

## RESEARCH ARTICLE

# An Investigation into Trauma, Active Coping and Depression

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In this research, the relationship between post-traumatic stress symptomology and depression, time of trauma (childhood or adulthood), type of trauma (sexual, physical or emotional), and current active coping level were investigated. Participants completed online versions of the Centre for Epidemiological Studies Depression Scale, Post-Traumatic Stress Disorder Checklist, Coping Self-Efficacy Scale and a separate questionnaire related to time and type of trauma. A multiple regression revealed active coping and post-traumatic stress symptomology were significant predictors of depressive symptomology, accounting for around half of the variance. No significant main or interaction effects were found for time, type of trauma or depressive symptomology. It was concluded that trauma symptomology and active coping may be useful when identifying those most at risk of developing depressive symptomology.

**Keywords:** trauma type, trauma level, active coping, depression, childhood, adulthood, post-traumatic stress

It has been approximated that 300 million people worldwide suffer from a depressive disorder which, in extreme cases, can lead to suicide. In the United Kingdom (UK), depression is a predominant mental health issue as an estimated 19.7% of UK adults (i.e., those older than 16 years of age) show symptoms of Depression (Mental Health Foundation, 2016). Thus, those at risk of depression need to be identified so they can receive the required treatment in order to avoid impairments in social and occupational functioning (Harada et al., 2017). However, it is not

only important to treat depressive episodes, but to also investigate who might be vulnerable to depressive disorders and symptomology, so that interventions can be put into place early on.

Research has highlighted several possible predictors of depression including: personality (Noteboom, Beekman, Vogelzangs, & Penninx, 2016; Weber, Giannakopoulos, & Canuto, 2011), sleep (Whalen, Gilbert, Barch, Luby, & Belden, 2017), social support (Gabor & Miller, 1990; Stice, Ragan, & Randall, 2004), psychological violence (Kastello et al., 2016), and trauma (Herzog & Fleming, 2016). Concerning the latter, Goldstein, Dinh, Donalson, and Hebenstreit (2017) found that sexual assault/harassment was significantly correlated with depression and post-traumatic stress disorder (PTSD) symptomology, whereas feeling in danger or witnessing others killed were only associated with

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PTSD symptomology and not depressive symptomology. This finding highlights that research regarding trauma is somewhat inconclusive—perhaps because of its variable definition.

Indeed, trauma has been defined as extreme stress that overwhelms one's ability to cope and does not necessarily need to involve physical harm to oneself (Substance Abuse and Mental Health Services Administration; SAMHSA, 2014; Giller, 1999). This can be a one-time incident such as an accident, surgery, or the death of a close acquaintance or family member. In other cases, trauma can be a repetitive experience such as abuse, neglect, or deprivation. Additionally, what is considered to be a traumatic event is a result of the individual's subjective experience of the incident and their ability to cope with the overwhelming emotional, cognitive, and physical aspects of the event (Giller, 1999). In short, what may be traumatic for one person may not be traumatic for another.

As well as the subjective nature of trauma, there are also numerous different types of traumatic events including, but not limited to, physical, emotional, sexual, neglect, war, terrorism, and trauma resulting from a natural disaster (SAMHSA, 2016). Sexual abuse or assault involves any unwanted sexual contact or exposure to age-inappropriate sexual material, whereas physical trauma includes the actual or attempted infliction of physical pain on a person that is not sexual in nature (SAMHSA, 2016). Emotional trauma is considered to be an act of commission that is not in nature physical or sexual, but includes verbal abuse or excessive demands or expectation, which cause mental disturbances (SAMHSA, 2016). Neglect involves the failure to provide necessary care to adults or children and is another category of trauma; as is the witnessing of or being a victim of a crime (SAMHSA, 2016). Hence, trauma is a complex occurrence which can involve either: i) singular or multiple incidence; and ii) a single specific category (e.g., sexual, emotional, physical) or multiple categories (as discussed below).

