Stress and trauma among crime scene investigators in Tshwane, South Africa

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ABSTRACT

Background: Crime scene investigators gather evidence and record murder scenes and are thus in close contact with dead bodies. Continuous exposure to traumatic crime scenes could result in post-incident stress disorders.

Objectives: To describe the stress, trauma and mental health of crime scene investigators in Tshwane, South Africa, as well as their general health and substance use, work circumstances, help-seeking behaviour, training, and work satisfaction.

Methods: Using convenience sampling, 79 crime scene investigators employed at the four Local Criminal Record Centres in the City of Tshwane Metropolitan Municipality, Gauteng, South Africa participated in a survey, using a self-administered questionnaire. Descriptive analysis was conducted using SPSS Statistics. Associations between the mental health, stress and traumatic nature of crime scene scales were determined using Spearman's correlation.

Results: One in five respondents (20.5%) had been diagnosed with a mental health problem. More than half (53.9%) worked at one or two murder scenes per week. Most (60.7%) described their work as stressful and 58.2% presented with trauma symptomology. Murder scenes involving children were reported to be particularly traumatic (79.2%). Most respondents (68.8%) expressed the need to speak to someone about their work. There were positive correlations ($p < 0.005$) between the mental health, stress and traumatic nature of crime scene scales.

Conclusion: The study shows that crime scene examiners experience disproportionate levels of stress and trauma, and uptake of in-house wellness support is low. Despite their adverse working conditions and, for some, negative mental health outcomes, most crime scene investigators appeared to be satisfied with their work.

INTRODUCTION

With an average of 58.4 murders per day, South Africa has a disproportionately high homicide rate of slightly more than 36 per 100 000 population.[1] Currently, the murder rate is the highest that it has been in the past 10 years (2019/2020 reporting period).[1] In stark contrast, countries such as Japan, New Zealand and the Netherlands have a murder rate of less than 1 per 100 000 population.[2] When a murder is reported, crime scene investigators (CSIs) are deployed to crime scenes to process organic and inorganic materials, as well as to record the murder scene through note-taking, sketching, photography and videography. Investigators are also tasked with protecting the legal integrity of crime scene information and ensuring its continuity of possession in order for it to be used as evidence in court.[3,4]

Trauma in the workplace has gained international recognition as a significant occupational health problem among police officials, with operational policing being recognised as one of the most stressful occupations worldwide.[5,6] Compared to first responder police officials who have to secure crime scenes upon their arrival, CSIs occupy crime scenes for longer periods of time and interact intimately with all elements of the scene.[7,8] Research attests that CSIs are exposed to stressors that are unique in comparison to other police officials.[9] They are exposed to toxic residues required for the processing of crime scenes and, invariably, to corpses at death scenes, some of which may be disfigured or have decayed since the time of death.[10,11] Administrative accumulation, long and irregular working hours, confrontation with human suffering, and unsanitary and physically demanding circumstances at crime scenes (e.g. handling of bodies, uncomfortable protective clothing, and blood contaminated with communicable diseases and bacteria), are daily work stressors for CSIs.[12]

Individuals who work in professions that involve trauma, e.g. law enforcement officials, fire fighters, paramedics, pathologists and rescuers, are likely to experience psychological distress, which may manifest as post-traumatic stress disorder (PTSD), depersonalisation, exhaustion, anxiety and/or depression.[13] Due to the demands of their occupation, CSIs experience intense periods of post-incident stress and are at higher risk of developing cyclical re-traumatisation than other law enforcement officials.[14-16] Critical-incident trauma occurs when frontline workers are confronted by powerful events during the course of their work, which causes emotional reactions that can overwhelm effective coping skills and produce immediate or delayed stress.[17] When critical-incident trauma occurs without professional intervention, it can lead to the development of post-incident stress behaviours and, in severe instances, PTSD.[7,14] Post-traumatic stress disorder consists of four separate symptom clusters, namely, repeated experiences of the trauma through intrusive images or thoughts; persistent avoidance of situations due to reminders or memories associated with the trauma; negative changes with regard to mood and thoughts; and hypervigilance and chronic arousal.[18,19]

