

TRiM: an organizational response to traumatic events in Cumbria Constabulary

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Background	A major incident involving multiple fatalities occurred in Cumbria, England on 2 June 2010. The Cumbrian Constabulary deployed an organizational peer support response for personnel involved known as trauma risk management (TRiM).
Aims	To examine data routinely gathered during the TRiM process to evaluate the relationship of the intervention to sickness absence.
Methods	Using incident databases, details were gathered regarding exposure to the murders and type of TRiM intervention, including an assessment of the psychological risk to the individual of developing a trauma-related mental health problem. Sociodemographic information was collated by the occupational health department. Cumulative sickness absence data in the 2 months following the murders were used as a proxy for mental health status.
Results	A total of 717 police officers and civilian support staff were identified. High levels of traumatic exposure were associated with subsequent receipt of a TRiM intervention. The majority of psychological risk indices reduced between the initial and subsequent evaluation. Greater traumatic exposure was associated with longer sickness absence lengths. Engagement in the TRiM process was associated with a reduction in sickness absence especially in more junior ranks.
Conclusions	In this study, we found that TRiM deployed within a police force responding to a major event offered a way of structuring a response for those involved. Our data suggest that TRiM may offer a way of assessing psychological risk so that officers can be offered early supportive interventions. Our data suggest that TRiM may help to ameliorate some of the negative effects of high trauma exposure.
Key words	Exposure; potentially traumatic event; sickness absence; trauma risk management; TRiM.

Introduction

One of the worst crimes in British history involving firearms occurred in Cumbria, England on 2 June 2010. Derrick Bird, a taxi driver, shot and killed 12 people and injured 11 others before killing himself. The crimes were geographically widely dispersed and initiated a major manhunt by the Cumbrian Constabulary with assistance from Civil Nuclear Constabulary (CNC) officers. The extent of direct exposure to the shootings and the police roles undertaken varied considerably and included direct firearm threats, pursuit, aiding injured people, guarding or processing the dead, family liaison, call handling and guarding the local hospital.

Anticipating adverse mental health effects in those involved, trauma risk management (TRiM) was deployed. TRiM is a peer support intervention using trained, non-medical personnel to conduct a psychological risk assessment for those exposed to potentially traumatic events (PTEs). Given the possible dose-response mechanism moderating the impact of trauma [1], a careful evaluation of the PTE, and substantial response planning, seeks to ensure that TRiM is focused upon those most at risk [2]. Following a structured psychological risk assessment, those considered at heightened risk of developing trauma-related mental health problems are signposted to self-refer to appropriate help sources.

To initiate the TRiM process, the force TRiM co-ordinator emailed all staff explaining the principles of TRiM and invited them to attend initial TRiM briefings. Briefing quality moderates distress [3] and so these briefings aim to provide high-quality information about potential psychological trauma responses and self-management. The post-incident pace of work was intense given the scattered crime scenes, so rolling TRiM briefings took place in three main police stations to encourage attendance at a convenient time. However, those undertaking vulnerable roles had their own briefings. Attending for TRiM assessment was not compulsory.

The TRiM intervention (a supportive interview incorporating psychological risk assessment) uses a 10-point risk checklist. Each item is scored 0–2, and scores are summed to provide an overall score (0–20), higher scores indicating a heightened risk of developing post-incident psychological disorders. TRiM interviews can be delivered to individuals (termed a 1:1 intervention) or within small groups; the police service currently uses mostly 1:1 interventions. Where heightened risk was detected, watchful waiting was undertaken, supported by colleagues and seniors, with signposting for formal help if the mental state deteriorated. Formal help mostly comprised psychotherapeutic procedures delivered by the force psychologist using National Institute for Clinical Excellence [4] recommended procedures, including eye movement desensitization and reprocessing or cognitive behavioural therapy. Following the initial TRiM interview, a second follow-up contact was offered 1 month later to assess progress; those with deteriorating mental health or increasing TRiM scores were signposted to potential sources of help and support. TRiM does not aim to prevent post-incident mental health problems developing, but to engage those requiring support with formal or informal help sources. The aim of this evaluation study was to evaluate the TRiM response and to examine its relationship to sickness absence as a proxy outcome measure for mental ill-health [5].

