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The Effect of Attorneys' Work With Trauma-Exposed Clients on PTSD Symptoms, Depression, and Functional Impairment: A Cross-Lagged Longitudinal Study

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To date, few studies have examined mental health consequences among attorneys exposed to clients' traumatic experiences. A longitudinal, 2-wave, cross-lagged study was used in a cohort of attorneys ($N = 107$) from the Wisconsin State Public Defender's Office. We assessed changes in posttraumatic stress disorder (PTSD), depression, and functional impairment over a 10-month period and tested the effects of intensity of contact with trauma-exposed clients on symptom levels over time. Attorneys demonstrated strong and significant symptom stability over time in PTSD, depression, functional impairment, and levels of exposure. Analyses involving cross-lagged panel correlation structural equation modeling path models revealed that attorneys' levels of exposure to trauma-exposed clients had significant positive effects, over time, on PTSD, depression, and functional impairment. Gender, age, years on the job, and office size did not predict any of the outcomes. Level of exposure to trauma-exposed clients predicted reduction of weekly working hours over time, but there was no reciprocal relationship between PTSD, depression, and functional impairment and level of exposure over time. These findings underscore the central role of exposure to trauma-exposed clients in predicting mental health outcomes and emphasize the need to support attorneys by managing the intensity of exposure as well as addressing emerging symptoms.

Keywords: attorneys, psychological trauma, posttraumatic stress disorder, depression, functional impairment

To date, few studies have examined the mental health consequences among attorneys exposed to clients who have experienced or been directly involved in traumatic events (trauma-exposed clients). In addition, available quantitative studies of distress in attorneys have only been cross-sectional in nature. Focusing on depression, Benjamin, Darling, and Sales (1990) and Eaton, Anthony, Mandel, and Garrison (1990) identified a 20% rate of clinically significant depression in the attorneys surveyed, but these findings were not related to work experiences. In a study of 23 Canadian prosecutors using semistructured interviews, Gomme and Hall (1995) reported symptoms of demoralization, anxiety, helplessness, exhaustion, and social withdrawal. They linked these symptoms to high caseloads of "sensitive cases" such as domestic violence and incest as well as long work hours. Lynch (1997) reported that public defenders ranked work overload, the unpredictability of trials, the frequent lack of a defense, harsh sentences,

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arguing with prosecutors, and dealing with angry clients and families as the most frequent and intense sources of stress, but the study did not measure specific symptoms of stress. A pilot study by Levin and Greisberg (2003) found that attorneys working in family and criminal courts demonstrated higher levels of secondary trauma and burnout compared with mental health professionals and social service workers, and these measures of distress correlated with caseload. Comparing 50 attorneys working in criminal courts with 50 working in the civil arena, Vrklevski and Franklin (2008) found more depressive symptoms, subjective stress, and changes in sense of safety and intimacy among the criminal attorneys. A personal history of multiple traumas predicted higher scores on measures of vicarious trauma, posttraumatic stress, and depression. In another study comparing criminal and civil attorneys, Hasnain, Naz, and Bano (2010) also found that criminal attorneys reported higher levels of stress than civil attorneys. This difference was seen among attorneys with more than 10 years' experience but was not observed in attorneys in training. Piwowarczyk et al. (2009) reported that among 57 attorneys specializing in asylum cases, hours per week devoted to those cases correlated with trauma score. All of these studies of attorneys suggest a relationship between exposure to trauma and attorneys' symptoms but suffer from small sample size and, given their cross-sectional design, do not elucidate the course of the symptoms or the direction of effects between exposure and symptomatology. Studies of other human service professionals working with trauma-exposed clients such as social workers (Kassam-Adams, 1999), law enforcement officers (Follette, Polusny, & Milbeck, 1994), and psychotherapists (Pearlman & MacIan, 1995) are also limited by cross-sectional design. Some of these studies have linked intensity of work-related exposure (Creamer & Liddle, 2005; Eriksson, Kemp, Gorsuch, Hoke, & Foy, 2001; Kassam-Adams, 1999) to secondary trauma symptoms, although other findings have suggested the primary importance of organizational and work-related factors (Baird & Jenkins, 2003; Devilly, Wright, & Varker, 2009; Regehr, Hemsworth, Leslie, Howe, & Chau, 2004) compared with exposure.

Recently, in a large cross-sectional study, our group examined indicators of secondary trauma among attorneys ($n = 238$) and their administrative support staff ($n = 109$) and found that the attorneys demonstrated significantly higher levels of posttraumatic stress disorder (PTSD) symptoms, depression, secondary traumatic stress, burnout, and functional impairment compared with administrative support staff (Levin et al., 2011). In addition, we found that the difference in symptoms was mediated by attorneys' longer work hours and greater exposure to trauma-exposed clients and was not related to other variables such as gender, years on the job, office size, or personal history of trauma. The present study used a longitudinal design in a subsample of attorneys from our previously reported cohort of the Wisconsin State Public Defender's Office (Levin et al., 2011) to assess changes in symptoms of PTSD, depression, and functional impairment over a 10-month period. In addition, our design sought to measure the relative contributions of caseload of trauma-exposed clients and hours worked to symptom and functional impairment levels over time and the direction of effects between caseload of trauma-exposed clients, hours worked, and symptoms and functional impairment.