The issue of studying trauma is not just limited to it being subjective therefore, but also that there is often overlap between categories, meaning an individual may experience a number of trauma types

concurrently. For example, Huang, Schwandt, Ramchandani, George, and Heilig (2012) found that 31.7% of participants experienced at least two types of trauma concurrently and another 18.9% of participants experienced at least three types of trauma concurrently. Moreover, it has further been reported that 76.6% of chronically depressed individuals experience trauma during childhood, with 37% of these participants reporting multiple accounts of childhood traumatic events (Negele, Kaufhold, Kallenbach, & Leuzinger-Bohleber, 2015). Here, Negele and colleagues (2015) found emotional and sexual trauma (as compared with physical trauma and neglect) were significantly associated with more severe symptoms of depression. In a meta-analysis of 26 studies, Mandelli, Petrelli, and Serretti (2015) further found that childhood trauma significantly impacted the risk of individuals developing depression in adulthood, with emotional trauma found as a more significant predictor of adult depression than neglect, sexual, or physical abuse (see also Edwards, Holden, Felitti, & Anda, 2003).

To expand, the lasting effects of childhood trauma are thought to manifest through adverse effects on the child's or adolescent's development causing consequences which persist into adulthood (Dunn, McLaughlin, Slopen, Rosand, & Smoller, 2013). For example, parental divorce in childhood increases the prevalence of depression throughout lifetime. This is in contrast to physical abuse which is only associated with an increased risk of first onset of depression (Wainwright & Surtees, 2002). However, Agorastos and colleagues (2014) found that a singular experience of a childhood traumatic event and multiple experiences of childhood trauma have a similar risk for depression in adult life. Thus, childhood trauma (whether a single event or sustained experience) can adversely affect a person's susceptibility to depressive episodes in later life, although there appears to be disagreement on which type of trauma is more strongly associated with depressive symptomology later on.

Considering trauma in later life, several studies have found that trauma experienced in adulthood also increases the likelihood of depressive episodes. For example, Vrana and Lauterbach (1994) found that

individuals who had experienced a traumatic event reported higher levels of depression, with sexual trauma having particularly negative effects on psychological functioning. Similarly, Kucharska (2017) found higher levels of depression in women who had experienced sexual as compared to non-sexual trauma, or no trauma, in the previous two years. This would suggest that, in adulthood, sexual trauma is a better predictor of depressive episodes than other types of trauma such as non-sexual traumas including car accidents and violent physical trauma. What this finding implies is that only recent sexual trauma is a consistent predictor of depressive episodes, and that historic sexual trauma is no better a predictor of depressive episodes than other forms of trauma. Together, this research demonstrates the complexity of understanding the relationship between trauma and depression, with time of trauma also being important.

Despite the discussed literature, not all individuals who experience a traumatic event develop a depressive disorder. For example, Herres (2015) has found that the use of independent coping strategies (including humour, mental disengagement, and planning) was associated with lower depression whereas the use of active coping strategies (defined as acknowledging and confronting stressors and emotions with the use of strategies such as problem solving and seeking support from other sources; e.g., Gudiño, Stiles, & Diaz, 2018), surprisingly, was associated with higher depression. As Herres noted, this latter finding appears counterintuitive, but could be explained by the type of trauma experienced. Furthermore, Herres did not measure the participants' level of coping but created groups based on coping preferences using the Brief Cope, a measure used to assess the frequency with which a person adopts different coping strategies (but does not measure the level to which they engage with a particular type of coping). Indeed, Noble, Asby, and Gniska (2014) have found that active coping is associated with lower depression in adults. This finding has been replicated in adolescents (e.g., Rodriguez-Naranjo & Cano, 2016; Steinhausen, Haslimeier, & Metzke, 2007). Finally, it has been speculated that the use of maladaptive coping

techniques can be a result of childhood trauma, which subsequently lead to adverse mental health issues (Choi et al., 2015). Thus, based on the literature, coping, whether active, independent, or maladaptive seems an important variable to be considered when investigating trauma and depression.

