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Avoidance as an obstacle to preventing depression among urban women at high risk for violent trauma

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Abstract

The impact of depression interventions is often attenuated in women who have experienced trauma. We explored whether psychological avoidance could explain this phenomenon. We synthesized two pilot randomized trials of problem-solving education (PSE) among a total of 93 urban mothers. Outcomes included depressive symptoms and perceived stress. Mothers with avoidant coping styles experienced an average 1.25 episodes of moderately severe depressive symptoms over 3 months of follow-up, compared to 0.40 episodes among those with non-avoidant coping (adjusted incident rate ratio [aIRR] 2.18; 95 % CI 1.06, 4.48). PSE tended to perform better among mothers with non-avoidant coping. Among mothers with non-avoidant coping, PSE mothers experienced an average 0.24 episodes, compared to 0.58 episodes among non-avoidant controls (aIRR 0.27; 95 % CI 0.05, 1.34). Among mothers with avoidant coping, PSE mothers experienced an average 1.26 episodes, compared to 1.20 episodes among avoidant controls (aIRR 0.76; 95 % CI 0.44, 1.33). This trend toward differential impact persisted when avoidance was measured as a problem-solving style and among traumatized mothers with and without avoidant PTSD symptoms. Further research is warranted to explore the hypothesis that psychological avoidance could explain why certain depression treatment and prevention strategies break down in the presence of trauma.

Keywords

Maternal depression; PTSD; Avoidance; Prevention

Introduction

Among urban, low-income mothers, exposure to trauma is common—with some studies estimating that up to 80 % have been victimized by domestic or community violence (Coker et al. 2000; Vest et al. 2002). Depression commonly co-occurs with violent trauma in this population (England and Sim 2009). Trauma exposure intensifies depressive symptoms, makes them less remitting and more refractory to treatment, and exacerbates the deleterious effect of maternal depression on children (Shalev et al. 1998; Nixon et al. 2004; O'Donnell et al. 2004; Hegel et al. 2005; Holtzheimer et al. 2005; Green et al. 2006; Silverstein et al. 2006). In 2011, our research group published a study detailing how trauma exposure—even in the absence of post-traumatic stress disorder (PTSD)—attenuates the impact of a cognitive-behavioral maternal depression prevention strategy delivered in the post-natal and early childhood periods (Silverstein et al. 2011a). Although congruent with the extant literature, this study stopped short of identifying potential mechanisms by which trauma exerts this effect. Uncovering possible mechanisms by which an individual's life circumstances moderate the impact of mental health interventions is widely seen as a promising strategy for developing effective practice (2008).

One possible mechanism by which trauma might attenuate the effect of traditional cognitive-behavioral approaches to depression treatment or prevention is through psychological avoidance. Avoidant coping and problem-solving styles are common among trauma survivors (Rayburn et al. 2005; Street et al. 2005; Krause et al. 2008); and although avoidance can be protective during ongoing violence or in the immediate aftermath of a trauma, it is otherwise seen as maladaptive and responsible for perpetuating emotional distress (Resick and Schincke 1996). It is reasonable, therefore, to postulate that interventional strategies involving cognitive restructuring or problem solving would be less effective among women who tend to engage in avoidance as a means to cope with stress or to address their problems.

Among an urban population of young mothers at high risk for depression—and with a high incidence of trauma exposure—we sought to understand the impact of three different constructs of psychological avoidance on the ability to prevent the onset of depressive symptoms (primary outcome) and to reduce perceived stress (secondary outcome). The first construct, avoidant coping, was meant to reflect a particular cognitive style of mental disengagement; the second construct, avoidant problem solving, was meant to reflect passivity and avoiding action; and the third construct, avoidant PTSD symptoms, was meant to reflect whether an individual has symptoms consistent with the avoidance cluster of DSM-IV criteria for PTSD (American Psychiatric Association 1994). To answer our central question, we used data from two randomized pilot trials of a well-described cognitive behavioral depression prevention intervention (Silverstein et al. 2011a, b; Feinberg et al. 2014). As a pilot, neither study was powered to detect differences in key outcomes. The following findings, therefore, are meant to formulate hypotheses for why cognitive approaches to depression prevention work well for some women but not others, and for how to individualize such preventive strategies.

