

# Extraversion, neuroticism and secondary trauma in Internet child abuse investigators

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<b>Background</b>	Working with victims and perpetrators of child sexual abuse has been shown to cause secondary traumatic stress (STS) in child protection professionals.
<b>Aims</b>	To examine the role of gender and personality on the development of secondary trauma responses.
<b>Methods</b>	A study of Internet child abuse investigators (ICAIs) from two UK police forces. Participants completed a personality test together with tests for anxiety, depression, burnout, STS and post-traumatic stress disorder to assess secondary trauma. The data were normally distributed and the results were analysed using an independent <i>t</i> -test, Pearson correlation and linear regression.
<b>Results</b>	Among 126 study subjects (50 females and 75 males), there was a higher incidence of STS in investigators who were female, introverted and neurotic. However, there were lower levels of STS in the participants in this study than those found in other studies.
<b>Conclusions</b>	Psychological screening and surveillance of ICAI teams can help to identify risk factors for the development of STS and identify where additional support may be required.
<b>Key words</b>	Internet child abuse; personality; screening; secondary traumatic stress.

## Introduction

Secondary trauma includes symptoms of anxiety, depression and post-traumatic stress disorder (PTSD) and is sometimes referred to as compassion fatigue (CF). Secondary trauma faced by workers engaging with child sex offenders [1] and traumatized children is well recognized, with a number of studies examining CF and secondary traumatic stress (STS) in child protection workers [2–4]. Even when the exposure is indirect, clinical levels of distress have been observed in over a third of child protection workers [5]. Whilst most professionals working with abused children are resilient, others experience trauma-related distress [6]. The adverse responses of Internet child abuse investigators (ICAIs) include stress, burnout, vicarious trauma and CF [4] with intrusive images and over protectiveness towards their own children [7].

There is limited data on the harm caused by exposure to Internet child abuse or recommendations on the best ways to help ICAIs build resilience [8]. A risk assessment and management approach provides an appropriate framework for protecting ICAIs as it recognizes

the duty of employers and employees to manage work-related hazards [9]. One of the risk areas considered in relationship to ICAIs is the role of personality, where it has been shown that women typically score higher on neuroticism and lower on extraversion than men [10], which may make women more vulnerable to secondary trauma.

It is suggested that introversion creates an increased risk of PTSD, as introverts are more pessimistic and less likely to seek social support [11]. However, the relationship between introversion and PTSD is not strong [12]. Extraversion has been found to be linked to lower levels of PTSD severity [13,14] resilience and post-trauma growth [15]. The link between neuroticism and PTSD has been researched widely [16], and it is suggested that increased levels of PTSD only occur at very high levels of neuroticism [12,17]. Neuroticism has been found to create an increase in negative thinking, which is thought to undermine confidence and coping strategies [18]. There is some evidence to suggest that emotional stability (i.e. low levels of neuroticism) is linked to greater resilience [19,20]. A number of psychometric tools can be used to measure personality, one of the earliest being

the Eysenck Personality Inventory (EPI) [21], and more recently the NEO Personality Inventory [22].

This study was designed to measure the level of STS in male and female ICAI professionals and to establish if there is a relationship between secondary trauma, gender and the personality dimensions of introversion/extraversion and neuroticism/emotional stability.

## Methods

The study was judged by the authors to meet the ethical standards required by the British Psychological Society [18].

The ICAI participants in this study came from two police forces. Both forces had introduced mandatory psychological screening and support for their ICAI team. This involved pre-deployment screening plus a six monthly programme of screening and an hour of individual support. The ICAIs were sent screening questionnaires which were returned for scoring. During the individual support sessions, the results of the screening and any personal or work-related concerns were discussed. Where support was required, this was provided within the session or where necessary a referral was made for additional training, support or more intensive therapy. The participants were aware that their personal information would remain confidential but that there would be an analysis of anonymized data which would be used to evaluate the programme and to monitor the well-being of the ICAI team.

The dependent variables were the five self-reported clinical measures; baseline scores for these measures had been established for ICAI workers [23]. The five dependent variables were anxiety and depression [24], where the scale comprises nine anxiety and nine depression symptoms, burnout and secondary trauma, measured using the Quality of Life Scale [25], and traumatic stress, measured using the Impact of Events Scale-E [26].