In sum, previous research highlights trauma as a significant predictor of depressive symptomology. However, factors such as coping style may also play a role in the observed negative effects of a stressor or traumatic event. Additionally, the aforementioned research (e.g., Edwards et al., 2003; Fowler, Allen, Oldham, & Frueh, 2013; Kucharska, 2017) highlights the need for clarity when considering trauma and its specific types (such as emotional, physical, and sexual), especially in relation to depressive symptomology. Moreover, to our knowledge, the effects of trauma in childhood versus trauma in adulthood have not been compared when also taking into account coping strategies. Consequently, the aim of the current research was to further investigate the impact of post-traumatic stress symptomology, type and time of trauma (i.e., childhood or adulthood), as well as active coping strategies on depressive symptomology. Post-traumatic stress symptomology refers to the extent to which a person is currently affected by an event and type of trauma refers to the overall nature of the event (e.g., emotional, physical etc.). It was hypothesised that: (a) Level of current trauma and level of active coping would predict tendency towards depressive symptomology and (b) Time of, and type of, trauma would significantly influence the reported depressive symptomology score.

## Method

### *Design*

An online survey implemented via QualtricsXM (<https://www.qualtrics.com>) was used to conduct the current study with volunteer and snowball sampling used to recruit participants. To test hypothesis (a) a correlational design was employed to examine whether predictor variables of 'post-traumatic stress symptomology symptoms' and 'level of active

coping' explained variance in the outcome variable of 'depressive symptomology'. To test hypothesis (b), an independent measures 2 x 3 design was implemented with time of trauma (childhood and adulthood) and type of trauma (emotional, physical and sexual trauma) as the independent variables, and depressive symptomology score as the dependent variable. Ethical approval was granted from the local university (reference 1718-100353421).

### *Participants*

A total of 155 participants were recruited for this study. To prevent only selecting students from the local university, social media websites such as Facebook and Reddit were used. Inclusion criteria for the study were: (a) participants needed to be aged between 18–60 years, (b) fluent in the English language, and (c) had experienced a traumatic event. Of the 155 participants, 16 were excluded due to not having experienced a traumatic event and 32 were excluded due to one or both questionnaires not being filled out, leaving a final sample of 107 participants for data analysis. Of the 107 participants, 76 were female and 30 were male, with one participant choosing to self-describe as queer. Participants had a mean age of 30.85 years (SD = 11.19 years) with an age range of 18–59 years. In addition, 39.25% of participants identified as White British with 31.78% of participants preferring not to answer. On average, adulthood trauma occurred 8.3 (SD = 9.00) years prior to participation in this study, and childhood trauma occurred 18.3 (SD = 13.4) years prior to this study. Thirty-eight (35.5%) participants reported having received a diagnosis of a depressive or mood disorder. This diagnosis occurred, on average, 7.3 (SD = 6.44) years prior to participation in this study. Table 1 shows the distribution of participants (percentages may not equal 100% due to rounding) reporting trauma as a function of time and type.

**Table 1. Distribution of Participants Across the Variables 'Time' and 'Type' of Trauma (With Percentage of Data).**

	Emotional Trauma	Physical Trauma	Sexual Trauma	Total
Adulthood Trauma	18 (16.8)	16 (14.9)	20 (18.7)	54 (50.5)
Childhood Trauma	22 (20.6)	15 (14.0)	16 (14.9)	53 (49.5)
Total	40 (37.4)	31 (28.9)	36 (33.6)	

### *Measures*

**Time and type of trauma.** The variables of time and type of trauma were measured by the participants self-categorising in three fixed response questions. The first of which was "Did you experience a traumatic event?" with a fixed response of yes or no. The second being "Did this event take place in childhood or adulthood?" and the final question being "What was the nature of this event?" with the fixed responses of emotional, physical or sexual. Participants were provided with some guidance notes on what qualifies as childhood versus adulthood (i.e., childhood being 17 and under, adulthood being 18 and over), and what qualifies as sexual, physical or emotional trauma (using definitions of Giller, 1999).

