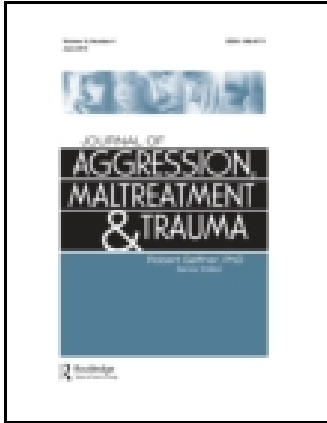


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BRIEF REPORT

Yoga Practice May Buffer the Deleterious Effects of Abuse on Women's Self-Concept and Dysfunctional Coping

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Women who experienced abuse as children or adults can suffer from symptoms such as dissociations, physiological regulation difficulties, and mood disturbances that might not respond to traditional interventions. Given the benefits of yoga, we hypothesized that yoga practice would ameliorate the negative impact of abuse on psychological functioning. Our findings suggest that frequent yoga practice might ameliorate the negative impact of abuse history on self-concept and coping skills. In addition, our findings suggest that women who incorporate yoga into other areas of life could get the greatest psychological benefits. Given the preliminary nature of this study, further research into the benefits of yoga on women who have child or adult abuse histories is warranted.

KEYWORDS *adult abuse, child abuse, coping, mood, self-concept, yoga*

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Yoga is one of the most commonly practiced mind–body approaches, with more than 15 million practitioners in the United States (Taylor, 2003). The goal of yoga is to unite the mind, body, and spirit through exercise, breathing, and meditation. According to Saraswati (2001), yoga can help people gain a better understanding of life, learn methods to manage the mind and one’s potential, and transform personality. Yoga also helps with the development of resiliency factors, such as self-awareness (Taylor, 2003).

Yoga-related benefits might be particularly relevant to women who have experienced abuse as children or adults. Although these women might not meet diagnostic criteria for posttraumatic stress disorder (PTSD), they could experience symptoms that might respond to yoga. For example, the practice of yoga is assumed to reduce psychological stress; it also helps increase mindfulness that could counter a vulnerability to dissociate. Because yoga focuses on the linking of mind and body, it could help women who have experienced abuse to feel more aware of their body. Yoga might also help with symptoms such as reexperiencing the traumatic event (e.g., flashbacks) and experiencing physiological reactions to reminders of the traumatic event.

Survivors of abuse are likely to benefit from yoga, as it has been found to lead to improvements in mood (Butler et al., 2008; Lavey et al., 2005; Netz & Lidor, 2003) and self-esteem (Arata, Langhinrichsen-Rohling, Bowers, & O’Farrill-Swails, 2005) in victims of abuse. Yoga practice might also help survivors of abuse to employ less dysfunctional coping mechanisms. For example, Dale, Mattison, et al. (2009) found that women with histories of eating disorders reported a decrease in eating disorder symptoms following a yoga workshop.

Dale, Carroll, et al. (2009) suggested that history of abuse might “tune” the nervous system to be cautious and prepare the individual for defensive fight–flight behaviors, even when real danger does not exist. They found that women who reported a history of abuse exhibited significantly poorer vagal regulation of the heart (i.e., respiratory sinus arrhythmia) following mild exercise. These findings are consistent with clinical impressions that abused individuals might have a lower threshold to express fight–flight behaviors in response to stress and have difficulty shifting from mobilization to calmness. Research suggests that poor vagal modulation might be associated with social anxiety (Movius & Allen, 2005) and difficulty recovering from depression (Rottenberg, Solomon, Gross, & Gotlib, 2005). Thus, there could be a physiological basis to symptoms of anxiety and depression experienced by victims of abuse.

According to the polyvagal theory (Porges, 1995, 2001, 2007), the adaptive consequence of abuse is to react to features in the environment conservatively by lowering thresholds and reacting to a greater range of

stimulation with fight-flight behaviors. However, this heightened sensitivity of the autonomic nervous system might dampen the ability to express socially “trusting” behaviors. Thus, these physiological regulation difficulties could have social consequences (Porges, 1995, 2001, 2007), including leading the victims to feel distant from others. This is consistent with research suggesting that survivors of abuse might increase distance from others, self-isolate, or both (Futa, Nash, Hansen, & Garbin, 2003).

