

# *the* Behavior Therapist

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### *President's Message*

## Inside the Boardroom

Frank Andrasik, *University of West Florida*



I begin my first column by thanking the members for allowing me the privilege and honor to serve as President. I am both pleased and humbled by your vote of confidence. ABCT has been my professional home since my graduate school days in the 70's (now you know I must have started graduate school at a very young age because I cannot be the age this implies!). One of my goals for this year is keeping members informed about what is going on inside the boardroom.

Your governing board never sleeps. An all-day meeting occurs prior to each annual conference, where the priorities and action plans are developed for the coming year. Monthly board calls, with coordinators periodically providing updates, ensure we stay on point and maintain our progress. The President and Executive Director, Ms. Mary Jane Eimer, touch base during weekly scheduled calls. Numerous unscheduled calls take place throughout the year between diverse parties.

Our chief focus thus far has been to establish our list of priorities for September 2010. Of the many things we would like to attempt, we have pinpointed the six priorities below. We judge all to be of critical importance, so rankings have not been assigned.

- Continue web development;
- Enhance the value and usefulness of our list-serve;
- Increase our endowment to \$2 million;
- Strengthen and enhance our member base;
- Help grow our next generation of leaders;
- Continue and enhance our dissemination efforts.

Two of our priorities revolve around the Internet and web, our portals for instantaneous communication with the members. We are asking all commit-

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# graduate Mentorship

## directory

***Are you a faculty member in a graduate program?  
Are you a student applying to graduate school?***

If so, check out the new ABCT Graduate Mentorship Directory. The Graduate Mentorship Directory is intended to provide students with an opportunity to learn which individual ABCT members regularly mentor students in their respective graduate programs. The history of psychology, and especially the history of the cognitive and behavioral therapies, is one of lineage and relationships, where professionals trace their lineage back three or four generations. This directory is not intended as an exhaustive list of graduate programs; rather, it is a list of ABCT members affiliated with programs in which they are potentially available to serve as a mentor.

**<http://www.abct.org/Mentorship/?m=mMentorship&fa=meMain>**

## INSTRUCTIONS for AUTHORS

The Association for Behavioral and Cognitive Therapies publishes *the Behavior Therapist* as a service to its membership. Eight issues are published annually. The purpose is to provide a vehicle for the rapid dissemination of news, recent advances, and innovative applications in behavior therapy.

- Feature articles that are approximately 16 double-spaced manuscript pages may be submitted.
- Brief articles, approximately 6 to 12 double-spaced manuscript pages, are preferred.
- Feature articles and brief articles should be accompanied by a 75- to 100- word abstract.
- Letters to the Editor may be used to respond to articles published in *the Behavior Therapist* or to voice a professional opinion. Letters should be limited to approximately 3 double-spaced manuscript pages.

Submissions must be accompanied by a **Copyright Transfer Form** (a form is printed on p. 24 of the January 2008 issue of *tBT*, or contact the ABCT central office): *submissions will not be reviewed without a copyright transfer form*. Prior to publication authors will be asked to submit a final electronic version of their manuscript. Authors submitting materials to *tBT* do so with the understanding that the copyright of the published materials shall be assigned exclusively to ABCT. Submissions via e-mail are preferred and should be sent to the editor at [drewa@albany.edu](mailto:drewa@albany.edu). Please include the phrase *tBT submission* in the subject line of your e-mail. Include the first author's e-mail address on the cover page of the manuscript attachment. By conventional mail, please send manuscripts to:

**Drew A. Anderson, Ph.D.**  
SUNY-Albany  
Dept. of Psychology/SS369  
1400 Washington Ave.  
Albany, NY 12222

tees to examine their web pages and suggest changes they would like to see implemented. The board is also working on its "must do" list for the web. Ways to expand our outreach (consumer education, dissemination, media coverage, etc.) are all being considered. Finally, all members of governance and SIG leaders have been tasked to keep abreast of information flow on the list-serve and be responsive to content pertinent to their areas of interest and responsibility. By doing this, we hope to make the content as informative and educational as possible.