**Depressive symptomology.** The Centre for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977) was used to measure the self-rated depressive symptomology of participants. The CES-D is a 20-item self-report questionnaire which measures depressive mood over the past seven days using a 4-point response scale ranging from 0–3 (0 = rarely or none of the time, 3 = all of the time). Higher CES-D scores suggest higher symptomology and scores of 16 or above are indicative of depression. This measure of depressive symptomology was chosen due to reports of high internal consistency between  $\alpha = .85$  and  $\alpha = .90$  (Roberts, 1980; Radloff, 1977).

**Trauma symptomology.** The PTSD Checklist (Blanchard, Jones-Alexander, Buckle, & Forneris, 1996) was used to measure the post-traumatic stress symptomology participants had in relation to their

traumatic experience. This is a 17-item checklist assessing how often participants have experienced each item in the previous month. This uses a 5-point rating scale (1 = not at all, 5 = extremely). The PTSD checklist taps into DSM-IV (American Psychological Association; APA, 2000) PTSD criteria B (intrusion symptoms), C (persistent avoidance) and D (increased arousal). Higher scores on this scale indicate greater symptom severity with a score of 44 or more being associated with a PTSD diagnosis. This measure for PTSD has previously shown high test-retest reliability ( $r = .96$ ; Blanchard et al., 1996).

**Active coping measure.** To measure participant level of active coping, the Coping Self-Efficacy Scale (CSES; Centre For Aids Prevention Studies, 2006; Chesney, Neilands, Chambers, Taylor, & Folkman, 2006) was used. This 26-item self-report questionnaire assesses "perceived" self-efficacy for coping with challenges and threats. Each item relates to behaviours important to active coping and is rated using an 11-point scale, 0–10 with visual aids provided (0 = not at all certain, 5 = moderately certain, 10 = certain). The CSES score is the sum of all items, higher scores are associated with higher levels of active coping. The CSES has reported internal consistency and reliability of .91 (Chesney et al., 2006).

### *Procedure*

The survey was accessed online via a web link distributed through both social media and the university research participation scheme. Participants were first asked to read through the information page which covered aims, inclusion criteria, expectations should they consent to participate, right to withdraw and contact information of the researcher and study supervisor. After this, and following informed consent, participants were asked to create a unique participation code, using two separate pieces of information taken from their name (2 letters) and phone number (3 digits), so that identifying information would not be associated with their data. Participants were then asked to provide demographic information, age, gender, and ethnicity. This demographic information was not a requirement of taking part, and participants were informed that

they may decline to answer these questions if they chose. No other demographic data were asked for. The next stage of the survey was the time (child- or adulthood) and type of trauma (emotional, physical or sexual) questions. At no point were participants asked to disclose specific details regarding the traumatic event they had experienced. Additionally, participants were only able to submit data for one traumatic event experienced. After these initial questions, participants then completed the PTSD checklist, the CSES, and the CES-D. All three questionnaires were forced response. After completing the final questionnaire, participants were asked whether they had ever received a depressive disorder diagnosis and, if yes, how many years ago this took place. After answering all questions, participants were taken to a debriefing page, which repeated key information from the information page but also explained which questionnaires they had completed. It was also explained that the term depression was omitted from the information page to prevent only recruiting those who had a diagnosis of depression. Finally, participants were shown a signposting page with a list of services and charities they could contact if they suffered any emotional or psychological distress from participating in the study.

### *Analytic Strategy*

To ensure good reliability, Cronbach's alpha was used to determine the internal consistency of the CES-D, PTSD checklist, and CSES measures. Data was screened prior to analysis and deemed to meet parametric assumptions. A multiple regression analysis was conducted using IBM SPSS Statistics version 24 (International Business Machines Corporation, 2016) to test the hypothesis that there would be a significant relationship between the predictor variables post-traumatic stress symptomology, level of active coping and the outcome variable of depressive symptomology score. The significance level was set at .05 and the effect size was used to determine the strength of relationships between variables.