Methods

Study design and setting

Details of our study design have been published previously (Silverstein et al. 2011a, b). Briefly, we conducted two concurrent parallel group pilot trials of a cognitive behavioral maternal depression prevention intervention, each with 1:1 randomization. We conducted the first among mothers of pre-term infants hospitalized in two level III neonatal intensive care units (NICUs; $n=50$); the second, among mothers of young children with developmental delay, enrolled in community-based Early Intervention programs ($n=43$). The two US venues were chosen because they represent similar populations at two points in time. Because identical outcome assessments were conducted in each study over a 3-month follow-up period, data were combined and analyzed together.

Participants

Participants were enrolled based on their risk for depressive illness and their children's risk for developmental impairment. Eligible participants were all English- and Spanish-speaking mothers with evidence of financial hardship, based on eligibility for either Women Infants and Children services or state Medicaid. NICU mothers were enrolled if their infants were 33 weeks' gestation. Early Intervention mothers were enrolled if they displayed at least one gateway symptom of depression on the Patient Health Questionnaire-2 (Kroenke et al. 2003), had a personal or family history of depression, had low social support based on the Medical Outcomes Survey Social Support Scale (Sherbourne and Stewart 1991), or had a child with a severe medical condition such as Down's syndrome or congenital heart disease. Mothers with overt psychosis or cognitive limitation, as communicated by the primary medical or early intervention team, were excluded. Those with suicidal ideation, as assessed by the baseline administration of the Quick Inventory of Depressive Symptoms (QIDS) (Rush et al. 2003) were also excluded.

In the NICU, mothers were informed of the study through written materials included in a NICU information packet and then approached by a study research assistant. In Early Intervention, individuals working clinically with families informed potential participants of the study. For both populations, study eligibility was determined by a research assistant prior to randomization.

Interventions

The intervention group received problem-solving education (PSE) (Silverstein et al. 2011a, b; Feinberg et al. 2014). PSE is a cognitive-behavioral intervention designed to impart recipients with stronger problem-solving skills to buffer the impact of stress on daily functioning. After a 2-day didactic training and up to five training cases to ensure fidelity, bachelor-level providers guided subjects in selecting a measurable problem, then proceeded through a series of steps that included goal setting, brainstorming and evaluating solutions, choosing a solution, and action planning. Providers' primary role was to help participants deconstruct and reframe subjective problems into more objective, solvable ones. Participants received six one-on-one PSE sessions, each lasting 30 to 45 min. The control group received the usual hospital or Early Intervention services, which typically involved regular contact

with social service providers, and a range of developmental services for the infant. Neither study group received trauma-specific care.

Measures and outcome assessment

At baseline, we recorded subjects' age, work and education status, number of children, country of origin, race, and ethnicity. We assessed depressive symptoms at baseline using the QIDS, which has been validated in the post-partum setting (Yonkers et al. 2001); perceived stress, using the Perceived Stress Scale (Cohen et al. 1983); and trauma exposure and PTSD symptoms using the Modified PTSD Symptom Scale (Coffey et al. 1998). In the absence of a single, superior measure of avoidance, we measured the construct of avoidance as a coping strategy, as a problem-solving strategy, and as a PTSD symptom cluster. First, we used a validated, dimensional avoidant coping subscale ($\alpha=0.68$) from the Brief COPE (Carver 1997), which focuses on questions concerning denial ("I've been saying to myself 'this isn't real'") and behavioral disengagement ("I've been giving up trying to deal with it"), and dichotomized results based on a median cut-point (Oxman et al. 2008). Second, we used the dimensional Social Problem-Solving Index's avoidance style subscale (e.g., "I put off solving problems until it is too late to do anything about them") and dichotomized this measure relative to a median cut-point (D'Zurilla et al. 2002). Last, we used the avoidant PTSD symptom cluster (e.g., "Have you persistently been making efforts to avoid thoughts or feelings associated with the event(s)?") based on DSM-IV diagnostic criteria. This measure assesses reactions to a specific, traumatic event, whereas the other scales assess dispositional coping styles and general coping strategies. Because not all women had experienced a traumatic event consistent with DSM-IV criteria, rather than dichotomizing based on a median cut-point, we considered a trauma-exposed subject to have avoidant symptoms if she endorsed any of the items in this cluster. Because neither the COPE nor the Social Problem-Solving Index have established clinical cut-points, we set our cut-points on these scales to maximize cell sizes; and did so prior to any formal hypothesis testing.