Method

Participants and Procedure

We conducted a longitudinal follow-up study on a sample of attorneys working in the 38 offices of the Wisconsin State Public Defender's Office (Levin et al., 2011). In that study, we collected data in March 2010 via the Wisconsin State Public Defender's Office intranet to 307 attorneys, with an initial response of 238 attorneys (78%). The data for the current study were based on a follow-up survey that was distributed in December 2010 to all attorneys working in the office. This resulted in 142 responses, of which 107 were attorneys who had also completed the original survey, representing 45% of the 238 who initially responded. The 107 attorneys (51 men and 56 women) were in their mid-40s ($M = 45.72$ years, $SD = 11.0$), with almost 16 years' experience on the job ($M = 15.89$, $SD = 11.03$), working on average in local offices (total staff) of more than 10–20 people ($M = 2.40$, $SD = 1.0$). Preliminary analyses indicated that the means for hours worked, $t(236) = 0.81$, *ns*, caseload of trauma-exposed clients, $t(236) = 0.20$, *ns*, size of local office, $t(236) = 0.09$, *ns*, and background variables of gender ($\chi^2 = 0.59$ *ns*), age, $t(236) = 0.11$, *ns*, years on the job, $t(236) = 0.55$, *ns*, as well as the outcome variables of intrusion, $t(236) = 0.44$, *ns*, avoidance, $t(236) = 1.42$, *ns*, hyperarousal, $t(236) = 0.79$, *ns*, depression, $t(236) = 0.22$, *ns*, and functional impairment, $t(236) = 0.47$, *ns*, did not differ at the initial survey in March 2010 between the subset that followed up ($n = 107$) and the remaining 131 participants.

Survey materials were made available online by the survey office of the State Bar of Wisconsin. Potential participants received an e-mail providing the necessary link to the questionnaires and were encouraged to complete the survey from personal computers on the job site. All participants received information regarding the study in the form of an informed consent cover letter at the start of the online survey packet. Proceeding to the questionnaire indicated consent. Participation was voluntary and anonymous and there was no remuneration for participation. The research proposal was reviewed and approved by the Westchester Jewish Community Services Research Committee as well as its board of directors and chief executive officers. Leadership at both the Wisconsin Public Defender's Office and the Wisconsin Bar also reviewed and approved the study.

Measures

Background and trauma exposure assessments. Demographic and personal information included age, gender, number of years on the job, average number of hours worked per week (for the prior 3 months), and size of local office (total staff) specified on a 1–4 scale, ranging from 1 (*fewer than 10*), 2 (*10–20*), 3 (*21–40*), and 4 (*more than 40*). Because participants expressed a strong need to protect their anonymity, information regarding the specific office where the participant worked as well as ethnic origin were omitted.

The attorneys routinely interact closely with defendants in local jails, prisons, courthouses, and in their own offices. Cases run the gamut from mild violence or substance abuse to homicide and sexual offenses such as rape or child abuse allegedly perpetrated by the attorneys' clients. In addition to hearing first-hand accounts,

the attorneys review reports and photographs and have contact with physical evidence (e.g., bloody clothing). Exposure to client trauma was assessed at baseline (Time 1) and 10 months later (Time 2) by asking, "How many clients have you worked with within the last three months who had experienced or been directly involved with trauma such as death, physical assault or abuse, domestic violence, rape, violence or fire?" Participants were instructed to select the closest number on a 0–5 scale: 0 (*none*), 1 (*1–20*), 2 (*21–40*), 3 (*41–60*), 4 (*61–80*), and 5 (*81 or more*). We elected to use six categories rather than a precise number because our pilot study indicated that attorneys were not able to report an exact number based on their recollection of the prior 3 months. However, it is important to note that five response categories are believed to represent an interval level of measurement. The use of the six categories in our study does not violate the axiom of transitivity for the ordinal scale; the intervals between the scale points (number of clients represented by each category) correspond to empirical observations in our pilot study (see, e.g., Dawes, 2008).

Outcome variables.

PTSD symptoms. The Impact of Event Scale—Revised (IES–R; Weiss & Marmar, 1997) was used to assess symptoms of PTSD at Time 1 and Time 2. This instrument comprises 22 items derived from the PTSD criteria of the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM–IV*; American Psychiatric Association, 1994). Respondents were asked to rate each item on a scale of 0 (*not at all*), 1 (*a little bit*), 2 (*moderately*), 3 (*quite a bit*), and 4 (*extremely*), according to how distressed they had been by symptoms of intrusion, hyperarousal, and avoidance over the past 7 days. All participants were asked to specifically link the symptoms to traumatic material related to a case or cases they had encountered as part of their work. No timeframe was specified regarding when the material was encountered. The IES–R has good psychometric properties (Creamer, Bell, & Failla, 2003) and has good convergent validity with other measures of PTSD (Ljubotina & Muslic, 2003). In the present study, we obtained internal consistency Cronbach's reliability coefficients of $\alpha = .79$, .80, and .85, and $\alpha = .80$, .78, and .86, for avoidance, hyperarousal, and intrusion subscales, at Time 1 and Time 2, respectively.

Depressive symptoms. The Center for Epidemiological Studies Depression Scale (CES–D; Radloff, 1977) is a 20-item scale designed to measure severity of current depression in the general population and was used at Time 1 and Time 2. The items, each of which is assessed on a scale from 0 to 3, measure depressed mood, feelings of guilt and worthlessness, feelings of helplessness and hopelessness, psychomotor retardation, loss of appetite, and sleep disturbances (Radloff, 1977). All participants were asked to report symptoms they had experienced in the past week. The CES–D is in wide use and has acceptable levels of internal consistency (Radloff, 1977). Extensive evidence from a variety of samples attests to the reliability and validity of the CES–D (Eaton, Muntaner, Smith, Tien, & Ybarra, 2004). In the present sample, the estimates of internal consistency Cronbach's reliability coefficients were $\alpha = .91$ and $\alpha = .93$ at Time 1 and Time 2, respectively.