Methods

Cumbrian Constabulary police officers, civilian support staff and CNC officers were identified as having been involved in the event from incident databases. Where possible, the exposure details were recorded. Traumatic exposure was classified and dichotomized. High-level exposure included direct physical threat, dealing with human remains, wounded or distressed victims or the bereaved or being deployed in a fire-arms role. Lower exposure included working away from shooting locations or providing indirect support. Sociodemographic information was collated by Cumbrian Police occupational health and welfare department staff. This included age, gender, relationship status, uniformed police or civilian status, rank

(where appropriate) and years of service. Receipt of a TRiM invitation email, any initial or follow-up TRiM interviews, TRiM scores and whether the individual received formal support were all recorded. Sickness absence was recorded for Cumbrian Constabulary staff, but CNC absence data were not available. The total cumulative duration of sick leave between 2 June 2010 and 31 July 2010 was examined. Some previous studies demonstrate a link between mental and physical ill-health [6,7] and occupational role impairment [8] including absence [9,10], while others report no such link [11]. To ensure a robust evaluation, sickness absences clearly not connected to the shootings, such as those related to pre-existing relationship difficulties or other major life events, were excluded when generating cumulative absence. As this was a service evaluation rather than prospective research, no ethical committee approval was obtained for the study although the chief constable approved the evaluation process.

Analyses were carried out using the statistical package for social sciences version 19 for Windows. Statistical significance was $P \leq 0.05$. Differences in categorical variables were examined using Pearson chi square tests. Correlation coefficients were generated using Spearman's rho. Differences in TRiM scores between treated and untreated participants were examined using independent samples *t*-tests. To test whether participation in the TRiM process had any direct mental health effects, a logistic regression was carried out using sickness absence as the dependent variable and potentially traumatic exposure level as the predictor variable. The model was adjusted for a range of possible confounding variables including sociodemographic factors and the type of TRiM intervention, e.g. briefing meeting, 1:1 intervention and follow-up.

Results

A total of 717 individuals were identified as involved in the event. Exposure details were only available for 45% ($n = 326$). Sociodemographic data were not available for CNC personnel ($n = 47$). The majority (92%, $n = 662$) of uniformed and civilian police staff were offered the opportunity to engage in TRiM by email, directly by line managers or during the briefing meetings. Of the 8% ($n = 60$) who did not receive an email, 47 were CNC officers drafted in on the day or staff working in specialist roles for whom an email address was not available. Two-thirds of the police officers were male; 51% were aged 40–49. Three-quarters were junior (constable or special constable), 23% were middle rank (sergeant to inspector) and 3% seniors (chief inspector to chief constable). Service length was 0–30 (median 10) years. Over two-thirds were in a married or cohabiting relationship. Eleven per cent of the sample were civilian support staff. Significant differences between police officers and

civilian support staff in a number of key variables were identified such that they formed two distinct groups, and civilian staff were therefore excluded from further analyses. Potentially traumatic exposure information was available for 52% ($n = 335$) of officers, 52% of whom were classified as having higher level traumatic exposure (Table 1). Those experiencing higher level exposure had significantly higher levels of sickness absence (39%, $n = 50$) than those undergoing middle and lower level exposure (21%; $n = 34$, $P < 0.001$).

After receiving an email, approximately two-thirds of officers received no further TRiM input, around a quarter received a 1:1 intervention and the remaining 14% received a TRiM briefing either alone or in combination

with a 1:1 intervention. The distribution of TRiM interventions and the levels of potentially traumatic exposure, where known, are shown in Figure 1.