Our primary outcome in both pilot trials was depressive symptomatology. In addition to the baseline measurement, we measured outcomes four times at monthly intervals, beginning with completion of the intervention. We analyzed QIDS scores relative to a pre-specified clinical threshold (11), corresponding to moderately severe symptomatology (2015). Our secondary outcome of interest was perceived stress, which we analyzed as a continuous measure. Outcome assessors, investigators, and clinical providers were blinded to study allocation.

Statistical analysis

We divided the study sample into those with avoidant and non-avoidant coping and problem-solving styles. We employed these measures independently of one another and assessed the agreement between the two using the kappa statistic. We assessed baseline characteristics of the study sample according to both coping and problem-solving styles and compared those with avoidant styles and non-avoidant styles using the chi-squared and Student's *t* tests.

We assessed the association between avoidant coping and problem-solving styles with follow-up depressive symptoms and perceived stress, irrespective of study group allocation.

Using logistic regression, we compared the proportion of non-avoidant and avoidant mothers to experience an episode of moderately severe depressive symptoms during the 3-month follow-up period. Because symptomatic person time is critical to the welfare of both mother and child, we used negative binomial regression to compare the incident rates of moderately severe depressive symptom episodes among mothers in each avoidance group. Finally, we used linear regression to compare perceived stress after 3 months of follow-up. When we assessed depression symptoms, we adjusted for baseline QIDS score; when we assessed perceived stress, we adjusted for baseline perceived stress score. Because we wanted to assess the impact of avoidance on our outcomes independent of trauma, we further adjusted all models for trauma exposure.

We assessed PSE trial outcomes by intention-to-treat analysis using the same logistic, negative binomial, and linear regression analyses as above. Because of an imbalance in baseline depressive symptom scores across the PSE and control groups, we adjusted these models for baseline QIDS scores. To account for possible center effects across the NICU and Early Intervention sites, we also controlled these analyses for study venue as a fixed effect (Localio et al. 2001). No special techniques were employed to handle missing data.

Finally, we assessed intervention moderation by avoidance by analyzing our results in corresponding strata. To do this, we ran independent models for avoidant/non-avoidant coping and avoidant/non-avoidant problem solving. In a third model using the modified PTSD scale, we divided the population into three strata—those without trauma exposure, those with trauma exposure but no avoidant PTSD symptoms, and those with trauma exposure and avoidant PTSD symptoms.

The Boston University Medical Center and Tufts Medical Center Institutional Review Boards approved this study.

Results

Sample

Research assistants screened 207 mothers for participation; 53 refused, 61 were ineligible, and 93 enrolled. The NICU and Early Intervention samples demonstrated expected differences around maternal age and parity: the mean maternal age in the NICU sample was 27.04 years (SD 6.51), as compared to 33.47 (SD 8.23) in the Early Intervention sample; $p < .001$. NICU mothers had an average of 1.94 children (SD 1.24), whereas Early Intervention mothers had an average of 2.63 children (SD 1.75); $p = 0.02$.