Functional impairment. The Sheehan Disability Scale (SDS; Sheehan, Harnett-Sheehan, & Raj, 1996) was used to assess the extent to which exposure to clients' traumatic material interfered with functioning in three spheres at Time 1 and Time 2. Participants rated the following question (in three forms): "My feelings about the clients and cases at work have disrupted my (work, social life/leisure, or family life/home responsibilities)" on a visual analogue scale ranging from 0 (*none*), 1–3 (*mild*), 4–6 (*moderate*), 7–9 (*severe*), to 10 (*very severe*). In the present sample, the estimates of internal consistency Cronbach's reliability coefficients were $\alpha = .91$ and $\alpha = .90$ at Time 1 and Time 2, respectively.

Data Analysis

Mean scores for exposure to traumatic clients and hours at work as well as for IES–R, CES–D, and SDS scores were calculated and compared between times (repeated measure) using *t* tests and stability of symptoms was assessed using Pearson correlation among same assessments over time. We then performed a bivariate analysis correlating demographics, work variables, and exposure with the symptoms scales at each time point.

Following these initial tests, we tested our hypotheses regarding the role of work-related exposure (exposure to client trauma and hours at work) for the outcome variables using multivariate analyses. We used cross-lagged panel correlation path models to explore the causal sequence between exposure to traumatic clients and work hours at Time 1 and symptomatology at Time 2 (PTSD or CES–D or SDS), using structural equation modeling (SEM) that assessed measurement errors for the dependent and independent variables (Hoyle & Smith, 1994) with AMOS software (Version 18.0.0; Arbuckle, 2009) and the maximum likelihood method. Several components of these models are noteworthy. First, they include two time points, and the effects of exposure and hours at work on PTSD, depression, and functional impairment are estimated. These aspects of the models are referred to as *cross-lagged effects*. Second, the model also includes the influence of exposure and hours at work at the first time point on exposure and hours at work at the later time point. The same is true for PTSD, depression, and functional impairment. These aspects of the model, called *autoregressive effects*, can be thought of as indicators of the temporal stability of the measures. Estimations of these parameters in the model control for the stability of the variables. Thus, any cross-lagged effects can be considered effects that add predictive power over and above that which can be simply obtained from the stability of the measures. Finally, note that exposure, hours at work, PTSD, depression, and functional impairment are each allowed to intercorrelate within each time point. These aspects of the model are called *synchronous correlations*. Estimating these errors in the model allows for correlations between variances in PTSD or depression or functional impairment and exposure and hours at work that are not already explained by the influences of the variables from earlier time points.

A nonsignificant chi-square has traditionally been used as a criterion for not rejecting an SEM; a nonsignificant chi-square indicates that the discrepancy of the matrix of the parameters estimated based on the model being evaluated is not different from the one based on the empirical data. Given the restrictiveness of the chi-square approach for assessing model fit (Jöreskog & Sörbom, 1993; Kenny & McCoach, 2003; Landry, Smith, Swank, & Miller-Loncar, 2000), we also used alternative criteria that reflect the real-world conditions of clinical research in addition to the

overall chi-square test of exact fit to evaluate the proposed models: (a) the χ^2/df ratio, (b) the root mean square error of approximation (RMSEA), (c) the comparative fit index (CFI), and (d) the nonnormed fit index (NNFI). A model in which χ^2/df was ≤ 2, CFI and NNFI were greater than 0.95, and the RMSEA index was between 0.00 and 0.08 (Hu & Bentler, 1999) was deemed acceptable. These moderately stringent acceptance criteria clearly reject inadequate or poorly specified models, but accept for consideration models that meet real-world criteria for reasonable fit and representation of the data (Kelloway, 1998). Effect sizes were computed using Cohen's *d* (Cohen, 1992).

Results

Descriptive Statistics

On average, participants had almost 16 years on the job (M = 15.89 years, SD = 11.03), were working more than 46 hr/week (M = 46.07, SD = 6.61), were from offices of (total staff) more than 10–20 people (M = 2.40, SD = 1), and were exposed to 41–60 clients within the past 3 months who had experienced or been directly involved with trauma such as death, physical assault or abuse, domestic violence, rape, violence, or fire (M = 3.16, SD = 1.23).

Baseline to Follow-up Differences in PTSD, Depression, and Functional Impairment

As shown in Table 1, no significant changes were found in mean scores of baseline and follow-up for average number of hours worked per week, depression, functional impairment, and hyperarousal symptoms. However, participants reported significantly lower mean scores of work-related exposure, intrusion, and avoidance at Time 2. As can also be seen from Table 1, correlations indicate that all symptom scores reported at Time 1 were significantly and strongly associated with the corresponding symptom scores reported at Time 2, indicating strong and significant stability. Moreover, significant strong stability was also demonstrated for average number of hours worked as well as for level of exposure to trauma-exposed clients.

