Abstract

Objectives: Cluster B personality disorder traits and positive psychological change, known as posttraumatic growth (PTG), are both possible outcomes following childhood trauma. However, existing research has not yet explored whether emotion regulation difficulties can simultaneously explain these negative and positive changes.

Method: A sample of childhood trauma survivors (N =223) provided responses to an online survey, with findings assessed using structural equation modelling techniques.

Results: Emotion regulation difficulties were found to mediate between childhood trauma severity and cluster B traits (ab_{cs} = -.05), and between childhood trauma severity and PTG (ab_{cs} = .13), with small to medium indirect effects. The final model accounted for more variance in cluster B traits (56%) than PTG (10%).

Conclusions: Emotion regulation is therefore a key mediator of positive and negative psychological changes and should be the focus of intervention efforts among childhood trauma survivors.

Keywords: Childhood trauma, emotion regulation, personality disorder, posttraumatic growth, subjective severity

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Introduction

The experience of childhood trauma, and its deleterious repercussions, are unavoidable for some individuals. According to nationally representative surveys in the United Kingdom, between 46.4% and 47% of individuals report experiencing at least one adverse childhood experience, and 8.3-9% experience four or more before the age of 18 (Hughes, Lowey, Quigg & Bellis, 2016; Bellis, Hughes, Lecnekby, Perkins, & Lowey, 2014). The impact of sexual abuse and neglect in childhood, among other events, can have an array of negative effects on psychological adjustment, including anxiety, depression and posttraumatic stress (Huh, Kim, Lee, & Chae, 2017). One particular research focus is on the development of personality disorder traits stemming from childhood trauma (e.g. Wildschut, Langeland, Smit, & Draijer 2014; Zlotnick et al., 2008). Of all personality disorder clusters, cluster B traits, characterized by dysregulated emotion, insensitivity, heightened aggression and impulsivity, and anger (Turner, Sebastian & Tüscher, 2017; Carvalho Fernando et al., 2014) appear to demonstrate particularly close associations with childhood trauma exposure (Gladstone et al., 2004).

Paradoxically, literature has also established that positive changes can be reported by individuals following extreme adversity, known as posttraumatic growth (PTG; Tedeschi & Calhoun, 2004). PTG refers to a host of perceived beneficial outcomes following traumatic events, specifically, positive changes in self-perceptions, relationships with others, and in a person's life philosophy (Tedeschi & Calhoun, 1996; 2004). For instance, these changes can include increased feelings of personal strength, a closeness within interpersonal relationships, and a greater appreciation for life. These changes arise as individuals attempt to make sense of a traumatic event to cope with the extreme emotional and cognitive demand that is placed upon them (Tedeschi & Calhoun, 2004), resulting in personal and psychological growth.

Although there are substantial negative outcomes following adulthood traumatic experiences, research consistently demonstrates the more seismic impacts of childhood trauma (Zlotnick et al., 2008). Notably, research has found increased negative trauma responses in individuals who experienced trauma before puberty than those after puberty (Weber, et al., 2008). The more damaging nature of childhood trauma may be attributable to adverse childhood experiences interrupting crucial developmental stages, whereby children have greater vulnerability to adverse neurodevelopment (Bremner & Vermetten, 2001) and fewer resources to deal with the traumatic event (Zlotnick et al., 2008). In contrast, regarding positive trauma adaptation, Yoshida et al (2016) found a negative correlation between age and PTG, showing that as age increases, reported PTG decreases. A meta-analysis of 77 studies also evidenced that those traumatized in childhood are more likely to report PTG than those in adulthood (Helgeson, Reynolds, & Tomich, 2006). Collectively, this suggests that the most potent positive and negative trauma adaptations are resultant to childhood trauma. Therefore, the current study focuses solely on the impacts of childhood as opposed to adulthood trauma.

In explaining the differential outcomes from traumatic life events, researchers have explored how other psychological variables determine posttraumatic adaptation. A potential mediating factor is emotion regulation strategies, which refer to an individual's ability to tolerate and manage responses in particularly challenging situations (Gratz & Roemer, 2004). In regard to psychopathology, Aldao, Nolen-Hoeksema and Schweizer (2010) in their meta-analytic review, found evidence which suggested that it is the presence of maladaptive emotion-regulation strategies (e.g. suppression and avoidance), rather than merely the absence of adaptive emotion regulation strategies (e.g. positive reappraisal), that is most deleterious. Thus, personality disorder traits and PTG are both possible outcomes from childhood trauma, but until now have been established as two separate bodies of research.

