Jess, p.6) and created a “detached link” (Jo, p.18) between work and home. For others, they actively avoided news stories as there was a sense that they have been exposed to enough traumatic material, so why voluntarily expose themselves to anything else negative, explained by Alex, “I don’t want to fill it up with more than I need to, so I tend to avoid news stories like that anything involving children erm or yeah I just think that is enough” (p.23).

Finally, all participants identified hobbies, most of which they already did and enjoyed prior to starting this job. There seemed to be a strong focus on fitness, being outdoors, and for some, socialising. All of which were described as therapeutic and helpful ways to ‘switch off’ from work, illustrated by Danny and Jess:

> “I like exercising, I love going to the gym this that and the other. That can be a coping mechanism if you have had a bad day, it is nice to go and get your frustrations out erm yeah definitely, you know if I am feeling a bit sluggish or lethargic or I’ve had a day that I have found quite mentally draining” (Danny, p.19)

> “Yoga is something I have tried to keep up since I have been in a couple of yoga retreats as well and I really get a lot out of them actually and I was very sceptical as well about meditation and erm I thought it was going to be some new age hippy bullshit erm but erm I have actually find it surprisingly therapeutic I really was kept sceptical about it […] it’s been a really good part of my life its therapeutic and an important part of my life.” (Jess, p.13)

Despite efforts made to keep work separate it is important to highlight that work has evidently intruded on participants home lives. For some participants, work imposed on their holidays,

yet the extent of how it impacted them were different. In the following extract, Charlie describes this strong feeling of paranoia which influenced his behaviours:

> "I'm looking at some newspaper articles and there had been this terrorist attack that that had been followed by the police where this gang of people had plan to take over this hotel and behead English tourists. I generally having been a police officer for a while, stuff like that I can usually be like yeah whatever but for some reason at that point it really affected me erm you know I had this responsibility for my family and this place that is away from this country. And I wasn't massively happy with the security of the place anyway erm and there were loads of incidents that sort of led up to me being really really paranoid at that time, like they had started taking down the English flag in the hotel and then all of a sudden there is a guy stood on the door with a handgun and this stuff to protect the hotel and the Wi-Fi had stopped working and I assume the hotel was trying to stop some sort of panic erm but I remember going to bed and all I could see was erm my kids being raped by this you know I had had this scenario that was running through my head, like I couldn't sleep. I just had this in my head, really graphic sort of images of my kids and me being in that sort of scenario and it was horrible, it was the most horrendous and I just couldn't stop that, and it was so much so that the next day we booked flights and came home" (Charlie, p.9)

The experience Charlie described here was illustrating how he can never truly remove previous jobs from his memory, of which can be quickly triggered by particular situations. Feelings of heightened paranoia, hypervigilance and nightmares were activated, which felt overwhelming and resulted in him returning home. This idea that work intrudes on your thoughts was shared by Sam, however, he demonstrated insight into acknowledging that this happens but described it as manageable:

> "It is quite nice to go camp somewhere and explore the surrounding area… I have usually got something in my mind like the next project that I am doing or how I am going to fix something at work but yeah it just naturally pops into my head like I'm just sat there waiting for the kids to do something yeah it is still probably in my head a little bit erm but yeah I'm not it's not too much. I know when people go away they might take their work laptop with them and stuff so they can do bits and so I am not like that" (Sam, p.17)

To summarise, this GET illustrated the feeling of not being able to escape from this work. It is apparent that despite individual efforts to cope with the daily exposure to exploitation materials, you cannot truly switch off and attain a work-home life balance. There was a shared experience, all participants described how they now viewed the world differently and all described difficulties trusting others. A proportion of participants highlighted that you need a completely stable, content personal life in order to manage the complex demands at work. One example to reflect this is by Jess:

> "I think it is important thing to have that balance and I think if the two worlds your work life and home life intermesh it is not a balance it is just one big mess, so I think visually you need that yin and that yang and so I am maintained that if your personal life is kind of sorted it won't impact what you do here but if your personal life is you know is tanking erm then it is going to impact on your ability to cope with the material that you do and that is what I mean by a work life balance" (Jess, p.11)

Jess's account suggests that when in this role, you have little capacity to manage anything else that could be a source of stress due to the demanding nature of this work. As we have seen in the theme more generally, the work was emotionally and physically draining.

GET 2: Conflicted feelings towards this job

This GET reflects how working in this role "definitely has a shelf life" (Jo, p.44), which was a shared experience by the majority of participants. Those who had worked in this role for longer expressed that they felt their time was ending and described how they were seeking new opportunities to get away from exposure to exploitation materials. Two participants were concerned about the long term psychological impact if they continued working in this role as one was already feeling "the strain" and concerned about the "permanent damage" (Jess, p.34).

The majority expressed feeling that their work was not appreciated, felt "forgotten" (Jo, p.29), "devalued" (Alex, p.33), and "frustrated" (Danny, p.39). Frustration was reflected by most participants in the context of not receiving feedback about the cases worked on, some for substantial lengths of time. However, despite several requests to receive feedback about the outcomes, "you never get any response back" (Charlie, p.43). This leaves them questioning how valued their contributions are, as illustrated by Jo:

> "I think sometimes, I think we do that many jobs that you go I don't want everybody to go 'Oh thank you that was brilliant or thank you that was a brilliant job because that is not why we are doing it you know we don't do it for thanks or for praise but I feel like sometimes we are a bit forgotten about and you know and you see all these officers who yes have worked hard but everyone has played a part but it would be nice if someone said you know what DF did a good job as a collective." (Jo, p.29)

Jo's sense of feeling under pressure to move on to the next job and complete them in a timely fashion was shared by others (e.g. 'the sausage factory mentality of get the job out the door and get on with the back log' – Danny, p.38). Even though the majority highlighted that

feedback (i.e. knowing if a person received a conviction) made their work feel worthwhile, Sam experienced it differently and was content with not receiving consistent feedback as "a lot of them are probably not very happy endings so I would rather not know" (Sam, p.30).

Despite the challenges this job presented, concerns about the long term psychological impact, and feeling undervalued; something was motivating all of these participants to stay working in this role. There was a consensus across participants that this job was important as "there are real risks involved with what we do" (Jo, p.25) as it involves "protecting kids" (Riley, p.17) and "safeguarding vulnerable people" (Danny, p.23). The following extract by Jess illustrates the differences made from doing this job:

> "I mean we may not be recognised but I do feel that I know what we do here makes a difference and dangerous people do go to prison, dangerous people do end up basically marked with a marker of shame being on the sex offender register, but you know they should be. Erm so I do believe that we do what we do here genuinely does have a positive impact" (Jess, p.35)

Jess's view - that analysts' work made society safer - was shared by others (e.g. 'getting some nasty people off the streets' – Danny, p.23). It is evident that this is one important motivating factor for working in this job because it provides analysts with a sense of reward and job satisfaction when they achieve the desired outcome (i.e. prison sentence). Danny illustrates this here:

> "You think 'Oh that's a bit- blimey!' but on the flip side 'This hasn't been seen before, so this is a new victim,' so in some respects- exciting is the wrong word but 'I want to get in to this and find out who this is to make sure they are safeguarded. Let's find this perpetrator,' so that focuses you so again you I can look past it and focus on that…once

> you get them identified and you find out x amount of kids have been safeguarded and somebody has been locked up, it is a nice uplifting feeling…I went to court and I was hammered in the witness box but then when he was found guilty in 20 minutes of the jury the feeling of euphoria is like- and then he is going to prison and then it makes it all worth it you know what I mean. That kind of overrides it for me." (Danny, p.36)

Danny's euphoric experience when faced with a suspect and hearing the guilty verdict affirmed the importance of doing this job. In summary, this GET highlighted the conflicting feelings that have been shared by all participants at some point. The experiences shared by most participants would suggest that achieving positive outcomes counteracts the challenges faced as it reminds them that their job is vital to help address the significant issue of online abuse. Yet, the growing demands placed on the participants, due to the rising prevalence of online abuse highlighted the need for the system to recognise and ensure supporting staff wellbeing is prioritised because they are "not in a position to just have an off day or make a mistake because there are real risks involved with what we do erm" (Jo, p.25). A mistake in this job could potentially put people at risk.

GET 3: Feeling overlooked by the organisation

This GET reflected the consensus that more could be done at an organisational level in relation to recognising and supporting the welfare of staff. It was acknowledged by all participants that there were support systems available, however, it was evident that there were issues with trust which created a barrier to accessing these.

3.1 Support systems were perceived as not genuine

Support within the organisations was raised by all participants and felt, by most, to be disingenuous and not confidential, affecting its accessibility. This idea was reflected by one

participant who said that the support schemes in place were only there "to cover their own arse to avoid any sort of suing" and another said, "pay lip service." The belief that they don't feel supported by their organisation contributed to feeling devalued and frustrated highlighted above. An extract from Danny explains the barriers for participants seeking the support that is currently available:

> "You have got the Be Well thing but what they say is 'Go and speak to your GP' erm and if your GP hasn't got an understanding of it then and I suppose it depends who you get as a GP realistically erm but yeah touch wood I have never had to go down that route but if I am honest I think they pay lip service to it. I think they say things are in place, but I don't think it's that effective if I am perfectly honest. Erm and I have heard this from other people as well - further up the tree. […] They talk about the Be Well service and other people need support and this, that and the other, and most of the comments written by people are very negative about it saying it is actually pretty rubbish, 'it doesn't work they did nothing for me blah blah, I have been trying to speak to somebody for so long' - so and again it reinforces that that image that actually do they really care." (Danny, p.17)

Danny's view that being signposted to your GP was unhelpful was shared by Charlie who felt that being told to seek support from the GP was "too simplistic and pointless" (p.41). This viewpoint shared by some participants was linked to the belief that a GP, with no shared experience, would advise them to stop viewing exploitation materials which would not be a feasible option.

It is important to note, that these feelings towards the organisation appeared to be towards those in positions quite high up in the hierarchy who had not necessarily experienced

working in this job. Some participants acknowledged a positive experience with their line managers as they demonstrated an understanding and validated how hard the job can be sometimes. A good example of this was illustrated by Riley:

> "My line manager, he is not the type of person that would expect you to sit there and watch that all day, he understands people and the good thing is he doesn't mind if you sit down and talk to someone for like a few minutes or go have a tea or whatever he doesn't care because he understands. Erm and it and it is good because you can see like people naturally just start talking for a bit then go back to their work so you can see that people do have breaks. Erm because for someone to sit there all day and say they are not affected by that is that's lies." (Riley, p.23)

Riley's view of feeling supported by his immediate line manager was shared by others (e.g. 'Our immediate supervisor he's as good as gold you can't knock him, he is very supportive' – Danny, p.17). However, there is the sense that having a strong relationship with your immediate manager is not necessarily enough as participants were still not seeking the support. A view that was shared by some, was the fear of being redeployed if they reported psychological difficulties or difficulties with grading exploitation materials. Danny explained that staff are "frightened to voice them in case they are removed from their post…it will be you are a potential liability off you go and that feeling runs quite prevalent through a lot of the staff here" (p.17). The fear of being moved was highlighted by Sam:

> "There is like a confidential line you can speak to someone on err like I said I have never used it, so I am not quite sure exactly how it works. yeah I don't think it is linked but I would probably look at other ways that are outside of work because I wouldn't really want to, I mean I haven't really thought about it that much, but yeah probably

> look at something external first if I could erm yeah I think it is the fear that if I leave here and go somewhere else I am going to be exposed for example physical trauma where I am posted to prisons all of the time erm or something else. I would rather be here where I have to look at stuff, but I feel like I can manage that at the moment." (Sam, p.37)

Some participants appeared to worry that they would be moved to more conventional roles within the police if they were perceived to be *not coping* as a consequence of the exposure to traumatic material. This appeared to be a significant barrier to seeking internal support. The shared consensus was that participants would seek support externally if they felt it was needed. In summary, this GET reflected on the evident difficulties around a lack of trust within the organisation, which has repercussions for the participants as it prevents them seeking the support required.