Officers attending TRiM briefing meetings had experienced significantly higher levels of potentially traumatic exposure (45%, $n = 78$ versus 5%, $n = 8$, $P < 0.001$) as had those receiving a 1:1 intervention (46%, $n = 80$ versus 5%, $n = 8$, $P < 0.001$). Twenty-nine per cent (59 of 175) of highly exposed officers received no form of TRiM intervention. The results are shown in Table 2.

Seventeen per cent (36 of 210 officers) received brief therapy from the force clinical psychologist after the initial TRiM intervention. In the intervention group, initial

Table 1. Sample characteristics

Characteristic ($n = 717$) ^a	Police n (%)	Civilian n (%)	χ^2 , df, P
Sex	640 (89)	77 (10)	
Male	434 (68)	22 (29)	$\chi^2 = 46.59$, df 1, $P < 0.001$
Female	203 (32)	55 (71)	
Rank (592)			
Junior rank (constable, special constable)	439 (74)	N/A	
Middle rank (inspector, sergeant)	135 (23)		
Senior rank (chief constable, deputy chief constable, assistant chief constable, superintendent, chief inspector)	18 (3)		
Age (years)			
20–24	8 (1)	5 (7)	Civilians have 34 of 77 (44%) in the upper quartile age group, police officers have 142 of 592 (24%); $\chi^2 = 14.30$, df 1, $P < 0.001$
25–29	48 (8)	3 (4)	
30–34	104 (18)	5 (7)	
35–39	80 (14)	12 (16)	
40–44	177 (30)	14 (18)	
45–49	124 (21)	17 (22)	
50–54	40 (7)	9 (12)	
>54	11 (2)	12 (16)	
Length of service (years)			
0–4	61 (10)	23 (30)	Civilians have 8 of 77 (10%) in the upper quartile service length group, police officers have 165 of 592 (28%); $\chi^2 = 10.86$, df 1, $P < 0.001$
5–9	233 (39)	20 (26)	
10–14	80 (14)	21 (27)	
15–19	70 (12)	7 (9)	
20–24	78 (13)	3 (4)	
25–29	69 (12)	2 (3)	
>29	1 (0)	1 (1)	
Relationship status			
In a relationship (married or cohabiting)	420 (71)	43 (56)	$\chi^2 = 7.82$, df 1, $P < 0.01$
Not in a relationship (single, separated, divorced, widowed)	168 (29)	34 (44)	
Exposure			
Extremely/very high	136 (41)	4 (7)	Civilians have 6 of 59 (10%) in the higher exposure group, police officers have 175 of 335 (52%); $\chi^2 = 35.75$, df 1, $P < 0.001$
Moderately high	39 (12)	2 (3)	
Low	39 (12)	47 (80)	
None	121 (36)	6 (10)	

^aColumn totals do not add up to sample total due to missing data.