A factorial independent measures ANOVA was used to test the hypothesis that there would be a significant main effect of time and type of trauma on

the dependent variable depressive symptomology. The significance level was set at .05 and the eta squared ( $\eta^2$ ) calculation used to determine effect sizes as stated by Levine and Hullet (2002). Statistical power was calculated using the software G\*Power 3.1 (Faul, Erdfelder, Lang, & Buchner, 2007) and achieved a power of .63.

For the exploratory analysis, a factorial independent measures ANOVA was used to explore whether time and type of trauma had an effect on current post-traumatic stress symptomology. A Bonferroni post hoc test was also conducted. Significance was set at .05 with Eta Squared ( $\eta^2$ ) being used to determine effect size.

## Results

### *Scale Reliability*

Reliability tests were conducted after reverse-scoring had been carried out. All scales were found to have good overall internal consistency using Cronbach's  $\alpha$ . Analyses revealed  $\alpha = .96$  for the PTSD checklist,  $\alpha = .97$  for the CSES and  $\alpha = .92$  for the CES-D.

### *Testing Hypothesis 1: An Investigation into the Relationship Between Post-traumatic stress symptomology, Coping and Depressive Symptomology.*

To investigate the relationship between post-traumatic stress symptomology, active coping and depression, a multiple regression analysis was conducted with two predictor variables: post-traumatic stress symptomology and level of active coping. The outcome variable was depressive symptomatology. Multiple regression utilising the enter method was used to analyse the data. The regression model produced a large effect size (Cohen, 1988),  $R^2 = .51$ ,  $R^2_{adj} = .50$ , with the combined variables accounting for 50.3% of the variance in depressive symptomology. The correlational coefficients are shown in Table 2. This indicates that post-traumatic stress symptomology and level of active coping were significant predictors of depressive symptomology,  $F(2, 104) = 54.74$ ,  $p < .001$ . A significant negative relationship was found

between level of coping and depression symptomology,  $t(106) = -9.59$ ,  $p < .001$ , the B value suggests a one unit increase in coping would result in a .17 decrease in depressive symptomology. Indicating that as active coping improves, depression reduces. Active coping accounted for 43.1% of the variance in depressive symptomology. A significant positive relationship was found between post-traumatic stress symptomology and depressive symptomology,  $t(106) = 2.14$ ,  $p = .03$ , the B value suggests a one unit increase in trauma level would result in a 0.10 increase in depressive symptomology. Post-traumatic stress symptomology accounted for 8.2% of the variance in depressive symptomology.

**Table 2. Correlation Coefficients (With Significance Value) for the Relationship Between Post-traumatic Stress Symptomology, Coping and Depressive Symptomology.**

	Post-traumatic stress symptomology	Level of Coping
Depressive symptomology	.29 (.001)	-.70 (<.001)
Post-traumatic stress symptomology	-	-.20 (.02)

### *Testing Hypothesis 2: An Investigation into the Effects of Time and Type of Trauma on Depressive symptomology.*

To investigate the difference between time and type of trauma, the data was analysed using a 3 (type of trauma: emotional, physical or sexual) x 2 (time of trauma: childhood or adulthood) independent measures ANOVA with depressive symptomology as the dependent variable. The mean depressive symptomology scores are shown in Table 3. The ANOVA revealed that there was no significant main effect of time of trauma,  $F(1, 101) = .65$ ,  $p = .42$ ,  $\eta^2 = < .01$  on depressive symptomology or of type of trauma,  $F(2, 101) = 1.46$ ,  $p = .24$ ,  $\eta^2 = .03$ , on depressive symptomology. Finally, no significant interaction effect was observed between type of

trauma and time of trauma,  $F(2, 101) = .66, p = .52, \eta^2 = .01$ ).

