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ARTICLE

Retraumatization Mediates the Effect of Adverse Childhood Experiences on Clinical Training-Related Secondary Traumatic Stress Symptoms

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ABSTRACT

Previous research (Butler, Carello, & Maguin, 2016) has found that exposure to trauma-related material in graduate clinical coursework and field training can put students at risk for reactivations of feelings/memories from negative past experiences (retraumatization) and for secondary traumatic stress (STS) symptoms. The present report sought to examine the role, if any, of adverse childhood experiences (ACEs) in these outcomes. Using the Butler et al. (2016) sample, we examined: (1) rates of ACEs in 195 graduate social work students, (2) whether the total number of ACEs was associated with training-related retraumatization (TRT) and/or STS symptoms, and (3) if TRT mediated the relationship between ACEs and STS symptoms. The results indicate that more than three quarters of the sample had experienced one or more ACEs before age 18 and almost one third endorsed 4 or more. The most commonly reported ACEs were household mental illness, parental separation/divorce, household alcohol/substance abuse, and emotional abuse or neglect by a parent or household member. Higher ACE scores were associated with increased likelihood of TRT experiences and STS symptoms during training. A mediation analysis confirmed that TRT mediated the effect of ACE scores on STS symptoms; this finding also provides support for the role of proximal emotional reactions in mediating the effects of distal adverse experiences on the development of trauma symptoms. In summary, despite the evident resilience of this graduate student sample, those with ACE histories were at heightened risk for training-related distress. These results underscore the need for a trauma-informed approach to clinical training.

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To prepare students in clinical training to work with traumatized and other client populations, many are exposed to potentially disturbing material in their course work and field experiences. While learning about trauma should be a key aspect of clinical training for the helping professions (Courtois & Gold, 2009), the effects, if any, of these training experiences have only begun to be explored. Recent scholarship, including anecdotal and exploratory reports, suggests that some students may experience the reactivation of

feelings and memories from past traumas as well as new trauma symptom development (e.g., Adams & Riggs, 2008; Bussey, 2008; Knight, 2010; Shannon, Simmelink, Im, Crook-Lyon, & Becher, 2014; Zosky, 2013). More recently, Butler, Carello, and Maguin (2016) found secondary traumatic stress (STS) symptoms among social work trainees at levels comparable to those reported for mental health professionals (Bride, 2007). STS symptoms are a potential consequence of learning about the harrowing experiences of others, and their manifestations can parallel those reported by the client/survivor (Figley, 1995).

Considerable research suggests that one risk factor for the development of STS (or a related condition, vicarious traumatization; McCann & Pearlman, 1990) among mental health professionals is having a personal trauma history (reviewed in Baird & Kracen, 2006; Bride, 2004), and many in the helping professions appear to carry this heightened risk. In one study on women in mental health professions that included psychologists, licensed clinical social workers, psychiatric nurse practitioners, and psychiatrists (Elliot & Guy, 1993), 66.4% of the sample reported some childhood trauma or adverse event, with 43.3% indicating sexual molestation, 21.9% parental alcoholism, 13.8% physical abuse, 11.4% death of a parent or sibling, and 8.1% hospitalization of a parent for mental illness. Moreover, these rates were significantly higher than those reported by women in other professions (such as accounting, law, chemistry, engineering, and the arts). Although research on student trauma histories is limited at present, one study (Adams & Riggs, 2008) found that 38.7% of clinical psychology trainees reported a personal trauma history, and another (Gilin & Kauffman, 2015) reported that 77.6% of a sample of graduate social work students reported one or more adverse childhood experiences that included potential traumatic stressors and indicators of household dysfunction.