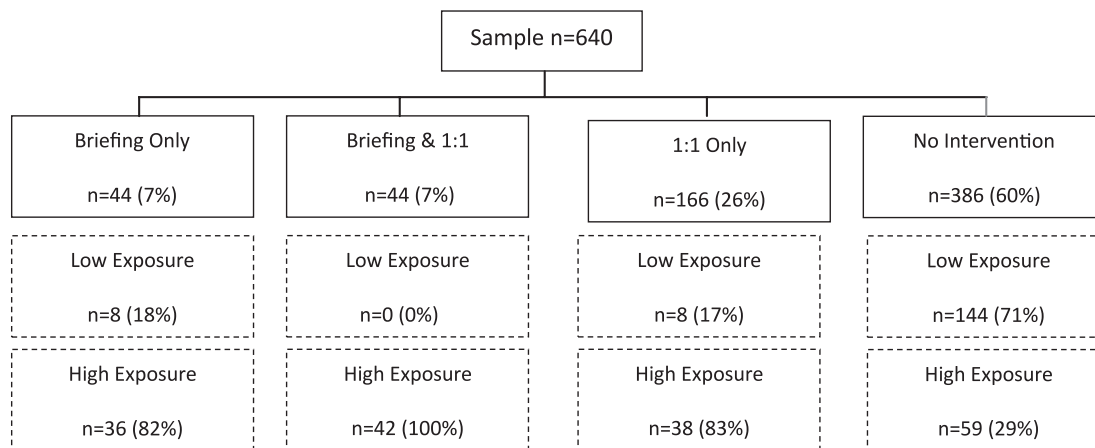


Figure 1. The distribution of TRiM interventions and potentially traumatic exposure level. Note that exposure level information was not available for all police officers.

TRiM scores ranged from 5–19 (mean = 11.5, SD 3.2), whereas in the untreated group, these scores ranged from 1–9 (mean = 6, SD 2). The mean change score from first to second TRiM assessment for the intervention group was a reduction of 8 (SD = 3) and for the untreated group 3 (SD = 2; $t = 9$ (42), $P < 0.001$). At the second TRiM assessment, untreated group TRiM scores ranged from 0–7 (mean = 2, SD 1) and from 2–6 in the intervention group (mean = 4, SD 1). Comparing differences in TRiM scores at the two assessment points, TRiM scores remained significantly higher in the treated group (first assessment $t = 10$ (41), $P < 0.001$ and second assessment $t = 5$ (48), $P < 0.001$). However, the initial difference in mean scores between the intervention and untreated groups was 6, whereas at follow-up it was 1, suggesting that the scores were converging at a lower level.

We examined the movement of treated and untreated officers between score categories at follow-up. In the 5–9 TRiM score category, 5% ($n = 6$) of non-treated officers in this category maintained their scores, while in the treated group, all scores reduced from the 5–9 to the 0–4 category. In the ≥ 10 score category, all scores reduced significantly, but around a third of these officers still had scores of 5–9 at follow-up. The results are shown in Table 3.

The results of unadjusted and adjusted logistic regression suggested that neither sociodemographic factors nor participation in TRiM alone significantly affected sickness absence rates when stratifying by exposure level. However, in combination, these factors had a significant effect, suggesting that when accounting for sociodemographic factors, receiving TRiM was positively associated with less sickness absence. Sociodemographic factors were entered stepwise into the model and only ‘rank’ interacted with TRiM to render the difference in sickness absence levels non-significant (Odds ratio 1.7, 95%

confidence interval 0.93–3.10). The results of the logistic regression are shown in Table 4.

Overall, junior ranks had longer sickness absence periods (juniors 30% $n = 131$ of 439) than middle ranks and seniors (22%, $n = 34$ of 153); however, when receiving TRiM, the rate of longer sickness absence for junior ranks was 29% ($n = 44$ of 152) compared with 28% ($n = 15$ of 54) in senior and middle ranks and 28% ($n = 106$ of 386) of all ranks who received no TRiM intervention.

Discussion

In this study, approximately one-third of officers received some form of TRiM intervention following a major critical event. TRiM was focused upon those with the highest levels of potentially traumatic exposure, although around a third of those in this category did not receive TRiM intervention. Those with the highest TRiM risk assessment scores were significantly more likely to receive a psychological intervention.

The majority of officers’ TRiM scores had reduced at the 1-month TRiM follow-up. Whilst scores were significantly higher at both assessment points in the treated group compared with the untreated, scores in the treated group reduced significantly over time. Those with the highest levels of traumatic exposure had significantly longer sickness absence periods and higher TRiM scores. We also found that TRiM intervention may have mitigated the increased sickness absence levels known to be associated with exposure to traumatic situations, particularly for junior officers.