Clinical significance provided a useful benchmark for assessing levels of clinical distress experienced by individuals. In this study, the clinical cut-off levels used had been developed by the authors of the questionnaire (level 2), but clinical experience in the use of the scales in an ICAI setting [23] had shown the need for a second clinical cut-off level (level 1) to indicate where ICAI team members were showing signs of distress which required early intervention to prevent the development of higher levels of distress.

The independent variables of introversion and neuroticism were measured using the Eysenck Personality Questionnaire (EPQ) (short form) [10]. The EPQ measures 12 extraversion domains. High scores are suggestive of extraversion and low scores of introversion. The questionnaire also measured 12 neuroticism domains. The EPQ was chosen because it is well established and has

sound psychometric properties [27]. Gender was taken from the demographic information provided by each participant. The data were analysed using SPSS 17.

## Results

There were 126 ICAI participants. The group comprised 50 women, average age of 41 (SD 8.9), and 76 men, average age 44 (SD 9.4). The data set was split by gender and the results are shown in Table 1. The independent samples *t*-test indicated that the scores were significantly higher for women for all of the clinical measures with the highest level of probability of significance being for PTSD,  $P < 0.01$ , and STS,  $P < 0.01$ . There was a lower level of probability of significance for the differences between the male and female ICAIs for anxiety ( $P < 0.05$ ), depression ( $P < 0.05$ ) and burnout ( $P < 0.05$ ).

To measure clinical significance, cut-off levels were used to identify ICAIs with early signs of distress (level 1) and high levels of distress (level 2). The results showed that women were more than twice as likely to experience anxiety and depression compared with their male colleagues at both levels. Whilst 16% of men were found to be at risk of developing PTSD and 22% at risk of burnout at level 1, none were experiencing clinical symptoms (level 2). The women also showed a large reduction in the scores for PTSD and burnout between level 1 and 2. The STS symptoms fell for both groups but 4% of men and 7% of women were still reporting clinical levels of STS at level 2.

An analysis of extraversion and introversion was undertaken using the independent samples *t*-test which found that there were no significant differences between the male and female ICAIs. However, the female ICAIs had a higher mean level of neuroticism and introversion than the males. When the individual scores were compared with the population mean scores provided for the EPQ, it was found that the ICAIs were more extraverted and less neurotic than the EPQ population comparator group (Table 2) [10].

A Pearson correlation was then undertaken to identify relationships between the two personality variables and the clinical measures (Table 3). This showed that extraversion was negatively correlated with depression ( $P < 0.05$ ) and PTSD ( $P < 0.05$ ) and neuroticism was positively correlated with anxiety ( $P < 0.001$ ), depression ( $P < 0.001$ ), PTSD ( $P < 0.001$ ), burnout ( $P < 0.001$ ) and STS ( $P < 0.001$ ).

A regression analysis was then undertaken to test if extraversion, neuroticism or gender predicted the STS scores. The results indicated that the three predictors explained 20% of the variance for anxiety, 30% for depression, 28% for PTSD, 20% for burnout and 22% for STS. The regression analysis also found that neuroticism significantly predicted anxiety ( $\beta = 0.42$ ;  $P < 0.001$ ), depression ( $\beta = 0.46$ ;  $P < 0.001$ ), PTSD ( $\beta = 0.40$ ;  $P < 0.001$ ), burnout ( $\beta = 0.35$ ;  $P < 0.001$ )

**Table 1.** Comparison of clinical responses in male and female ICAI professionals at levels 1 and 2

	Sex	No.	Min.	Max.	Mean	SD	Diff.	Cut-off 1	% above cut-off 1	Cut-off 2	% above cut-off 2
Anxiety	M	76	0	8	1.2	1.7	0.04*	3	16	5	3
	F	50	0	8	2.0	2.1			34		10
Depression	M	76	0	6	0.51	1.1	0.03*	2	12	3	5
	F	50	0	6	1.1	1.5			26		10
PTSD	M	76	0	47	12.8	14.3	0.002***	32	16	50	0
	F	50	0	51	21.6	16.1			24		4
Burnout	M	68	0	27	15.3	5.8	0.05*	22	24	30	0
	F	44	6	30	17.5	5.6			38		2
CF	M	68	0	24	6.1	5.2	0.007***	10	16	15	4
	F	44	1	26	9.7	6.0			22		7

SD, standard deviation.

\*Correlation is significant at <0.05 level.

\*\*Correlation is significant at <0.001 level.