3.2 The organisation is driven by a business mentality

This GET reflected on the idea that this specialist unit is based upon targets and is a "business" (Jo, p.26). This approach seemed to reinforce this image created by the participants that their welfare is not prioritised. Danny described it as a "sausage factory mentality of get the job out of the door and get on with the backlog" (p.38), further supported by Jo's experience of having to "move on to the next one, you don't have time to sit and polish off something" (p.31). The focus on targets and quarterly figures appeared to divert the organisation's attention away from focusing on understanding the emotional and psychological impact that this job could cause, and think about ways to manage these risks. An example of this is illustrated by Charlie who explained how mental health remains stigmatized within the system culture:

> ‘I still think there is stigma around mental health you know and things are getting better and I have always sort of because I have been in this world for so long I have always said, I have always been quite pro really and aware of this and I would always mention it at meetings and it would always get overlooked and you know it used to really annoy me and I remember reading this one article going back a few years now and it was called mental sunburn…erm and it was a really interesting article and I sent it to the management here and I said ‘Oh this is interesting’ and they couldn’t even be bothered to read it. Like I mentioned it in a meeting afterwards saying, ‘Oh what did you think of about that?’ and they were like ‘Oh yeah’ and you just think ‘You really don’t care that much’. You know they talk about support but yeah it is really devaluing isn’t it, it’s really really frustrating and annoying” (Charlie, p.42)

Charlie highlighted efforts made to address the stigma around mental health but felt this was not received positively by the organisation. The stigma is likely to be a contributing factor to why participants’ feel fear to seek support as it is felt that there is a lack of understanding.

All participants highlighted that they had other responsibilities, which broke up their day from grading exploitation materials, including: managing technology software, databases, and supporting other teams with warrants and sex offender management visits. A good example of this was shared by Riley:

> “I prefer going out on warrants erm because I am not sitting in the office all day every day. I think that is the biggest one and it just every job is different so although it is all child abuse orientated every single job is different so yeah you are potentially seeing the same stuff but it’s a different place, different house, different person erm and potentially a different way that it has got there so you are using all your like suppose your technical

> background to like identify the stuff straight away and then it helps the investigation officer" (Riley, p.19)

Riley's view of needing variation was shared by everyone (e.g. 'I quite like doing that having lots of things going at the same time' - Sam, p.34) to help them cope with the mental and physical fatigue from grading exploitation materials. Cherry picking jobs was identified as a practice not supported by the organisation because the jobs should be selected based on risk priority. However, some participants explained that their line manager have suggested to pick a fraud, drug, or murder job to have a break, explained by Jo:

> "I think we have got a good relationship where I could go and tell him I have had a couple of jobs there has been lots on there and he even said you know what the next job let's get you a fraud job, let's get you a job of a different type to give you that break so you have got that head space because sometimes we do have 2 3 jobs that are just positive in terms of containing that material I mean constantly looking at it and it can it is mentally draining as much as people go you sit in an office for 8 hours a day" (Jo, p.23)

It is noteworthy, that some participants reported similar experiences to Jo, and all explained how they have been allocated a range of different jobs. This demonstrated a level of recognition by the organisation that grading a line of consecutive positive jobs is challenging. In summary, this GET highlighted the importance of supporting staff wellbeing whether that be in the context of providing a range of support systems appropriate for their needs; or through continuing to offer a range of jobs that provides staff a break from grading exploitation materials.

Discussion

This project has contributed to the current literature, developing a greater understanding of how digital analysts cope with the demand and increased pressures of investigating online abuse as the prevalence continues to rapidly increase (EUROPOL, 2018). The project has been the first, to the researcher's knowledge, to use an IPA approach to interpret and meaning make the experiences shared by the digital analysts in relation to how they deal with this work on a daily basis, and impact caused.

Key Findings

For the majority of digital analysts, their experiences reflected on how you cannot escape from the work because there is no such thing as a stereotypical perpetrator of online abuse, due to investigating suspects in positions of responsibility (e.g. teachers, surgeons, police officers; **GET 1**). This contributed to holding a general negative view of the world which impinged on different domains of their personal lives.

Participants described valuing their job and feeling a sense of reward and accomplishment when they achieved a conviction and thus safeguarded children from future abuse. This appeared to be the motivational drive for staying in the job, despite the potential negative psychological consequences. Yet for some, this feeling of pride in their work was intertwined with conflicting feelings of wondering whether the job had taken its toll on their emotional, cognitive, and psychological capacity (G**ET 2**). There was concern that the impact caused could be long term or even irreversible. Those who appeared to experience higher levels of enjoyment from their job had worked in the role for less time (less than 5 years). We might speculate that the negative consequences and changes experienced by the longer serving digital analysts could happen to all at some point over time, through the attrition

effects of ongoing exposure. Whilst for some, holding positive motives (making the world safer) has kept them in this role, another factor important to acknowledge from the findings is this fear of being moved to other roles if they seek support and are considered unable to meet the expectations of the role (i.e. grade exploitation materials). This identified fear appeared to be associated with an increased risk of being endangered when in 'front line' roles. This finding would suggest that a proportion of the current workforce are potentially vulnerable due to previous traumatisation through other lines of work, and therefore raises the question of whether it is appropriate for these individuals to be exposed to further traumatic material, given that the organisations has a duty of care to maintain a safe working environment for all employees.

It seemed apparent from the experiences shared that the support provided from higher levels of management could be improved. It was acknowledged that support was available, however, there were a number of barriers affecting the accessibility, including limited trust, feeling ingenuine and the fear of being considered a 'liability' and redeployed (**GET 3**). Furthermore, the stigma associated with mental health will influence how therapy is perceived, and prevent people seeking professional support (Edwards & Kotera, 2021; Hansson & Markstrom, 2014). The first steps to developing an organisational culture which is transparent and positive about taking mental health seriously is by making efforts to replace negative stigma, encourage conversations around mental health, and provide team training (Byrne et al., 2022).

Theoretical Understandings of the Psychological Impact

Overall, what becomes apparent from the GETs illustrated in this project, is that most participants in the sample reported experiences which map onto the symptoms indicative of

secondary traumatic stress (STS). STS refers to an individual experiencing a group of symptoms comparable to Post Traumatic Stress Disorder (PTSD) as a result of indirect exposure to trauma (Bourke & Craun, 2014). The symptoms reported by all participants at some point in their work included: intrusive thoughts, hypersensitivity to threat, increased paranoia, overprotective, and mistrusting all of which parallel STS. These findings are consistent with the existing literature, which found that digital analysts are at an increased risk of psychological harm including STS and burnout as a consequence of working with online abuse and exploitation materials (Bourke & Craun, 2014; Brady, 2017; Burns et al., 2008; Perez et al., 2010; Powell et al., 2015; Wolak & Mitchell, 2009).

It is noteworthy that the symptoms experienced are perceived to be quite normal responses to viewing atypical, disturbing, and potentially traumatic exploitation materials (Krause, 2009). There are great complexities in trying to fully understand this subject matter as each person's response to trauma (i.e. exposure to exploitation materials) will be unique and different (Krause, 2009). It is not surprising that this professional group have evidently experienced symptoms that correlate to STS and burnout, as these are often psychological consequences of being indirectly exposed to trauma (Palm et al., 2004). The risk of burnout in this professional group is expected if they feel devalued, over worked, and unsupported by their organisation (Krause, 2009). If symptoms of STS persist, or worsen in severity, there is a high probability that it could cause longer term psychological harm (e.g. mental health difficulties) and behavioural changes, compatible with PTSD (Morrissette, 2004). Consequently, impacting their ability to fulfil their role, and impact their quality of life (Krause, 2009).

This job relies on continuing to expose people to threatening material, as it is not an option for digital analysts to stop viewing and grading exploitation materials. Therefore, it is

imperative that organisations have clarity around the risks of psychological harm and feel equipped with knowledge and practical guidance in order to support their workforce and reduce the risk of long term, irreversible psychological consequences. Grading exploitation materials is a core role, which occurs on a frequent, if not daily basis. This means that digital analysts have limited time (if any) to remove themselves and process the indirect traumas they are exposed to. Based on Ehlers and Clark's (2000) cognitive behavioural model of PTSD, the way people process events during a trauma can significantly impact the individual later, both cognitively and behaviourally (e.g. negative appraisals, 'the world is unsafe', flashbacks, intrusive thoughts, insomnia, withdraw). Based on the current trauma literature, exposure to trauma pushes you out of your 'window of tolerance' (Siegel, 1999), which results in the nervous system becoming overstimulated and the individual being in a heightened state of hypervigilance. The more frequently exposed we are to trauma the smaller our window of tolerance becomes, meaning that our threat system is continuously activated (Ogden et al., 2006). Considering this in relation to digital analysts, it would be beneficial for organisations to consider the analysts' workload, and where possible extend the timeframe between exposure of exploitation materials.

Organisations that employ staff who are likely to experience trauma directly, or indirectly (secondary trauma) may have Trama Risk Management (TRiM) processes in place to protect the health and safety of their workforce. This process is in line with the National Institute for Health and Care Excellence (NICE, 2018) guidelines which suggests that implementing TRiM is an effective psychological response to trauma management, and therefore is likely to benefit UK police forces. Furthermore, there are a range of psychological interventions that could be available to support staff experiencing STS. There is a wide range of evidence-based treatments recommended, and found to be effective for complex trauma,

including Trauma-focused cognitive behavioural therapy, eye movement desensitization and reprocessing (EMDR), and cognitive therapy (APA, 2017; NICE, 2018). Both the CBT and TriM approaches to trauma are developed from the assumption that it will be possible to remove the person from the traumatic situation, and/or to the chance of further exposure can be reduced. The consistent exposure for this part of the workforce presents a significant challenge to existing trauma responses.

Based on these findings and existing literature, there are evident risks of psychological harm. Yet, there are a range of coping mechanisms that digital analysts employ to help protect against and reduce these risks. Some strategies perceived to be effective included: hobbies, talking to others, taking regular breaks, having a variation of work responsibilities, and becoming desensitised to the material, detaching from the emotion by viewing it as 'just evidence' (Ahern et al., 2016; Burns et al., 2008; Holt & Blevins, 2011; Powell et al., 2013, 2014). The findings in this research project identified the significance of talking to others, but only with someone that had a shared understanding of the role (i.e. similar career background) for it to be considered beneficial. Yet, despite the efforts of using a range of strategies, the evidence still highlights vulnerabilities of psychological harm for this professional group working with online abuse (Bourke & Craun, 2014; Brady, 2017; Burruss et al., 2017; Perez et al., 2010). This would suggest that these strategies may feel helpful in the short term, but are not necessarily effective in coping with the cognitive memories that are stored from disturbing material. This would be supported by Ehlers and Clark (2000) psychological model of trauma which suggests that *safety strategies*, whether that be cognitive (e.g. thought suppression) or behavioural (e.g. avoidance, keep busy) has the potential to become problematic and prevent the individual from being able to process trauma memories and manage symptoms effectively and safely.