Fifteen percent and 9% of the sample met screening criteria for PTSD at Time 1 and Time 2, respectively ($p > .18$). A cutoff of 1.5 (equivalent to a total score of 33) was found to provide the highest levels of sensitivity/specificity when comparing the IES–R with the PTSD Checklist (Creamer et al., 2003) and was used as a cutoff for preliminary diagnosis of PTSD (see, e.g., Weiss, 2007). Forty-three percent and 40.2% of the sample met screening criteria for depression at Time 1 and Time 2, respectively. A score of ≥16 has been used as the cutoff point for high likelihood of clinically significant depression (Radloff, 1977). Finally, 74.8% and 73.8% of the sample met screening criteria for functional impairment at Time 1 and Time 2, respectively. A score of ≥5 for any of the three questions is associated with significant functional impairment (Sheehan et al., 1996).

Bivariate Associations

Table 2 provides a summary of the zero-order correlations for the study variables. Gender, age, years on the job, and size of local office did not significantly correlate with any of the outcome variables at either time point. Work-related exposure was significantly correlated with depression (r = .24, d = 0.49, and r = .22, d = 0.45) and impairment (r = .27, d = 0.56, and r = .33, d = 0.70) at both time points and at Time 2 with intrusion (r = .24, d = 0.49) and hyperarousal (r = .27, d = 0.56) symptoms. Average number of hours worked per week correlated with depression (r = .27, d = 0.56), functional impairment (r = .31, d = 0.65), intrusion (r = .34, d = 0.72), and hyperarousal (r = .30, d = 0.63) at Time 1 but not with any of the outcome variables at Time 2.

Multivariable Analyses: Cross-Lagged Models

Prediction of PTSD symptoms (IES–R). At each time point, we defined the latent PTSD construct (factor) using participants' intrusion, avoidance, and hyperarousal scores as its indicators

Table 1
Number of Working Hours, Caseload of Trauma-Exposed Clients, and Outcome Variables at Time 1 and Time 2

Variable	Time 1		Time 2			95% CI			
	M	*SD*	*M*	*SD*	*t*(106)	LL	UL	Cohen's *d*[a]	*r* (Time 1 and 2)
Average number of hours working	46.06	6.61	46.01	6.97	−0.22, *ns*	−1.33	1.06		.58***
Work-related exposure[b]	3.17	1.23	2.89	1.10	2.76**	0.080	0.49	0.27	.59***
PTSD									
IES–R Intrusion	0.76	0.59	0.43	0.55	6.30***	0.23	0.43	0.63	.58***
IES–R Avoidance	0.76	0.70	0.55	0.57	3.44***	0.093	0.34	0.34	.52***
IES–R Hyperarousal	0.61	0.65	0.61	0.61	−0.06, *ns*	−0.11	0.10		.62***
CES–D	14.54	10.51	15.67	9.59	−1.43, *ns*	−2.67	0.43		.68***
SDS	10.17	6.95	9.82	6.78	0.57, *ns*	−0.84	1.53		.62***

Note. N = 107. PTSD = posttraumatic stress disorder; IES–R = Impact of Event Scale—Revised; CES–D = Center for Epidemiological Studies Depression Scale; SDS = Sheehan Disability Scale; CI = confidence interval; LL = lower limit; UL = upper limit.
[a] Cohen's *d* has been corrected for dependence between means using Morris and DeShon's (2002) Equation 8. [b] "How many clients have you worked with, within the last three months, who had experienced or been directly involved with trauma such as death, physical assault or abuse, domestic violence, rape, violence or fire?" Participants were instructed to select the closest number on a 0–5 scale, where 0 = *none*, 1 = *1–20*, 2 = *21–40*, 3 = *41–60*, 4 = *61–80*, and 5 = *81 or more*.
** $p < .01$. *** $p < .001$ (two-tailed).

Table 2
Correlations Between Predictors and Outcome Variables at Time 1 and Time 2

Predictor	PTSD subscale			CES–D	SDS
	Intrusion	Avoidance	Hyperarousal		
Time 1					
Gender[a]	−.14	−.26	−.19	−.23	−.23
Age	.05	−.06	−.00	−.03	.05
Years on the job	.00	−.03	−.04	−.07	.00
Size of local office	.16	−.03	.19	−.03	.06
Average number of hours working	.34***	.16	.30***	.27***	.31***
Work-related exposure	.13	.07	.20	.24***	.27***
Time 2					
Gender[a]	−.15	−.07	−.17	−.11	−.21
Age	.08	.12	.05	.11	.00
Years on the job	.00	.08	−.00	.07	−.08
Size of local office	.03	.10	−.12	−.001	−.03
Average number of hours working	.05	.11	.07	.18	.18
Work-related exposure	.24**	.16	.27**	.22*	.33***

Note. $N = 107$. PTSD = posttraumatic stress disorder; IES–R = Impact of Event Scale—Revised; CES–D = Center for Epidemiological Studies Depression Scale; SDS = Sheehan Disability Scale.
[a] Gender is a binary-coded variable (0 = women, 1 = men).
To ensure that the overall chance of a Type I error remained less than .05, we applied a full Bonferroni correction.
*** $p < .01$ (two-tailed).