**Table 3. Mean Depressive Symptomology (With Standard Deviation) for Type and Time of Trauma.**

	Childhood	Adulthood	Total
Emotional Trauma	25.53 (12.21)	26.67 (12.91)	25.90 (12.39)
Sexual Trauma	31.00 (10.11)	29.75 (112.73)	30.31 (11.49)
Physical Trauma	23.53 (12.16)	29.13 (12.14)	26.42 (12.28)
Total	26.51 (11.79)	28.54 (12.45)	

***Exploratory Analysis: An Investigation into the Effects of Time and Type of Trauma on Current Post-traumatic Stress Symptomology.***

In exploratory analysis, we also explored if time and type of trauma influenced post-traumatic stress symptomology (see Table 4). A 3 (type of trauma: emotional, physical or sexual) x 2 (time of trauma: childhood or adulthood) independent measures ANOVA with PTSD scores as the dependent variable revealed that there was no significant effect of time of trauma,  $F(1,101) = 2.21, p = .14, \eta^2 = .02$  on post-traumatic stress symptomology. However, there was a significant effect of type of trauma,  $F(2,101) = 8.37, p < .001, \eta^2 = .14$ , on post-traumatic stress symptomology. Here, Bonferroni post-hocs revealed that sexual and physical trauma had a greater impact on levels of post-traumatic stress symptomology than emotional trauma ( $p < .001$  and  $p \leq .01$ ), although there was no difference between sexual and physical trauma ( $p > .99$ ). There was not, however, a significant interaction between time of, and type of, trauma,  $F(2, 101) = 1.24, p = .29, \eta^2 = .02$ .

**Discussion**

There were two main aims associated with this study. The first, to investigate the relationship between trauma, active coping and depression; the second, to

investigate the effects of time of trauma (childhood or adulthood) and type of trauma (emotional, physical or sexual) on depression. Results revealed that there was a significant positive relationship between trauma and depression symptomology in our sample, with higher levels of trauma being associated with higher levels of depression. Furthermore, it was found that there was a significant negative relationship between active coping and depression symptomology, with higher active coping scores leading to lower levels of depression. Combined, post-traumatic stress symptomology and level of active coping accounted for over half of the variance in depressive symptomology. These findings supported the hypothesis that there would be a significant relationship between trauma, active coping, and depression. With regard to the second study aim, no significant main effects, nor interaction effects were found. Thus, the hypothesis that there would be an effect of time and type of trauma on depressive symptomology cannot be supported. Interestingly, although type of trauma did not significantly impact upon depressive symptomology, an exploratory analysis found that type of trauma did impact post-traumatic stress symptomology, with sexual and physical trauma having a greater, but equivalent, effect on post-traumatic stress symptomology compared with emotional trauma. It should be noted that this finding was regardless of the time (i.e., childhood or adulthood) of the sexual, physical or emotional trauma.

A key result of the current study was that higher active coping was negatively correlated with depression symptomology. Whilst this result is consistent with Rodriguez-Naranjo & Cano (2016), the present finding contradicts that of Herres (2015) who found active coping to be associated with higher levels of depression. Of note, participants in the research study of Herres were grouped based upon preferred coping strategies using the Brief COPE. This is a measure with only two active coping items. This difference in methodology likely explains the discrepant findings between the current study and the study of Herres. Further, in the present research, active coping accounted for a substantial amount of the variance in depressive symptomology (i.e., over

40%), and the effect size observed for the relationship between active coping and depression was large, indicating that the likelihood of this correlation occurring by chance was low (Field, 2017). Thus, in line with Rodriguez-Naranjo & Cano (2016), coping strategy is associated with incidence of depression.