This study will therefore explore how the subjective severity of childhood trauma may impact upon an individual's emotion regulation abilities, and subsequently, lead to either positive or negative adaptation.

Childhood Trauma Severity and Cluster B Personality Traits

Research repeatedly demonstrates that traumatic experiences in childhood often contribute to the development of personality disorder traits (Wildschut et al., 2014; Zlotnick et al., 2008). For instance, individuals presenting with sexual abuse in childhood strongly endorse symptoms specific to cluster B, compared to other personality presentations (Gladstone et al., 2004). Similarly, Afifi et al (2011) evidenced all cluster B personality disorders to be particularly associated with multiple childhood trauma. In a community sample of individuals who met the criteria for a cluster B personality disorder, the prevalence of physical abuse, emotional abuse, sexual abuse, physical neglect, and emotional neglect comprised 34.9%, 21.7%, 23.8%, 41.4%, and 17.2%, respectively. However, despite the relationships observed in the literature between objective characteristics of childhood trauma (i.e. frequency of trauma exposure) and cluster B traits, the mechanisms whereby the *subjective* severity of childhood trauma relates to cluster B traits are still poorly understood.

Existing findings stipulate that individuals with greater trauma exposure are more likely to develop cluster B traits (Westphal et al., 2013). Cluster B traits may arise from a tendency to negatively appraise various situations, deriving from a lack of resilience in response to stressful occurrences (Fonagy, Luyten, Allison, & Campbell, 2017). A characteristic which may be shared by individuals with cluster B traits is the experience of cumulative childhood trauma and the subsequent propensity to negatively appraise their childhood experiences. For example, Finger, Byun, Melnick and Lyons-Ruth (2015) found that childhood abuse survivor' ratings of their trauma severity were positively associated with

borderline and antisocial personality disorder traits. Thus, individuals with greater childhood trauma and cluster B traits may be more likely to negatively appraise their early life experiences.

Childhood Trauma Severity and Posttraumatic Growth

The aforementioned findings do not consider the potential for people to report positive outcomes from childhood trauma. PTG has been documented following childhood trauma exposure (Brooks, Graham-Kevan, Robinson, & Lowe, 2018), although the latter study did not explicitly measure subjective trauma severity. However, subjective severity has been found to be positively related to growth following a natural disaster (García, Cova, Rincón, Vázquez, & Páez, 2016). It is thought that events perceived as more seismic can lead to the questioning and restructuring of an individual's core personal beliefs (Tedeschi & Calhoun, 2004). However, the experience of trauma alone is not sufficient for the development of PTG (Brooks et al., 2018; Tedeschi & Calhoun, 2004), or cluster B traits (Fonagy et al., 2017), and so other factors may predispose individuals to report positive and negative psychological changes.

Childhood Trauma Severity and Emotion Regulation

One of the main adverse impacts following childhood trauma is emotion regulation difficulties (Huh et al., 2017; Barlow, Turow, & Gerhart, 2017). Broadly, emotion regulation concerns an individual's acceptance and awareness of various emotions, the use of appropriate emotion regulation strategies, the ability to inhibit impulsive behaviours, and act in accordance with desired goal-directed behaviours (Gratz & Roemer, 2004). Recent literature has begun to look at the effects of childhood trauma on subsequent emotion regulation difficulties. Research mostly demonstrates a positive relationship between greater exposure to childhood trauma and increased emotion regulation difficulties (Bigras, Daspe,

Godbout, Briere, & Sabourin, 2017). A possible reason for increased negative psychological disturbances may be due to the way an individual perceives their childhood trauma.

Literature suggests that the way an individual perceives their potentially traumatic experiences may be more predictive of different posttraumatic outcomes compared to the objective characteristics of the trauma itself (Huh et al., 2017). Currently, there is limited research directly examining the subjective severity of childhood trauma and its impact upon emotion regulation abilities. However, available evidence suggests that more severe perceptions of childhood trauma appear to be positively related to emotion regulation difficulties (Barlow et al., 2017). Considering that subjective trauma perceptions can predict negative affective changes, it may be suggested that individuals who rate their trauma as more severe may also report greater difficulties in their emotion regulation.