Research has identified occupational stressors to be more strongly associated with health problems compared to other general life pressures such as economic strain.[7,12,17] Occupational stress and burnout result in high costs for both the organisation and the individual, and are associated with inefficiency, an increase in workplace-related

accidents, absenteeism, substance use and early retirement.[5,20] Some of the organisational strategies used in stress-inducing professions to diminish the negative consequences of regular and prolonged exposure to trauma include mandatory counselling, stress mitigation training, and mandatory debriefing after exposure to a stressful event.[15,17] However, the coping strategies that law enforcement officials use to cope with stress do not always involve professional support.[21,22] Unfortunately, help-seeking is often constrained by a reluctance to disclose distress in order to avoid being perceived as 'soft' or inadequate in an occupation that traditionally values the 'toughness' of police officials.[16,23,24]

In South Africa, research has been conducted on burnout and coping among police officials – some studies have included CSIs in their study participants.[9,25-27] Only one local study that focused on CSIs in South Africa was identified; this was a postgraduate dissertation.[28] The research described in this paper aimed to add to the limited local body of knowledge on stress, trauma and mental health among CSIs.

METHODS

The South African Police Services (SAPS) employs 176 CSIs at four Local Criminal Record Centres (LCRCs) in the City of Tshwane, Gauteng province, South Africa. Convenience sampling was used to obtain information from the 81 (46.0%) CSIs who were in the LCRCs on the days on which the survey was conducted.

The questionnaire consisted of the validated brief 10-item Trauma Screening Questionnaire (TSQ)[29,30] and an adapted four-point mental health scale measuring the concepts of sadness, anxiety, hopelessness, unsettlement and loneliness.[31-33] The authors developed the remainder of the questions, including the traumatic nature of crime scenes scale, based on an extensive literature review. Cronbach's alpha coefficients were 0.881 for the TSQ, 0.811 for the mental health scale and 0.890 for the traumatic nature of crime scenes scale.

Table 1. Characteristics of the study participants (N = 79)

Characteristic	n	%
Sex		
Male	60	76.9
Female	18	23.1
Age (years)		
≤ 30	18	24.3
31– 40	26	35.1
41–50	25	33.8
≥ 51	5	6.8
Race		
Black African	60	76.9
White	15	19.2
Coloured	2	2.6
Indian	1	1.3
Marital status		
Married	42	53.8
Single	23	29.5
Partnered	7	8.9
Divorced	6	7.7
Highest education		
Grade 12	40	51.3
Diploma	21	26.9
Bachelor's degree	14	17.9
Postgraduate degree	3	3.8

The survey was conducted in each LCRC on pre-arranged dates. All CSIs who were present during the morning roll call were invited to participate. The self-administered questionnaires were collected immediately after completion.

Ethical approval for the research was obtained from the Ethics Committee of the Faculty of Humanities, University of Pretoria. Authorisation to conduct the survey was obtained from the SAPS Research and Monitoring Unit of the Gauteng Provincial Department.

Data analysis

The data were manually captured in MS Excel and exported to the Statistical Package for the Social Sciences (SPSS) for analysis.[34] In addition to the descriptive analysis, composite scores were calculated for the TSQ, mental health scale and the traumatic nature of crime scene scale in order to determine relationships among them by means of Spearman's ranked order correlation.

RESULTS

Seventy-nine of the 81 CSIs in attendance at morning roll call participated in the survey (97.5%). The average age of respondents was 37.7 years (SD ± 8.3). Most of the study participants were male (n = 60, 76.9%) and 21.7% (n = 17) had a university degree (Table 1). Only one in six (n = 12, 15.8%) did not have children.

Health and substance use

Nearly a quarter of respondents (n = 18, 23.4%) indicated that they had been diagnosed with a chronic health condition and 20.5% (n = 16) reported that they had been diagnosed with a mental health condition. The majority did not use tobacco (73.6%) and almost 20% used prescription medication on a daily basis (Table 2).