The Finance Committee, under the capable leadership of Dr. George Ronan, is embarking on a 5-year fundraising campaign to shore up our reserves. The economic instabilities of the immediate past decade clearly illustrate the need for this. We have established a goal of \$2 million, which would comfortably cover a full year of operating expenses and still provide a cushion. I am pleased to announce that our incoming Secretary-Treasurer, Dr. Denise Davis, has agreed to coordinate this effort. At our recent meeting in New York City, the board, other key members of governance, and central office staff hosted a kick-off reception at the central office, which served the dual purpose of honoring our

Past Presidents. A special poster of our presidential lineage was prepared, with several copies being autographed by those in attendance. At our next meeting, in San Francisco, November 2010, members will have a chance to bid on these posters, which are certain to become collector's items.

An organization can only be as strong as its member base and leadership (including its staff). While many professional societies are shrinking we, thankfully, are bucking this trend. But, we cannot stand still; we must move forward. Our Membership Issues Coordinator, Dr. Kristene Doyle, is overseeing a most ambitious campaign to ensure we continually meet the needs of members at all levels, address salient issues for members who might be wavering, and explore new membership categories and methods of recruitment. Students currently comprise about 40% of our membership. We recognize they are the lifeblood of our organization and, accordingly, we are examining ways to retain students and help them see the value of becoming full-fledged members upon completion of their studies. We are always concerned about grooming and preparing our next generation of leaders, but we plan to become even more proactive in this realm.

Finally, we must step up our efforts at dissemination. We clearly have a message to share, but are we clearly sharing it? Addressing this priority will occupy much of the board's efforts in the immediate coming months. To further this priority, the board will be defining dissemination sub-goals, implementing behaviors to meet these goals, and developing measures for evaluating our success. Look to future columns for updates.

Another goal of mine is to be supportive of and responsive to members. If you care to discuss any of the above or have suggestions for the board to consider, I am only a click away (fandrasik@uwf.edu). I am excited about what this year holds for us.

. . .

*Correspondence to* Frank Andrasik, Ph.D., University of West Florida, Dept. of Psychology, 11000 University Parkway, Pensacola, FL 32514; fandrasik@uwf.edu

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## Distress Tolerance, Risk-Taking Propensity, and PTSD Symptoms in Trauma-Exposed Youth: Pilot Study

Carla Kmett Danielson, *National Crime Victims Research & Treatment Center and Medical University of South Carolina*, Kenneth J. Ruggiero, *National Crime Victims Research & Treatment Center, Medical University of South Carolina*, and *Ralph H. Johnson VA Medical Center, Charleston, SC*, and Stacey B. Daughters and C. W. Lejuez, *University of Maryland*

Efforts to identify specific PTSD risk and resiliency factors have relied largely on self-report strategies. Recent applications of behavioral assessment tasks in the literature, which draw upon the methods of translational research and experimental psychopathology, have indicated that distress tolerance (DT) and risk-taking propensity are constructs associated with mental health outcomes in adults with traumatic event histories (Gratz et al., 2007; Tull et al., 2009). A better understanding of the nature and strength of these relations can yield important implications for targeted prevention and treatment efforts.

Two behaviorally measured constructs may be useful in this regard. The first is distress intolerance, which is defined as the capacity to experience and withstand negative psychological states (Simons & Gaher, 2005), as related to the degree that an individual: (a) recognizes and/or accepts negative emotional states; (b) attends to or is disrupted by negative emotional states; and/or (c) engages in behavioral actions to either avoid, escape, or immediately assuage the experience of a negative emotional state. Children and adults with low DT are more likely to demonstrate a variety of negative mental health outcomes (Daughters et al., 2005; 2009); however, this relation has not been specifically examined in trauma-exposed populations. It can be theorized that trauma-exposed youth with low DT would be expected to cope more poorly than youth with high DT, thereby producing greater functional impairment, exacerbation of symptoms, and weaker recovery trajectories. The second construct is risk-taking propensity, which is defined as the tendency to engage in behaviors with unpredictable rewards and punishments that can result in physical or psychological harm. Risk-taking propensity has been linked