Emotion Regulation and Cluster B Traits

Numerous studies indicate that emotion regulation difficulties are a central component in many personality disorders (Carvalho Fernando et al., 2014; Gutknecht et al., 2007). These difficulties are associated with decreased efficiency to engage in appropriate emotion regulation strategies and control impulse driven behaviours (Albein-Urios et al., 2013). It has been suggested that individuals with cluster B traits may also report emotion regulation difficulties because they display higher physiological stress reactivity compared with other personality clusters, which may impact psychological processes (Aleknaviciute et al., 2016). For instance, individuals with cluster B traits have shown increased activity in areas of the brain associated with emotion regulation (van Zutphen et al., 2018). This suggests those with cluster B traits may show greater sensitivity towards a variety of emotional stimuli, including traumatic events.

Research has started to investigate the role of emotion regulation as a key factor in determining subsequent psychological outcomes. Emotion regulation difficulties were found to strongly influence borderline personality traits in one sample of childhood trauma survivors (Carvalho Fernando et al., 2014). However, this study did not examine the indirect role of emotional regulation using mediation analyses, nor assess the wider spectrum of cluster B personality presentations. It is possible that childhood trauma that is perceived as more severe may have a greater impact upon emotion regulation abilities (Bigras, et al, 2017) and therefore lead to increased cluster B traits, although there are limited studies at present.

Emotion Regulation and Posttraumatic Growth

Compared to research on emotion regulation and negative outcomes, even less research has considered the role of emotion regulation as a mediator of positive psychological change. To date, only one study has looked at the contribution of emotion regulation strategies on PTG. Larsen and Berenbaum (2015) found that emotional suppression and expression were unrelated to PTG, while emotional processing was indirectly related to growth. These findings would offer mixed support for the role of emotion regulation difficulties on PTG, suggesting that further exploration is needed.

While not explicitly measuring emotion regulation, other PTG research has examined various aspects of emotional and coping strategies on growth. The wider literature suggests that problem-focused strategies, such as active coping, acceptance and cognitive appraisal, are all positively related to PTG (Helgeson et al., 2006). Conversely, poor use of coping strategies is related to negative emotional responses (John & Gross, 2004). Considering this research and the individual facets of emotion regulation, it appears that ‘acceptance’ is similar to Gratz and Romer’s (2004) construct of emotion acceptance. Likewise, the ability to use appropriate coping strategies is arguably similar to Gratz and Romer’s (2004) ‘access to

appropriate emotion regulation strategies'. Equally, the concept of 'impulse control' presumes that greater levels of control are associated with improved wellbeing (Gratz & Romer, 2004), which is borne by similar findings that increased control perceptions are associated with PTG (Brooks, Graham-Kevan, Lowe, & Robinson, 2017). Therefore, it is conceivable from this research that individuals who demonstrate greater emotion regulation abilities will be more likely to experience PTG.

Aims of Study

The purpose of the current study is to explore the mechanism whereby childhood trauma severity relates to positive (PTG) and negative (cluster B traits) outcomes through emotion regulation difficulties. It was hypothesized that increased childhood trauma severity would positively relate to emotion regulation difficulties. More severe perceptions of childhood severity would lead to increased PTG and cluster B traits. In addition, emotion regulation difficulties were expected to negatively predict PTG and positively predict cluster B traits. Based on available literature, it was also expected that emotion regulation difficulties would act as a mediator between childhood trauma severity and PTG and cluster B traits.

Method

Participants

The current study used a community sample consisting of 223 adults (178 females; 80.0%) who were recruited using online advertisements and had experienced at least one adverse event. The average age of the sample was 27.00 years (*SD* = 10.93), ranging from the ages 18-67 years old. The majority of the sample were heterosexual (80.0%) and White British (52.0%), with 44.0% reporting to be single. The trauma characteristics of the sample are presented in Table 1.

[INSERT TABLE 1 ABOUT HERE]

Measures

Traumatic experiences. The Childhood Trauma Questionnaire (CTQ; Pennebaker & Susman, 1988) is a two-part self-report measure assessing individual's experiences with childhood and adulthood trauma, although childhood trauma was the focus for this study. Childhood trauma included traumas prior to the age of 17 (seven items, for example: Prior to the age of 17, did you experience a death of a very close friend or family member?), which included an additional question to measure experiences of neglect and deprivation. Following each question participants were asked, 'If yes, how old were you?', which was an amendment for this study. Additionally, participants were asked to rate the subjective severity of their traumatic experience(s) by answering, 'If yes, how traumatic was this?' using the following seven-point scale '1 = not at all traumatic, 7 = extremely traumatic'. A cumulative childhood trauma perceptions of severity score was then calculated by summing severity scores from the childhood trauma questions and creating an average severity score across the number of events experienced. Higher scores demonstrated that participants found their experiences to be more traumatic.

