

Co-Victims and the Criminal Justice System: How Involvement and Outcome Impact
Post-Traumatic Stress Disorder Symptoms in those who have Lost a Loved one to
Homicide

Catherine White

Student number: 6217079

Faculty of Social and Behavioural Science

University Utrecht

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Supervisor: Suzan Soydas

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Abstract

The primary aim of this study was to investigate whether co-victim's, i.e. those who have lost a loved one to murder, prevalence of Post-Traumatic Stress (PTSD) symptom severity is different during different stages of involvement with the criminal justice system, whilst adjusting for age and gender. Participants referred to ASSIST trauma care, a specialist trauma therapy centre, were grouped according to their stage of involvement with the criminal justice system at the time of intake. 593 of the 1106 participants were able to be put into one of four groups according to their stage of involvement: No body release; investigation; trial; and end of involvement. The Impact of Event Scale (IES) was used to measure PTSD symptom severity in participants. Contrary to expectations, there was no significant difference in the frequency of trauma symptoms between any of the groups. A secondary aim of this study was to assess in verdict outcome could predict PTSD symptom severity. Consistent with expectations, no verdict outcome could predict PTSD symptom severity. Findings suggest that psychological consequences of Criminal Justice involvement on co-victims have little variability between stages of involvement. Findings also suggest that the verdicts effect to co-victims PTSD symptom severity is overestimated and acquiring justice is not an effective tool for symptom reduction. Recommendations for future research are made.

Keywords: co-victims, homicide, PTSD, verdict

Co-Victims of Homicide and the Criminal Justice System: How involvement and outcome impact Post-Traumatic Stress Disorder Symptoms

The death of a loved one is an event that the majority of individuals will face in their lifetime. While most will adjust to the loss without complication, co-victims, i.e. those who have lost a loved one to homicide, face a more problematic grieving process than those who have lost a loved one to neutral, non-volitional causes (Spungen, 1997; Parkes, 1998; Keyes et al., 2014). This is evident when looking at the mental health outcomes of co-victims. It has been shown that the risk of an individual developing a psychological disorder following the loss of a loved one is increased if the cause of death was violent (Keyes et al., 2014). Those who have lost a loved one to homicide, are nearly twice as likely to suffer from Post Traumatic Stress Disorder (PTSD), Major Depressive Disorder and drug abuse in the year following the death compared to the general population (Zinzow et al., 2009). PTSD has been identified as an especially noteworthy outcome (Applebaum & Burns, 1991; Zinzow et al., 2011). In addition to the heightened prevalence among co-victims, the identification of co-victims grieving response as being more typical of a PTSD response as opposed to typical grieving response warrants further investigation into PTSD among co-victims (Zinzow et al., 2009; Armour 2002a; Asaro and Clements 2005, Hertz, Prothrow-Stith and Chery, 2005).

There are various stressors which co-victims are more likely to encounter after the death of the loved one compared to those grieving the death of a loved one to other causes. Some commonly cited stressors include; media involvement, revenge cognitions and unforeseen medical and funeral expenses (Currier, Holland and Neimeyer, 2006; Malone, 2007; Armour, 2003). Arguably, the involvement with the Criminal Justice System (CJS) is one of the most

damaging additional stressors for co-victims (Connolly and Gordon, 2014; van Wijk, Leiden and Ferwerda, 2017).

One study has evidenced the worsening of psychological problems experienced by co-victims during the involvement with the criminal justice system in comparison to other events occurring after bereavement (van Wijk, Leiden and Ferwerda, 2017). It is hypothesised that practices by criminal justice and social agencies can compound the primary trauma, leading to what is commonly termed secondary victimisation (Asaro 2001; Parsons and Bergin, 2010; Gekoski, Adler and Gray, 2013). It could, therefore, be concluded that co-victims are more susceptible to developing PTSD symptoms during involvement with the criminal justice system. However, the period of involvement with the criminal justice system is often long, with significant variability in length and progression between different cases. The average length of a criminal court case in the United Kingdom in 2016 was 51 weeks (Ministry of Justice, 2016). This does not include the investigation period. Furthermore, numerous qualitative studies taking accounts by co-victims regarding their experience with the criminal justice system refer to different psychological symptoms at different stages of involvement (Malone 2007; Armour and Umbreit, 2012; Kunst, Popelier and Varekamp, 2014).