Working at crime scenes

The average number of years that respondents had worked for the SAPS was 14.5 (± 10.1) and the average number of years they had worked as CSIs was 10.0 (± 8.0). All had worked at crime scenes where someone had died violently. More than half (n = 41, 53.9%) attended one or two crime scenes per week, 17 (22.4%) attended three or four per week, and 18 (23.7%) attended five or more per week. The majority (n = 60, 76.9%) attended autopsies, with most doing so only a few times per month (n = 47, 83.9%). Of those who did not attend autopsies (n = 19, 21.5%), six (31.6%) reported that the responsibility fell outside their work description, and five (26.3%) reported that they did not feel comfortable attending autopsies.

Stress, trauma and mental health

Nearly a third of respondents (n = 23, 29.1%) rated the nature of CSI work as 'very stressful'. A similar proportion (n = 25, 31.6%) appraised the occupation as 'quite stressful'. Twenty-two (27.8%) regarded CSI work as 'a little stressful', while nine (11.4%) considered their work as 'not stressful at all'.

The participating CSIs were asked to indicate their levels of stress en route to, while working at, and after having completed their work at crime scenes. The responses are shown in Figure 1.

When combining the 'quite stressed' and 'very stressed' categories, the levels of stress of respondents, in general, appeared to increase from when CSIs were en route (n = 16, 20.3%), to when they were working at the crime scene (n = 20, 25.6%), and then after they had concluded their work (n = 28, 35.9%).

Table 2. Respondents' use of substances

Substance	Never		Seldom		Sometimes		Daily	
	n	%	n	%	n	%	n	%
Alcohol	22	29.7	32	43.2	16	21.6	4	5.4
Tobacco	53	73.6	7	9.7	3	4.2	9	12.5
Prescription medication	32	42.1	20	26.3	9	11.8	15	19.7

Respondents were asked to indicate how traumatic they found specific types of crime scenes. Most reported that scenes that involved the bodies of children and teenagers, and those with disfigured or decomposed bodies, were very traumatic (Table 3).

Table 4 shows the respondents' self-reported mental health. More than 50% of respondents reported that they experienced mental health issues 'sometimes' or 'often'.

Respondents were asked how often they had experienced trauma indicators, as listed in Table 5, at least twice in the week preceding the survey. The greater proportions of respondents reported that they had experienced upsetting thoughts and reminders about events.

The probability of being diagnosed with PTSD is high if a respondent replies in the affirmative to at least six of the 10 items on the trauma screening questionnaire. The average score of respondents was 5.9, and more than half (n = 46, 58.2%) scored six or higher on the questionnaire. Fifteen respondents (19.2%) replied 'yes' to all 10 items.

The correlation analysis indicated that there was a weak positive association between the traumatic nature of crime scene and mental health scales (n = 71; r = 0.333, p < 0.01). There was a moderate positive correlation between the traumatic nature of crime scene scale and the TSQ (n = 71; r = 0.474, p < 0.001), and between the mental health scale and the TSQ (n = 76; r = 0.520, p < 0.001).

Help-seeking and training

More than two-thirds of respondents (n = 53, 68.8%) expressed the need to speak to someone about the nature of their work. Of these, the majority (n = 38, 74.5%) did speak to someone, notably a colleague (n = 14, 36.8%), a family member (n = 7, 18.4%), a professional at work (n = 7, 18.4%), a professional outside work (n = 4, 10.5%), a friend (n = 4, 10.5%), or a religious leader (n = 2, 5.3%). The majority (n = 62, 78.5%) indicated that they had received information about what to expect before they arrived at a crime scene, and most of them (n = 44, 72.1%) found this information useful. Of those who had never received information prior to arrival at a crime scene (n = 17, 21.5%), more than half (n = 9, 52.9%) stated that they would have liked to receive information about what to expect.

More than half (n = 48, 61.5%) indicated that debriefing services were never provided. Less than a third (n = 23, 29.1%) had received training to cope, at an emotional level, with their work and nearly all (n = 20, 87.0%) stated that the training was helpful. The majority (n = 43, 79.6%) of those who had not received training stated that they would welcome training to assist them to cope with their work.