Emotion regulation difficulties. The Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) is a 36-item self-report instrument that measures participant's emotion regulation difficulties. The DERS consists of six subscales: Nonacceptance of emotion responses; difficulty engaging in goal directed behaviour; impulse control difficulties; lack of emotion awareness; limited access to emotion regulation strategies; and lack of emotion clarity. Participants were required to state the extent to which they agree that each statement such as 'I pay attention to how I feel' and 'When I'm upset, I have difficulty getting work done' using the following five-point scale: 1= never, 5= almost

always. Higher scores indicated greater emotion regulation difficulties. An overall emotion regulation difficulties score was calculated for each participant by adding the total of each of the six subscales. The DERS has demonstrated good internal consistency, construct and predictive validity in non-clinical populations (Gratz & Roemer, 2004), and was high (α = .94) in this study.

Cluster B traits. The International Personality Disorder Examination (IPDE; Loranger, Janca, & Sartorius, 1997) screening questionnaire is used to measure 10 personality disorder traits according to three clusters (cluster A, B and C) in non-clinical populations. The cluster B subscale is the focus of this study, and consists of four dimensions: Histrionic (seven items, for example: I show my feelings for everyone to see); Narcissistic (eight items, for example: I get upset when I hear bad news about someone I know); Antisocial (six items, for example: At times I've refused to hold a job, even when I was expected to); Borderline (eight items, for example: Giving into some of my urges gets me into trouble). Overall the IPDE comprises 68 statements in which participants responded either 'true' or 'false'. The IPDE is usually a 77-item measure, which was reduced for this study. An overall score was calculated for the cluster B traits by adding together the scores which corresponded to that cluster. Higher scores indicated greater levels of cluster B traits. The IPDE demonstrated good internal consistency (Loranger et al.,1997), which was reflected in the cluster B subscale (α = .87).

Posttraumatic growth. The Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) is self-report measure examining positive outcomes that a person may experience following a traumatic event. The PTGI consists of 21 items, whereby participants respond using a six-point Likert scale (1 = no change, 6 = very great change) to the extent to which they believe each change may have occurred following their experience with trauma,

such as, 'I better accept needing others' and 'I have a greater feeling of self-reliance'. An overall PTG score was calculated whereby a higher score indicated greater levels of perceived PTG. The PTGI has excellent reliability and construct validity in non-clinical populations (Taku, Cann, Calhoun, & Tedeschi, 2008), demonstrating high internal consistency in this study ($\alpha = .93$).

Procedure

Participants accessed an online study which provided them with information about the research. Issues relating to confidentiality and withdraw were provided. At the end of the survey, participants were directed to a debriefing sheet explaining the objectives of the study and contact details of wellbeing services. Ethical approval was obtained from the university ethics committee.

Data analysis

Hypotheses were examined in three phases, using SPSS and AMOS (version 24) with maximum likelihood estimation. First, the measurement model was evaluated with established confirmatory factor analysis (CFA) procedures (Kline, 2016). Childhood trauma severity (independent variable), emotion regulation difficulties (mediator), and cluster B traits and PTG (outcomes), were represented by unobservable latent constructs, with items from the measures serving as indicators. The latent constructs are flexibly conceptualized in line with sample realization interpretations (Bollen, 2002), in which such variables can be estimated from the data set. Second, direct relationships between the latent variables were examined with standardized regression coefficients. Third, mediation analyses were conducted to determine significant indirect effects (*ab*) with 5000 bootstrapped samples and bias-corrected 95% confidence intervals (95% BCa CI). Completely standardized indirect effects (ab_{cs}) were calculated, which provide estimates of small (ab_{cs} of .01 to .08), medium (ab_{cs} of .09 to .24)

and large (ab_{cs} > .25) effect sizes (Preacher & Kelley, 2011). Conducting analyses of indirect effects is an attractive option over ordinary least squares methods (e.g. Baron & Kenny, 1986), as SEM maximum likelihood procedures control for measurement error (Hayes, Montoya, & Rockwood, 2017).

Separately, the reliability and validity of the measurement model was assessed according to established procedures (Hair, Black, Babin, & Anderson, 2010). Composite reliability was used to check internal consistency. It is advantageous for use in SEM compared to Cronbach's alpha because construct loadings are allowed to vary, whereas Cronbach's loadings are constrained to be equal and thus underestimate true reliability (Peterson & Kim, 2013). Composite reliability values should exceed .70 to be considered adequate (Hair et al., 2010). Convergent validity was assessed using the Average Variance Extracted (AVE), which measures whether the indicator variables suitably represent the latent construct; AVE values should ideally exceed .50, and the square root of the AVE should be greater than the correlations between the latent constructs. Discriminant validity was examined by the Maximum Shared Variance (MSV). Ideally, AVE values should be greater than the MSV, suggesting that the constructs are distinct from one another (Hair et al., 2010). Indicators that represent latent constructs well should exceed .60 (Kline, 2016). Further improvements to the model fit also considered theoretically-viable modification indices.