It seems likely that if TRiM were successful in identifying those at risk of developing mental health problems and ensuring early intervention, it would have an organizational benefit additional to that to individuals themselves. Our data suggest that those with the highest levels

Table 2. Sickness absence, TRiM scores, treatment and potentially traumatic exposure

Exposure level	Cumulative sickness absence lengths		χ^2 , df, <i>P</i>
	Low to middle	High	
Low exposure (160)	126 (78.8)	34 (21.2)	$\chi^2 = 11.23$, df 1, <i>P</i> < 0.001
High exposure (127)	77 (60.6)	50 (39.4)	
Receipt of TRiM intervention components and TRiM components			
TRiM briefing	No TRiM briefing	TRiM briefing	$\chi^2 = 68.60$, df 1, <i>P</i> < 0.001
Low exposure (160)	152 (95.0)	8 (5.0)	
High exposure (175)	97 (55.4)	78 (44.6)	$\chi^2 = 71.54$, df 1, <i>P</i> < 0.001
TRiM 1:1 intervention	No TRiM 1:1	TRiM 1:1	
Low exposure (160)	152 (95.0)	8 (5.0)	
High exposure (175)	95 (54.3)	80 (45.7)	

Table 3. The relationship between potentially traumatic exposure and treatment upon TRiM scores

Clinical intervention	TRiM score T1	TRiM score T2		Fisher's exact test <i>P</i>
		0–4	5–9	
None	0–4	48 (100.0)	0 (0.0)	NS
	5–9	120 (95.2)	6 (4.8)	
Treatment	5–9	15 (100.0)	0 (0.0)	<i>P</i> < 0.01
	10 plus	13 (61.9)	8 (38.1)	

NS, not significant.

Table 4. The effect of interventions, sociodemographic factors upon sickness absence length in police officers stratified by exposure

Exposure (<i>n</i>)	Shorter sickness length <i>n</i> (%)	Longer sickness length <i>n</i> (%)	Odds ratio	AOR ^a	AOR ^b	AOR ^c
Lower (160)	126 (78)	34 (21)	1	1	1	1
Higher (127)	77 (60)	50 (39)	2.41 (1.43–4.05)	2.33 (1.36–3.99)	1.87 (1.04–3.37)	1.75 (0.94–3.25)

^aAdjusted odds ratio (AOR), adjusted for rank, age, length of service, in a relationship or not and sex.^bAdjusted for attending a TRiM briefing or receiving a TRiM 1:1 intervention.^cAdjusted for rank, age, length of service, in a relationship or not, sex and attending a TRiM briefing or receiving a TRiM 1:1 intervention.

of exposure had the highest TRiM scores and also substantially more sickness absence. When offered psychological support, their scores reduced by a greater margin than those not offered such intervention, and their sickness absence levels fell.

The Cumbrian constabulary was able to offer TRiM intervention by email to the overwhelming majority of its officers (around 90%) and was able to actively assist around 40% by delivering a briefing, a 1:1 interview or both. Those receiving the latter were more likely to have experienced higher levels of exposure. TRiM has an initial planning component, in the first 24 hours following an event, which seeks to identify those who should receive an assessment, and it appears that planners were able to use their knowledge of the event to target correctly those in the at-risk categories. TRiM is a voluntary process, and 44 officers who took part in the briefing meeting went on

to participate in 1:1 interviews, with a further 166 electing to do so after being asked, even though they did not attend a briefing meeting. TRiM differs in this respect to traditional debriefing such as critical incident stress debriefing (CISD) and psychological debriefing (PD) in that, before delivery, careful consideration is given to who should receive it, using a selective rather than wholesale approach. Secondly, it seeks to direct those in need (identified through risk assessment) to appropriate sources of help and by doing so seeks to improve mental health by facilitating timely engagement with psychological services. Our data appear to support this notion, in that those with higher risk assessment scores were significantly more likely to receive treatment by the force psychologist. In this respect, TRiM appeared to succeed in its primary aim. Notably, the 'forced reliving' thought to be the harmful component of CISD and PD [12,13] does not

form part of the TRiM 1:1 interview. This is important as the vast majority of low exposure officers did not participate in the TRiM process unless they elected to attend a briefing meeting and thus avoided potential ‘vicarious traumatization’ [14,15]. Furthermore, our previous studies suggest there is little risk of harm coming to those who choose to participate in TRiM [16].