Work satisfaction

Nearly two-thirds of respondents rated their work experience as either 'very good' or 'good', although the majority appeared cautious about recommending working as a CSI to others (Table 6).

DISCUSSION

Crime scene investigators bear the consequences of brutal events beyond the parameters of normal work experiences, even more so in settings of violent murder where frequent exposure to dead bodies may result in serious post-incident stress behaviours. Attrition rates for CSIs – nearly 50% over a three-year period in Australia[20] – come at a high cost to law enforcement agencies. The average age of respondents (37.7 years) in our survey and the average number of years they have been working in the SAPS (14.5 years) – and more specifically as CSIs (10.0 years) – suggest not only low staff turnover but, equally

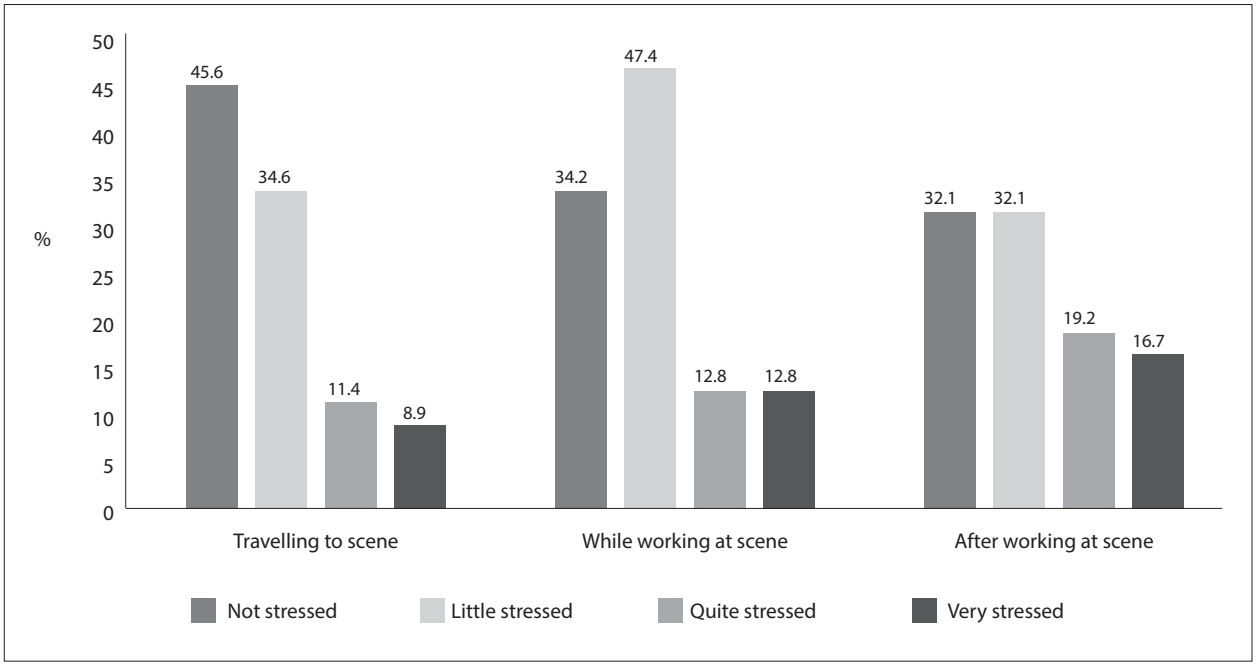

Figure 1: Stress en route to, working at, and concluding work at crime scene

Table 3. Traumatic nature of crime scenes

	Not traumatic		Little traumatic		Quite traumatic		Very traumatic	
	n	%	n	%	n	%	n	%
Children	4	5.2	12	15.6	17	22.1	44	57.1
Decomposed bodies	13	16.7	16	20.5	13	16.7	36	46.2
Teenagers	6	7.7	20	25.6	19	24.4	33	42.3
Disfigured bodies	14	17.9	17	21.8	15	19.2	32	41.0
Foetuses	11	14.5	21	27.6	16	21.1	28	36.8
Dismembered bodies	16	20.8	17	22.1	16	20.8	28	36.4
Adults	16	20.8	24	31.2	23	29.9	14	18.2

important, the retention of expertise and practical experience. Evidence suggests that longer service duration ameliorates stress experienced by CSIs as a result of exposure to, for example, homicide, suicide and mass fatalities.[7]