while controlling for the autocorrelations among same measures errors (within-subject repeated measures). This cross-lagged SEM (see Figure 1) fit the observed data well, $\chi^2(21) = 14.90$, $p = .83$, $\chi^2/df = 0.71$; NNFI = 1.0; CFI = 1.0; RMSEA = 0.0001, 95% CI [0.000, 0.05]. This model showed a nonsignificant effect of Time 1 PTSD symptoms on Time 2 exposure or hours at work, $\beta = -.06$, $t = -0.65$, *ns*, and $\beta = -.06$, $t = -1.39$, *ns*, respectively, as well as nonsignificant effects of Time 1 hours at work on Time 2 exposure or PTSD symptoms, $\beta = .07$, $t = 0.82$, *ns*, and $\beta = -.04$, $t = -0.46$, *ns*, respectively. In contrast, Time 1 exposure had a noteworthy and statistically significant follow-up effect on PTSD symptoms, exposure, and hours at work, such that higher levels of exposure at one time point were related to an increased level of PTSD symptoms, $\beta = .28$, $t = 3.43$, $p < .001$, $d = 0.67$, and a decreased level of hours at work, $\beta = -.18$, $t = -2.17$, $p < .03$, $d = 0.42$, at the subsequent time point, as evidenced by the statistically significant cross-lagged parameters. These findings indicate that exposure significantly predicted or affected attorneys' PTSD symptomatology and hours spent at work Time 2, and that attorneys' PTSD symptomatology or hours spent at work at Time 1 did not predict or affect levels of exposure at Time 2. Moreover, hours at work at Time 1 affected exposure and PTSD symptoms at Time 2 indirectly through its association with exposure at Time 1. These associations were not altered when we controlled for gender, age, years on the job, and size of local office and their associations with predictors and outcomes.

Prediction of depressive symptoms (CES–D). At each time point, we defined the observed variable overall CES–D scores. This cross-lagged path model had zero degrees of freedom; thus, fit indices could not be estimated (see Figure 2). This model showed a nonsignificant effect of Time 1 CES–D symptoms on Time 2 exposure or hours at work, $\beta = -.07$, $t = -0.82$, *ns*, and $\beta = .03$, $t = 0.36$, *ns*, respectively, as well as nonsignificant effects of Time 1 hours at work on Time 2 exposure or CES–D symptoms, $\beta = .07$, $t = 0.76$, *ns*, and $\beta = .10$, $t = 1.37$, *ns*, respectively). In contrast, Time 1 exposure had a noteworthy and statistically significant follow-up effect on CES–D symptoms, exposure, and hours at work, such that higher levels of exposure at one time point were related to an increased level of PTSD symptoms, $\beta = .20$, $t = 2.70$, $p < .01$, $d = 0.53$, and a decreased level of hours at work, $\beta = -.19$, $t = -2.26$, $p < .02$. $d = 0.44$, at the subsequent time point, as evidenced by the statistically significant cross-lagged parameters. These findings indicate that exposure significantly predicted or affected attorneys' CES–D symptomatology and hours spent at work at Time 2, and that attorneys' CED–D symptomatology or hours spent at work at Time 1 did not predict or affect levels of exposure at Time 2. Moreover, hours at work at Time 1 affected exposure and CES–D symptoms at Time 2 indirectly through its association with exposure at Time 1. These associations were not altered when we controlled for gender, age, years on the job, and size of local office and their associations with predictors and outcomes.

To obtain the most parsimonious model and allow the evaluation of the overall goodness of fit of the path model, we calculated the final model in which we removed the nonsignificant paths found in the full model (i.e., of Time 1 hours at work on Time 2 CES–D and exposure and of Time 1 CES–D on Time 2 exposure and hours at work). This model fit the observed data well, $\chi^2(4) = 3.14$, $p = .54$, $\chi^2/df = 0.79$; NNFI = 1.0; CFI = 1.0; RMSEA = 0.0001, 95% CI [0.000, 0.08].

Prediction of functional impairment (SDS). At each time point, we defined the observed variable overall SDS scores. This cross-lagged path model had zero degrees of freedom; thus, fit indices could not be estimated (see Figure 3). This model showed a nonsignificant effect of Time 1 SDS symptoms on Time 2 exposure or hours at work, $\beta = -.09$, $t = -1.08$, *ns*, and $\beta = -.04$, $t = -0.53$, *ns*, respectively, as well as nonsignificant effects of