The passage from adverse childhood experiences (ACEs) to the development of trauma symptoms following traumatic event exposure in adulthood is not well understood, even though it has been established by two large meta-analyses (Brewin, Andrews, & Valentine, 2000; Ozer, Best, Lipsey, & Weiss, 2003) that the risk of posttraumatic stress symptom development is reliably, if moderately, increased by having a history of prior traumatic exposures. Of note, Ozer and colleagues also found that proximal, peritraumatic emotional responses were even more powerful predictors of the development of posttraumatic stress disorder (PTSD) or symptoms than were trauma histories. Ozer and Weiss (2004) have suggested that future research should “emphasize the more proximal mechanisms or processes...that account for the relationship between PTSD symptoms and the more distal, static predictors such as prior trauma” (p. 171), either as moderators or mediators. Given the shared theoretical and phenotypic similarities between posttraumatic and STS symptoms, despite their conceptually different origins

(direct exposure versus indirect exposure [through description] to a potentially traumatic event), the present study sought to examine whether childhood adversity could influence the development of training-related STS symptoms in adulthood through the experience of personal *retraumatization* (i.e., reactivation of emotions/memories associated with past negative life events) in reaction to course or field work.

In a previous report based on the present sample (Butler et al., 2016), the majority of students reported emotional reactions to trauma-related material present in coursework and/or field experiences, including retraumatization experiences, and these reactions were associated with increased STS symptoms. In the present paper, we explore the backgrounds of these students to determine (1) the rates of ACEs among these 195 graduate social work students in training, and to examine (2) whether the total number of ACEs is associated with training-related retraumatization and/or STS symptoms, and (3) if reported retraumatization responses during training mediate the relationship between ACEs and STS symptoms.

Method

Participants

A total of 195 students (47.6% of the $N = 410$ enrolled in a graduate social work program) consented to participate in the survey and responded to one or more of the survey items (one additional student consented but completed no survey items). The sample was primarily female (87.2%) and the median age of participants was between 25 and 29. The sample was also primarily non-Hispanic White ($n = 157$; 81.0%); of those not in this group, endorsements were: 13 (6.7%) African-American, 9 (4.6%) Hispanic/Latino/Latina, 9 (4.6%) Asian/Indian/Pakistani, 9 (4.6%) "Other," 2 (1%) Native-American/Alaskan Native, and 5 (2.5%) "Prefer not to say" (% sum to more than 100 because participants could endorse more than one category). Nearly two-thirds (62.3%) were full-time students, half (50.0%) were in their first year of study, and 86.2% ($n = 168$) had had one or more field placements during their time in the program.

Procedure

Study instruments were formatted for web-based use. After obtaining Institutional Review Board approval, data were collected through web-based assessment technology developed by SurveyMonkey, Inc. Potential participants were recruited from the entire pool of students enrolled in a Master of Social Work (MSW) program at a large northeastern university during the last month of a spring semester via email announcements with a link to the web-based survey. Only students who indicated their consent to

participate were given access to complete the survey. Additional information about recruitment is provided in the original report (Butler et al., 2016).

Measures

Adverse childhood experiences

To assess the extent of respondents' exposure to childhood maltreatment or household dysfunction during the first 18 years of life, the 10-item ACE Calculator was used. The ACE Calculator is designed to assess the presence of each of 10 ACE categories identified in the original large Centers for Disease Control and Prevention (CDC)-Kaiser Permanente (KP) ACE Study (2016; Dong et al., 2004; Felitti et al., 1998). Each item is scored *yes* or *no*, and *yeses* are counted to compute an ACE (total) score. Two additional exploratory items were developed for the present study to explore whether, during the same period, respondents had experienced bullying ("Did you often or very often experience bullying from your peers") or had experienced or witnessed community violence ("Did you experience violence committed by someone in your community? [Such as you being kicked, bitten, hit with a fist, hit with something hard, or threatened or injured with a knife or gun] OR Did you witness violence against someone in your community? [Such as seeing them being kicked, bitten, hit with a fist, hit with something hard, or threatened, injured, or killed with a knife or gun]").