There was no association between either coping or problem-solving styles with baseline demographics (Table 1). However, those with avoidant coping styles had significantly higher baseline depressive symptoms—10.75 (SD 4.72) vs. 7.17 (SD 4.06), $p = 0.003$; and perceived stress scores—11.70 (SD 2.70) vs. 9.54 (2.99), $p = 0.0007$. A similar, statistically significant association with depressive symptoms and perceived stress existed for problem-solving styles, but to a lesser magnitude. Of the sample of 93 subjects, 38 (41 %) had experienced violent trauma—the most common being rape or sexual assault, witnessing the death of a family member, or intimate partner violence. There was a trend toward avoidant coping

being associated with trauma exposure, but this association did not reach statistical significance (49 % vs. 34 %; $p=0.17$). Avoidant problem solving did not appear correlated with trauma exposure.

The PSE group had a higher proportion of mothers experiencing moderately severe depressive symptoms at baseline than the control group (41 vs. 28 %). Of the 25 NICU mothers receiving PSE, 19 (76 %) completed at least four sessions; of the 21 Early Intervention mothers receiving PSE, 15 (71 %) completed at least four sessions. Of the 93 overall study participants, 77 (83 %) were followed successfully through the end of the follow-up period.

Outcomes according to avoidant coping and problem solving

The agreement between avoidant coping and problem solving was moderate (kappa 0.47), suggesting the two scales measured separate, but overlapping, constructs. Avoidant coping styles were highly associated with worse depressive symptom and perceived stress outcomes (Table 2). Of those with avoidant coping, 61 % experienced a moderately severe depressive symptom episode during the follow-up period, in contrast to 20 % of those with non-avoidant coping (adjusted odds ratio [aOR] 4.47; 95 % CI 1.56, 12.84). Those with avoidant coping experienced an average of 1.25 symptomatic episodes over the follow-up period, compared to 0.40 episodes among those with non-avoidant coping (adjusted incident rate ratio [aIRR] 2.18; 95 % CI 1.06, 4.48). There was also a significant difference in perceived stress at follow-up between mothers with avoidant and non-avoidant coping styles (adjusted difference 2.43; 95 % CI 1.05, 3.81). Similar, non-significant trends held up across the avoidant and non-avoidant problem-solving groups (Table 2).

Intervention impact according to avoidance patterns

Although small sample sizes precluded definitive results for most individual measures, across all measures it appeared that PSE tended to perform better among non-avoidant mothers than among avoidant mothers (Table 3). For example, among mothers with non-avoidant coping, those receiving PSE experienced an average 0.24 (SD 0.89) symptomatic episodes over the follow-up period, compared to 0.58 (SD 1.02) symptomatic episodes among non-avoidant control mothers (aIRR 0.27; 95 % CI 0.05, 1.34). Among mothers with avoidant coping strategies, those receiving PSE experienced an average 1.26 symptomatic episodes over the four follow-up time points, compared to 1.20 symptomatic episodes among avoidant control mothers (aIRR 0.76; 95 % CI 0.44, 1.33). This trend toward a differential intervention impact according to coping style held up for our perceived stress measure as well.

PSE also tended to perform better among mothers with non-avoidant problem-solving strategies. For example, among mothers with non-avoidant problem-solving strategies, those receiving PSE experienced an average 0.69 (SD 1.25) symptomatic episodes, compared to 1.09 (SD 1.38) symptomatic episodes among control mothers, for a statistically significant aIRR of 0.29 (95 % CI 0.10, 0.84). Among mothers with avoidant problem-solving strategies, those receiving PSE experienced an average 1.07 (SD 1.14) symptomatic

episodes, compared to 1.26 (SD 1.48) symptomatic episodes among control mothers, for an attenuated, non-significant aIRR of 0.79 (95 % CI 0.41, 1.54).