One potential concern is that around a third of those in the highest exposure category did not receive any form of TRiM intervention. Although this may seem to be a shortcoming of the process, TRiM is by nature voluntary, and careful consideration is given to who should be included in the active interventions. It may be that personal circumstances or characteristics in addition to refusal may have contributed to this figure. Unfortunately, because of the study’s retrospective nature, we are unable to confirm this.

As in other studies [17], following groups of people subjected to traumatic events, we found that the majority of officers’ scores reduced at the 1-month follow-up. This is expected since in most people trauma reactions will normalize over time, requiring intervention only in some cases. We do not expect the TRiM 1:1 interview to assist recovery directly, although it may have been helpful for some individuals to speak to a colleague about their experiences, since social support has been shown to be useful in assisting recovery after traumatic events [18]. The difference in sickness absence levels (our proxy for mental health) between the high- and low exposure groups became non-significant when TRiM interventions and sociodemographic factors were accounted for. Further analysis suggested that rank interacted with TRiM, and we tentatively suggest that in this case constables and special constables had the most to gain from TRiM intervention as pre-TRiM sickness absence rates in juniors were higher overall but were similar at follow-up to both senior ranks who received TRiM and officers of all ranks who received no intervention. Since the data are cross-sectional, we cannot attribute change to TRiM, spontaneous recovery or a substantial treatment effect, although it seems unlikely that the TRiM intervention group would have been more likely to recover spontaneously from the psychological effects of the shootings than those in the non-TRiM group. We found that TRiM scores in those signposted for early intervention by the police psychologist were initially high compared with those not receiving such intervention but that their change scores were significantly greater following intervention than those who received none. At follow-up, the TRiM scores for those who received early intervention remained significantly higher and in around a third some additional intervention appeared necessary. Although the TRiM model usually suggests that practitioners do not signpost immediately for early intervention, instead watchfully awaiting a spontaneous reduction in distress, the force TRiM team were able to arrange fast track brief

intervention for potential early mental health difficulties, which may have been important in preventing chronicity and reducing sickness absence.

There are a number of study limitations. Although data were gathered prospectively, analyses were based upon data routinely collected rather than gathered for specific comparative purposes. A lack of either a control group or randomization may have therefore have given rise to bias, since TRiM is a voluntary activity. There is a substantial amount of missing data that may have introduced further bias. Sickness absence was used as a proxy measure for poor mental health, and no direct mental health measures were obtained. However, since mental ill-health is known to be a substantial cause of sickness absence [19,20], we consider this a meaningful surrogate measure.

We have reported the first evaluation of TRiM used within a police force responding to a major critical event. We suggest that TRiM offers a way of mounting a structured response to meet a duty of care for police officers placed in harm’s way or undertaking unpleasant or highly stressful duties. TRiM interventions appear to have been correctly focused upon those with the highest levels of exposure, and active participation may have conferred a benefit in terms of reduced sickness absence, especially for junior ranks. Our results suggest that TRiM is a useful way of identifying those in need of formal treatment and that, if provided early to those in need, chronicity may be prevented and sickness absence reduced.

Key points

- Those with the highest levels of traumatic exposure had significantly longer sickness absence lengths and higher trauma risk management or TRiM scores.
- TRiM scores in the treated group reduced significantly over time.
- Engagement in the TRiM process was associated with a reduction in sickness absence, especially in more junior ranks.

Conflicts of interest

V.H. worked for one of the studied police forces at the time the data was collected but was not directed in any way in relation to her contribution. N.J. and N.G. provide TRiM training and assist a number of organizations in developing TRiM policy although they were not involved in any way with the police forces studies.

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