To the best of the author's knowledge, no prior quantitative analyses could be found which examined trauma symptom prevalence during different stages of involvement with the CJS. Therefore the primary aim of this study is to determine whether there are differences in the severity of PTSD symptoms of co-victims at four different stages of involvement with the criminal justice system. In light of the co-victims referring to different symptoms at discrete

stages of involvement, the first hypothesis of this study is that co-victims at discrete stages of involvement will report different PTSD symptom severity.

Four critical stages of involvement with the criminal justice system have been identified using standardised protocol of criminal proceedings followed in the United Kingdom (Ministry of Justice, 2019): The release of the body of the deceased, the investigatory stage where evidence is compiled and a criminal case made, the trial stage where the criminal trial begins and ends and the concluding verdict and its outcome. Using quantitative research investigating peri and post-trauma factors that increase an individuals likelihood of developing PTSD, implications about potential risk factors present at each stage of involvement have been made. Quantitative accounts made by co-victims detailing the most distressing aspects of CJS involvement are also considered.

Release of the body back to the deceased family

The majority of murder investigations begin with a post mortem (Riches, 1998). During this stage, the body is under the ownership of the authorities as opposed to the family, usually for an undisclosed period. In order to preserve evidence, co-victims are prohibited from coming into contact with the body during this stage (Riches, 1998). Co-victims have identified a lack of control over the body as preventative to the continuation of their grieving process (Riches, 1998). Moreover, lack of perceived control has been shown to positively predict PTSD symptom frequency (Hancock and Bryant, 2018).

Uncertainty about the cause of death is an additional concern that has been cited by co-victims (Oppewal and Meyboom-De Jong, 2001). Adverse events, such as the death of a loved one, coupled with uncertainty, have been shown to undermine an individual's ability to cope with an event psychologically. The combination is associated with higher Post Traumatic Stress Symptoms compared to individuals who experience an adverse event without uncertainty (Levy and Harpaz-Rotem 2015). This suggests the uncertainty and lack of control that have the propensity to be experienced by co-victims at this stage of investigation could heighten the risk of co-victims developing Post Traumatic Stress Symptoms. In consideration of this, the second hypothesis of the present study is that co-victims whose loved one's body has not yet been returned to the family will have higher PTSD symptom severity than those who have had the body released.

Investigation stage

Co-victims have cited a different source of uncertainty as being prevalent in the investigative part of their involvement with the criminal justice system: A lack of information about case development has been identified by some co-victims making them feel like an outsider in a process which is unclear to them (Bibas, 2006). Also, co-victims have referenced having an obsessive desire to know all the facts about the criminal case and a need to be able to make sense of the death (Asaro, 2002; Currier, Holland and Neimeyer, 2006). The discrepancy between a desire for information and understanding, and having information withheld could partially explain why co-victims have attributed high levels of distress to the withholding of information by the criminal justice system during the investigation stage (Malone, 2007; Armour and Umbreit, 2012).

During the investigation, law enforcement will often question the friends and relatives of the deceased. Questioning by investigators, which can reportedly be experienced as repetitive, unsympathetic, and lacking empathy has been said to make some co-victims feel disenfranchised for the right to grieve their loss (Vessier-Batchen and Douglas, 2008; Asaro, 2009). One descriptive exploratory study found that PTSD symptoms were associated with a negative outlook on the manner law enforcement communicated with them throughout the handling of the case (Simmons, Duckworth and Tyler, 2014). Similarly, perceived competence of law enforcement to apprehend the perpetrator has been uniquely associated with PTSD, among other psychiatric disorders (Milman et al., 2018). It could, therefore, be theorised that co-victims who have a unsatisfactory experience with law enforcement will have a higher risk of developing PTSD than those who do not. It can also be theorised that co-victims are most susceptible to this risk during the investigation: Although the majority of co-victims will have contact with law enforcement throughout criminal proceedings, the investigation stage is ordinarily when contact is most frequent.