Training-related retraumatization

Respondents were asked, with respect to both course work and field placement/s, if they had experienced (*never, rarely, sometimes, often, or very often*) a reactivation of their own feelings/memories from negative past experiences (i.e., potential retraumatization) upon exposure to trauma-related material. Each question followed another survey question about upsetting traumatic events (such child abuse or violence) covered in course work or disclosed by clients in field. The wording for the course work retraumatization item was:

Sometimes topics covered in classes or coursework can activate feelings and memories about negative experiences from your past. Since you started the program, how often have you had such experiences in your classes?, and for the field work retraumatization item it was:

Sometimes topics that come up when working with clients can activate feelings and memories about negative experiences from your past. Since you started the program, how often have you had such experiences when working with clients in your field setting(s)?

As previously reported (Butler et al., 2016), these retraumatization variables were moderately correlated ($r = .51$, $p < .001$), and consequently their sum was used to create an overall *training retraumatization* (TRT) variable. Although all students had at least 1 year of course work, not all had yet

had a field placement, and so only those with both training experiences (86.2%; $n = 168$) were retained for the mediation analysis.

Secondary traumatic stress symptoms

STS symptoms were assessed with the 17-item Secondary Traumatic Stress Scale (STSS; Bride, Robinson, Yegidis, & Figley, 2004), which has satisfactory reliability, convergent and discriminant validity, and factorial validity. Respondents indicated the frequency that statements about the impact of their work with traumatized clients were true for them (*never, rarely, occasionally, often, very often*) in the past month. For example, participants were asked how frequently: “It seemed as if I was reliving the trauma(s) experienced by my client(s),” and “I avoided people, places, or things that reminded me of my work with clients.” STSS item endorsements were summed to create an STSS (total) score. Cronbach’s alpha in the present sample with complete data was .92. Of the 29 students with missing data, nine omitted one item and one other omitted two items. Given an average inter-item correlation of .40, we elected to compute the STSS score as the prorated mean for students with at least 15 valid item responses.

Overview of analyses

Statistical analyses were conducted using SPSS for Windows, version 23 (SPSS, Inc.) and Mplus, version 7.4 (Muthén & Muthén, 1998-2015). Bivariate correlations between all variables were conducted to identify associations. The hypothesis that TRT was a mediator of the relationship between ACE scores and STSS scores was tested using Mplus. Model fit was assessed by a chi-square test and several approximate fit indices: Confirmatory Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR). The indirect effect between ACE score and STSS score was computed as the product of the relevant unstandardized coefficients using the indirect command. Since the indirect effect is known to often have a non-normal distribution (MacKinnon, Lockwood, & Williams, 2004), its significance was evaluated by using bootstrap methods to construct the 95% confidence interval. Following current recommendations (MacKinnon, 2008; Preacher & Hayes, 2008) confidence interval endpoints were computed from 5000 replications of the bias-corrected bootstrap.

Results

Adverse childhood experiences

More than three quarters (77.8%) of the 180 respondents with complete ACE data reported one or more ACEs ($M = 2.63$, $SD = 2.38$, median = 2.0, range

0–10), with almost a third (31.3%) reporting 4 or more ACEs. About half of the sample reported that a household member had been mentally ill or attempted suicide, two in five reported parental separation/divorce and household alcohol/substance abuse, and approximately one in three reported emotional abuse, with slightly fewer reporting emotional neglect. (See [Tables 1](#) and [2](#) for the complete results.)

Additional examination of whether respondents had experienced bullying or had experienced or witnessed community violence during childhood indicated that nearly one third of participants (31.5%) reported childhood bullying, and more than a quarter (26.5%) reported experience of or exposure to community violence during childhood. Of note, both exploratory variables were positively correlated with TRT ($r = .24, p < .01$ and $r = .33, p < .01$, respectively), and bullying was correlated with the STSS score ($r = .21, p < .01$); however, to preserve comparability with original ACE Study

Table 1. Frequency of ACE scores for the student sample.

ACE total score	Students female % (<i>n</i> = 160)	Students male % (<i>n</i> = 20)	Students total % (<i>n</i> = 180)
0	20.0	40.0	22.2
1	16.3	15.0	16.1
2	19.4	10.0	18.3
3	13.1	5.0	12.2
4+	31.3	30	31.1

Note. ACE = adverse childhood experiences.