Reflections

This project has several limitations to consider. Firstly, an IPA approach is interpretative in nature and means that the analysis phase was based upon my own interpretation and meaning making based on the experiences shared. Despite, my efforts to ensure that my interpretations of data was fair, it is important to recognise that I have my own life experiences and cognitive biases, which may have influenced my interpretations and conclusions drawn. I found it challenging at times to hear the nature of the online abuse cases that they investigate, however, at the same time I felt privileged that the participants felt comfortable enough to share the level of personal and sensitive information that they did. Being a trainee psychologist, I was mindful that my own psychological curiosity did not influence my line of questioning, which was managed by following the structure of an interview schedule.

Secondly, the sample of digital analysts were recruited from the same Digital Forensic Unit in the UK. Whilst that was helpful to develop an understanding of the experiences shared within that unit, it may have been beneficial to broaden the research project across different units to capture a wider range of experiences. Even though the core duties are likely to be the same between units, there are likely to be organisational differences that may have offered an alternative interpretation. The main challenge that remains unaddressed is how these specialist police units provide meaningful trauma focused support to a professional group (digital analysts) whose job requires ongoing exposure to exploitation materials which is not going to change.

Thirdly, the use of visual methods were responded to positively by the majority of participants and was considered a helpful way to develop rapport, which created a safe space

for participants to engage openly in the interviews. Despite this, it could be questioned whether using relational maps could have limited the discussions that took place during the interviews, because the structure focused on what the participant brought. Therefore, it is likely that participants at the beginning will not have developed trust, influencing what they felt comfortable to share on their relational map. This had the potential to limit the topics discussed or close certain topics down if they were not initially raised. To counter this, there was a question nearing the end of the interview schedule which asked participants about what they would change, giving them an opportunity to make any alterations (adding or taking something away) on their maps created.

Finally, all interviews took place at the digital analysts' workplace. This limited the ability for the researcher to fully protect the confidentiality and anonymity of those who participated due to colleagues having an awareness of who contributed. Furthermore, the interviews were held in meeting rooms on the same floor as the digital analysts shared office and management offices. This had the potential to influence what the participants felt safe to disclose due to the risk of being overheard, however, based on the reflections at the end by participants, this did not seem to be the case. The aim was to conduct the interviews at the University of Birmingham, however due to COVID-19 restrictions it was deemed more appropriate to facilitate interviews at the unit.

Practical Implications

This research project has identified that this professional group are vulnerable to some degree of psychological harm, and therefore warrants greater attention and focus on understanding how best to support digital analysts' wellbeing. There is a need to increase Digital Forensic Units understanding about the complex challenges that are associated to

working with online abuse and exploitation materials, and how if not sufficiently managed through appropriate avenues of support and training, the risk of psychological harm is likely to be greater. Several recommendations have been made which may: (i) help to increase understanding and awareness for those involved in the duty of care of digital analysts, (ii) support the unit to recognise symptoms associated with stress, (iii) provide practical steps to help the unit consider ways to break down barriers that are preventing staff seek support, (iv) support the unit to adopt a more proactive approach to create a safe, positive working environment to make support feel more accessible, and (v) highlight ways to promote team morale. All of which, would help address the risks of psychological harm and the known adverse effects caused to digital analysts' overall wellbeing. These are outlined in Figure 2.

Figure 2

Recommendations to support a proactive approach in supporting the welfare of digital analysts

- To focus on building a sense of trust within the organisation to help overcome the challenge of staff members not seeking the support available due to feeling that the support is not confidential
- Staff fear that using support will be perceived by management as a weakness and that they are struggling leading to being redeployed. A focus on building relationships between staff and management would help staff feel safe to be open and honest about any difficulties experienced.
- To consider the dynamics of the managerial staff team and ensure that some members have previous work experience as a digital analyst to help validate the challenges faced by their staff
- To encourage open dialogue, peer support networks and team training days to promote healthy discussions around mental health, with the aim to reduce any stigma surrounding mental health
- To ensure management are upskilled to recognise signs of stress in their staff team, and to promote self-care

- To recognise and explore topics of discussion that appear to remain taboo including how this role can affect arousal, sexual libido, relationships, psychological and behavioural changes
- To provide training to new recruits, longer-term employees, and family members/partners to help raise awareness around the complexities and potential negative consequences associated with working in this area
- To consider the implementation of TRiM processes, to protect the health and safety of employees by recognising and effectively managing symptoms of trauma
- To provide the opportunity for both internal and external professional (mental health) support to their staff. It is important that staff are given time to establish trusting relationships with the support providers to help staff feel safe enough for them to use this resource appropriately and find it helpful
- To provide up-to-date training, in line with technical advancements to help staff feel more equipped and competent to meet the demands of this role
- Management to place greater emphasis on the positives achieved by the team. Praise and encouragement helps staff feel validated and improves team morale
- To extend the timeframe between exposure of exploitation materials to help staff have time to process the material viewed and take a break away

Future research

Taking into consideration the findings highlighted above, future research would benefit from conducting further qualitative research, using samples from a range of different Digital Forensic Units to help ascertain whether the risk of psychological harm is associated with working specifically with online abuse, or related more to personal or organisational challenges. Additionally, it may be valuable to gather data from partners of the staff working in the role to get an alternative perspective as sometimes it can be difficult when in the job to recognise the impact it has caused. In line with this, it may be helpful to explore the impact that this work has on intimacy and sexual arousal, based upon the account shared by one participant who felt this was a taboo topic of discussion. It would also be beneficial for future

research to conduct longitudinal studies, recruiting former digital analysts, to examine the long-term consequences of working with online abuse and the overall effect this has had on their perceived quality of life.

Conclusion

In summary, this research project indicates that this professional group are vulnerable to some degree of psychological harm. These findings, despite using a different qualitative analytic approach (IPA), are consistent with the existing literature. Adding value, yet still tentative, to the conclusions drawn that digital analyst are at greater risk of experiencing symptoms of STS as a consequence of working with online abuse. Therefore, this qualitative research project has provided a number of suggestions based on the findings with the aim to support Digital Forensic Units consider implementing certain policies and procedures in line with their duty of care, to ensure protection against the known risks of psychological harm posed to this professional group.

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CHAPTER III

PRESS RELEASES

UNDERSTANDING THE IMPACT OF DIGITAL FORENSIC ANALYST'S EXPERIENCES OF WORKING WITH ONLINE CHILD SEXUAL EXPLOTATION AND ABUSE

This chapter provides a summary of the systematic literature review and empirical research conducted by Clare Strickland as part of the Doctorate in Clinical Forensic Psychology at the University of Birmingham.

Literature Review: The Impact of Working with Child Sexual Exploitation Material on Analysts' Psychological Wellbeing: A Systematic Review

Background

The occurrence of online child sexual exploitation and abuse (online abuse) continues to increase, meaning that all children with access to the internet are more at risk. The statistics show that this is a worldwide problem. Approximately, 80,000 children are at risk of a sexual threat online (Home Office, 2019). The current data provided by the National Society for the Prevention of Cruelty to Children (NSPCC) in 2021, reported a 16% increase in the number of offences being reported relating to online child abuse. In 2019/2020, 10,391 offences of online child abuse were reported across 43 police forces in the UK compared to 8,807 offences recorded in 2018/2019. However, these statistics are likely to be an under estimation of the true figures as they are based on self-report. Children may not recognise their experiences as abuse, or may feel too scared to report the abuse to the police. One explanation for the rise in the number of online abuse offences is the advancements in technology, another is the increased number accessing the internet worldwide. This makes it easier for children to be approached via online forums, and abuse to take place.

Due to the rise in online abuse, there has been a greater demand on police forces to respond to this significant risk to children. A specialist group of police staff, called digital forensic analysts in the UK, are employed to investigate online abuse cases. This involves identifying and categorising child sexual exploitation material (CSEM) based on severity, and

prepare reports for the courts based on the illegal material found on suspects devices (e.g. computers, mobile phones). It is suggested that working with this type of material is likely to be distressing, and sometimes traumatic, which has the potential to significantly affect the analyst's wellbeing. This review aimed to pull together the findings of existing research studies which have examined the psychological impact of working with online abuse, and how they cope working in this role.

Method

Three electronic databases were used to methodically search the current research. Thirteen research studies met the inclusion criteria and were reviewed. Out of the 13, seven were quantitative, five were qualitative, and one study used a mixed-method design (quantitative and qualitative). The quality of each study was reviewed using a set of checklists and were all of a moderate to high quality.

Findings

Five themes were identified, which reflected the digital analysts' experiences of how working with online abuse has affected their psychological wellbeing. 'C*oping Strategies'* captured a wide range of strategies used by digital analysts to help manage. These were grouped into personal (e.g. hobbies, use of humour), viewing (e.g. take breaks, mental preparation), and organisational (e.g. debriefs, range of tasks). '*Impact on Self'* reflected the negative changes experienced as a consequence of working with child abuse material, for example, intrusive thoughts, flashbacks, loss of sexual desire, paranoia, and hypersensitivity to threat. Digital analysts' reported frequently investigating cases where the perpetrators of online abuse worked in positions of power (e.g. teachers, police officers, nursery workers) which made them develop a general negative and mistrusting view of the world.

'*Organisational Challenges'* highlighted the difficulties experienced by some relating to poor management, feeling undervalued and having limited support and training available. '*Psychological Impact'* captured the findings that related to a small proportion of digital analysts' experiencing mental health difficulties, including anxiety and depression, burnout, and secondary traumatic stress (STS) as a result of working in this role. Finally, '*Relationships'* reflected on the importance of digital analysts' having positive relationships with colleagues because having a shared understanding seemed helpful to manage this unique type of work. For some digital analysts, this line of work had a negative impact on their personal relationships (e.g. caused conflict with partners).

Conclusions

Based on the findings, it would appear that those working with online child abuse and material are at greater risk of experiencing behavioural, cognitive, and emotional consequences. The findings suggest that this group of professionals are more vulnerable to experiencing burnout and STS, however the risk is reduced if they have supportive personal and working relationships, positive supervision, and effective copings strategies. Despite the challenges experienced by digital analysts, a proportion described high levels of job satisfaction, pride, and commitment to their job. Based on the knowledge we have from the published research; it is important that organisations monitor digital analysts' wellbeing and make sure the appropriate training and professional support (internal and external) is provided.

Empirical Paper: Understanding Personal Experiences of Digital Forensic Analysts' Daily Work: An Interpretative Phenomenological Analysis

Background

The Office of Communications (OfCom) in 2019, reported that nine out of ten UK households have access to the internet, including children. In the last 12 months, children had reported negative experiences including unwanted contact from unknown individuals (e.g. friends' requests on social media) and exposure to offensive language. The continuing advancements of internet technology means that it is becoming an increasingly common way to identify children for online child abuse, as well as making it quite simple for child sexual exploitation material (CSEM) to be produced and shared worldwide (May-Chahal & Palmer, 2018). The current statistics by the Internet Watch Foundation (IWF) estimated in 2020, that 153,383 reports confirmed CSEM in the UK. The Home Office, in 2019 reported that 450 suspects were arrested and over 600 children safeguarded every month.