Trial commencing

The majority of homicide cases in the United Kingdom will go to trial; averaging 75% as of April 2014 to April 2017 (Ministry of Justice, 2018). During the trial, the evidence is presented and examined by both the prosecution and the defence. Evidence in a homicide trial can include witness accounts, expert testimony, suspect testimony and pictures of physical evidence including the body and the crime scene; all of which can constitute disturbing imagery (Feinstein, Audet and Waknine, 2015). Exposure to disturbing imagery, mental or physical,

increases an individual's risk of developing PTSD (Feinstein, Audet and Waknine, 2015). In trauma-exposed individuals, such as co-victims, attentional bias to disturbing imagery can also increase the risk of developing and maintaining PTSD symptoms. It has been found that trauma-exposed individuals with clinical PTSD and the sub-threshold PTSD are more likely to exhibit an attentional bias to trauma-relevant images compared to participants with no trauma exposure and to threat images unrelated to the trauma (Thomas, Goegan, Newman, Arndt and Sears, 2013). Attentional bias towards trauma-related stimuli maintains PTSD and is also theorised to contribute to the development of PTSD (Ehlers and Clark, 2000; Litz, 1989). Therefore, it could be theorised that co-victims have an increased risk to the development and maintenance of PTSD symptoms during the trial; both from exposure to disturbing imagery and from an attentional bias to the trauma-related imagery.

Concluding verdict

The verdict is considered to be a highly emotionally charged event for co-victims of homicide: The delivery of the verdict is often a culmination of an exhaustive, drawn-out process (Englebrecht, Mason and Adams, 2014). It also represents an opportunity to hold the perpetrator responsible, and for the co-victim, to re-obtain control. In light of the evidence of co-victims' heightened risk of PTSD during involvement with the CJS, the third hypothesis of the present study is that individuals who are no longer involved with the CJS will have lower PTSD symptom severity than those who are still involved.

The outcome of the verdict, regardless of the judgement, has less of a relieving effect on the co-victims than one might expect from the high emotion attached to it. In the instance where the perpetrator has been given a substantial verdict, it has been shown to partially reduce negative cognitions in the short term but does not in long term in the victims of crime (Orth, 2002). Harsh sentences have also been suggested to validate and perpetuate co-victims negative emotions and cognitions (Vidmar, 2000). To the best of the author's knowledge, no quantitative analysis could be found which examined PTSD symptom severity among co-victims with different criminal justice verdicts. Therefore, the secondary aim of the study is to examine if verdict outcome can predict PTSD symptom severity among co-victims. In light of the literature mentioned above, the fourth hypothesis of the study is that no verdict will predict PTSD symptom severity.

Methods

Participants

A sample of 1106 Participants were obtained through their referral to Assist Trauma Care between 2010 and 2017. Assist Trauma Care is a specialist Third Sector organisation located in the United Kingdom which offers trauma-focused therapy to individuals affected by a wide range of traumatic experiences. Participants had experienced the loss of someone significant through homicide.

The 165 Children in the sample were excluded from the final sample (14.6%). In consideration of well-documented differences in the assessment, screening and diagnosis of

PTSD in children, they were excluded in order to maintain consistency within measurement items (Gaskell, 2005). A further 338 (35.9%) were excluded as a result of missing information on PTSD symptom severity, CJS involvement, age and gender. Ten participants were found as outliers. In consideration of the small proportion of outliers and the negative effect they presented to the efficiency of the data they were dropped out of the final sample (Kwak and Kim, 2017). After all exclusions, 593 participants remained.

For the first aim of the study, to determine if PTSD symptom severity was differing in co-victims at different stages of CJS involvement, all 593 participants were used. Of these, 441 (74.4%) were female, and 152 (25.6%) were male. Participants ages ranged from 18 to 86 years. At the time of intake 71.8% of participants scores indicated clinical levels of PTSD and 96.5% scores indicated sub-clinical levels of PTSD. More selective demographic characteristics of this sample can be found in Table 1.