with PTSD in adults (e.g., Tull et al., 2009) and disaster-exposed adolescents (Pat-Horenczyk et al., 2007). However, the nature of this relation has not been well explained. One potential theoretical explanation is that youth with high risk-taking propensity may be more likely to approach potentially threatening situations and/or have longer latencies for escape/avoidance behaviors. For example, a youth with high risk-taking propensity may remain longer in a situation where threat is present (e.g., gang fight), thereby increasing his or her exposure to the event and potential for physical injury, life threat, and other consequences. Similarly, high risk-taking propensity would be posited to render a youth vulnerable to repeated traumatic events. A first step towards better understanding this relation is determining within which trauma-exposed populations the link between PTSD symptoms and risk-taking propensity exists.

In this pilot study, we evaluated the relation between PTSD symptoms and DT, as well as the relation between PTSD symptoms and risk-taking propensity, at the symptom-cluster level through the use of two behavioral assessment tasks, the Behavioral Indicator of Resiliency to Distress (Lejuez, Daughters, Danielson, & Ruggiero, 2006) and the Balloon Analogue Risk Task (Lejuez et al., 2002). We hypothesized that DT and risk-taking propensity would be associated with PTSD symptoms overall. At the symptom-cluster level, we expected that DT would be inversely associated with PTSD Cluster C—Avoidance symptoms, such that youth with low DT would report more avoidance symptoms than those with high DT. We also posited that risk-taking propensity would be positively related to PTSD Cluster B—Re-experiencing symptoms and Cluster C—Hyperarousal symptoms, but inversely re-

lated to PTSD Cluster C—Avoidance symptoms, given its link to approach towards appetitive stimuli. Given previous research suggesting higher levels of internalizing disorders (i.e., disorders associated with high negative affectivity) among girls (Kilpatrick et al., 2003), it was anticipated that DT would be lower among female participants.

### Method

#### Participants

Participants were 24 trauma-exposed youth, 12 girls and 12 boys, recruited from the community ( $n = 16$ ) and from a clinic specializing in the treatment of trauma-related symptoms ( $n = 8$ ). Youth ranged in age from 8 to 14 years ( $M = 11.5$ ,  $SD = 1.8$ ). The ethnic/racial breakdown of the sample was 75% Black ( $n = 18$ ), 16.7% White ( $n = 4$ ), and 8.3% Hispanic ( $n = 2$ ). All child participants reported history of at least one potentially traumatic event (PTE), ranging up to six PTEs, with a mean number of 2.42 ( $SD = 1.53$ ). Mean number of PTEs did not differ between boys and girls ( $p > .05$ ) or between recruitment sites ( $p > .05$ ). PTE history was reported as follows (participants reported exposure to multiple traumatic events): 13 (54.2%) reported hearing about the death or serious injury of a family member; 9 (45%) reported experiencing physical abuse by family member; 3 (12.5%) reported experiencing sexual assault; 5 (25%) reported being beat up or shot at or threatened in the neighborhood; 7 (35%) reported witnessing domestic violence; 5 (25%) reported witnessing community violence; 4 (16.7%) reported experiencing a disaster; 3 (12.5%) reported being in a bad accident; 5 (25%) reported having a very serious medical problem; and 1 (4.2%) reported having seen a dead body.