The position of a digital analyst was created by UK police forces to address and help reduce the significant challenge being faced in society, in relation to the significant rise in online child sexual exploitation and abuse (online abuse). The responsibility of their role involves identifying child abuse materials from viewing thousands of images, and categorising the material based on the severity of abuse. This information is then pulled together into a report for the courts. The existing published research has suggested that they are at greater risk of psychological harm as a consequence of indirect exposure to trauma through working with this type of material, and has the potential to significantly impact on analysts' wellbeing. However, the research in this area remains limited. Further qualitative

research would be beneficial to help develop a better understanding about how this work affects this group of professionals. This research study explored digital analysts' personal experiences in relation to how they feel that working in this role on a daily basis has impacted them and in what ways they manage this.

Method

Seven digital analysts from a police unit in England were interviewed about their experiences of working in this role. The digital analysts were invited, at the beginning of the interview, to create a visual representation of the different areas important to their life using pre-printed pictures, paper for drawings, and coloured pens. All seven engaged in this process and was used to support analysts reflect on their working experience. They were not used in the analysis phase.

A qualitative research design, Interpretative Phenomenological Analysis (IPA) was used to analyse the interviews. IPA is "concerned with the detailed examination of human lived experience" (Smith et al., 2022, pg. 26). All interviews were audio recorded, transcribed, and analysed following the process of IPA described by Smith et al. (2022).

Findings

Three group experiential themes (GETs) and four sub-themes were identified, which reflected the digital analysts' experiences.

1.'*You Cannot Unsee the Darker Side of Life'* reflected the idea shared that you cannot escape from online abuse due to the high demand of cases investigated. There was a sense that the type of material they are frequently exposed to was challenging and has warped their view of the world in a negative way. As a result, the behavioural and emotional impact described has impinged on their home lives. This theme

includes two sub-themes: *'The Work Shapes your Social and Personal Relationships'* and '*Struggling to manage/ decompress from this kind of work'.*

2. '*Conflicted Feelings Towards the Job'* captured the experiences in relation to feeling that this job has a 'shelf life' due to concerns of the long term, potentially irreversible, impact this job has on their wellbeing. This is conflicted with feelings of reward and motivation when their investigations achieve positive outcomes (e.g. safeguard children), which makes the job feel worthwhile despite the challenges.

3. '*Feeling Overlooked by the Organisation'* reflected that digital analyst's feel that their welfare is not considered a priority and the support currently available is not satisfactory. This theme includes two sub-themes: '*Support systems are perceived as not genuine'* and '*The organisation is driven by a business mentality'*.

Conclusions

The findings has added to the existing research and further highlighted that this professional group are vulnerable to some level of psychological harm. These findings suggest that digital analysts experience symptoms that are similar to burnout and secondary traumatic stress as a consequence of working in this role. Therefore, it is important that police forces place greater attention and focus on thinking about what strategies will help support digital analysts' wellbeing, for example the support systems and training provided.

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Appendices

Chapter I: Systematic Literature Review

Appendix A – Quality Appraisal Tool for Quantitative studies, Qualsyst Checklist

(Kmet et al. 2004)

	Yes (2)	Partial (1)	No (0)	N/A
Question / objective sufficiently described?				
2 Study design evident and appropriate?				
3 Method of subject/comparison group selection or source of information/input variables described and appropriate?				
4 Subject (and comparison group, if applicable) characteristics sufficiently described?				
5 If interventional and random allocation was possible, was it described?				
6 If interventional and blinding of investigators was possible, was it reported?				
7 If interventional and blinding of subjects was possible, was it reported?				
8 Outcome and (if applicable) exposure measure(s) well defined and robust to measurement / misclassification bias? Means of assessment reported?				
9 Sample size appropriate?				
10 Analytic methods described/justified and appropriate?				
11 Some estimate of variance is reported for the main results?				
12 Controlled for confounding?				
13 Results reported in sufficient detail?				
14 Conclusions supported by the results?				

Appendix B – Quality Appraisal Tool for Qualitative studies, Critical Appraisal Skills Programme (CASP; 2018)

Q1. Was there a clear statement of the aims of the research? HINT: Consider • what was the goal of the research • why it was thought important •its relevance
2. Is a qualitative methodology appropriate? HINT: Consider • If the research seeks to interpret or illuminate the actions and/or subjective experiences of research participants • Is qualitative research the right methodology for addressing the research goal
3. Was the research design appropriate to address the aims of the research? HINT: Consider • if the researcher has justified the research design (e.g. have they discussed how they decided which method to use)
4. Was the recruitment strategy appropriate to the aims of the research? HINT: Consider • If the researcher has explained how the participants were selected • If they explained why the participants they selected were the most appropriate to provide access to the type of knowledge sought by the study • If there are any discussions around recruitment (e.g. why some people chose not to take part)
5. Was the data collected in a way that addressed the research issue? HINT: Consider • If the setting for the data collection was justified • If it is clear how data were collected (e.g. focus group, semi-structured interview etc.) • If the researcher has justified the methods chosen • If the researcher has made the methods explicit (e.g. for interview method, is there an indication of how interviews are conducted, or did they use a topic guide) • If methods were modified during the study. If so, has the researcher explained how and why • If the form of data is clear (e.g. tape recordings, video material, notes etc.) • If the researcher has discussed saturation of data
6. Has the relationship between researcher and participants been adequately considered? HINT: Consider • If the researcher critically examined their own role, potential bias, and influence during (a) formulation of the research questions (b) data collection, including sample recruitment and choice of location • How the researcher responded to events during the study and whether they considered the implications of any changes in the research design
7. Have ethical issues been taken into consideration? HINT: Consider • If there are sufficient details of how the research was explained to participants for the reader to assess whether ethical standards were maintained • If the researcher has discussed issues raised by the study (e.g. issues around informed consent or confidentiality or how they have handled the effects of the study on the participants during and after the study) • If approval has been sought from the ethics committee
8. Was the data analysis sufficiently rigorous? HINT: Consider • If there is an in-depth description of the analysis process • If thematic analysis is used. If so, is it clear how the categories/themes were derived from the data • Whether the researcher explains how the data presented were selected from the original sample to demonstrate the analysis process • If sufficient data are presented to support the findings • To what extent contradictory data are taken into account • Whether the researcher critically examined their own role, potential bias and influence during analysis and selection of data for presentation

9. Is there a clear statement of findings? HINT: Consider whether • If the findings are explicit • If there is adequate discussion of the evidence both for and against the researcher's arguments • If the researcher has discussed the credibility of their findings (e.g. triangulation, respondent validation, more than one analyst) • If the findings are discussed in relation to the original research question
10. How valuable is the research? HINT: Consider • If the researcher discusses the contribution the study makes to existing knowledge or understanding (e.g. do they consider the findings in relation to current practice or policy, or relevant research based literature • If they identify new areas where research is necessary • If the researchers have discussed whether or how the findings can be transferred to other populations or considered other ways the research may be used

Appendix C – Quality Appraisal Tool for Mixed Method Appraisal Tool (MMAT; Hong et al., 2018)

Yes/ NO/ Cannot tell/ comments.

1.1 Are the sources of qualitative data (archives, documents, informants, observations) relevant to address the research question (objective)?
1.2 Is the process for analysing qualitative data relevant to address the research question (objective)?
1.3 Is appropriate consideration given to how findings relate to the context, e.g. the setting, in which the data were collected?
1.4 Is appropriate consideration given to how findings relate to researchers' influence, e.g. through their interactions with participants?
1.5 Is their coherence between qualitative data sources, collection, analysis, and interpretation.
4.1. Is the sampling strategy relevant to address the quantitative research question (quantitative aspect of the mixed methods question)?
4.2. Is the sample representative of the population understudy?
4.3. Are measurements appropriate (clear origin, or validity known, or standard instrument)?
4.4. Is there an acceptable response rate (60% or above)?
4.5 Is the statistical analysis appropriate to answer the research questions?
5.1 Is the mixed methods research design relevant to address the qualitative and quantitative research questions (or objectives), or the qualitative and quantitative aspects of the mixed methods question (or objective)?
5.2 Is the integration of qualitative and quantitative data (or results*) relevant to address the research question (objective)?
5.3 Is appropriate consideration given to the limitations associated with this integration, e.g. the divergence of qualitative and quantitative data (or results*) in a triangulation design?
5.4 Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?
5.5 Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?

Appendices

Chapter II: Empirical Paper

Appendix A – Email from ethics committee granting full ethical approval for the research

Application for Ethical Review ERN_19-0650

Samantha Waldron (Research Support Group)

Dear Dr Kloess and Dr Larkin

Re: "An Exploration of the Personal Experiences of Digital Forensics Analysts' Daily Work: An Interpretative Phenomenological Analysis"

Application for Ethical Review ERN_19-0650

Thank you for your application for ethical review for the above project, which was reviewed by the Science, Technology, Engineering and Mathematics Ethical Review Committee.

On behalf of the Committee, I confirm that this study now has full ethical approval.

I would like to remind you that any substantive changes to the nature of the study as described in the Application for Ethical Review, and/or any adverse events occurring during the study should be promptly brought to the Committee's attention by the Principal Investigator and may necessitate further ethical review.

Please also ensure that the relevant requirements within the University's Code of Practice for Research and the information and guidance provided on the University's ethics webpages (available at https://intranet.birmingham.ac.uk/finance/accounting/Research-Support-Group/Research-Ethics/Links-and-Resources.aspx) are adhered to and referred to in any future applications for ethical review. It is now a requirement on the revised application form (https://intranet.birmingham.ac.uk/finance/accounting/Research-Support-Group/Research-Ethics/Ethical-Review-Forms.aspx) to confirm that this guidance has been consulted and is understood, and that it has been taken into account when completing your application for ethical review.

Please be aware that whilst Health and Safety (H&S) issues may be considered during the ethical review process, you are still required to follow the University's guidance on H&S and to ensure that H&S risk assessments have been carried out as appropriate. For further information about this, please contact your School H&S representative or the University's H&S Unit at healthandsafety@contacts.bham.ac.uk.

Kind regards,

Ms Sam Waldron
Research Ethics Officer
Research Support Group

C Block Dome (room 132)

Aston Webb Building

University of Birmingham

Edgbaston B15 2TT

Tel: [redacted]
Email: [redacted]

Please remember to submit a new Self-Assessment Form for each new project. Click Ethical Review Process for further details regarding the University's Ethical Review process.

Click Research Governance for further details regarding the University's Research Governance and Clinical Trials Insurance processes, or email researchgovernance@contacts.bham.ac.uk with any queries

Appendix B – Participant Information Sheet

UNIVERSITY OF BIRMINGHAM

Information Sheet for Participants

Study Title: An Exploration of the Personal Experiences of Digital Forensic Analysts' Daily Work

Introduction:

You are being invited to take part in the present study. Please take the time to read through the following information. Ask the relevant person who provided you with the information sheet if you have any questions or would like more information.