Avoidant PTSD symptoms

Cell sizes were small when we broke the study sample into women without trauma histories, women with trauma histories but no avoidant PTSD symptoms, and women with trauma histories and avoidant PTSD symptoms (Table 4). With that caveat, traumatized mothers without avoidant PTSD symptoms responded to PSE more like mothers without trauma than like traumatized mothers with avoidant PTSD symptoms. For example, among mothers with no trauma history at all, those receiving PSE experienced an average 0.42 (SD 0.97) symptomatic episodes, compared to 0.96 (SD 1.37) symptomatic episodes among control mothers, for a statistically significant aIRR of 0.30 (95 % CI 0.11, 0.82) across intervention groups. Among mothers with trauma histories but no avoidant symptoms, the estimated aIRR between PSE and control was 0.36 (95 % CI 0.06, 2.05), but statistically non-significant. By contrast, there was no evidence of even a trend toward a difference in the rate of symptomatic episodes between PSE and control for traumatized women with avoidant symptoms (aIRR 1.00; 95 % CI 0.48, 2.08).

Discussion

In our study of urban, low-income mothers, we found that avoidant coping and problem-solving styles were associated with the evolution of depressive symptoms and stress in the post-partum and early childhood periods. With the caveat of small samples sizes, we also provide suggestive evidence, in the form of non-significant but consistent trends, of intervention moderation by the presence of avoidance across multiple measures. In this population of mothers with a high burden of trauma, traumatized mothers without avoidant PTSD symptoms appeared to respond to PSE more like mothers without any trauma at all, than like traumatized mothers with avoidant symptoms. These results represent an initial exploration, and plausible hypothesis, for why PSE—and cognitive behavioral depression interventions like it—often fails to positively impact individuals with trauma histories.

One of the biggest challenges in health care delivery is to understand what types of interventions work best for what types of individuals (Barry 2011). This fundamental question has led the Institute of Medicine to endorse a national agenda of comparative effectiveness research (Conway and Clancy 2009; Kuehn 2009). It has led to the establishment of the Patient Centered Outcomes Research Institute as part of the Affordable Care Act (Mushlin and Ghomrawi 2010; Washington and Lipstein 2011). Specific to mental health, it has led the National Institute of Mental Health to endorse, as one of its four strategic aims, the development of new interventions that incorporate the diverse circumstances of people with mental illness. Shedding light on possible mechanisms by which an individual's circumstances moderate the impact of mental health interventions is thus widely seen as a promising strategy for developing effective, personalized treatment and prevention models.

In 2011, our research group published a study concerning how trauma exposure—even in the absence of PTSD—attenuates PSE's ability to prevent depression among high-risk mothers

(Silverstein et al. 2011a, b). The present study, we believe, extends our previous findings because it provides suggestive evidence that avoidant coping and problem solving—which are disproportionately common among trauma survivors—could be a reasonable explanatory mechanism, worthy of further study. If this finding holds up to further study, it could have a direct relevance to both clinical care and subsequent research. Because overcoming avoidance is a fundamental principle in the treatment of PTSD (Foa and Rothbaum 1998), determining how to integrate some cognitive behavioral strategies that target avoidance (Resick and Schincke 1996; Ehlers et al. 2010) into the development of depression prevention and treatment models could lead to more effective patient care strategies and more robust public health programs.

Whereas the potential moderating effect of avoidance on PSE's impact held up across measures and outcomes, there were notable differences between avoidant coping and avoidant problem solving. Of particular note was that avoidant coping appeared correlated with prior trauma, but avoidant problem solving did not. Furthermore, whereas avoidant coping was more highly correlated with outcomes than avoidant problem solving, both appeared as potential modifiers of PSE's impact to a similar degree. Given the moderate correlation between our coping and problem-solving measures, it is likely that the two measure separate, but overlapping, constructs. Specifically, avoidant coping speaks to a particular cognitive style of not mentally engaging with an issue, avoidant problem solving is more about passivity and avoiding action. Measuring both in future research appears to be important.