Depression and anxiety are debilitating mental health conditions that cost the global economy an estimated USD 1 trillion annually,[35] and it is estimated that mental, neurological and substance use disorders affect at least 10% of the world's population.[35] Disquietingly, one in five CSIs reported having been diagnosed with a mental health condition. However, the figure might be an underestimate of the problem as some respondents might have had a mental health disorder that had not been clinically diagnosed.

Nearly a quarter of the CSIs had been diagnosed with a chronic health condition. This is slightly higher than the South African average of 18% for 2019.[36] Frontline police officials commonly present with physical health conditions such as headaches, high blood pressure (and concomitant cardio and vascular problems), back pain and digestive problems.[5] Considering their diagnosed mental and chronic health conditions, it is not surprising that nearly a third (31.6%) of respondents regularly used prescription medication.

Almost all the CSIs attended crime scenes at least once or twice per week where someone had died violently, with some attending such scenes five or more times per week. In addition to gathering evidence over extended periods of time and handling corpses, the majority of CSIs attend autopsies. It is therefore not surprising that many respondents reported violent crime scenes as being fairly traumatic. This is congruent with trauma trends among South African police officials in general.[25] Dealing with child victims, in particular, places emotional strain on CSIs, which is confirmed by previous research.[13,24,37] In this regard, it has been found that police officials' cognitive appraisals of events, especially when there are characteristics that closely intersect with their own lives, such as having children of their own, are predictive of elevated trauma levels.[38] Exposure to the remains of a child creates an uneasy sense of familiarity and emotional involvement. Since the majority of respondents had children, it follows that they would be adversely affected by death scenes involving children.

The manner in which stress and trauma develop is dynamic. The findings established that, in some cases, stress increased en route to a scene, elevated while working at the scene, and peaked after processing the scene. This emphasises the need for debriefing immediately after having worked at a violent scene; yet the majority of respondents stated that such debriefing is never available. Nevertheless, some CSIs relied on support from other sources to cope with stress.[20] The majority of respondents expressed the need to speak to someone about the nature of their work, with colleagues appearing to be their preferred confidantes. This is not unusual, given the camaraderie among police officials, and CSIs in particular, considering the macabre nature of their work environment. The uptake of professional support provided by the SAPS appeared to be fairly low and has been ascribed to police officials' fear of being perceived as being weak, and reservations about the confidential nature of in-house professional support services.[23]

Male CSIs in this survey outnumbered females by slightly more than 3:1. Research confirms that the police culture, in general, conforms to hegemonic masculinity and is characterised by hyper masculinity.[39] Besides masculinity, the police culture has also been described as isolationist, elitist, misogynistic and authoritarian.[40] It is possible that the 'macho' policing culture, which disapproves of any signs of vulnerability or acknowledgement of emotions, acts as a barrier for male CSIs to access in-house support services.[41-43]

The results further suggest that CSIs experience varying levels of sadness, anxiousness, hopelessness, unsettlement and loneliness. The findings support the unfavourable psychological health symptoms identified among other frontline workers in South Africa.[5] Notably, the greater proportion of respondents presented with two trauma indicators, namely upsetting thoughts and feeling upset by reminders of events. This is not unexpected because the duties of CSIs include compiling photographic albums of crime scenes and testifying in court. Investigators are required to continuously assess their work for accuracy, and traumatisation therefore does not end at the crime scene – it is prolonged when reviewing the evidence post-scene and during court proceedings.[5]

In Buffalo, New York, police officials presented higher post-traumatic stress symptomatology (35%) compared to the general population (9%).[44] In Slovenia, approximately 7% of adults in the general population will experience PTSD, yet clinically significant PTSD symptoms have been found among 17% of CSIs.[13] In South Africa, a