Yoga might be an effective strategy to normalize autonomic function. van der Kolk (2006) suggested that yoga exercises could be more beneficial than dialectical behavioral therapy in decreasing intrusions and hyperarousal in women with PTSD. Because yogic breathing and movements might improve regulation of the autonomic nervous system (Sovik, 2000), women who practice yoga might be exercising their autonomic nervous systems to improve and normalize the abuse-related damage to autonomic nervous system regulation. In addition, the experience of going to a yoga studio and being part of a class could help these individuals to socially engage and feel less isolated.

Thus, yoga might enhance both psychological and physiological coping in women who have experienced abuse. Therefore, the objective of the current study was to extend the research by Dale, Carroll, et al. (2009) by investigating whether the practice of yoga would be helpful to women who experienced abuse and who have previously reported increased mood disturbances, poor self-concept, and the use of dysfunctional coping mechanisms. This study also focused on another variable, Total Endorsed Benefits, which addresses benefits believed to be associated with yoga practice, such as mindfulness, focus, and fitness. In addition to frequency of practice, we investigated the impact of other yoga experience variables believed to be important. Thus, we asked about focus during yoga and whether the participants had incorporated yoga into other areas of their lives. It was hypothesized that the practice of yoga would ameliorate the negative impact of abuse on psychological functioning.

METHOD

Participants

Seventy-four participants consented to participate in this study. The sample was reduced to 51 due to missing data. In addition, four men were dropped from the final sample because of the belief that men and women might differ in their abuse experiences. *T* test and chi-square comparisons of the 27 participants excluded and 47 included in the this study suggested that the groups did not differ with regard to their demographic characteristics, abuse history, yoga experience, or current mood, self-concept, or coping strategies.

The 47 participants were between 17 and 66 years of age ($M = 43.89$ years, $SD = 12.54$). Forty-three described themselves as Caucasian, one as Hispanic, and three as multiracial. Most (80.9%) had college and graduate education. More than half (66%) were employed full-time and 17% were employed part-time. The majority (66%) were in a committed relationship and approximately half (44.7%) reported having children. Twelve (25.5%) reported having a current mental health diagnosis, including depression, anxiety, and seasonal affective disorder.

Procedure

Participants were recruited from a local yoga studio via the studio's Web page and postings at the studio. Interested participants provided contact information for the researchers, via either e-mail or a sign-up list managed by the studio's staff. The researchers contacted more than 100 interested individuals and explained the purpose and voluntary nature of the study, requirements for participation, and measures to maintain confidentiality.

During Session 1, each participant signed an informed consent form and completed the last five questionnaires described next. The same measures were completed at Session 2, which occurred 8 to 10 weeks after Session 1, to assess the stability of the measures. There were no interventions or special instructions that occurred between Session 1 and Session 2. A couple of months following the completion of Session 2, participants were sent the Abuse History Questionnaire and asked to mail it back in an enclosed prestamped envelope.

Instruments

ABUSE HISTORY QUESTIONNAIRE

Designed for this study, this instrument asked participants to indicate whether they had experienced abuse as either a child (physical abuse, emotional abuse, sexual abuse, or neglect) or an adult (physical abuse, emotional abuse, sexual abuse, or intimate partner violence). For each item, participants were separated into groups depending on whether or not they endorsed each type of abuse (e.g., childhood physical abuse). Participants were then categorized into two groups, a child abuse group and an adult abuse group, depending on whether or not they endorsed any of the corresponding types of abuse. The internal consistency of the Child Abuse and Adult Abuse scales was acceptable ($\alpha = .69$ for Child Abuse and $\alpha = .57$ for Adult Abuse).