Previous research has, however, also found trauma to be a significant predictor of depression (Goldstein et al., 2017; Herzog & Fleming, 2016). This too was supported by the current study, as post-traumatic stress symptomology was positively correlated with level of depression symptomology, meaning that higher levels of trauma were associated with higher levels of depression. Post-traumatic stress symptomology accounted for approximately 8% of the variance and combined with active coping these two variables accounted for more than 50% of the variance in depressive symptomology. Tentatively, this suggests that post-traumatic stress symptomology could be used to identify individuals at risk of developing depression and those with higher levels of trauma after a distressing event should: (a) potentially be screened for depressive symptomology; and (b) offered support with respect to active coping.

As there is more to trauma than level of symptomology, a further aim of the current study was to explore the relationship between type of trauma (sexual, physical or emotional) and time of trauma (childhood or adulthood) on depression. However, no significant effects were found. Here, findings could be due to individual differences. To expand, and considering type of trauma, other factors such as personality and access to social support may play a role when trying to evaluate the effects of type of trauma on depression symptomology. As such factors were not explored in the present research, this is an area future research could address. Alternatively, the lack of significant findings could be due to trauma being measured retrospectively. The traumas occurred on average eight years (adulthood trauma) and 18 years (childhood) prior to this study. Kucharska (2017) found that only recent sexual trauma was predictive of depression, whereas historic sexual traumas were no more predictive of

depression than non-sexual traumas. Thus, differences in the effect of trauma type on depression may only be evident in very recent trauma. To explore this hypothesis further, future research should focus on investigation of specific types of recent trauma.

One further factor that could explain the lack of any significant effects is that the desired power of .80 was not reached for the variables time and type of trauma. Hence, a type II error is a possible risk (Field, 2017). Indeed, a post-hoc power analysis, using G\*Power (Faul et al., 2007), reported for a significant effect to be found a desired sample of 211 was required (as compared to the 107 recruited). Although 211 may be considered a large sample, it may not be an unrealistic sample size, as previous trauma research has recruited large numbers of participants (e.g., Farhood, Fares, Sabbagh, & Hamady, 2016; Fowler et al., 2013; Grekin et al., 2017). Therefore, the issue of power can be addressed in future research to determine any possible effects of time and type of trauma on depression.

It should also be noted that no significant effect of time of trauma on depression symptomology was observed nor a time by trauma interaction on depression symptomology. One explanation for these null results, detailed above, was that the study was underpowered. Similarly, the null results could be due to trauma being measured retrospectively, as depressive symptomology may decrease over time (Grekin et al., 2017). Last but not least, it could simply be that the effect of trauma in childhood is equal to that of trauma in adulthood. This, however, would contradict research of Dunn and colleagues (2013) who suggested childhood trauma has more lasting effects due to the adverse impact on a child's development. Consequently, more research is potentially needed in this area to more fully understand the effects of time of trauma on the tendency toward depression.

Of note, a supplementary finding of the current research was that although type of trauma did not impact depression it did, in fact, impact post-traumatic stress symptomology. Physical and sexual trauma were found to have a greater impact on current post-traumatic stress symptomology than emotional trauma, but the effects of physical and



sexual trauma were equivalent. In previous research, sexual trauma was found to be a greater predictor of depression than other types of trauma, but only when the sexual trauma was recent (Kucharska, 2017). The current research adds to this by revealing that if the trauma is not recent, then such effects may be more equivocal (i.e., in this case trauma occurred on average 8.3 years prior to the study). Interestingly, in the meta-analysis performed by Mandelli and colleagues (2015), emotional trauma was revealed to be a greater predictor of depression than physical and sexual trauma. Taken together, the implication of such research as well as that of the current study is that type of trauma may impact psychological variables such as depression and post-traumatic stress symptomology differently. As such, examining type of trauma is an important area for further investigation in future studies.