#### Objective Measures

We used two behavioral measures: the Behavioral Indicator of Resiliency to Distress (BIRD; Lejuez et al., 2006) and the Balloon Analogue Risk Task (BART; Lejuez et al., 2002; 2007). The BIRD is explained in detail by Daughters et al. (2009) and the latter by Lejuez et al. (2007). Summarized, this task involves tracking and clicking on a number associated with a green dot on the computer screen, with the speed of the task titrated to be set at the participant skill in an early round and then titrated to be twice as fast by the last round in which the participant has an option to click a button to terminate the task. Specifically, the task begins with a 5-second latency in between dot presentations; correct answers reduce the la-

# Advances in Psychotherapy – Evidence-Based Practice

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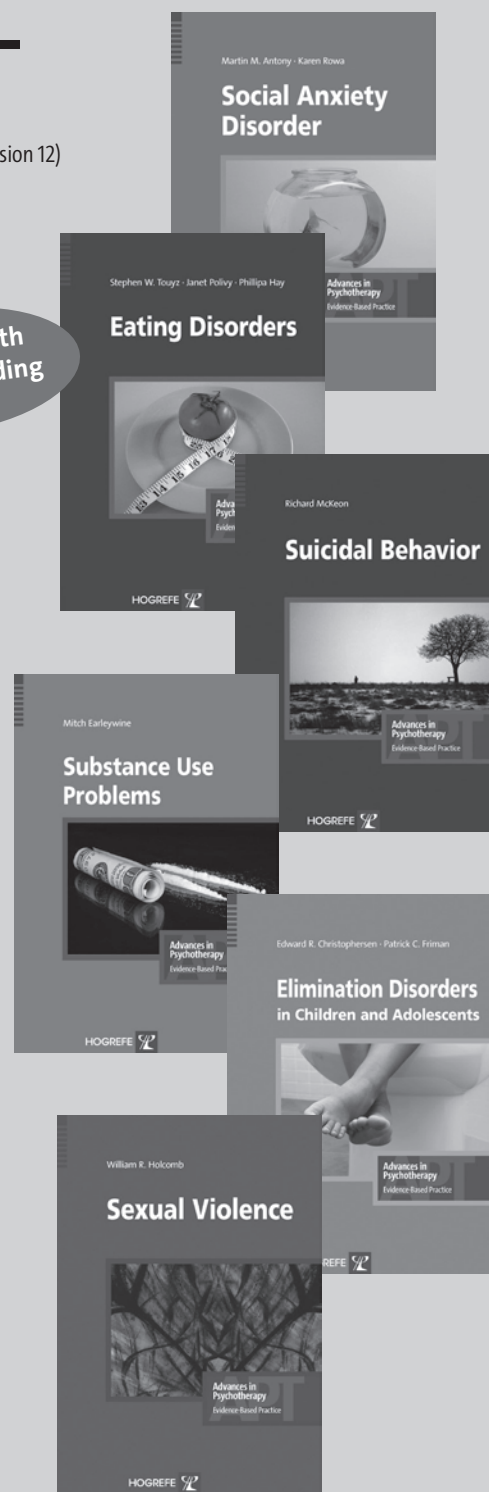
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tency by 0.5 seconds, whereas incorrect answers or nonresponses decrease the latency 0.5 seconds. A participant receives one point (and observes a bird being released from its cage) each time they click the appropriate number prior to the green dot disappearing; a loud, unpleasant buzzing sound occurs each time the participant is unsuccessful. The first and second rounds last 3 and 5 minutes, respectively. The third and final "challenge" round, which is high difficulty with very quick latency between dot presentations, lasts 5 minutes but includes an escape option. Participants who elect to quit the task during the final level, despite the incentive to persist, are considered to have low DT, whereas participants who persist on the task through completion of the final level are considered to have high DT. Self-reported Subjective Units of Distress (SUDs) were taken before the quit option was available and included a series of single-item questions rated on a Likert scale ranging from 0 (*none*) to 10 (*extreme*). These were used to examine changes in anxiety, frustration/irritability, and discomfort during the BIRD task.

The BART (Lejuez et al., 2002) is a well-established computerized behavioral task used to assess risk-taking propensity with a range of child (Lejuez et al., 2007) and adult populations (Lejuez et al., 2002). The task included 20 balloons with 2 cents per pump. Participants were directed to pump the balloon to earn as much money as possible, taking into consideration that the balloon could pop at any time, resulting in loss of money accumulated for that balloon. After each pump participants were required to decide between pumping again vs. collecting money accumulated and moving on to the next balloon.