YOGA EXPERIENCE SCALE

The Yoga Experience Scale (YES) is an unpublished measure that obtains information regarding yoga experience and depth of yoga practice.¹ The YES also attempts to quantify the individual changes (or benefits) that yoga practitioners have noticed since beginning yoga practice. It was designed by an experienced yoga instructor, a licensed clinical psychologist with yoga experience, and two yoga practitioners (one experienced, one new) who were doctoral students in clinical psychology. The group derived five questions relevant to yoga experience and a list of 12 yoga-related benefits that formed the Benefits scale. The internal consistency of the Benefits scale was quite acceptable ($\alpha = .88$ for Session 1 and $.81$ for Session 2). Three variables assessed yoga experience: Yoga Frequency (times/week), Yoga Focus (learning postures or breathing vs. being present during yoga practice), and Yoga Lifestyle (experimentation or exercise vs. incorporating yoga into other areas of life). In terms of yoga benefits, we focused on the sum of the yoga benefits endorsed (Total Endorsed Benefits).

PROFILE OF MOOD STATES

The Profile of Mood States (POMS; McNair, Lorr, & Droppleman, 1992) is a 65-item self-report questionnaire that assesses a wide range of fluctuating mood states. Individuals rate their current mood using a 5-point scale ranging from 0 (*not at all*) to 4 (*extremely*). The key areas measured include tension-anxiety, anger-hostility, fatigue-inertia, depression-dejection, vigor-activity, and confusion-bewilderment. On the first five factors, higher scores represent more negative emotions. On the sixth factor, vigor-activity, higher scores indicate greater vigor. The POMS factors are combined to create a Total Mood Disturbance score, which was used in this study. The internal consistency of the POMS ranges from $.84$ to $.95$ and test-retest reliability ranges from $.65$ to $.74$ (McNair et al., 1992).

TENNESSEE SELF CONCEPT SCALE: SECOND EDITION

The Tennessee Self Concept Scale: Second Edition (TSCS:2; Fitts & Warren, 1996) is a 100-item self-report questionnaire of self-concept. Individuals rate their agreement with statements that portray different aspects of their self-concept on a 5-point scale ranging from 5 (*always true*) to 1 (*always false*). The measure includes the following six self-concept scores: Physical (view of one's body, state of health, physical appearance, skills, and sexuality); Moral (the self from a moral-ethical perspective); Personal (sense of personal worth, feelings of adequacy as a person); Family (feelings of adequacy,

¹ Measure available upon request from the corresponding author.

worth, and value as a family member); Social (sense of adequacy and worth in social interactions with other people); and Academic/Work (how well the individual views oneself in school and work settings). There are also three supplementary scores: Identity (basic identity, including being a cheerful or bad person); Satisfaction (satisfaction with one's perceived self-image); and Behavior (perception of one's own behavior or the way he or she functions). For all these measures, higher scores indicate greater self-concept. In this study, the focus was on the Total Self Concept scores, which reflect the individual's overall self-concept and associated level of self-esteem.

COPE INVENTORY

The COPE (Carver, Scheier, & Weintraub, 1989) is a multidimensional theoretically derived inventory measuring different ways in which people respond to stress, or their dispositional coping style. The instrument consists of 15 scales (each with four items) that fall into three coping styles (described by Cooper, Katona, & Livingston, 2008): (a) Problem-Focused Coping (includes the Use of Instrumental Social Support, Active Coping, Restraint, Suppression of Competing Activities, and Planning scales); (b) Emotion-Focused coping (includes the Positive Reinterpretation & Growth, Religious Coping, Humor, Use of Emotional Support, and Acceptance subscales); and (c) Dysfunctional Coping (includes the Mental Disengagement, Focus on Venting Emotions, Denial, Behavior Disengagement, and Substance Use scales). Higher scores on these scales indicate a greater use of the corresponding coping style. All three scales have good internal consistency and test-retest reliability as measured by Cooper et al. (2008). In this study, we focused on the three coping styles rather than the individual scales.

DEMOGRAPHIC AND LIFESTYLE QUESTIONNAIRE

Participants were asked their gender, age, ethnicity, relationship status, number of children, educational level, and employment status. They were also asked if they had any ongoing mental health issues, and, if so, to identify them.