Table 1

Demographic characteristics of participants in total sample of Aim one

Variables

	<i>M</i>	<i>SD</i>
Age	43.42	14.61
	%	n
<i>Gender</i>		
Male	25,6	152
Female	74,4	441
<i>Ethnicity</i>		

Table 1

Demographic characteristics of participants in total sample of Aim one

Variables	<i>M</i>	<i>SD</i>
White	86,7	514
Black	7,3	43
Asian	4,0	24
Other	2,0	12
<i>Victim was family member</i>		
Yes	97.5	578
No	2.5	15
<i>Victim died within a year prior to participants referral</i>		
Yes	94.9	563
No	5.1	30

Note: *M*= Mean, *SD* = Standard Deviation

Table 2

Demographic characteristics of participants in total sample of Aim two

Variables	<i>M</i>	<i>SD</i>
Age	44.90	15.22
	%	n
<i>Gender</i>		

Table 2

Demographic characteristics of participants in total sample of Aim two

Variables	<i>M</i>	<i>SD</i>
Male	25,4	67
Female	74,6	197
<i>Ethnicity</i>		
White	88,6	234
Black	4,2	11
Asian	4,5	12
Other	2,6	7
<i>Victim was family member</i>		
Yes	98,1	259
No	1,9	5
<i>Victim died within a year prior to participants referral</i>		
Yes	89,7	237
No	10,3	27

Participants used in the second aim of the present study, to assess whether verdict outcome could predict PTSD symptoms severity in co-victims, were a selective subsection of the final sample for aim one. All 264 participants who had ended their involvement with the CJS at the time of referral were included. Of these, 197 were female (74.6%) and 67 (25.4%) were male with ages ranging from 22 to 75. Of these, 71.8% scored clinical levels of PTSD and 96.5% scored sub-clinical levels of PTSD. The majority of participants involvement with the CJS ended after the cases received a legal verdict (259, 98.1%). Only 5 (1.89%) had their involvement

terminated without a judicial judgement. More selective demographic characteristics of this sample can be found in Table 2 below.

Measures

To obtain individual demographic information such as gender, age and ethnicity, information entered into patient records by Assist Trauma Care during referral was used.

To obtain information about the participants relationship to the victim and information which was gathered by the therapist and noted down at referral was used.

To assess status of involvement with the Criminal Justice system, information which was gathered by the therapist and noted down in the clients file was used. Information about the status of several judicial factors and a retrospective file study resulted in the creation binary and categorical variables. These variables specified the participants progression within the CJS.

To assess PTSD symptom severity the self-report questionnaire *Impact of Event Scale* (IES; Horowitz, Wilner & Alvarez, 1979) was used. Although there is an revised version of this scale, the IES is still widely used in empirical study and is still an effective tool for detecting PTSD symptom severity (Sundin & Horowitz, 2002). The IES scale consists of 15 items, 8 of which measure avoidance symptoms (avoidance of feelings, numbing of responsiveness, situations, ideas), and 7 of which measure intrusive symptoms (intrusive thoughts, intrusive feelings, nightmares, and imagery). An example of a question measuring intrusion symptoms:

‘Pictures about it popped into my mind’. An example of a question measuring intrusion symptoms is ‘I tried not to talk about it’. Respondents are asked to rate the items on a 4-point likert scale according to how often each has occurred in the past 7 days. The 4 point on the scale are: 0 (not at all), 1 (rarely), 3 (sometimes), and 5 (often). The total score provides a subjective stress score which can range from 0 to 75 with higher scores indicating greater PTSD symptom severity. Studies have found the scale to be an effective and valid screening tool for PTSD diagnosis; it has also been found to have high internal consistency and congruent validity (Coffey, 2006; Neal, Walter and Rollins, 1994; Sundin & Horowitz, 2002). In the present study, Cronbach’s alpha values indicated the IES scores to have good internal consistency in both participant samples: For aim one the alpha value was .75; for aim two the alpha value was α .74.