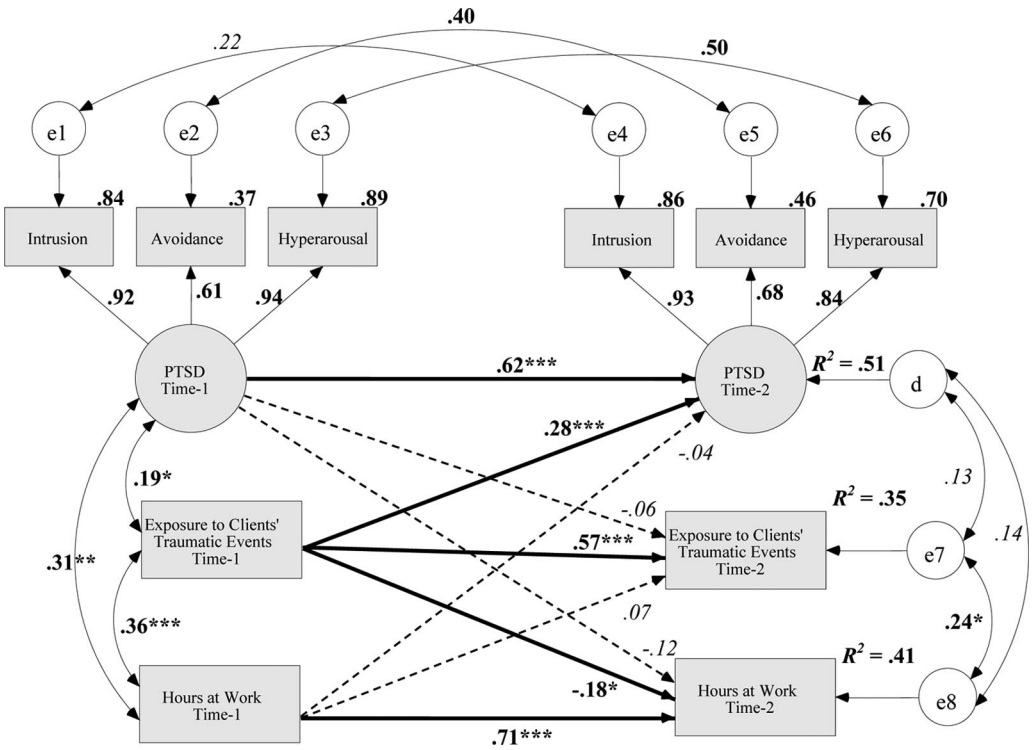

Figure 1. The cross-lagged model for the prediction of posttraumatic stress disorder (PTSD) symptoms. Rectangles indicate measured variables and large circles represent latent constructs. Small circles reflect residuals (e) or disturbances (d); bold numbers above or near endogenous variables represent the amount of variance explained (R^2). Bidirectional arrows depict correlations and unidirectional arrows depict hypothesized directional or "causal" links. Standardized maximum likelihood parameters are used. Bold estimates are statistically significant. The dotted paths indicate nonsignificant, "causal" links/associations. $N = 107$. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$ (two-tailed). When we controlled for the effects of gender, age, years on the job, and size of local office, the significant and nonsignificant effects, as presented in this figure, were not altered. These effects were removed to simplify the figure.

Time 1 hours at work on Time 2 exposure or SDS symptoms, $\beta = .07$, $t = 0.83$, *ns*, and $\beta = .05$, $t = .54$, *ns*, respectively. In contrast, Time 1 exposure had a noteworthy and statistically significant follow-up effect on SDS symptoms, exposure, and hours at work, such that higher levels of exposure at one time point were related to an increased level of SDS symptoms, $\beta = .20$, $t = 2.39$, $p < .01$, $d = 0.47$, and a decreased level of hours at work, $\beta = -.18$, $t = -2.15$, $p < .03$, $d = 0.42$, at the subsequent time point, as evidenced by the statistically significant cross-lagged parameters. These findings indicate that exposure significantly predicted or affected attorneys' SDS symptomatology and hours spent at work at Time 2, and that attorneys' SDS symptomatology or hours spent at work at Time 1 did not predict or affect levels of exposure at Time 2. Moreover, hours at work at Time 1 affected exposure and SDS symptoms at Time 2 indirectly through its association with exposure at Time 1. These associations were not altered when we controlled for gender, age, years on the job, and size of local office and their associations with predictors and outcomes.

To obtain the most parsimonious model and allow the evaluation of the overall goodness of fit of the path model, we calculated the final model in which we removed the nonsignificant paths found in the full model (i.e., of Time 1 hours at work on Time 2 SDS and exposure and of Time 1 SDS on Time 2 exposure and hours at work). This model fit the observed data well, $\chi^2(4) = 1.67$, $p = .80$, $\chi^2/df = 0.42$; NNFI = 1.0; CFI = 1.0; RMSEA = 0.0001, 95% CI [0.000, 0.09].

Discussion

To our knowledge, this study reports one of the first investigations in attorneys (or any helping professionals) examining longitudinal changes in mental health outcome measures including PTSD, depression, and functional impairment and the relationship of these symptoms to work with trauma-exposed clients. The participants, 107 attorneys working in the Wisconsin State Public Defender's Office, experienced continued stress over a 10-month period as demonstrated by similar levels of depression, functional impairment, and PTSD hyperarousal at both time points. Furthermore, the percentage of attorneys who exceeded clinical thresholds for depression and functional impairment was unchanged over the period of the study. Although there was a modest but significant decrease in the PTSD symptoms of intrusion and avoidance over the 10-month period, there was no significant change in the number of attorneys who scored above the threshold of clinically