RESULTS

Description of Sample: Reported Abuse, Yoga Experience, and Psychological Functioning

Nineteen participants (40.4%) did not endorse any history of abuse. Table 1 refers to the breakdown of reported abuse history. Given the high incidence of reported childhood and adulthood abuse, we investigated whether this

TABLE 1 Reported History of Abuse

Child abuse	Number (%)	Adult abuse	Number (%)
Any type	23 (48.9)	Any type	18 (38.3)
Types reported		Types reported	
Emotional	18 (38.3)	Emotional	14 (29.8)
Physical	10 (21.3)	Physical	5 (10.6)
Sexual	10 (21.3)	Sexual	3 (6.4)
Neglect	7 (14.9)	Intimate partner violence	5 (10.6)

Note. $N = 47$.

finding was due to reports of emotional abuse in isolation of other types of abuse. With emotional abuse excluded, the incidence of childhood abuse was 38.3% (18 participants) and adult abuse was 21.3% (10 participants). Subsequent analyses included emotional abuse in the conceptualization of both child and adult abuse.

Chi-square analysis indicated that participants who reported experiencing child abuse were also more likely to report experiencing adult abuse, $\chi^2(1, N = 47) = 6.33, p < .05$; there were 13 participants (27.7%) who endorsed experiencing both child and adult abuse. Participants who reported child abuse and adult abuse had a significantly higher incidence of mental health diagnoses, $\chi^2(1, N = 47) = 4.38, p < .05$, and $\chi^2(1, N = 47) = 5.49, p < .05$.

Participants who did and did not endorse a child or adult abuse history did not differ with regard to the YES variables. At Session 1, the participants reported practicing yoga for between 2 months and 44 years ($M = 73.96$ months, $SD = 105.28$) and an average of three times per week (range = 1–6, $SD = 1.34$). During yoga, 15 participants (31.9%) focused on learning postures and breathing, whereas 32 participants (68.1%) focused on being present. Seven participants (14.9%) reported that yoga was something they were trying or a form of exercise, whereas 40 participants (85.1%) indicated incorporating yoga into other areas of life.

At Session 1, the participants reported experiencing between 2 and 12 yoga benefits ($M = 9.94, SD = 2.98$). In comparison to the available norms, our sample scored within 1 SD from the normative mean on the Total Mood Disturbance scale of the POMS (McNair et al., 1992) and the Total Self-Concept scale of the TSCS:2 (Fitts & Warren, 1996). Given the strong correlations (.55–.84) between the psychological functioning scores for Session 1 and Session 2, average scores were calculated and used in subsequent analyses.

Impact of Abuse History and Yoga Experience on Psychological Functioning

Given our interest in learning whether abuse history and yoga experience impact current psychological functioning, hierarchical regression analyses

were conducted with the abuse variables (i.e., Child Abuse and Adult Abuse) entered first to remove their impact. The yoga experience variables (i.e., Yoga Frequency, Yoga Focus, and Yoga Lifestyle) were entered on the second step so we could interpret how much additional variance was accounted for by yoga practice after the effects of abuse history were removed.

As evident in Table 2, abuse history did not contribute to the prediction of Total Endorsed Benefits, $R^2 = .01$, $p = .90$, but the inclusion of the yoga experience variables on Step 2 significantly improved the predictive model, $\Delta R^2 = .30$, $p < .01$. The beta coefficients indicate that Yoga Lifestyle was the yoga experience variable that contributed to the prediction of Total Endorsed Benefits, $\beta = .52$, $p < .01$. Participants who reported integrating yoga into other areas of their lives reported more benefits ($M = 10.81$, $SD = 1.69$) than those who reported that yoga was something they were trying or a form of exercise ($M = 7.88$, $SD = 3.53$), $F(1, 45) = 13.13$, $p < .01$.