Procedure

This study was a retrospective study and used a naturalistic sample. All data was gathered primarily for therapeutic purposes and secondly for research purposes, therefore, ethical approval was not required.

The current study was part of a wider scale study. Additional measures were taken including those for depression, anxiety, work and social adjustment and complicated grief. Scores were taken at intake and after treatment. For the present study, only the measurements of PTSD symptom severity taken at intake were used. The other measures taken and the outcome of treatment were not within the scope of this study.

Variables specifying the participants level of progression within the CJS were as follows: if the body had been released, if the trial had begun, if the trial had finished and what the final verdict was. These variables were later used to put participants in one of four groups for the first aim of the study. Care was taken to ensure no participant was in more than one group: Group one, *body not released*, contained all participants where the loved one's body had not been released (40, 6.75%). Group two, *Investigation*, contained all participants whose loved one's criminal case was under active investigation (279, 47.05%). Group three, *Trial*, contained all participants whose loved one homicide trial had begun but not concluded (18, 3.04%). Finally, Group 4, *End of involvement with CJS*, contained all participants whose involvement with the CJS had ended (264, 44.52%).

The final verdict variable had the following labels: guilty, not guilty, accidental, perpetrator suicide, victim suicide and case closed for lack of evidence, which were used in aim two of the study to define verdict outcome.

Design

The study used a clinical sample and therefore participants were not recruited specifically to answer a research question. They were also not recruited with the generalisability of their demographic characteristics to the population of co-victims in mind.

Participants with more than two missing Impact of Event Scales scores were excluded from both studies in order to maintain validity within the measure. Participants who could not be

put into a CJS involvement group or who were missing information on gender or age were also excluded.

Statistical Analysis

An Analysis of Covariance was conducted to assess whether participants at different stages of involvement with the CJS had different PTSD symptom severity. The dependent variable was PTSD symptom severity and Group of CJS involvement was the independent variable. In order to account for established gender and age differences in PTSD symptom severity, gender and age were used as covariates (Breslau, Peterson and Schultz, 2008; Ditlevsen and Elklit, 2010). Multiple regression was used to examine whether verdict outcome could predict PTSD symptom severity. PTSD symptom severity was the dependent variable and verdict outcome was the independent variable.

Preliminary analysis

Both covariates were measured prior to analysis. A Spearman's rank-order correlation was run to assess the relationship between PTSD symptom severity and age. There was a statistically significant, very weak negative correlation between age and IES Scores, $r_s = -.081$, $p < .046$. A point-biserial correlation was run between gender and Impact of Event scores. There was a statistically significant correlation between gender and Impact of Event scores, $r_{pb} = .137$, $p < .01$, with females scoring higher PTSD symptom severity than males, $M = 52.15$ ($SD = .29$) vs. $M = 50.30$ ($SD = .39$).

Results

CJS involvement and PTSD symptom severity

An Analysis of Covariance was run to determine if different CJS involvement groups had different PTSD symptom severity after controlling for age and gender. There was not a linear relationship between Impact of event scores for stage of criminal involvement, as assessed by visual inspection of a scatterplot. A reflect and square root transformation was conducted on IES scores which resulted in a linear relationship between Impact of event scores for stage of criminal involvement, as assessed by visual inspection of a scatterplot. There was homogeneity of regression slopes as the interaction term was not statistically significant, $F(4,585) = 372.05$ $p = .052$. Standardised residuals for the interventions and for the overall model were normally distributed, as assessed by Q-Q plots. There was homoscedasticity and homogeneity of variances, as assessed by visual inspection of a scatterplot and Levene's test of homogeneity of variance ($p = .075$), respectively. Outliers in the data were defined as cases with standardised residuals greater than ± 3 standard deviations. Ten outliers were removed.