Model fit was assessed using fit indices recommended by Hu and Bentler (1999). As χ^2 is known to be sensitive to sample size, other fit indices were calculated. Values of less than 2 for the χ^2/df ratio indicate the data fit the model well (Hair et al., 2010). The Akaike Information Criterion (AIC) favours parsimonious models, with smaller values favoured (Hair et al., 2010). Unlike the χ^2 value, the Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA) and

Standardized Root Mean Square Residual (SRMR) are less influenced by sample size and model complexity. CFI and TLI indices above .90 are said to represent acceptable data fit, with values above .95 desirable (Hu & Bentler, 1999). Finally, well-fitting models should have RMSEA and SRMR values below .08 and .06, respectively (Hu & Bentler, 1999).

Results

Descriptive and Correlational Statistics

Descriptive statistics and correlations among the variables in the model are presented in Table 2. Childhood trauma severity was positively related to emotion regulation difficulties and cluster B traits. Emotion regulation difficulties were strongly and positively associated with cluster B traits. The only significant relationship concerning PTG was the negative association with emotion regulation difficulties.

[INSERT TABLE 2 ABOUT HERE]

Structural Equation Modelling

The reliability and validity of the measurement properties of the model were examined and are reported for the third and final model in Table 3. All four variables demonstrated appropriate composite reliability and discriminant validity, exceeding the relevant cut-offs. In addition, most variables displayed adequate convergent validity except for childhood trauma severity, which fell just below .50 even after low loading indicators were removed in model three. However, the AVE is noted to be a conservative measure of convergent validity (Malhotra & Dash, 2011) and thus no further modifications were made. Finally, all latent variables were well-represented by their indicators (all $p < .05$).

[INSERT TABLE 3 ABOUT HERE]

The model was refined on three occasions to improve model fit and parsimony, with fit statistics reported in Table 4. The baseline model was a poor fit to the data, with CFI and TLI values falling below the minimum .90 cut-off, and a RMSEA value exceeding .06 (Hu & Bentler, 1999). In model two, the removal of weak indicator loadings from the childhood trauma severity (two items ≤ .25) and emotion regulation difficulties ('lack of emotion awareness' subscale at .28) variables improved the CFI, although χ^2/df, TLI and RMSEA values were still not acceptable. One indicator on the childhood trauma severity variable remained below .60, although this was retained as removal of this item did not make any substantial improvements to model fit. It was also felt that removing further items would make the latent factor unstable by reducing convergent validity.

[INSERT TABLE 4 ABOUT HERE]

In the third and final model, modification indices were inspected to determine improvements to model fit. These indices suggested that one pair of error terms could be correlated on the PTG latent variable, and a further three pairs of error terms on both the emotion regulation difficulties and cluster B traits variables. The modifications were inspected and found to be theoretically-plausible, such that they were sufficiently close in meaning to be correlated (Bollen, 2002; Hair et al., 2010). Correlating these error terms resulted in improvements across all fit indices. Although the AIC increased from model two, it was still an improvement on the baseline model. Thus, model three was retained as it was felt to more accurately reflect the data, with appropriate model fit and theoretically-viable paths observed.

The final model, depicted in Figure 1, explained 13% of the variance in the emotion regulation difficulties mediator. It accounted for 56% of the variance in cluster B traits, and somewhat less variability (10%) in PTG. Within the model, childhood trauma positively

predicted emotion regulation difficulties, which in turn positively predicted cluster B traits and negatively predicted PTG. Childhood trauma also directly and positively predicted PTG but was unrelated to cluster B traits.

[INSERT FIGURE 1 ABOUT HERE]

Mediation Analyses

As it was hypothesized that emotion regulation difficulties would mediate relationships between childhood trauma severity, cluster B traits and PTG, analysis of indirect effects was undertaken. Emotion regulation difficulties were found to mediate the positive association between childhood trauma severity and PTG (*ab* = -.14, 95% BCa CI [-.26, -.04], $p < .001$, ab_{cs} = -.05) and between childhood trauma severity and cluster B traits (*ab* = .07, 95% BCa CI [.03, .12]; $p = .001$; ab_{cs} = .13).