Abuse history contributed to the prediction of Total Mood Disturbance scores, $R^2 = .27$, $p < .01$. Child Abuse accounted for the most variability in Total Mood Disturbance, $\beta = .36$, $p < .05$. Women who endorsed childhood

TABLE 2 Hierarchical Regression Analyses of the Associations between Abuse History and Yoga Experience and Current Yoga Benefits, Mood, and Self-Concept

Dependent variables	Independent variables	Step 1 β	Step 2 β
Total endorsed benefits	Child abuse	-.08	.01
	Adult abuse	.03	-.04
	Yoga frequency		.12
	Yoga focus		-.04
	Yoga lifestyle		.52**
	R^2	.01	.31**
	ΔR^2		.30**
Total mood disturbance	Child abuse	.36*	.31*
	Adult abuse	.27	.26
	Yoga frequency		-.16
	Yoga focus		-.07
	Yoga lifestyle		.10
	R^2	.27**	.30**
	ΔR^2		.03
Total self-concept	Child abuse	-.41**	-.28*
	Adult abuse	-.08	-.10
	Yoga frequency		.39*
	Yoga focus		.11
	Yoga lifestyle		-.01
	R^2	.20**	.39**
	ΔR^2		.19*

Note. $N = 47$. * $p < .05$. ** $p < .01$.

abuse scored higher on the Total Mood Disturbance scale ($M = 20.46$, $SD = 25.39$) than those who did not endorse a history of child abuse ($M = -2.08$, $SD = 19.54$), $F(1, 45) = 11.69$, $p < .01$. The inclusion of the yoga experience variables in Step 2 did not significantly improve the prediction of Total Mood Disturbance, $\Delta R^2 = .03$, $p = .58$.

Abuse history contributed to the prediction of Total Self-Concept, $R^2 = .20$, $p < .01$. Child Abuse accounted for the most variability in Total Self-Concept, $\beta = -.41$, $p < .01$. Participants who endorsed a history of childhood abuse had a lower self-concept ($M = 46.72$, $SD = 5.95$) than those that did not endorse a history of child abuse ($M = 53.92$, $SD = 8.78$), $F(1, 45) = 10.75$, $p < .01$. The inclusion of the yoga experience variables in Step 2 significantly improved the prediction of Total Self-Concept, $\Delta R^2 = .19$, $p < .05$. Yoga Frequency was the yoga experience that accounted for the improvement, $\beta = .39$, $p < .05$.

As evident in Table 3, abuse history and yoga experience variables did not significantly contribute to the prediction of Problem-Focused Coping and Emotion-Focused Coping. In contrast, abuse history contributed to the prediction of Dysfunctional Coping, $R^2 = .28$, $p < .01$. Adult Abuse accounted for the most variability in Dysfunctional Coping, $\beta = .37$, $p < .05$.

TABLE 3 Hierarchical Regression Analyses of the Associations between Abuse History and Yoga Experience and Current Coping Style

Dependent variables	Independent variables	Step 1 β	Step 2 β
Problem-focused coping	Child abuse	-.03	.03
	Adult abuse	.18	.15
	Yoga frequency		.08
	Yoga focus		.09
	Yoga lifestyle		.19
	R^2	.03	.11
	ΔR^2		.08
Emotion-focused coping	Child abuse	.21	.27
	Adult abuse	.03	.01
	Yoga frequency		.07
	Yoga focus		.16
	Yoga lifestyle		.08
	R^2	.05	.11
	ΔR^2		.05
Dysfunctional coping	Child abuse	.27	.17
	Adult abuse	.37*	.37**
	Yoga frequency		-.42**
	Yoga focus		.07
	Yoga lifestyle		.10
	R^2	.28**	.41***
	ΔR^2		.13*

Note. $N = 47$.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Participants who endorsed a history of adult abuse used more dysfunctional coping ($M = 38.00$, $SD = 7.06$) than those who did not endorse a history of abuse ($M = 32.07$, $SD = 4.42$). The inclusion of the yoga experience variables in Step 2 significantly improved the prediction of Dysfunctional Coping, $\Delta R^2 = .13$, $p < .05$. Yoga Frequency was the yoga experience that accounted for the most variability in Dysfunctional Coping, $\beta = -.42$, $p < .01$.