What is the purpose of the study?

The purpose of the present study is to hear about your personal experiences of working as a digital forensic analyst. We are interested in how you go about your daily work, what your work means to you, how it may affect you, as well as how you manage this in your personal and professional lives. The study will take the form of an interview between you and the principal researcher, which will be audio-recorded.

Why have I been chosen?

You have been chosen as you are an employee of West Midlands Police and work in the area of digital forensics. Other people who work in this area will also be invited to take part.

Do I have to take part? / What happens if I take part?

It is entirely up to you whether you decide to take part in the present study or not. If you decide to take part, you will be given this information sheet to keep and a meeting in the form of an interview will be arranged with you. Even if you decide to take part, you are still free to withdraw from the study at any time up until two weeks post completion of the interview, without having to give any reason. Withdrawing from the study will not affect you or have any negative consequences on your circumstances.

What happens to my information?

The audio recording of your interview, and its subsequent transcription, will be assigned a number, and can therefore not be traced back to you or anyone else. Upon transcription, the audio recording of your interview will be destroyed. Your name will only appear on your consent form, and the researcher will be the only person who has access to a list linking your name with a number. This information will be kept in a secure filing cabinet at the University of Birmingham and separate from any of the interview data. Upon completion of the research project, the list linking your name with a number will be destroyed.

Will my taking part in this study be kept confidential?

All information that is obtained during the course of the study will be kept strictly confidential. No identifiable information will be included in any write-up or publication using the data of this study.

What will happen to the results of the study?

The results of the study will be analysed to see how people like you personally experience working in digital forensics, or working in a supportive role for digital forensic analysts. The results may be presented at a conference or in a journal. No identifiable information will be released in any write-up of the results.

What are the risks of participation?

The focus of the interview will be on your personal experiences of working as a digital forensic analyst. While we are interested in how you go about your daily work, what your work means to you, how it may affect you, as well as how you manage this in your personal and professional lives, talking about this during the course of the interview may give rise to feelings of upset and/or distress. If this is the case, you may stop the interview at any time. Should you wish to pursue, you may do so when you feel ready. Alternatively, you may withdraw from the study, and your interview data will not be included in the analysis. Should the interview cause you upset and/or distress, please contact Julie Howard (Email: [redacted] Tel.: [redacted] Mobile: [redacted] or the Be Well Employee Assistance Programme (Tel.: 0808 168 2143). Alternatively, you may get in touch with the following helplines should you wish to talk about any thoughts/feelings that have arisen as a result of the interview.

Mind

Telephone: 0300 123 3393

Mind in Birmingham

https://shop.mind.org.uk/help/mind_in_your_area?loc=Birmingham&council=&lma_search_lat=52.48624299999999&lma_search_lng=-1.8904009999999971

CALM (for men)

Telephone: 0800 58 58 58

The Samaritans

Telephone: 116 123

If you have any additional questions or would like to speak to anyone within the research team about the study before making a decision, please get in touch with Clare Strickland (E-mail: [redacted] or her research supervisor, Dr Juliane Kloess (E-mail: [redacted] Tel.: [redacted]

Appendix C – Consent Form for Participants

UNIVERSITY OF BIRMINGHAM

Consent Form for Participants

I have read and understood the information sheet for the above and have been given the opportunity to ask questions. ☐

I understand that my participation is voluntary and that I am free to withdraw from the study up until _____, without having to give any reason and without me being affected or this having any negative consequences on my circumstances. ☐

I agree to provide information that will be used for research purposes only, and understand that all the information relating to myself obtained as part of the study will be strictly confidential, and that I will not be personally identified in any write-up of the results. ☐

I understand that information will be stored in manual and electronic files and is subject to the provisions of the Data Protection Act. ☐

I wish to participate in this study under the conditions set out here and in the Information Sheet for Participants. ☐

Signed: _____

Printed Name: _____

Date: _____

Thank you very much for agreeing to participate in this study!

Appendix D – COVID Pre-Screen Questionnaire

School of Psychology COVID-19 Pre-Screen Questionnaire

This questionnaire should be used on two occasions for each participant: 24 hours before research, via telephone by the Researcher. On the day of the research, in the reception/waiting area by the Researcher after having logged the entrance of the participant in the building as required https://tinyurl.com/Access-Hills-52PR (remember to log the exit of the participant at the end of the experiment).
Read the following statement to the participant: "Under no circumstances should any participants be allowed to enter the building for booked research sessions if they have been exposed to or are experiencing symptoms of COVID-19 (SARS-CoV-2). For the safety and well-being of the public, participants, and Psychology staff, please respond to the following questions. If you are unsure and cannot decide whether to answer YES or NO to any questions, then please respond with YES for questions 1-4"

Pre-screening type	❑ 24hrs before (phone) / ❑ On the day (in-person)
Participant Name	
PI Name	
Researcher Name	
Date and time of pre-screen	

Date and time of research session	
Outcome of pre-screen *Fill in once questionnaire complete*	**Participant cleared to take part** *(questions 1-4 answered no, question 5 answered yes)* **Participant not able to take part** *(ANY of questions 1-4 answered yes, and/or question 5 answered no)*
If the participant is not able to take part, they should sign up to another slot at least 14 days in advance. They should then be pre-screened again 24 hours in advance and on the day.	

Read each question to the participant:	YES	NO
Have you experienced any flu-like symptoms within the last 14 days? COVID-19 symptoms can include: chest pain, fever, cough, sore throat, respiratory illness, difficulty breathing or altered taste or sense of smell.	❑	❑
Have you been in close contact with, or cared for, someone with COVID-19, or anyone with COVID-19 symptoms within the last 14 days?	❑	❑
Have you been advised by your GP to follow shielding and protection measures in relation to COVID-19, or are in the UK Government 'At Higher Risk' or 'Clinically Vulnerable' groups?	❑	❑
Have you been asked to isolate under the COVID-19 Track and Trace system?	❑	❑
Are you generally feeling fit and well for your research session?	❑	❑

Appendix E: Interview schedule

Interviews will follow a similar structure to a relational mapping interview, involving four main touchpoints: mapping the self, mapping important others, standing back, and considering change. The schedule of such an interview is less prescriptive than that in more traditional semi-structured interviews, including fewer questions but more prompts and probes, with most of the interviewer's contributions being spontaneous enquiries.

Prior to commencing the interview, participants will be introduced to a supply of flipchart paper, pens, different coloured post it-notes and a selection of random pictures, encouraging them to use supplies spontaneously and in whatever way they wish. The interviewer will explain that the mapping exercise is used to facilitate the process of data collection in terms of participants narrating their experience and meaning-making of undertaking the difficult task of a digital forensic analyst.

Interview Schedule/Arc

1.) While we talk, I would like you to make a diagram, map, or picture, which helps me to visualise the different elements of your life. Could you start by representing yourself on the paper in whatever way you like?

Possible prompts: You can use words, symbols, or images, whatever you prefer, to represent yourself on the map.

Possible prompts: Where do you fit in alongside your work? What is your relationship with your work? How do you experience it? What does it mean to you?

2.) Can you tell me a bit about what you have done there and why?

Possible prompts: Interviewer to enquire into participant's choices by making simple observation statements (e.g. 'you chose X colour) (these are typically enough to elicit more detail from participants).

3.) Again using the supplies we have got available; please could you map your relationships with important others/those relationships that are most important to you. While you do this, it would be useful if you could think about how these relationships may play a supporting role in you being able to carry out this work on a daily basis and how you cope with it (perhaps even better than others?).

Possible prompts: Interviewer to state what they see, prompt, and enquire with a curious mind. Prompts will focus on understanding the quality and nature of each of the relationships, how it is sustained and impacted by the participant's work, with the aim for the participant to describe their relationships in rich detail. The interviewer may subsequently enquire about other people/relationships in the participant's life.

4.) In the context of the relationships you have mapped here, can you tell me a bit about how you 'manage' your work identity (e.g. not being able to discuss your work in detail) in your relationships with these people?

Possible prompts: What is this like for you? What does this mean to/for you?

5.) So now, trying to take a step back and looking at your whole map/the whole map you have drawn, what do you think/feel when you look at it?

Possible prompts: Is there anything in particular you are thinking or feeling? (The interviewer may also raise any specific themes that seemed important during the interview, which would benefit from further detail and context.

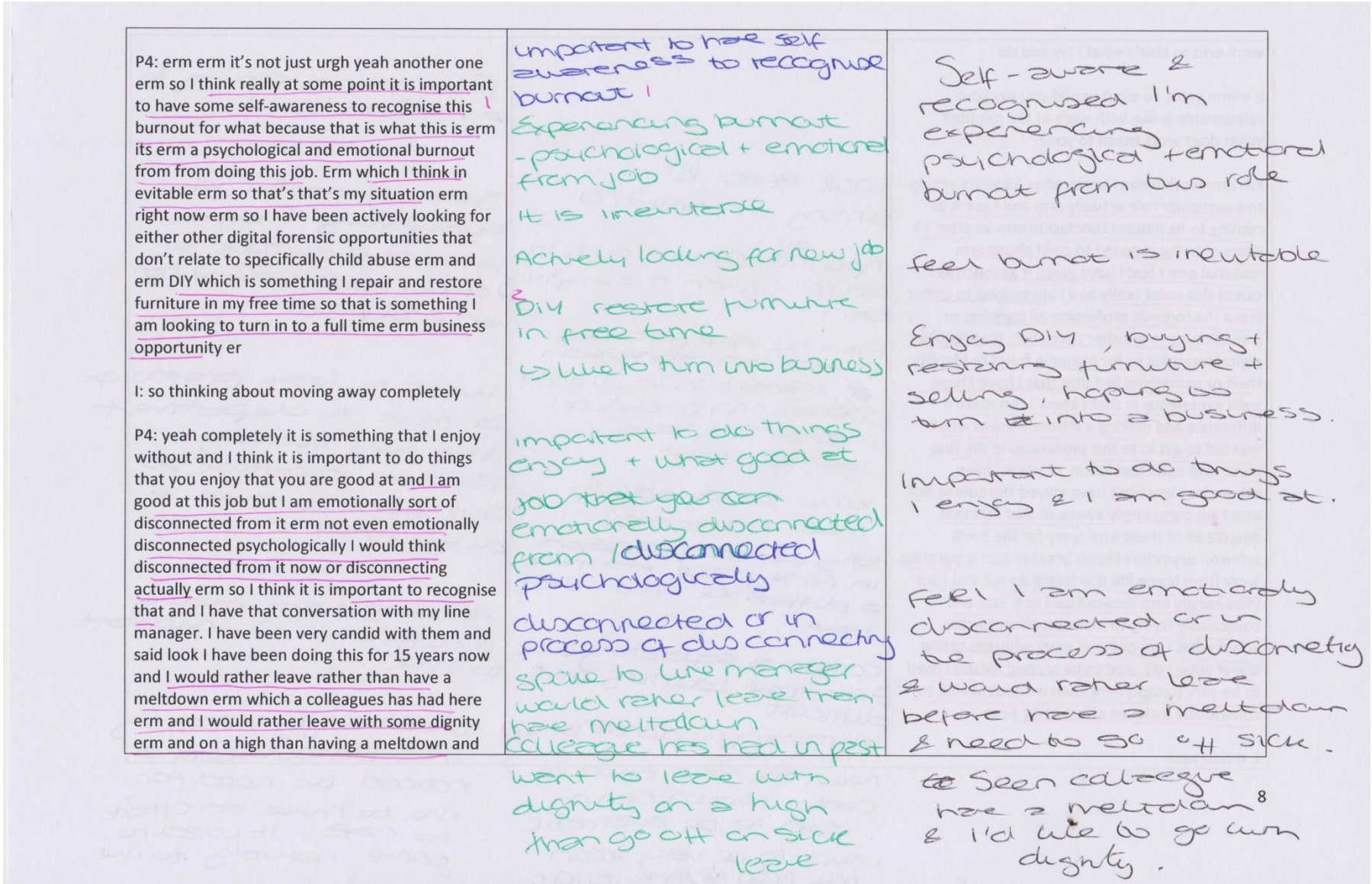
6.) In an ideal world, would this map look like this or is there anything you would change? *(The 'ideal future' question allows participants to explore how they would like their relational lives to be – their expectations, beliefs, fantasies and hopes, however, it may also reveal new information about how things are in the present.)*

7.) Can you tell me a bit more about how you think/feel you may have been affected by your work over time? Have you noticed a change in yourself and/or the way your see/experience your work since you started working in this area?