Discussion

The present study examined how the subjective severity of childhood trauma impacts upon survivor's emotion regulation abilities, explaining their positive (PTG) or negative (cluster B traits) posttraumatic adaptation. These factors are presented in a unique model, which is the first to combine these two concepts into one theoretical framework. It was hypothesized that perceptions of higher childhood trauma severity would predict greater emotion regulation difficulties, as well as increased PTG and cluster B traits. Specifically, emotion regulation difficulties were hypothesized to negatively predict PTG and positively predict cluster B traits. Additionally, emotion regulation was expected to mediate the relationship between perceived childhood trauma severity and posttraumatic adaptation. As predicted, childhood trauma severity was positively related to emotion regulation difficulties which, subsequently, positively predicted cluster B traits and negatively predicted PTG. Childhood trauma severity also directly positively predicted PTG, however it did not predict

cluster B traits. Collaboratively, the model explained the variance in cluster B traits (56%) better than PTG (10%), with the overall model explaining 13% of the variance in the emotion regulation difficulties mediator. These findings suggest that cluster B traits and PTG constitute two opposing posttraumatic adaptations, both of which are mediated by an individual's emotion regulation abilities following their perception of the trauma severity.

Direct Relationships

The direct relationships found in this study show varying levels of congruency with previous literature. Consistent with other research which has examined negative trauma perceptions (Bigras et al., 2017), this study finds that as subjective severity increases, so do emotion regulation difficulties. This suggests that individuals who perceive their adverse childhood experiences to be particularly traumatic may experience greater emotional disturbances in adulthood. This may also explain why people demonstrate differential responses to the same type of adversity (Bak et al., 2014), and supports the importance of understanding individual perceptions when explaining posttraumatic change (Huh et al., 2017).

Also consistent with previous research was the current finding that higher severity perceptions were related to higher levels of self-reported PTG (Prati & Pietrantoni, 2009; García et al., 2016). This supports the belief that trauma must be sufficiently severe to challenge an individual's world view and hence initiating a restructure of their core personal beliefs (Tedeschi et al., 2004). However, previous research has tended to explore PTG following isolated, adult traumatic experiences (e.g., Jin, Xu, Li & Liu, 2014), while growth among adults with childhood exposure is less well-explored. It is possible that childhood exposure may lead to the early development of negative core beliefs, resulting in subsequent traumas having a reinforcing, rather than challenging, effect. Indeed, trauma of 'great'

severity can overwhelm a person's capacity to experience PTG, compared to traumas of 'moderate' severity (Shakespeare-Finch & Lurie-Beck, 2014). The current study found that the presence of positive trauma perceptions in relation to childhood trauma is indicative of perceived PTG. In contrast to previous findings (Westphal et al., 2013), this study found no significant direct relationship between childhood trauma severity and cluster B traits. The existence of a positive association between severity and cluster B suggests that a third variable may mediate this relationship. Previous research has found emotion dysregulation acts as a mediator between traumatic experiences in childhood and adult symptoms of borderline personality disorder (Gaher, Hofman, Simons, & Hunsakeret, 2013).

Cluster B Traits

The absence of a direct relationship between childhood trauma and cluster B traits further substantiates the mediating role of emotion regulation. Overall, the model better explained the indirect relationship, suggesting that individuals who perceive their trauma to be more severe, report greater difficulties in regulating their emotions. This finding explains their reports of experiencing more cluster B traits, as these traits can be understood as maladaptive attempts to manage or avoid strong emotions (Carvalho Fernando et al., 2014). Indeed, this finding is not entirely unexpected, given that emotion regulation difficulties are also an important feature of cluster B traits (Gutknecht et al., 2007). Research suggests that childhood trauma is particularly damaging as children have a greater vulnerability to adverse neurodevelopment (Bremner et al., 2001) and fewer resources to manage traumatic events (Zlotnick et al., 2008), potentially leading to emotion regulation difficulties post-childhood trauma (Bigras et al., 2017; Huh et al., 2017).