Table 4. Respondents' self-reported mental health

Symptom	Never		Seldom		Sometimes		Often	
	n	%	n	%	n	%	n	%
Sadness	8	10.1	12	15.2	40	50.6	19	24.1
Anxiety	10	13.0	18	23.4	34	44.2	15	19.5
Hopelessness	20	25.6	15	19.2	27	34.6	16	20.5
Feeling unsettled	11	14.1	15	19.2	29	37.2	23	29.5
Loneliness	25	32.1	10	12.8	30	38.5	13	16.7

Table 5. Respondents' experiences of trauma

Indicator	n	%
Upsetting thoughts/memories about events have come into your mind against your will	48	60.8
Feeling upset by reminders of the events	41	51.9
Heightened awareness of potential dangers to yourself and others	34	43.6
Irritability or outbursts of anger	33	41.8
Difficulty concentrating	31	39.2
Being jumpy or being startled by something unexpected	31	39.2
Acting or feeling as if the events were happening again	28	35.4
Having upsetting dreams about events	26	32.9
Bodily reactions (fast heartbeat, stomach turning, sweatiness, dizziness) when reminded of the events	26	32.9
Difficulty falling or staying asleep	26	32.9

national survey indicated a PTSD prevalence rate of 11.1% amongst the general population.[45] More than half of the respondents in our study presented with trauma symptomatology, indicating that CSIs carry a disproportionately higher burden of psychological discomfort than the general population.

In Slovenia, CSIs undergo six-month training, which barely touches on mental health.[13] The situation appears to be similar in South Africa; less than a third of respondents in our survey reported that they had received training on how to cope with their work on an emotional level. As anticipated, the majority of those who were not trained would like to receive this support.

Although most respondents stated that they would not recommend their occupation to others, they did not appear to actively consider resigning, which indicates dedication and commitment, supported by their high levels of work satisfaction. Job satisfaction has been found to mediate episodes of depression and, likewise, commitment to the organisation has proved to moderate the effects of work-related trauma on health.[5,46]

It is recommended that CSIs have access to tailor-made counselling services given the intensity and nature of stress and trauma to which they are frequently exposed. Since CSIs work irregular hours, on-demand debriefing should be available at all times. As some CSIs might avoid in-house counselling services, the development of peer-debriefing programmes should be considered. Lastly, larger studies are needed to better understand the stress, trauma and mental health that CSIs experience amid South Africa's high homicide burden.

Table 6. Work satisfaction of respondents

Indicator	n	%
Rating of work satisfaction		
Very poor	1	1.3
Poor	5	6.4
Average	21	26.9
Good	25	32.1
Very good	26	33.3
Ever considered resigning		
Never	30	38.0
Sometimes	39	49.4
Often	10	12.7
Would recommend working as CSI		
Not at all	17	21.5
Hesitantly	38	48.1
Definitely	24	30.4

CONCLUSION

We showed that CSIs experience concerningly high levels of trauma and PTSD symptomatology. Some CSIs have been diagnosed with chronic health and mental health conditions that may be attributed to their stressful work context. Crime scene investigators are confronted with hazardous crime scenes where they have to work with, among other things, bodily fluids that may be infected with contagious diseases or bacteria. While CSIs have the need to speak to someone about the nature of their work, most do not access in-house wellness support. Despite their adverse working conditions and, for some, negative mental health outcomes, the CSIs in this study appeared to be satisfied with their work.

LESSONS LEARNED

1. Initial suspicion about surveys can be allayed by presenting the approved research and ethics protocols to potential participants.
2. Liaison with the managers of LCRCs and arranging site visits well in advance proved beneficial for the smooth running of data gathering.
3. The managers of LCRCs welcomed the study and expressed concern about some CSIs' mental health and substance use.

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DECLARATION

The authors declare that this is their own work; all the sources used in this paper have been duly acknowledged and there are no conflicts of interest.

AUTHOR CONTRIBUTIONS

Conception and design of the study: FS, HK
Data acquisition: FS
Data analysis: FS
Interpretation of the data: FS, HK
Drafting of the paper: FS, HK
Critical revision of the paper: FS, HK

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