Possible prompts: What is this like for you? What does this mean to/for you? Do you remember finding it more difficult in the beginning than now? What do you think may have made this process easier for you over time?

Appendix F – Image of creative tools set up

Appendix G - Example of initial coding of transcript (Participant Jess)



P4: erm erm it's not just urgh yeah another one erm so I think really at some point it is important to have some self-awareness to recognise this burnout for what because that is what this is erm its erm a psychological and emotional burnout from from doing this job. Erm which I think in evitable erm so that's that's my situation erm right now erm so I have been actively looking for either other digital forensic opportunities that don't relate to specifically child abuse erm and erm DIY which is something I repair and restore furniture in my free time so that is something I am looking to turn in to a full time erm business opportunity er

I: so thinking about moving away completely

P4: yeah completely it is something that I enjoy without and I think it is important to do things that you enjoy that you are good at and I am good at this job but I am emotionally sort of disconnected from it erm not even emotionally disconnected psychologically I would think disconnected from it now or disconnecting actually erm so I think it is important to recognise that and I have that conversation with my line manager. I have been very candid with them and said look I have been doing this for 15 years now and I would rather leave rather than have a meltdown erm which a colleagues has had here erm and I would rather leave with some dignity erm and on a high than having a meltdown and

important to have self awareness to recognise burnout

Experiencing burnout - psychological + emotional from job

It is inevitable

Actively looking for new job

DIY restore furniture in free time

↳ like to turn into business

impatient to do things enjoy + what good at

job that you can emotionally disconnected from / disconnected psychologically

disconnected or in process of disconnecting

speak to line manager would rather leave than have meltdown

Colleague has had in past went to leave with dignity on a high than go off on sick leave

Self-aware & recognised I'm experiencing psychological + emotional burnout from this role

feel burnout is inevitable

Enjoy DIY, buying + restoring furniture + selling, hoping to turn into a business.

Important to do things I enjoy & I am good at.

Feel I am emotionally disconnected or in the process of disconnecting & would rather leave before have a meltdown & need to go off sick.

Seen colleague have a meltdown & I'd like to go with dignity.

is erm on the face of it looks like it is more important than my work life (laughs) it is certainly outnumbered in terms of icons erm what have we got there 3, 6, 9, 12 yeah 12 personal icons to 6 work icons. Erm so that is not to say that my personal life is more important than my work life but I think erm I have to have more going on in my personal life to counterbalance perhaps the impact of my work life. So looking at it and looking at it now I just think actually it is quite interesting to see that I have actively have to make an effort more perhaps than I realised. Erm to sort of counteract the impact of what I see and do I: mmm yeah P4: erm so it is interesting actually sort of looking at it now in the cold light of day just how much I have to focus on my personal life so that I have get that work life balance erm and perhaps the fact that I have so much going on or have to have so much going on erm to counteract those effects probably indicates that there isn't that balance. I am having to work very hard in my personal life to make sure that erm perhaps that my work life doesn't intrude into my personal life. It is interesting that to see that actually when it is laid out like that I: mm yeah and do you think, I guess you were saying you probably haven't recognised it, it is from looking. Do you think that it wasn't a	personal life looks more important than my work I more going on in personal life to counterbalance impact at work actively made more effort to ensure personal life counteracts impact at job. interesting how much have to focus on personal life to get that work / home balance have to have so much going on to mitigate impact indicates isn't that balance work v. hard in personal life to make sure work doesn't intrude	looking in notice how much I focus on personal life to ensure it counterbalances impact of work. Notice that there isn't a balance, I need to have more in personal life to ensure work doesn't intrude.

Appendix H – Example of personal experiential statements (Participant Jess)

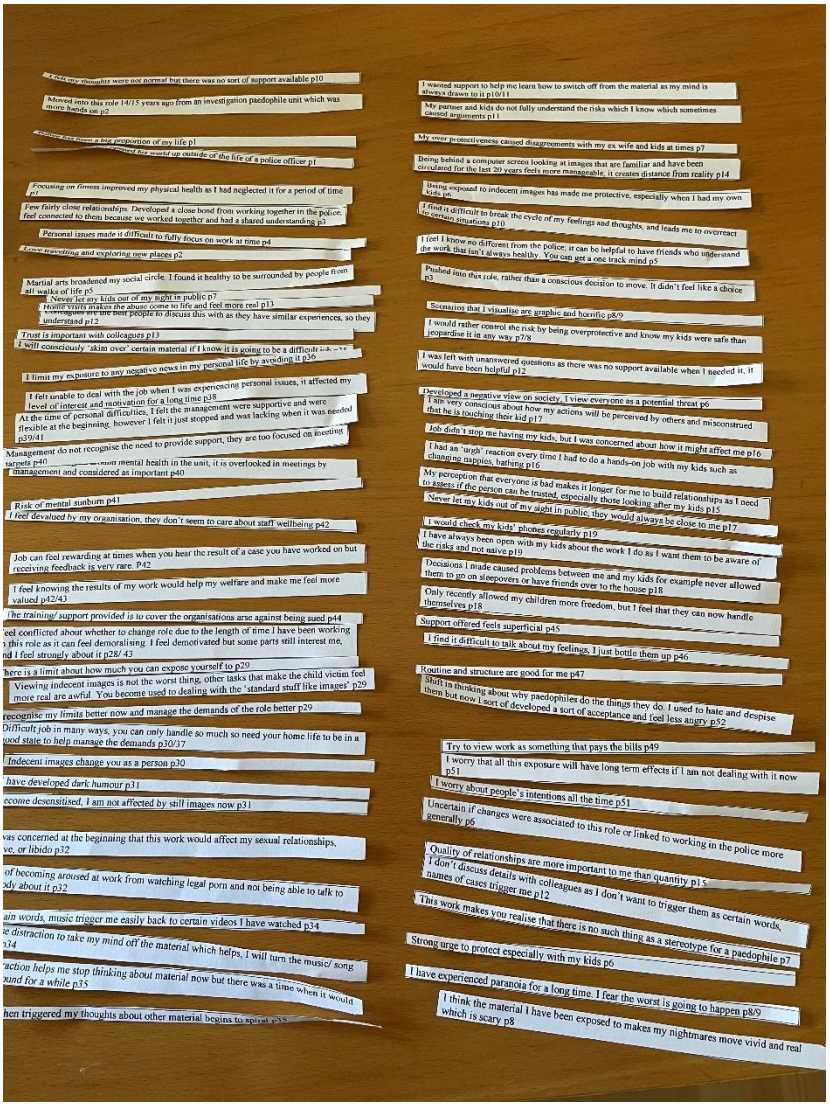
Some (or parts) of Jess's personal experiential statements have been removed for confidentiality and anonymity purposes.

Work is completely separate from my personal life p2
I love my music, sleep, television shows and travelling p2
Very tight but small group of friends p2
Work is confidential and involves looking at images and movies. We have to scrutinise and look for evidence p4
Separate work from home as much as possible. Try not to bring work home or dwell on it p5
Still experience some intrusive thoughts and flashbacks but these are less frequent compared to beginning. Only happens now if job was severe and disturbing p5
Commute gives me the opportunity to decompress and leave work at work and use the time on the way to plan my day p6
Consciously give myself a mental and emotional break from work in my lunch hour by physically moving away from my desk to do something I enjoy like a crossword or chat to colleague p6
Feel the job is coming to a natural end. Looking to move on p7/ 34
Sense given the job everything but that the amount you expose yourself to child abuse material has an end point p7
Want to leave this profession or move to a department that I can use my forensic expertise as I still want to make a difference p7
The feeling of making a difference is important to me p7
I am increasingly becoming more desensitized, and I have noticed that I am having to make an effort to care whereas this used to become naturally to me p7
I am self-aware and I have recognised that I am experiencing psychological and emotional burnout p8
Burnout is inevitable from working in this role p8
it is important to do things that you enjoy and that I am good at p8
I feel I am emotionally disconnected or in the process of disconnecting and I would rather leave before having a meltdown and need to go off sick which I have seen happen to a colleague. I want to keep my dignity. p8
Becoming desensitized is essential to manage and it means that I am not constantly experiencing flashbacks. It is a survival mechanism p9
it is important to achieve a balance between self-preservation and giving a damn. It is important to still care as what we are working with is child abuse p9
I never discuss details with my friends or partner as they didn't choose to work in this field it was my choice. I don't want any of them to develop a mental image from a description I give. I only discuss practical elements as they are interested in what I do p10
I don't want my 2 worlds (work and home) to intermesh. I need Yin and Yang. I need my personal life to be stable so that I feel able to cope with the demands of the job p11
My love for travelling, reading, and watching television shows have always been constant hobbies p12

I don’t allow a problem to defeat me, I always look for a solution. I feel the solution to becoming desensitized is to find a new job which is appropriate for me p15
Trust is important with colleagues. I only confide in the ones I trust and feel comfortable with. Trust is a tool of survival p16
Some colleagues are more than just work colleagues; I see some of them as really good friends who I have shared interests with p16
Trust some colleague’s judgement and respect them p17
Confrontation with officers, push and pull between the evidence found and what the officers are hoping to be found p17
Rarely receive feedback but when we do it is gratifying to hear that the work we do is worthwhile p18
It would be nice to hear more feedback, but I don’t blame the officers they are busy too p19/ 23
Sense of recognition makes us feel chuffed. It is positive to know that the work has led to dangerous people being removed from communities p21
I received an award for a big piece of work which led to a sentence of someone who had been doing it for 20 years p21
My work is recognised and appreciated by my friends which is nice
This job has a shelf life p23/ 32
I believe you can have many careers; you don’t have to stick to one for life p24
I don’t regret choosing this profession, I have made a difference p24
Our work has a positive impact on society, I know what we do makes a difference and removes dangerous people from the community p25
I like to make a difference in my personal life too, through volunteering, donating money and supporting animal welfare p25
Looking at my map I have noticed how much I need to focus on my personal life and making sure that is full to counterbalance the impact of work and to make sure work doesn’t intrude into my personal life p27
I’m self-aware but I wasn’t aware of how much I over compensate in my personal life and how I haven’t achieved a balance, but I do recognise signs of burnout which I need to address p28
To achieve a balance, I would need to expose myself to less child abuse material which isn’t an option p28
Need to grade evidence in a clinical and objective manner without cognitive bias which is managed through a vigorous peer reviewed process p29
Having experience of prosecution and defence gives me an understanding of the tactics used to undermine the evidence we give p31
Listening to music, a podcast, or television show creates distance from task of grading p32
Everyone working here are either new to profession or looking to transition p33
Job is still very rewarding and matters but I am starting to feel the psychological strain and want to stop before it causes permanent damage caused by long term exposure p34
Not a weakness to recognise signs of burnout p35
Signs of burnout included not feeling excited about going to work, feeling lethargic and feeling like I have to force myself to make an effort p35
Annual leave helps me to feel refreshed and ready to face the demands of the job p36
Would like to move away from the forensic child abuse. Time to move on p37