To sum, the aim of the present study was to identify who may be more at risk of depression. The current findings suggest that those who have suffered a traumatic event, regardless of type and/or time, may be likely to suffer a depressive episode and therefore may benefit from interventions to mitigate depressive symptomology, consistent with previous research (Goldstein et al., 2017; Herzog & Fleming, 2017; Kucharska, 2017). In addition, however, active coping was found to be negatively correlated with depressive symptomology, indicating that those with better active coping strategies may be less susceptible to suffering with depressive episodes after a traumatic experience (consistent with Noble et al., 2014; Rodriguez-Naranjo & Cano, 2016; Steinhausen et al, 2007). Importantly, as the effect size of this finding was large, offering active coping strategy interventions to those who have suffered a traumatic event, and have been identified as at risk, could be useful. To expand, offering such individuals training in active coping could aid in preventing or alleviating a depressive episode; especially as active coping accounted for over 40% of the variance in depressive symptomology.

### ***Limitations and Future Directions***

Factors that may also predict depression such as

personality traits (Noteboom et al., 2016) and/or social support (Stice et al., 2004) were not assessed during the present study due to being outside the scope of research. Moreover, more extensive demographic information (e.g., education level, marital status, socio-economic background, religion) was considered beyond the scope of the current research. However, as depression has been shown to be a complex mental health condition with many possible variables that may increase risk of depressive symptomology (APA, 2013), future research should pursue more complex multi-faceted methodology. For example, the relationship between an individual's personality traits, social support and type of trauma, as well as more extensive demographics, on tendency towards depression. This may help explain why previous research has failed to reach a consensus on which type of trauma, if any, has the greatest effect on depression. Collecting more extensive demographic information would also aid in ascertaining the representativeness of the sample.

A further limitation of the present study is that the PTSD checklist used was based upon the DSM-IV criteria for PTSD and not the DSM-V criteria. This was due to access to more recent relevant measures being limited. Whilst unlikely, as the PTSD checklist is a standard measure used in clinical research, this may have impacted upon the validity of findings.

Additionally, an exploratory analysis to elaborate on the recency of trauma would have been an interesting addition to this study. Unfortunately, this was not possible in the present research given too few participants reported trauma occurring in the past two years. However, such research could potentially add to the findings of Kucharska (2017) in that 'type of trauma' is predictive of depression when the event occurs within two years of participation.

Finally, in the present study, whilst approximately 35% of participants reported having received a clinical diagnosis of depression, we did not record what percentage of these participants had received treatment for their diagnosis. However, those who had received a diagnosis could have had their depression alleviated due to treatment, which likely could have impacted current report of depression

levels and/or coping skills. In future research, therefore, screening for both depressive disorders and previous treatments should be included as moderating variables when investigating depression and trauma relationships. For example, it could be that participants with more severe depression scores indicated higher confidence in their coping abilities, due to previous successful treatment, over-inflating the variance in coping strategy observed.

### Conclusions

To conclude, the purpose of the present study was to explore the relationship between post-traumatic stress symptomology, active coping and depression symptomology as well as effects of time of trauma (childhood or adulthood) and type of trauma (sexual, physical or emotional) on depressive symptomology. Results revealed a significant positive correlation between post-traumatic stress symptomology, and level of depression symptomology and a significant negative correlation between level of active coping and level of depression symptomology. The latter accounted for over 40% of the variance in depressive symptomology. However, no effects of time—nor type—of trauma were found. Taken together, these findings indicate that higher levels of trauma result in higher levels of depression, although higher levels of active coping can somewhat mitigate this. Therefore, post-traumatic stress symptomology and level of active coping may be of use in identifying those potentially at risk of suffering a depressive episode after a traumatic experience. Tentatively, active coping could potentially be used as an intervention to either prevent or lessen depressive symptomology in those with a history of trauma. Finally, yet importantly, exploratory analyses revealed: i) type of trauma, regardless of time of trauma, differentially affected current post-traumatic stress symptomology reported; and ii) post-traumatic stress symptomology, as reported above, significantly affected tendency towards depression. Therefore, effects of type of trauma on post-traumatic stress symptomology is also an important area for future research, when investigating mediators of depression.

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### Conflicts of Interest

The authors have no conflicts of interest to declare.

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