The present study has a number of limitations. Most importantly, the data are exploratory and based on pilot studies with modest sample sizes. Because of this, formal statistical testing of moderation and mediation pathways was not possible; and our findings should be viewed as hypothesis generating, in need of confirmation. That said, a strength of the study is that we triangulated our results with multiple, valid measures of avoidance. Although the reliability of the COPE's avoidance subscale is somewhat low, the fact that the results are similar across these measures—and across our outcomes of interest—makes it unlikely that the findings are due to statistical aberration. Second, our study sample represents the combination of two distinct pilot studies in two distinct venues. The studies, however, were designed to be conducted in concert with one another because they represent similar mother-child populations at different points in time. Furthermore, the two studies shared a common intervention and study team and a common set of measures. Lastly, we acknowledge that there are myriad other psychiatric and psychosocial comorbidities that could moderate the impact of PSE as much as avoidance. Although looking specifically at avoidance has a sound theoretical and empiric basis, looking at a single intervention moderator almost certainly oversimplifies reality—particularly in a mother-child population with documented high levels of trauma, presumably as a result of child illness (Vanderbilt et al. 2009).

With these limitations in mind, our findings raise the question of whether the longstanding finding that depression treatment and prevention strategies break down in the presence of trauma is due, at least in part, to avoidance patterns commonly adopted by trauma survivors. Whereas trauma histories cannot be “undone,” avoidant coping and problem-solving strategies can be addressed through novel intervention techniques tailored to the needs of

mothers with infants and young children. Researching such techniques, and incorporating them into evidence-based depression prevention models, represents a potentially promising avenue of investigation.

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Table 1

Baseline characteristics by coping style

	Non-avoidant coping (<i>n</i> =41)	Avoidant coping (<i>n</i> =44)	<i>p</i> value
NICU participants (%)	24 (59)	18 (41)	0.1043
Early Intervention participants (%)	17 (41)	26 (59)	0.1043
Mean age, years (SD)	29.75 (8.90)	31.18 (7.22)	0.4189
Black participants (%)	14 (34)	19 (43)	0.3930
Latina participants (%)	15 (37)	12 (27)	0.3568
US-born participants (%)	25 (66)	29 (69)	0.7560
Mean number of children (SD)	2.00 (1.40)	2.43 (1.59)	0.0922
High school graduate (%)	31 (76)	38 (86)	0.2050
Work outside home (%)	17 (43)	14 (33)	0.3495
Mean depression score (SD)	7.17 (4.06)	10.75 (4.72)	0.0003
Quick inventory of depressive symptoms score 11 (%)	9 (22)	23 (52)	0.0039
Mean perceived stress score (SD)	9.54 (2.99)	11.70 (2.70)	0.0007
Experienced a significant trauma (%)	14 (34)	21 (49)	0.1722

Coping style is reported irrespective of problem-solving style and avoidant PTSD symptoms

Continuous measures and proportions are compared using Student's *t* test and chi-squared tests, respectively

Table 2

Outcomes by avoidant coping and problem-solving styles

	Coping style		Problem-solving style		Measure of association (95 % CI) ^a	Avoidant (n=44)	Non-avoidant (n=27)	Avoidant (n=33)	Measure of association (95 % CI) ^a
	Non-avoidant (n=40)	Avoidant (n=44)	Non-avoidant (n=27)	Avoidant (n=33)					
Number (%) to experience moderately severe depressive symptom episode during follow-up period	8 (20)	27 (61)	11 (41)	18 (55)	aOR 4.47 (1.56, 12.84)			aOR 1.16 (0.35, 3.87)	
Mean number (SD) of moderately severe depressive symptom episodes during follow-up period	0.40 (0.96)	1.25 (1.30)	0.85 (1.29)	1.18 (1.33)	aIRR 2.18 (1.06, 4.48)			aIRR 1.09 (0.59, 2.03)	
Mean perceived stress score (SD) after 3 months	7.62 (3.19)	10.83 (2.80)	8.68 (3.64)	10.75 (2.96)	β 2.43 (1.05, 3.81)			β 1.02 (-0.66, 2.69)	