Role has made me feel more jaded and I've developed gallow humour which is very dark and twisted p38
Hypervigilant to traits even when not in work. I get this gut feeling and know when people are exploiting children p38
I see things that others wouldn't be aware of or see p39

An image to demonstrate the process of creating paper cuttings of the personal experiential statements



Appendix I – Example of personal experiential statements forming personal experiential themes (PETs) and sub-themes (Participant Jess)

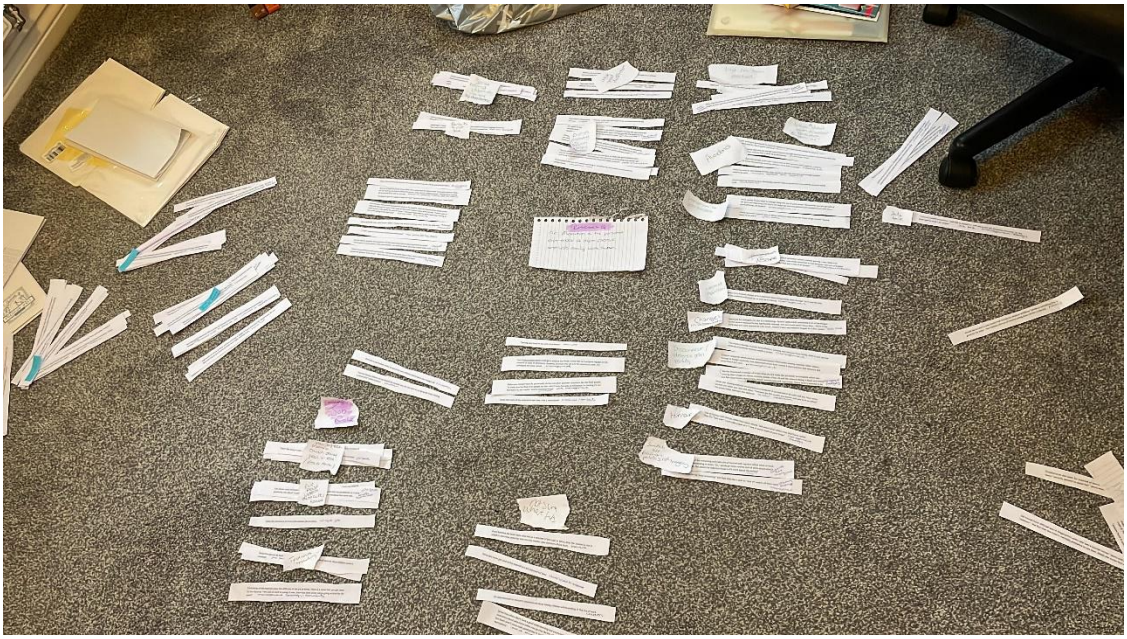
Personal Experiential Theme	Sub-theme	Experiential Statements
Job has a shelf life		Want to leave this profession or move to a department that I can use my forensic expertise as I still want to make a difference p7 Would like to move away from the forensic child abuse. Time to move on p37 Feel the job is coming to a natural end. Looking to move on p7/ 34 I believe you can have many careers; you don't have to stick to one for life p24 This job has a shelf life p23/ 32 Everyone working here are either new to profession or looking to transition p33 Sense given the job everything but that the amount you expose yourself to child abuse material has an end point p7 I feel the solution to becoming desensitized is to find a new job which is appropriate for me p15 To manage, I would need to expose myself to less child abuse material which isn't an option p28
Recognition of work is limited but gratifying		Sense of recognition makes us feel chuffed. It is positive to know that the work has led to dangerous people being removed from communities p21 My work is recognised and appreciated by my friends which is nice Rarely receive feedback but when we do it is gratifying to hear that the work we do is worthwhile p18 It would be nice to hear more feedback, but I don't blame the officers they are busy too p19/ 23 I received an award for a big piece of work which led to a sentence of someone who had been doing it for 20 years p21
	Burnout	Burnout is inevitable from working in this role p8 Not a weakness to recognise signs of burnout p35 Signs of burnout included not feeling excited about going to work, feeling lethargic and feeling like I have to force myself to make an effort p35

Psychological impact		I am self-aware and I have recognised that I am experiencing psychological and emotional burnout p8 I am starting to feel the psychological strain and want to stop before it causes permanent damage caused by long term exposure p34
	Desensitized	I am increasingly becoming more desensitized, and I have noticed that I am having to make an effort to care whereas this used to become naturally to me p7 I feel I am emotionally disconnected or in the process of disconnecting and I would rather leave before having a meltdown and need to go off sick which I have seen happen to a colleague. I want to keep my dignity. p8 Becoming desensitized is essential to manage and it means that I am not constantly experiencing flashbacks. It is a survival mechanism p9
	Intrusive thoughts/ flashbacks	Still experience some intrusive thoughts and flashbacks but these are less frequent compared to beginning. Only happens now if job was severe and disturbing p5
Personality changes	*Dark Humour*	Role has made me feel more jaded and I've developed gallows humour which is very dark and twisted p38
	Hypervigilance	Hypervigilant to traits even when not in work. I get this gut feeling and know when people are exploiting children p38 I see things that others wouldn't be aware of or see p39
Values making a difference		I don't regret choosing this profession, I have made a difference p24 Our work has a positive impact on society, I know what we do makes a difference and removes dangerous people from the community p25 The feeling of making a difference is important to me p7 I like to make a difference in my personal life too p25
	Personal life needs to be stable to feel able to cope	I don't want my 2 worlds (work and home) to intermesh. I need Yin and Yang. I need my personal life to be stable so that I feel able to cope with the demands of the job p11

Focus on ensuring I have a good home/ work life balance	*Overcompensating things in personal life to stop work intruding*	Looking at my map I have noticed how much I need to focus on my personal life and making sure that is full to counterbalance the impact of work and to make sure work doesn't intrude into my personal life p27 I'm self-aware but I wasn't aware of how much I over compensate in my personal life and how I haven't achieved a balance, but I do recognise signs of burnout which I need to address p28
	Need work to be completely separate	Work is completely separate from my personal life p2 Separate work from home as much as possible. Try not to bring work home or dwell on it p5
	Keeping personal relationships at a distance by not disclosing work information	I never discuss details with my friends or partner as they didn't choose to work in this field it was my choice. I don't want any of them to develop a mental image from a description I give. I only discuss practical elements as they are interested in what I do p10
Strategies used to make work feel more manageable	*Hobbies that gives me enjoyment*	My love for travelling, reading, and watching television shows have always been constant hobbies p12 I love my music, sleep, television shows and travelling p2
	Take an emotional and mental break	Consciously give myself a mental and emotional break from work in my lunch hour by physically moving away from my desk to do something I enjoy like a crossword or chat to colleague p6 Annual leave helps me to feel refreshed and ready to face the demands of the job p36 Listening to music, a podcast, or television show creates distance from task of grading p32
	Decompress from work	Commute gives me the opportunity to decompress and leave work at work and use the time on the way to plan my day p6

Trust	Trust is important with colleagues. I only confide in the ones I trust and feel comfortable with. Trust is a tool of survival p16 Some colleagues are more than just work colleagues; I see some of them as really good friends who I have shared interests with p16 Trust some colleague's judgement and respect them p17 Very tight but small group of friends who are my chosen family and new partner p2

An image to demonstrate the process of how the personal experiential themes were developed from the personal experiential statements.



Appendix J - Example of group experiential theme (GET) development

An image to highlight the process of all personal experiential themes (PETs) and sub-themes forming group experiential themes (GETs)

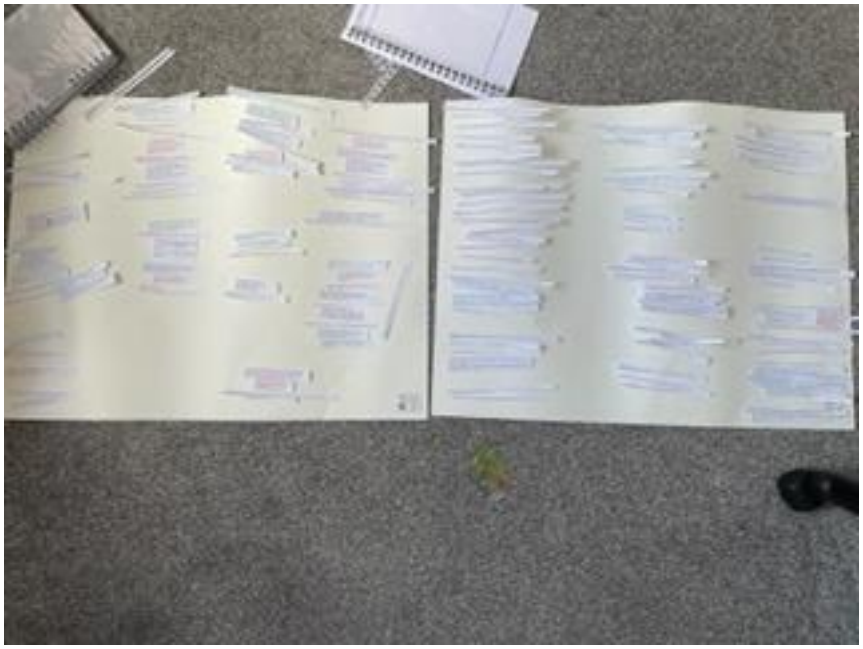
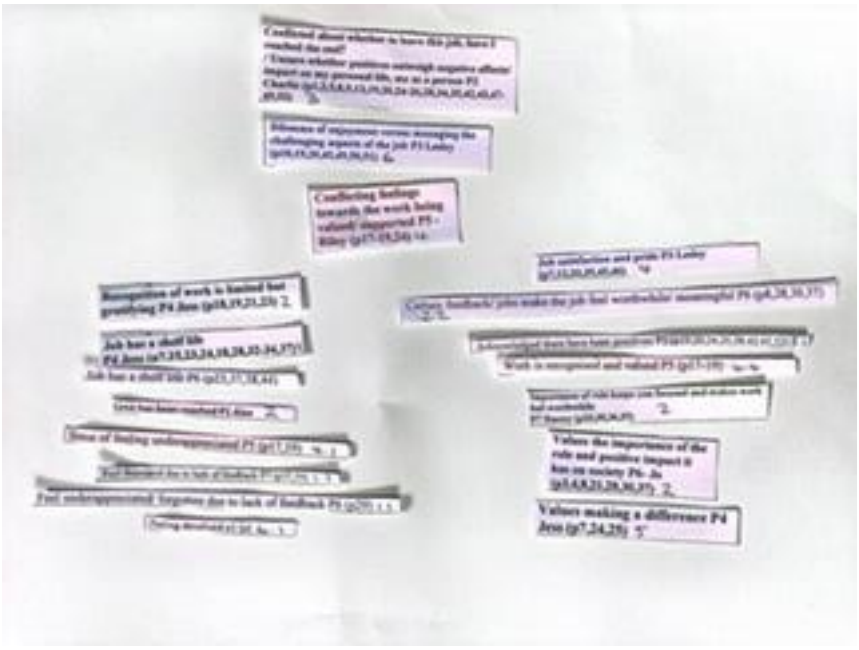