Table 2. Prevalence of ACE items in the student sample

ACE category and items	Students female % (<i>n</i> = 163–165)	Students male % (<i>n</i> = 20)	Students total % (<i>n</i> = 183–185)
ABUSE			
Emotional abuse	32.1	35.0	32.4
Physical abuse	20.6	10.0	19.5
Sexual abuse	22.1	15.0	21.3
NEGLECT			
Emotional neglect	29.7	30.0	29.7
Physical neglect	7.3	5.0	7.0
HOUSEHOLD DYSFUNCTION			
Mother treated violently	14.7	10.0	14.2
Household substance abuse	41.8	30.0	40.5
Household mental illness	50.0	45.0	49.5
Parental separation/divorce	41.8	25.0	40.0
Incarcerated family member	10.9	0.0	9.7

Note. ACE = adverse childhood experiences.

findings (CDC-KP ACE Study, 2016), these two items were not included in the ACE (total) scores, nor used in the mediation analysis.

Mediation analyses

Of the 168 students who had had a field placement, 145 (85.8%) had complete data on all model variables. A total of 16 students were missing data on either of the exogenous variables (race/ethnicity [non-Hispanic White = 0 vs. Hispanic and/or non-White = 1] or ACE score) and, as a result, were excluded from the analysis. Although an additional seven cases had missing data on either TRT or STSS score, these cases were included because the Mplus default is a full information maximum likelihood estimator.

Table 3 presents the correlations among analysis variables along with their means and standard deviations. Higher ACE scores were significantly associated with higher TRT scores ($r = .29, p < .001$) and higher STSS scores ($r = .25, p < .001$), and higher TRT scores were significantly associated with higher STSS scores ($r = .44, p < .001$). Students of color (including Hispanic students) reported significantly higher TRT scores than non-Hispanic White students ($r = .23, p < .01$), but not significantly higher ACE or STSS scores.

The mediation model specified that both ACE score and race/ethnicity predicted TRT and that TRT predicted STSS score. No direct effect from either ACE score or race/ethnicity to STSS score was specified. The test of model fit was not significant, $\chi^2(2, N = 152) = 4.59, p = .101$, meaning that the data reproduced by the model coefficients were not significantly different from the observed data. The CFI and TLI values were .952 and .880, respectively; the RSMEA value was .092, 90% CI = [.00, .207]; and the SRMR was .040. Table 4 presents the results of the analysis. As shown there, both ACE score and race/ethnicity significantly predicted TRT ($b^* = .29, p < .001$ and $b^* = .22, p = .002$, respectively). Next, TRT significantly predicted STSS score ($b^* = .45, p < .001$). The

Table 3. Correlations of analysis variables and their means (and SDs) ($N = 150\text{--}158$).

Variable	Race/ethnicity	ACE score	TRT	STSS score
Race/ethnicity	1.00	.095	.227**	.005
ACE score	.095	1.00	.294***	.245**
TRT	.227**	.294***	1.00	.438***
STSS score	.005	.245**	.438***	1.00
non-Hispanic White mean	–	2.488 (2.348)	4.605 (1.637)	34.858 (11.862)
Hispanic and/or non-White mean	–	3.069 (2.621)	5.552 (1.298)	35.011 (14.306)
Overall mean	.189 (.392)	2.590 (2.380)	4.803 (1.634)	34.793 (12.228)

Note. Race/ethnicity = non-Hispanic White (= 0) vs. Hispanic and/or non-White (= 1); ACE = adverse childhood experiences; TRT = training retraumatization; STSS = secondary traumatic stress scale; ** $p < .01$. *** $p < .001$.

Table 4. Results of mediation of STSS score on ACE score by training retraumatization ($N = 152$).