Unadjusted means are presented, unless otherwise stated. IES scores was greatest in the investigation group ($M = 52.13$, $SD = 12.06$) compared to the body not released group ($M = 47.84$, $SD = 16.38$), the Trial group ($M = 49.94$, $SD = 12.09$) and the CJS finished group ($M = 50.57$, $SD = 12.51$), respectively. Adjusted means are presented unless otherwise stated. IES scores was greatest in the investigation group ($M = 52.12$, $SE = 0.74$) compared to the body not released group ($M = 47.78$, $SE = 2.18$), the Trial group ($M = 50.60$, $SE = 2.92$) and the CJS finished group ($M = 50.54$, $SE = 0.76$), respectively. After adjustment for age and gender, there wasn't a statistically significant difference in IES Scores between the different groups of CJS involvement, $F(3, 587) = 1.597$, $p = .19$, partial $\eta^2 = .008$.

Verdict Outcome and PTSD symptom severity

A multiple regression was run to predict IES Scores from Verdict outcomes; guilty, not guilty, accidental, perpetrator suicide, victim suicide and case closed for lack of evidence. There was linearity as assessed by partial regression plots and a plot of studentised residuals against the predicted values. There was independence of residuals, as assessed by a Durbin-Watson statistic of 1.839. There was homoscedasticity, as assessed by visual inspection of a plot of studentised residuals versus unstandardised predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1. There were no studentised deleted residuals greater than ± 3 standard deviations, no leverage values greater than 0.2, and values for Cook's distance above 1. The assumption of normality was met, as assessed by a Q-Q Plot. The multiple regression model did not statistically significantly predicted IES Scores, $F(6, 257) = .731, p < .626, \text{adj. } R^2 = .17$. None of the six variables added statistically significantly to the prediction, $p < .05$. Due to the results no post hoc tests were conducted. Regression coefficients and standard errors can be found in Table 3 below.

Table 3

Verdict Outcome	B	SE	β
Guilty	47.430	1.000	
Not Guilty	2.750	0.805	0.121*
Not Guilty -	5.700	5.486	0.069*
Victim Suicide	7.561	0.880	0.050*
Perpetrator suicide	2.750	0.156	0.100*
Accidental	0.000	0.000	0.00*
Support mentally detained	4.061	4.120	0.069*
Case closed other	0.000	5.046	0.001*

Note: * $p < .05$; B = unstandardised regression coefficient; SE= Standard error of the coefficient; β = standardised coefficient

Discussion

Findings of this study showed that there were no statistically significant differences in the severity of PTSD symptoms in co-victims of homicide in different stages of involvement with the CJS. There was also no significant increase in PTSD symptom severity in the body not released group and no significant decrease in PTSD symptom severity at the *End of involvement* with CJS group. Finally, no verdict outcome significantly predicted PTSD symptom severity.

In light of the findings, the first, second and third hypotheses were rejected. As a group, End of involvement with CJS, was included, the findings are contrary to previous research which have identified involvement with the CJS to be a PTSD symptom provoking period for co-victims (van Wijk, Leiden and Ferwerda, 2017).

However, it could also be argued that PTSD symptom provoked during CJS involvement did not present in individuals until after involvement had ceased. There is high variability in the time between the traumatic event and PTSD symptom development in trauma-exposed individuals along with the progression of symptoms (Buckley et al., 1996; Hepp et al., 2008). What's more, up to a quarter of trauma-exposed individuals develop delayed-onset PTSD where the disorder does not present till at least six months after the traumatic event (Wintermann, Rosendahl, Weidner, Strau and Petrowski 2017). Therefore measuring PTSD symptom provocation during different CJS involvement stages in order to infer which stages could be the most symptom provoking is, in hindsight, an oversimplification of the development of PTSD after the traumatic event.