Posttraumatic Growth

In contrast, this study reports a negative indirect relationship between childhood trauma and PTG when integrating emotional regulation. Whilst there is a paucity of research directly examining emotion regulation in PTG, the findings of this study are congruent with existing literature (Larsen & Barenbaum, 2015). Research has found a positive relationship with PTG and healthy coping mechanisms (Helgeson et al., 2006), and negative relationships with unhealthy coping strategies (John et al., 2004). By considering the subjective element of childhood trauma, it is probable that, compared to those with higher cluster B traits, individuals demonstrating more PTG had greater access to healthy emotion regulation strategies in childhood. This may include increased religious coping and social support which research suggests are protective factors against the effects of cumulative childhood trauma (Schumm, Briggs-Phillips & Hobfoll, 2006). Other studies have found that children who experience trauma in an environment where their parents facilitated emotional disclosure report more PTG than those without (Hafstad, Gil-Rivas, Kilmer, & Raeder, 2010). As suggested by Tedeschi et al. (2004), PTG may therefore occur in a supportive developmental environment, which encourages the child to develop strategies to manage emotions effectively.

Implications, Limitations and Future Research

This is the first study to collectively consider potential positive and negative trauma responses concurrently in relation to PTG and cluster B traits. Emotion regulation difficulties mediated between childhood trauma severity and negative and positive outcomes which supported the predictions. The indirect effect was stronger than the direct relationships between childhood trauma severity and cluster B (which was non-significant) and between childhood trauma severity and PTG (weaker regression co-efficient for direct path). Thus, there appears to be a role for emotion regulation in explaining why some individuals succumb whilst others thrive following childhood adversity (Alisic, Jongmans, van Wesel, &

Kleber, 2011). As this study used a cross sectional design, longitudinal research is needed to confirm the current interpretation and direction of the hypothesized relationships. However, the current study does offer promising avenues for future research, having primarily established the core mediating role of emotion regulation in both positive and negative trauma pathways. Adopting a trait-based approach to measuring cluster B is consistent with current research (Heinonen et al., 2018), however future research into clinical samples is needed to explore whether these findings hold for more severe personality dysfunction. Another potential limitation of this research is the use of retrospective data. Retrospective reports of childhood trauma are often criticized for their accuracy and consistency (Hardt & Rutter, 2004), which questions the validity of participants' self-reports. However, research indicates that prospective and retrospective measures of childhood adversity are relatively congruent (Reuben et al., 2016). Indeed, as much childhood adversity is undetected, retrospective reports may be the only alternative to longitudinal cohort studies.

Conclusion

This model provides a better understanding of idiosyncratic responses to childhood trauma, by highlighting the mediating role of emotion regulation abilities in positive and negative posttraumatic change, which may be influenced by subjective trauma perceptions. This study's findings suggest that having better access to healthy emotion regulation strategies in childhood may attenuate the damaging impact of trauma on emotion regulation later in life, regardless of its subjective severity. This may subsequently determine survivors' positive (PTG) or negative (cluster B traits) adaptation to childhood adversity. Whilst this research is not without limitations, it offers useful insight into future areas of clinical intervention for childhood trauma survivors, by targeting emotion regulation techniques.

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Table 1.

Prevalence of childhood trauma exposure in the sample.

Characteristic	*M*	*SD*	Range
Number of trauma types experienced	2.39	1.46	0 – 7
		N	%
Event type			
Bereavement		138	61.9
Parental upheaval		95	42.6
Sexual abuse		54	24.2
Physical abuse		55	24.7
Serious illness or injury		58	26.0
Neglect		39	17.5
Other event		95	42.6

Table 2.

Descriptive data and correlations between variables in the final structural model after item removal (N = 223).

Variable	*M*	*SD*	Min.	Max.	Skew.	Kurt.	1	2	3	4
1. Childhood trauma severity	8.04	7.54	0.00	33.00	1.10	.94	-			
2. Emotion regulation	77.60	22.60	35.00	140.00	.48	-.19	.36***	-		
3. Cluster B traits	8.67	4.88	1.00	25.00	.80	.37	.39***	.74***	-	
4. Posttraumatic growth	71.18	22.64	21.00	123.00	-.14	-.53	.14	-.19*	-.11	-

Note. Skew. = skewness; Kurt. = kurtosis. * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 3.

CFA reliability and validity statistics for the four latent variables in the final model.

Variable	CR	AVE	MSV	√ AVE
1. Childhood trauma severity	.72	.48	.15	.69
2. Emotion regulation	.89	.62	.55	.79
3. Cluster B traits	.94	.66	.55	.81
4. Posttraumatic growth	.92	.69	.04	.83

Note. CR = Composite reliability; AVE = Average variance extracted; MSV = Maximum shared variance; √ AVE = Square root of the average variance extracted.

Table 4.

Summary of fit indices for three models tested.