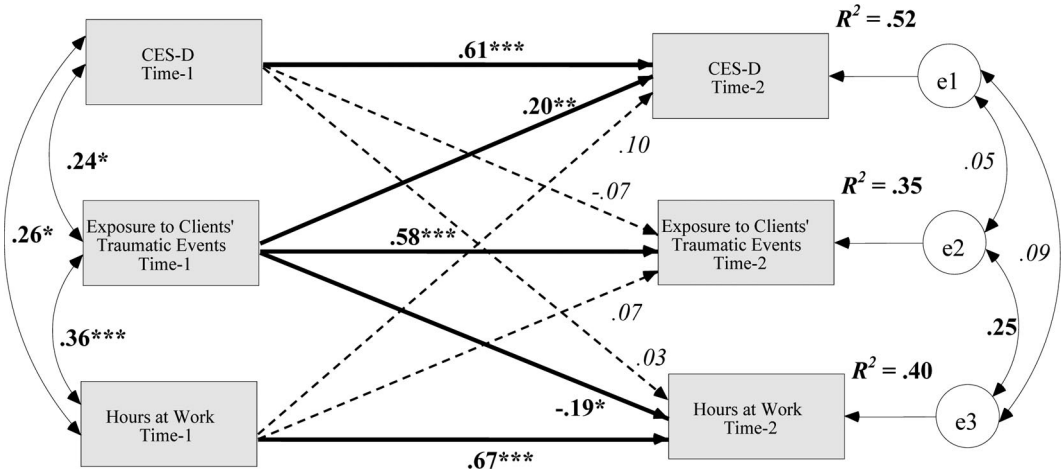

Figure 2. The cross-lagged model for the prediction of depressive symptoms (Center for Epidemiological Studies Depression Scale [CES–D]). Rectangles indicate measured variables. Small circles reflect residuals (e). Bold numbers above or near endogenous variables represent the amount of variance explained (R^2). Bidirectional arrows depict correlations and unidirectional arrows depict hypothesized directional or "causal" links. Standardized maximum likelihood parameters are used. Bold estimates are statistically significant. $N = 107$. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$ (two-tailed). When we controlled for the effects of gender, age, years on the job, and size of local office, the significant and nonsignificant effects, as presented in this figure, were not altered. These effects were removed to simplify the figure.

significant PTSD. Total hours worked per week were unchanged, but caseload of trauma-exposed clients did show a small but significant decrease. These decreases in the PTSD symptoms and caseload of trauma-exposed clients may suggest that the attorneys who participated in the follow-up survey were initially in less distress, but there were no statistical differences found on any of the symptom measures at baseline between the participants who followed up with those who did not. Overall, these findings indicate significant stability in levels of symptomatology over a 10-month period.

Bivariate analysis revealed that average caseload of trauma-exposed clients significantly correlated with depression and functional impairment measures at both time points, whereas hours worked per week only correlated with these measures at baseline.

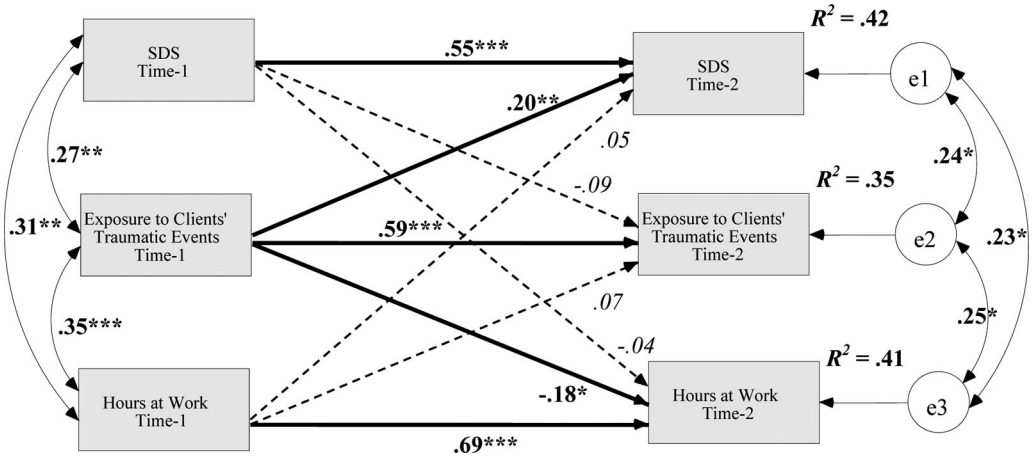

Figure 3. The cross-lagged model for the prediction of functional impairment symptoms (Sheehan Disability Scale [SDS]). Rectangles indicate measured variables. Small circles reflect residuals (e). Bold numbers above or near endogenous variables represent the amount of variance explained (R^2). Bidirectional arrows depict correlations and unidirectional arrows depict hypothesized directional or "causal" links. Standardized maximum likelihood parameters are used. Bold estimates are statistically significant. $N = 107$. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$ (two-tailed). When we controlled for the effects of gender, age, years on the job, and size of local office, the significant and nonsignificant effects, as presented in this figure, were not altered. These effects were removed to simplify the figure.

Furthermore, average caseload correlated with intrusion and hyperarousal at follow-up but not at baseline. These inconsistent correlations between outcome variables and exposure measured by hours worked and trauma-exposed client caseload mirror the equivocal findings in the general secondary trauma literature (e.g., Kassam-Adams, 1999, and Creamer & Liddle, 2005, vs. Boscarino, Figley, & Adams, 2004) and contrast with our earlier report (Levin et al., 2011) in which both factors correlated with symptoms in the larger sample surveyed at the initial time point. Piwowarczyk et al. (2009), in a small sample, also found a relationship between caseload of trauma-exposed clients and increased symptoms in asylum attorneys. Gender, age, years on the job, and size of office were not correlated with any of the outcome measures at either time point.

Consistent with our previous findings (Levin et al., 2011), these results on balance show that attorneys were more likely to exhibit increased levels of symptomatology when working with trauma-exposed clients. However, the current study's follow-up findings indicate cross-lagged effects in which exposure had a significant effect over time on both hours worked and symptomatology such that higher levels of exposure at Time 1 were related to increased symptoms and decreased hours worked 10 months later. Stated differently, the cross-lagged findings indicate that over and above the continued levels PTSD, depression, and functional impairment, there was an additional unique effect of exposure on these outcome measures over time. Furthermore, no reciprocal effects were found, that is, whereas higher levels of exposure predicted increased levels of symptoms and decreased hours at work 10 months later, PTSD, depression, and functional impairment did not have any effects on exposure over time.