DISCUSSION

This pilot study extended the research by Dale, Carroll, et al. (2009) by investigating whether the practice of yoga would be helpful to women who experienced abuse. In addition to traditional psychological constructs (i.e., mood, self-concept, and coping style), we also focused on endorsed yoga benefits in a sample of women experienced in yoga who reported a higher percentage of abuse than the general population (U.S. Department of Health and Human Services, 2006). Results indicated that yoga experience significantly contributed to the prediction of self-concept, dysfunctional coping, and endorsed yoga benefits. Yoga experience and abuse history did not contribute to the prediction of level of problem-focused and emotion-focused coping.

Consistent with previous research (e.g., Arata et al., 2005), our findings suggest that history of child abuse negatively affects self-concept. Interestingly, results indicated that frequent yoga practice positively affected the level of overall self-concept. This finding is consistent with the results of Gupta (2007), who found that participants reported greater self-concept scores after practicing yoga for four months.

Also consistent with previous research (e.g., Waldrop, Santa Ana, Saladin, McRae, & Brady, 2007), our findings suggest that abuse history could lead to increased use of dysfunctional coping. However, frequent yoga might lead to less use of dysfunctional coping mechanisms. Thus, although women who experience adult abuse are at greater risk of developing dysfunctional coping mechanisms, those who practice yoga more frequently might be less affected.

Yoga experience, and not abuse history, was related to the number of endorsed yoga benefits. Women who reported incorporating yoga into their lives reported more yoga benefits than those who described yoga as something they were trying or as a form of exercise. The finding that Total Endorsed Benefits was related to a yoga experience variable and not history of abuse suggests that the Benefits scale of the YES might be useful in evaluating the benefits of yoga regardless of abuse history.

Consistent with other studies (Foster, Hagan, & Brooks-Gunn, 2008; Schuck & Widom, 2001; Zavaschi et al., 2006), our findings suggest that

history of child abuse relates to greater mood disturbances in adulthood. After removing the impact of abuse history, yoga experience was not significantly related to level of mood disturbance. Thus, our findings contradict research suggesting that yoga practice leads to improvements in mood (e.g., Butler et al., 2008; Lavey et al., 2005; Netz & Lidor, 2003). It is possible that the findings would have been different if the sample exhibited more severe mood disturbances.

Limitations

These findings need to be interpreted cautiously due to several limitations. The sample was small and represented a self-selected group of highly educated women who were regular participants at a yoga studio. Given that these women were experienced in yoga, it is unknown if similar results would be found with novice participants or men. In addition, order effects might have influenced the results because the participants received all the measures in the same order.

The Abuse History Questionnaire asked participants to endorse the types of abuse experienced without providing definitions or asking for a detailed supporting narrative that would provide specifics regarding the abuse history. Participants might have varied in their conception of each type of abuse and their perception of whether what they had experienced was abuse, which could relate to the high incidence of reported abuse.

There are also limitations related to the YES instrument. First, the instrument does not ask about the types of yoga most frequently practiced; thus, our results might have been impacted by differences between types of yoga. Second, the Benefits scale did not allow us to tap subtle changes because the questions only asked whether the participants experienced a benefit since beginning yoga practice. Cognitive dissonance and social desirability might have influenced the participants' responses, especially because the participants were invested in the practice of yoga.

Future studies involving random assignment of participants to an intervention or control group should evaluate yoga as a therapeutic technique for those who have experienced abuse. By including a control group, the impact of increased sense of social support provided through yoga practice can be ruled out. In addition, given the findings of this study and other studies (e.g., Butler et al., 2008) documenting the benefits of yoga, clinicians might consider suggesting to their clients the inclusion of yoga practice as an intervention or adjunct to traditional psychotherapy. Because abuse survivors tend to disconnect from themselves as a means of coping with the abuse (Futa et al., 2003) yoga practice can help teach them to relax, concentrate, be grounded, and feel present in themselves once again (Wills, 2007).

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