Image to highlight the development of GET 2 – Conflicted feelings towards this job



Appendix K – Examples of quotes contributing to each group experiential themes

Group Experiential Theme	Quotations
1 – You cannot unsee the "darker side of life"	"you do see the darker side of life, what people are capable of and it does take you a bit and it does kind of make you think well are you like that to everyone you meet and you are going to have to earn my trust because I don't know you from Adam and especially when you are dealing with people in here who are doctors, surgeons, senior police officers they are from all walks of life and it makes you think you can't trust anybody really" Danny, p.34 "you know we have got various people you know suspects coming in from peoples with no positions of responsibility to teachers there is nowhere that is actually completely safe" Jo, p.18 "it is everywhere to be honest you can't get away from it" Riley, p.20 "You just see this like this under belly of people that you are exposed to all the time, and I know it is like a warped version of it not everyone is like that most are decent nice people (laugh) er but yeah you get a bit afraid of going to certain places because you think you are going to encounter these people…but yeah I think you do naturally get a bit risk adverse" (Sam, p.58)
Sub theme 1.1 - The work shapes your social and personal relationships	"I dealt with the guy who should be the pillar of society and it makes you very distrusting of everybody so so yeah in that respect I am cynical, I am mistrusting erm I am always thinking I kind of think you know even when people are genuinely nice to you I'm thinking well what are you after" Danny, p.34 "I have definitely learnt to be a lot more protective of of myself and my family and everyone around me and my friends and say you know just be wary of the decisions that you make erm in regards to this erm but yeah I definitely see the world a little bit differently" Jo, p.43

	"I remember this one incident where where there was a little toddler sort of climbing up this, obviously nothing to do with me I was there with my own kids, but there was this toddler nearby and it was climbing up this climbing frame and I saw him fall and I went to grab him and then I stopped and allowed him to fall over because I thought like it was this natural thing that I can't touch somebody else's kid which is ridiculous isn't it you know I was like what you doing dick you know that he could have hurt himself you know obviously there would have been no issue at all there but I was thinking how is that going to be perceived or how is that thinking I am touching their kid or something" Charlie, p.16 "I try and not to discuss erm the work I do with my friends or my partner in any great detail I don't really go into the specifics of what we do here. No one wants to know about that I don't want them to even imagine erm from a description I give you know I a 6 month baby being raped I I don't want anyone to see that erm in their head so I don't discuss those sorts of things with them erm and I wouldn't wouldn't you know me being exposed to that type of material is my choice for me erm and I am not going to expose someone to that kind of mental image because they didn't choose this job I did" Jess, p.10 "it does impact on my home life yeah, I won't say it doesn't erm and I think since doing this work it has I probably say it has had a bit of a negative impact on my family life because I have become more protective of certain things, erm because I am sort of seeing it all of the time. Like social media apps it's like there can't be anything you know like me and my partner have had an argument about this" Riley, p.11
Sub theme 1.2 - Struggling to manage/ decompress from this kind of work	"think erm I have to have more going on in my personal life to counterbalance perhaps the impact of my work life. It is interesting actually sort of looking at it now in the cold light of day just how much I have to focus on my personal life so that I have get that work life balance erm and perhaps the fact that I have so much going on or have to have so much going on erm to counteract those effects

	probably indicates that there isn't that balance" Jess, p.27 "I am always having to keep an eye on time and erm balancing everything really" Sam, p.10 "yeah from everything I have been subjected too from past experiences and current I've never things like you know a lot of things that I have seen have been quite distressing and previous work as well and erm it hasn't really affected me too much and I think it is more so the fact that you kind of seen it all the time you do get used to it erm and that is the biggest thing" Riley, p.9 'so you know in the grand scheme of severity you know it was at the lower end of the scale but I think it was erm, when you are dealing with some real victims and you have actually been to their house and you have maybe seen their school photos on the wall and you know their bedrooms with their cuddly toys it it is all very real then to you rather than just sitting at a computer screen and looking at stuff that you know has been sort of circulating the world for the last 20 years. It is the stuff that you see time and time again. Erm so yeah I think that reality makes it even worse even though the severity of the of the indecent material wasn't as severe as the stuff that I have seen before.' (Charlie, p.14) "sometimes we have to go out to some of these visits with them so your sitting so the suspect is sat on the bed and your sitting there and you have just got to sit next to them and look through their laptop and go 'what have you been looking at then?' and I don't really like engaging with them because I find it a bit weird because at work you have got this screen and as a barrier and your in an office and then next minute you are in some paedophiles house in his bedroom having to sit on his bed. I really really don't like it. I think from a psychol from a mental side of it I really really don't like doing it because it blurs those lines" Alex, p.14 "movies is a different story especially with sound on, but you do get sort of hardened to it" Danny, p.14

	"I have got that detached link" Jo, p.18 "like some of the others erm like there was a video where there was a New Zealand shooting video and one of the guys had it on his phone and went 'o do you want to see it' and some of them were going 'o yeahh' and I sat there thinking I don't want to see that why would I want to see that we already see awful stuff why would I want to expose myself to more voluntarily" Alex, p.7
2 – Conflicted feelings towards this job	"job is still very rewarding because what we do matters and I know it does make a difference and I don't I am not saying this job is not rewarding but I think psychologically erm it is starting to I know I am starting to feel the strain of that and it erm and I want to stop before erm there is some permanent damage" (Jess, p.34) "it's almost like that cup is up here now (pointing to the top of an imaginary cup) and I don't want to add any more in to it" (Alex, p.8) "I definitely think this job has a shelf life, I know that he got to 12 years and said I can't do it anymore and I need to step away from this. I want to remain in the discipline, but you know we have conversations all the time when he is like I don't want you grading images forever erm it will start to have an impact on you" (Jo, p.44) "I even though I have been here a long time and I probably think it's probably the time to move on you know I I still try to do a good job and do a decent I do still try to do the best I can. And erm you know I'm not complaining I've not got to the point where I am absolutely sick of it and I'm doing a really shit job. I am actually, I do actually still feel quite strongly about it still" (Charlie, p.43) "sometimes you know not all officers appreciate the work that you do because all they like depend on not saying they are all bad because some of them are really really good when he got charged I have been kept in the loop and it was actually quite nice to say like have good feedback erm from the officers involved in it so yeah" (Riley, p.17)

	"I like to think that I can take pride in being good at my job" (Sam, p.33) "but in terms of the role I think it's it's quite important in its safeguarding vulnerable people and getting some nasty people off the streets hopefully" (Danny, p.23)
3 - Feeling overlooked by the organisation	"'I still think there is stigma around mental health you know and things are getting better and I have always sort of because I have been in this world for so long I have always said, I have always been quite pro really and aware of of this and I would always mention it at meetings and it would always get overlooked and you know it used to really annoy me and I remember reading this one article going back a few years now and it was called mental sunburn…erm and it was a really interesting article and I I sent it to the management here and I said o this is interesting and they couldn't even be bothered to read it. Like I mentioned it in a meeting afterwards saying o what did you think of about that, and they were like oh yeah and you just think you really don't care that much. You know its they talk about support but yeah it is really devaluing isn't it, it's really really frustrating and annoying. I just think ooo you bastards you know we are here on a day to day basis doing this work, I mean nobody is making us do it, but you know we are doing the best that we can, and somebody has got to do it you know" (anonymised) "I feel like sometimes we are a bit forgotten about and you know, and you see all these officers who yes have worked hard but everyone has played a part, but it would be nice if someone said you know what DF did a good job as a collective" (Jo, p.29) "I feel devalued, yeah yeah I do. But then I just think ah well, I get over it pretty quickly" (Alex, p.33
3.1 - Support systems were perceived as not genuine	"I don't think I unless it would be really really affecting me like affecting my health stuff then I would have to, but I think it would take a lot for me

	to say something I think erm just for those issues really I don't want to get moved" Sam, p.36 "you could get the support in here but it's just my opinion from my previous experiences I just think it is wrong the way it is being done personally but each to their own isn't it it is the way that they are wanting to adopt it so" (Riley, p.24) "welfare and support I am afraid is still poor for me in that same box of of trying to avoid any sort of suing or conversation claim you know erm I think I think it needs there needs to be erm a sort of 1:1 erm but its needs to be, like we have had it erm, we have had lots of different things over the years and erm for me it has never really helped" (Charlie, p.45) "what I have found from speaking to peers before is some people like myself I am happy to go in and speak to someone and you know tell them how I am feeling about work or what I am doing but a lot of people don't want a stranger and they don't want someone who doesn't actually know our job erm and know what we do and you know they are trying to give advice but for a lot of people they feel like you're giving advice from like an an academic background perspective not from a personal perspective how we've experienced things" (Jo, p.24) "I don't think they are particularly good if I am honest erm we used to have to have mandatory counselling every 6 months erm but I I never liked that. I kind of felt like I was being forced in to it and my aim was to get out of that room as quickly as possible" (Danny, p.17)
3.2 - The organisation is driven by a business mentality	"the sausage factory mentality of get the job out the door and get on with the back log and you still are going to get a conviction, get them on the register yeah but he might be abusing his kids at home this that and the other so I'm not doing that erm and that's so that's again when sometimes you find yourself fighting the system a bit as well" (Danny, p.38)

	"we are a business at the end of the day erm so like any business we have targets to meet erm in terms of erm time scales erm to get jobs done in, but I think what is good about this is we continually try to work with the teams that use us to help them understand that what we're working with is a large amount of data to begin with" (Jo, p.26) "theoretically you could hit your threshold and say right that is enough we have got enough evidence cos anymore won't give them a greater sentence that is the theory behind it, but I I'm thinking well if he has been at it this long with this many images has he progressed to hands on so we should be looking at everything else. So I will do it and most of the others I know will do it as well but the sausage factory mentality of get the job out the door and get on with the back log and you still are going to get a conviction, get them on the register yeah but he might be abusing his kids at home this that and the other so I'm not doing that erm and that's so that's again when sometimes you find yourself fighting the system a bit as well" (Danny, p.38) "live abuse jobs are the urgent ones, so they need to be picked up quickly and they need to be done quite quickly" Alex, p.15 "yeah pretty much every day is child abuse don't get me wrong I do get involved in other jobs, but a lot of my work is supporting warrants er going out and working with the child abuse team erm and supporting them so pretty much I am subjected to it every single day erm like a lot of these are" Riley, p.18 used