Independent variable	Dependent variable	$b \pm SE$	b^*	95% CI (standardized)
ACE score	TRT	$0.189 \pm 0.045^{***}$	0.285	0.141–0.417
Race/ethnicity	TRT	$0.876 \pm 0.270^{**}$	0.217	0.082–0.351
TRT	STSS score	$3.484 \pm 0.773^{***}$	0.447	0.256–0.614
Indirect effect		$0.657 \pm 0.207^{**}$	0.127	0.058–0.216

Note. STSS = secondary traumatic stress scale; ACE = adverse childhood experiences; Race/ethnicity = non-Hispanic White (= 0) vs. non-White and/or Hispanic (=1); TRT = training retraumatization; $^{**}p < .01$.

$^{***}p < .001$.

indirect effect was computed to be .13 in standardized terms with a 95% confidence interval of .06–.22. Controlling for race/ethnicity, a higher number of ACE experiences was associated with a higher level of TRT and that was associated with a higher current level of STS symptoms. Thus, TRT was found to mediate a significant proportion of the covariance between ACE experiences and STS symptoms. We also reran the above model after including both direct paths (STSS score predicted by race/ethnicity and by ACE score). We found that neither direct path was significant and that the standardized coefficient for TRT predicting STSS score remained significant but increased from .427 to .433.

Discussion

The present investigation found high rates of adverse childhood experiences in the backgrounds of students in an MSW clinical training program, with proportions greater than those reported in the original ACE Study for a middle-class adult sample (CDC-KP ACE Study, 2016). The most commonly reported ACEs in the present sample appeared to be related to household member dysfunction (mental illness, alcohol/substance abuse, parental separation/divorce), rather than events that might qualify as *traumatic* (i.e., those involving life threat; American Psychiatric Association, 2013), although a substantial minority (44.8%) of the sample overall reported one or more potentially traumatizing childhood experiences (physical, sexual, or emotional abuse, or exposure to domestic violence). Although the household dysfunction variables endorsed by students were also among those most commonly endorsed in the CDC-KP ACE Study (2016), the proportions endorsed in our sample were 1.5 to more than 2 times higher. For example, the two most highly endorsed items, household mental illness and household substance abuse, were reported by 49.5% and 40.5%, respectively, in the student sample, but only by 19.4% and 26.9%, respectively, in the ACE Study sample (CDC-KP ACE Study, 2016). Moreover, in the present sample, the emotional neglect and abuse items were endorsed 2–3 times more often (32.4% and 29.7%, respectively) than they were in the CDC-KP ACE Study (10.6% and 14.8%, respectively). (The CDC-KP ACE Study means are

mentioned in the preceding only for illustrative purposes, not direct comparison.) It is worth noting that our overall findings are highly similar to those recently reported by Gilin and Kauffman (2015) in a sample of 162 MSW students in a different academic setting, suggesting that the present high rates may be a relatively accurate reflection of ACE histories in this particular population.

The strength of the ACE score as a consistent predictor of later psychosocial dysfunction is well documented (e.g., Campbell, Walker, & Egede, 2016; Chapman et al., 2004; Dube et al., 2001; Ports, Ford, & Merrick, 2016), but this predictive power does not appear to be simply due to the fact that the ACE captures the presence of some childhood traumatic stressors. As investigators in the original ACE Study have noted (e.g., Dong et al., 2004), ACEs should be viewed as a complex set of *co-occurring* experiences that *when examined together* are the most potent, and show a strong graded relationship to many adult health risk behaviors and health and mental health outcomes. Additionally, we propose that growing up in a high ACE environment can involve the potentially injurious *interplay* of exposure to potentially traumatic events and their enduring effects experienced in the context of a home environment that may not have the resources necessary to limit or redress these experiences, allow for healing, and/or teach resilient or adaptive responses (Butler, 2013).

That said, it is essential to note the evident resilience of the present sample who, despite surprisingly high rates of childhood adversity, achieved admission to a graduate training program in adulthood. This ability to overcome difficult early environments may be related to the relative proportions of types, frequencies, and admixtures of the traumas and disturbances within the home (Dong et al., 2004), as well as the presence of temperamental, psychological, and social resilience factors (Masten, 2014; Weiner, 1995) during development.