Our findings suggest several possible conclusions. First, they provide strong evidence that exposure to trauma-exposed clients may be a vulnerability factor, given that higher levels of exposure resulted in increased severity of symptoms and reduced time spent at work 10 months later. Furthermore, the lack of reciprocal effects suggests that the attorneys surveyed may have ignored their symptoms of distress in making decisions about working hours and caseload. We might speculate that attorneys decreased their work hours over the 10-month period in response to study participation and the accompanying increased awareness of the phenomenon of secondary trauma and not because of how they felt. At the same time, they did not (or were unable to) decrease their caseloads of trauma-exposed cases. In this regard, a number of participants of the study stated (sometimes quite emphatically) in a comments field at the end of the survey that they felt "powerless" to manage their caseloads. Thus, alternatively, we might speculate that continued high caseloads of trauma-exposed clients were unavoidable.

Our results and the results of other studies of professionals working with perpetrators suggest a need to expand Figley's (1995) formulation that secondary trauma is "the stress resulting from helping or wanting to help a traumatized or suffering person" (p. 7). The present study, as well as our earlier study (Levin et al., 2011), and the studies of Gomme and Hall (1995) with prosecutors and Vrklevski and Franklin (2008) with criminal defense attorneys, illustrate that work with perpetrators precipitates secondary traumatic stress responses. Likewise, studies of sexual offender therapists document secondary traumatic responses similar to those seen in therapists treating victims (see review by Moulden & Firestone, 2007). The only study comparing these two groups of therapists reported similar levels of symptoms in both groups (Way, VanDeusen, Martin, Applegate, & Jandle, 2004). Moulden and Firestone (2007) concluded that work with perpetrators precipitates symptoms in therapists via the same mechanisms (e.g., constructivist self-development theory) thought to cause symptoms in any professional exposed to traumatic material. In light of these findings, it appears that exposure to traumatic material, regardless of the relationship with the client, precipitates symptoms. It should be noted that our questionnaire asked the attorneys to quantify the number of clients who "had experienced or been directly involved with trauma." Given that criminal defendants are themselves often victims of trauma, the clients were most likely to be both perpetrators and victims. The attorneys in our study commented that they frequently experienced negative feelings toward the people they were assigned to defend. Future research should attempt to tease out the effects of sympathy versus revulsion toward the client as well as the effects of perpetrator versus victim status on the development of symptoms.

Although our prior report (Levin et al., 2011) identified the need to support attorneys by addressing their work hours and their caseloads, this study suggests that given limited resources to effect change, the focus should be on the attorneys with the largest caseloads of trauma-exposed clients. In addition to developing strategies to decrease the size of these caseloads, perhaps by rotation of attorneys who receive these cases, the present study suggests that resources such as counseling and education should be concentrated on supporting these attorneys. Although the efficacy of traditional approaches for assisting professionals who experience secondary trauma exposure (e.g., Gentry, Baranowsky, & Dunning, 2002) including education about trauma and development of personal resilience have been challenged (Bober & Regehr, 2006), the current findings again tilt toward more specific emphasis on the work with the trauma-exposed clients rather than simply addressing general working conditions. Longitudinal studies of primary victims of trauma suggest that social support (Galea et al., 2002; Neria, Besser, Kiper, & Westphal, 2010) and coping strategies (Mayou, Ehlers, & Bryant, 2002) affect long-term outcome in victims beyond the intensity of exposure, highlighting the need to examine these factors in future studies of outcomes in helping professionals working with trauma-exposed populations.

The present study has several limitations. First, the study used a sample confined to attorneys who work as public defenders who were demographically homogeneous, thus limiting generalizability to other attorneys and other helping professionals. Second, although this is the only study we are aware of that has surveyed attorneys longitudinally, the sample of attorneys who repeated the survey ($N = 107$) was relatively small. One factor contributing to the follow-up rate of 45% may have been the lack of remuneration. The validity of our findings in this limited sample is bolstered by the lack of difference on any variables between the participants and the attorneys who did not repeat the study. A future study should examine responses in a larger, more diverse sample across a range of attorney types, that is, defense, prosecution, civil, and even corporate, and if possible, compare them with other professionals with different levels of exposure. A further limitation is the lack of a precise characterization of the specific types and frequencies of trauma (assault, homicide, rape, fire, etc.) encountered by the public defenders. This is a general limitation in the legal field; for example, Gomme and Hall (1995) characterized the impact of

work with domestic violence and incest on prosecutors, but they did not quantify this caseload nor did they have a comparison with prosecutors working, for instance, in homicide. This is another rich area for future exploration.

Despite these limitations, our study investigated a unique phenomenon, focusing on longitudinal exposure and symptoms that may well have significant ecological validity. The study focused on participants who reported on their experiences as they were occurring over a 10-month period. Moreover, to our knowledge, the present study represents the first attempt toward understanding the relationships between attorneys' exposure to trauma-exposed clients and symptomatology, over time, through the use of a cross-lagged design. An important next step will be to use longitudinal designs to explore the underlying mechanisms of attorneys' exposure-related symptoms. For example, one possible direction would be to examine the longitudinal role of various affect regulation strategies, coping mechanisms, and social support as potential mediators and/or moderators of the effects of exposure over time. Taken as a whole, the present study points to the central role of attorneys' individual differences in exposure to trauma-exposed clients in the development of symptoms of PTSD, depression, and functional impairment.

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