**Table 2.** Comparison of extraversion and introversion in male and female ICAIs

	Sex	No.	Min.	Max.	Mean	SD	Diff.	EPQ mean	% above EPQ mean
Extraversion	M	74	0	19	7.2	3.9	0.21 (ns)	6	57
	F	48	1	12	8.0	3.1			67
Neuroticism	M	74	0	19	2.9	3.4	0.11 (ns)	5	18
	F	48	0	11	3.9	3.1			27

ns, not significant; SD, standard deviation.

**Table 3.** Correlation between clinical and psychological measures for ICAI

	Anxiety	Depression	Trauma	Burnout	CF
Extraversion	-0.105	-0.203*	-0.190*	-0.172	-0.053
	0.248	0.025	0.036	0.075	0.586
Neuroticism	0.422**	0.505**	0.458**	0.391**	0.434**
	0.000	0.000	0.000	0.000	0.000

\*Correlation is significant at <0.05 level.

\*\*Correlation is significant at <0.001 level.

and STS ( $\beta = 0.40$ ;  $P < 0.001$ ). Female gender predicted depression ( $\beta = -0.15$ ;  $P < 0.04$ ), PTSD ( $\beta = -0.25$ ;  $P < 0.01$ ) and STS ( $\beta = -0.19$ ;  $P < 0.05$ ) and introversion predicted depression ( $\beta = -0.16$ ;  $P < 0.05$ ).

## Discussion

This study confirmed that some ICAIs experienced STS and that women experienced more adverse effects than men. The results supported earlier research suggesting that higher levels of neuroticism were associated with an increased reporting of anxiety, depression, burnout, PTSD and STS. However, the proportion of ICAI professionals experiencing clinical levels of symptoms in this study was less than expected from other studies of child protection officers where levels of secondary trauma of between 37% [5] and 50% were recorded [3]. Studies of other occupations [28,29] reported mean levels of anxiety and depression 1–2 points higher than those found in the ICAI workers.

A study of sex offender treatment providers found that more than three quarters of workers did not report any negative impact from their work [1] which suggests that there may be opportunities for post-trauma growth and compassion satisfaction for professionals engaged in this area of work.

It is unclear why the two ICAI teams in this study had lower levels of traumatic stress symptoms than found in other professionals working with child abuse groups but there are a number of possible explanations. The two police forces involved in the study used volunteers and their culture and working patterns made them closely knit teams. The introduction of pre-employment screening made applicants to the ICAI team more alert to the potential dangers inherent in the work and the pre-deployment support sessions provided an opportunity to discuss coping strategies. It is also likely that the management of the team where the sergeants and inspectors were aware of the potential dangers of the work and supportive of the screening, surveillance and support

programme created an environment which helped the ICAIs build resilience.

The provision of valid and reliable screening as a mechanism of support has been recognized as a key means of identifying those at highest risk and a valuable means for highlighting well-being needs and training opportunities. It is also recognized that reflection and social support increase resilience and can facilitate post-trauma recovery [15]. The results of this study also support the notion that screening and surveillance is important to the well-being of ICAIs and has established some of the risk factors involved in working with Internet child abuse. However, the results also indicate that there are other factors influencing the incidence of STS which are likely to include coping skills, resilience, social support, personal history of abuse and the nature of the traumatic exposure. Further research should examine these factors.

This study found that less emotionally stable ICAI professionals were at greater risk of experiencing secondary trauma. It is important that emotionally sensitive applicants are made aware of the potential dangers of working in the ICAI role, but it is too early to suggest that they should not be employed in this work as there is a possibility that emotional sensitivity may provide benefits in terms of an enhanced emotional awareness enabling emotionally sensitive ICAIs intuitively to pick up important evidence which may not be noticed by a more emotionally stable investigator.

There are opportunities for future studies emerging from this research, including whether moderate levels of neuroticism may increase the effectiveness of ICAI professionals in their investigatory role. It would also be useful to undertake longitudinal tracking of STS in ICAIs over 3–4 years to identify if there is a reduction in resilience and a need to introduce a period of tenure for this role.

It can be argued that to be successful in child abuse investigations, there needs to be a balance between the need for emotional sensitivity and emotional hardiness and that in supportive organizations, it is possible to achieve this balance.

### Key points

- The officers engaged in dealing with Internet child abuse in this study had lower than expected levels of trauma-related symptoms.
- The study showed that female gender, introversion and neuroticism were associated with higher levels of trauma-related symptoms.
- Future studies may benefit from comparing the trauma symptoms in other groups, such as child protection social workers or traffic officers with a high level of exposure to road fatalities.

### Conflicts of interest

None declared.

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