^a All regression models are adjusted for the outcome of interest, as measured at baseline, and for history of trauma exposure. Analyzable sample sizes vary due to missing data^aOR adjusted odds ratio, aIRR adjusted incident rate ratio

Table 3

Intervention outcomes by avoidant coping and problem solving

	Non-avoidant coping (<i>n</i> =40)			Avoidant coping (<i>n</i> =44)		
	Control	PSE	Measure of association (95 % CI)	Control	PSE	Measure of association (95 % CI)
Number (%) to experience moderately severe depressive symptom episode during follow-up period	6 (32)	2 (10)	aOR 0.19 (0.03, 1.22)	15 (60)	12 (63)	aOR 0.43 (0.09, 2.09)
Mean number (SD) of moderately severe depressive symptom episodes during follow-up period	0.58 (1.02)	0.24 q(0.89)	aIRR 0.27 (0.05, 1.34)	1.20 (1.39)	1.26 (1.19)	aIRR 0.76 (0.44, 1.33)
Mean perceived stress score (SD) after 3 months	8.27 (4.04)	7.11 (2.31)	-1.29 (-3.00, 0.43)	10.61 (2.81)	11.12 (2.85)	-0.35 (-1.96, 1.25)
	Non-avoidant problem solving (<i>n</i> =27)			Avoidant problem solving (<i>n</i> =33)		
	Control	PSE	Measure of association (95 % CI)	Control	PSE	Measure of association (95 % CI)
Number (%) to experience moderately severe depressive symptom episode during follow-up period	6 (54)	5 (31)	aOR 0.06 (0.01, 1.05)	10 (53)	8 (57)	aOR 0.36 (0.05, 2.40)
Mean number (SD) of moderately severe depressive symptom episodes during follow-up period	1.09 (1.38)	0.69 (1.25)	aIRR 0.29 (0.10, 0.84)	1.26 (1.48)	1.07 (1.14)	aIRR 0.79 (0.41, 1.54)
Mean perceived stress score (SD) after 3 months	8.9 (4.61)	8.53 (3.00)	-1.02 (-3.14, 1.10)	10.49 (2.77)	10.83 (3.33)	-0.32 (-2.28, 1.65)

All regression models are adjusted for baseline depressive symptoms and study venue. Analyzable sample sizes vary due to missing data

aOR adjusted odds ratio, *aIRR* adjusted incident rate ratio

Avoidant PTSD Symptoms

Table 4

	No trauma (n=50)				Trauma without avoidant PTSD symptoms (n=12)				Trauma with avoidant PTSD symptoms (n=25)			
	Control	PSE	Measure of association (95 % CI)		Control	PSE	Measure of association (95 % CI)		Control	PSE	Measure of association (95 % CI)	
Number (%) to experience moderately severe depressive symptom episode during follow-up period	12 (46)	5 (21)	aOR 0.15 (0.03, 0.79)		3 (50)	2 (33)	aOR 0.26 (0.02, 4.36)		6 (46)	8 (67)	aOR 0.86 (0.09, 8.28)	
Mean number (SD) of moderately severe depressive symptom episodes during follow-up period	0.96 (1.37)	0.42 (0.97)	aIRR 0.30 (0.11, 0.82)		0.67 (0.82)	0.33 (0.52)	aIRR 0.36 (0.06, 2.05)		1.00 (1.29)	1.50 (1.31)	aIRR 1.00 (0.48, 2.08)	
Mean perceived stress score (SD) after 3 months	9.91 (3.49)	8.35 (2.85)	-1.42 (-3.05, 0.20)		8.33 (2.08)	7.00 (2.45)	-1.21 (-3.95, 1.53)		9.62 (3.88)	11.08 (3.23)	0.02 (-2.22, 2.25)	

All regression models are adjusted for baseline depressive symptoms and study venue. Analyzable sample sizes vary due to missing data

aOR adjusted odds ratio, aIRR adjusted incident rate ratio