In addition, the present study treated involvement with the CJS as three separate stages during a homicide investigation, alongside end of involvement. The lack of significant difference between PTSD symptom severity in co-victims of homicide during different stages supports the stance of previous research which has measured the overall impact of CJS involvement on co-victims, making no distinction of different stages and processes (Parsons & Bergin, 2010; van Wijk, Leiden and Ferwerda, 2017). It is suggested that the adverse psychological effects of CJS involvement are pervasive across involvement with less variation between stages than previous research has contended (Malone 2007; Armour and Umbreit, 2012; Kunst, Popelier and Varekamp, 2014). The findings are also supportive of the Victims Code, which initially came to force in 2013 in the United Kingdom (Domestic Violence, Crime and Victims Act, 2004). The statutory document, which co-victims are entitled to evoke, sets out services and information victims of crime can use from the moment a crime is reported until after the trial. Previously, support services were offered to victims inconsistently throughout criminal proceeding (Criminal Justice Joint Inspection, 2015). The findings of the present study indicate both an exceptionally high proportion of clinical level PTSD in co-victims and little variability in symptoms throughout proceedings. Both of which support campaigns for increased funding for homicide support workers, more consistent access to services throughout proceedings and more enhanced consideration of victims' services, entitlements and redress.

No verdict outcome could significantly predict PTSD symptom severity, and therefore, the fourth hypothesis was accepted. This is consistent with previous research that suggests that the ability of a guilty verdict to reduce negative psychological symptoms in co-victims is over-estimated (Vidmar 2000; Orth 2002). A guilty verdict constitutes revenge for many co-victims. If

getting revenge on the perpetrator through a guilty verdict has little effect on PTSD symptom severity it supports the notion that vengeance is not worthwhile endeavour in regards to co-victims mental health. It indicates that the CJS's capacity to alleviate mental health issues is limited and while steps to identify symptom provoking incidents within CJS involvement are worthwhile, expectations to improve mental well being should not be placed on the CJS and its outcomes. In addition, the findings support arguments against using victims psychological health as an argument for increasing sentencing laws in the United Kingdom. The findings support the notion that this is an unfounded basis for policy change (Orth, 2004).

The study has several additional limitations. As it was a naturalistic observation, there were difficulties in gathering and accessing information. This led to particular difficulties in determining participants progression within the CJS. Where the trial start date could not be accessed statistics of average trial length gathered by the Ministry of Justice in 2018 were used. This study acknowledges that this was a highly subjective method to use and lowers the data's validity.

Other known vulnerability factors for PTSD could also not be considered in the present study. Previous trauma history, intelligence, previous psychological disorders and socioeconomic status are all known predictors of PTSD (Brewin et al., 2000; Bomyea, Risbrough and Lang, 2012) Therefore exclusion of these in the analyses may have affected the results of this study. Lastly, in aim one of the present study, group sizes were highly unequal. Although equality of variance was confirmed during analysis, the unequal group sizes do increase the risk of Type one error rates and issues with confounding variables (Rusticus and Lovato, 2014).

Future Directions

Based on the studies findings, several recommendations for future study can be made. Replicating this study with the inclusion of known PTSD vulnerability factors would lead to more accurate and inclusive results. Additionally, conducting a replication of this study, which includes monitoring PTSD symptom severity in co-victims before CJS involvement up until a year after involvement had ceased would have two main benefits. Firstly, in consideration of the variability in onset and progression of PTSD symptoms, it would reduce the risk that PTSD symptoms triggered by the CJS but not yet presenting would not be unaccounted. Secondly, by gathering a baseline measure of PTSD symptom severity before CJS involvement would enable a more accurate measure of the CJS's role in increasing or decreasing PTSD symptoms.

Although research into the psychological effects of losing a loved one to murder is emerging, it is largely still in its infancy, (Connolly and Gordon, 2014). Further research into post-trauma risk factors for PTSD, such as the CJS, is vital in order to move towards a preventative approach. Victim support arrangements are on the increase as a result of increased attention on victims of crime, including co-victims (Victim Taskforce, 2019). However, until risk factors are identified and addressed in victim services, the support cannot target those in greatest need. Without this, the additional funding and resources given to this area will not be maximised. With increasing access to co-victims at early stages for both research and therapeutic purposes in the United Kingdom, the future opportunity to expand understanding and awareness into the distinctive risk factors co-victims are exposed to is great.

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