The present investigation also found that the sum of these past events was associated with reports of re-activations of negative feelings and memories from past negative events (that we term *retraumatization*) in response to course materials and/or field experiences that encompassed trauma-related content and, as reported by Butler and colleagues (2016), these retraumatization experiences were also associated with the development of secondary traumatic stress symptoms. However, while we know that students identified these reactions to be related to their past experiences, we cannot say whether these students had had previously resolved symptoms that were now re-activated or if they experienced retraumatization experiences with some regularity. We also do not know whether these retraumatization experiences were the precipitants specific to the secondary traumatic stress symptoms reported, despite their association. Future research is needed to explore these questions.

Nonetheless, as predicted by Ozer and Weiss (2004), our data do support a role for proximal emotional reactions in mediating the effect of distal histories of trauma or adversity on the development of current trauma symptoms.

We also found significantly higher training-related retraumatization scores among students of color, while their overall ACE and STSS scores were not significantly higher. Although we did not investigate racism as such in the present study, it may be that racial discrimination, like bullying and community violence, is another adverse childhood experience worth examining. The negative impact of racial discrimination on physical and mental health outcomes is well-documented (Polanco-Roman, Danies, & Anglin, 2016). It is unclear whether or to what extent negative outcomes associated with racism are the result of direct effects of racism as a stressor or indirect effects of racism such as reduced access to resources and supports (Ford, 2008). Carter and Forsyth (2010) found that individuals of color preferred seeking help in responding to encounters with discrimination from personal supports rather than from professionals. It is possible that, in our population, students of color who encountered discrimination in course or field work were less likely to seek out help from course and field educators or other institutional resources, leaving them more vulnerable to experiencing retraumatization related to past life events.

Limitations of the study should also be noted. The survey was conducted in the last month of a final semester, and so stress, as well as trainee clinical acumen, may have elevated reports of trauma symptoms. The sample was also primarily young, white, and female, and this lack of diversity may limit the generalizability of overall findings to students with other demographic profiles, as the finding of elevated retraumatization among students of color would suggest. Conclusions about the direction of causality between TRT experiences and STS are limited by the cross-sectional design, although ACES are, by definition, anchored in the past. While it is possible that student memory affected reporting rates, Dube, Williamson, Thompson, Felitti, and Anda (2004) have found good to excellent test–retest reliability for reports of ACE items and totals in adulthood, and these investigators have observed that reporting differences from childhood to adulthood tend to move in the direction of underreporting.

Another possible limitation concerns our operationalization of retraumatization, which may be problematic because students may not be fully aware of their responses or identify their source, or they may report the recall of upsetting past events that do not actually qualify as traumatic stressors. Research that encompasses a wider range of possible trauma exposures during development could more fully illuminate this aspect of risk for trainees. In the present study, when we included endorsements of our exploratory variables—bullying and experience of/exposure to community

violence—in the ACE scores in this sample, the associations of ACEs with both TRT and STSS were both strengthened. This exploratory finding supports the assertion that assessing the largest possible range of past events would be ideal in future studies.

Our findings also provide support for the adoption of a trauma-informed approach (Harris & Fallot, 2001) in clinical instruction and training (see also Butler et al., 2016; Carello & Butler, 2015). Although some clinical educators and researchers have proposed methodologies for teaching trauma sensitively (e.g. Black, 2006; Carello & Butler, 2015; Cunningham, 2004; Mattar, 2011; McCammon, 1999; Miller, 2001; O'Halloran & O'Halloran, 2001; Zurbriggen, 2011), not all take into account the consideration that some students will have trauma histories—a feature that would be essential to being trauma-informed in this context. Moreover, there remains a dearth of empirical evidence to guide the implementation of these practices. A trauma-informed approach would recognize the potential prevalence and impact of past adversity among clinical trainees and use that information to develop and implement strategies to limit or address the impact of trauma-related exposures during training and to enrich student resilience (such as with self-care practice; Butler et al., 2016)—interventions that could also serve these students well in their future professional lives.

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