Model	df	χ^2	χ^2/df	AIC	CFI	TLI	SRMR	RMSEA	RMSEA 90% CI	
									Low	High
1. Initial baseline model	204	418.99***	2.05	516.99	.89	.88	.07	.07	.06	.08
2. Removal of low loading indicators	147	320.78***	2.18	320.78	.91	.89	.07	.07	.06	.08
3. Correlate appropriate error terms	140	243.87***	1.74	343.87	.95	.93	.06	.06	.05	.07

Note. *** $p < .001$.

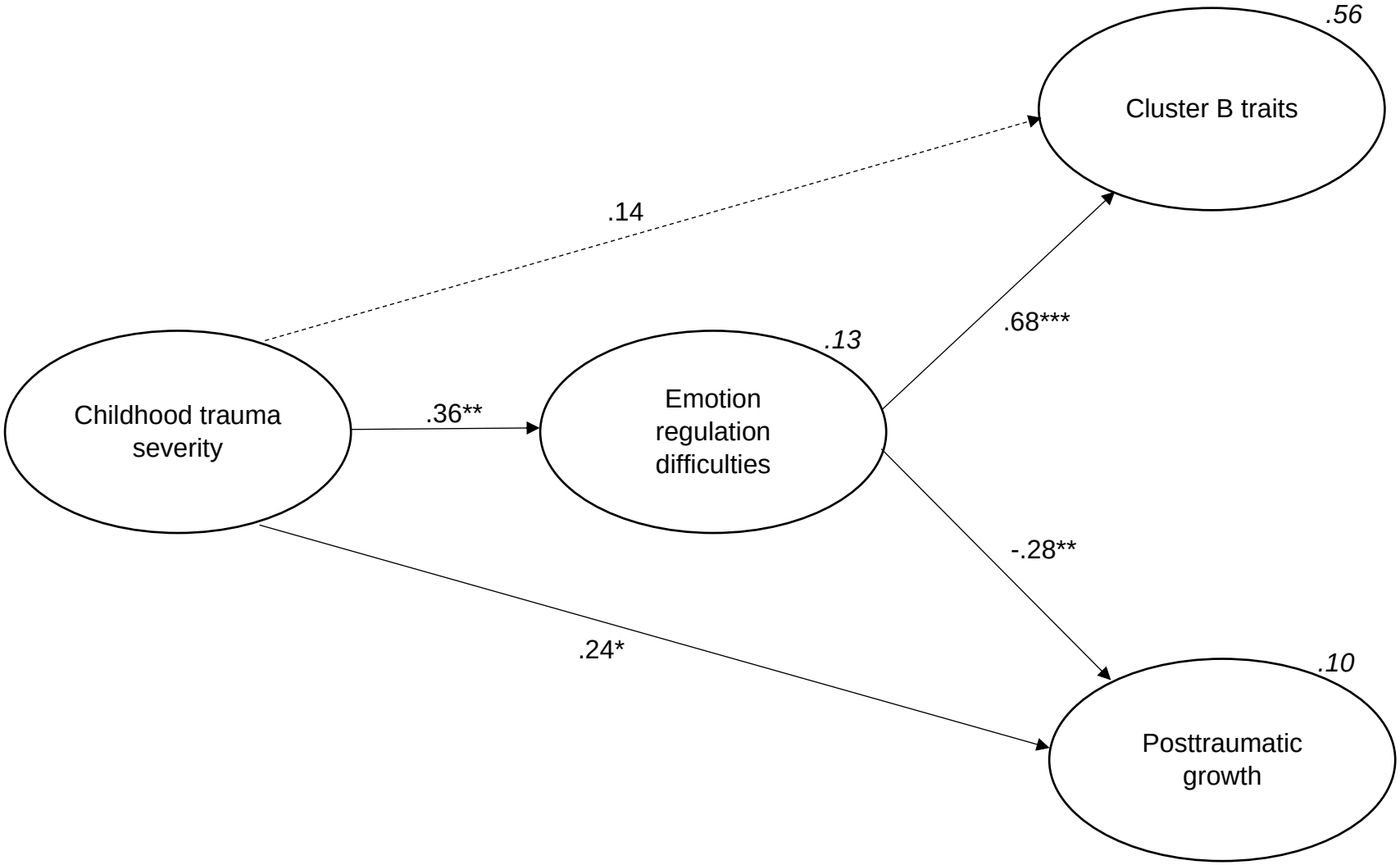

Figure 1. Standardized solution for the final model. R^2 for each endogenous variable shown in italics. Non-significant path indicated by dashed line. Indicator variables and error terms and are omitted for simplicity. * $p < .05$, ** $p < .01$, *** $p < .001$