### Self-Report Measures

The UCLA PTSD Reaction Index for DSM-IV (UCLA PTSD RI; Rodriguez, Steinberg, & Pynoos, 1998; Steinberg, Brymer, Decker, & Pynoos, 2004) assesses all 17 DSM-IV symptoms of PTSD. It has been used extensively in clinical evaluation, traumatic stress research, and posttrauma screening and is internally consistent, with excellent test-retest reliability (.84) (Roussous et al., 2005). The measure has convergent validity coefficients ranging from .70 to .83. Using a cutoff score of 38, sensitivity has been found to be .93 and specificity to be .87 in detecting accurate PTSD diagnoses (Steinberg et al., 2004). This measure also calculates subscores based on the three DSM-IV PTSD symp-

tom clusters: B-Re-experiencing (e.g., acting or feeling as if the traumatic event were recurring); C-Avoidance/numbing (e.g., efforts to avoid activities, places, or people that cue memories of the traumatic event); and D-Hyperarousal (e.g., exaggerated startle response).

The Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Carey, 1988) is a 20-item measure, with two 10-item scales, one for state negative affect (NA) and one for state positive affect (PA). The PANAS has been modified for use in child populations by simplifying the instructions and amending the original items. The child-modified version of the PANAS has been shown to have good internal consistency for both the PA (.84-.91) and the NA scale (.80-.88) and good convergent validity with the State-Trait Anxiety Inventory for Children (Joiner et al., 1996).

### Procedures

Youth were recruited through flyers hung in an urban, southeastern clinic within a medical university, around the community, and via university-wide broadcast messages. After informed consent was collected from caregivers and youth, youth were brought into a private office at the clinic and were screened for PTEs. Youth then completed the BIRD and BART tasks and the UCLA PTSD RI self-report measure. SUDs ratings and the PANAS were completed midway through the BIRD task (between levels 2 and 3). A research assistant read self-report items aloud to participants 10 and younger and to older participants with reading difficulties. Task instructions were read aloud to all participants. The order of task and measure administration was randomly assigned to control for order effects. Participants received a prize after completing the tasks and were paid \$20 for their time. The IRB at the Medical University of South Carolina approved all procedures.

## Results

### Descriptive Statistics

Scores on the UCLA PTSD RI ranged from 2 to 57, with a mean score of 23.61 ( $SD = 15.03$ ). Six youth (3 boys and 3 girls) had scores greater than 38 on the measure, suggesting diagnostic threshold for PTSD. Subscale scores on the UCLA PTSD RI were as follows: B-Re-experiencing (range 1-5;  $M = 2.83$ ;  $SD = 1.27$ ); C-Avoidance (range 0-7;  $M = 2.87$ ;  $SD = 2.18$ ); and D-Hyperarousal (range 0-6;  $M = 3.87$ ;  $SD = 1.49$ ). No significant differences were re-

ported on the two measures between boys and girls ( $p > .05$ ), nor between youth recruited from the clinic versus the community ( $p > .05$ ). Age also was not related to scores on these measures ( $p > .05$ ). In addition, boys and girls did not differ with regard to age, ethnic breakdown, or recruitment site ( $p$ 's  $> .05$ ).

### Distress Tolerance

Ten of the children (42%) voluntarily quit the high difficulty level of the BIRD task (low DT), whereas 14 children (58%) persisted for the full 5 minutes (high DT). Neither age nor recruitment site were related to performance on the BIRD ( $p$ 's  $> .05$ ). Girls were no more likely to quit than boys ( $p = 1.0$ ). Among those who quit the BIRD, time persistence on the task ranged from 58 to 266 seconds ( $M = 132.9$ ;  $SD = 77.0$ ). As in previous research using DT tasks with adult populations (Daughters et al., 2005), no relation was found between quitting the BIRD task and psychological distress. Correlations between BIRD persistence time and self-reported negative affect, as measured by SUDS and PANAS Negative Affect Subscale scores, were not significant, thereby supporting the contention that the BIRD is measuring an ability to tolerate distress, not just the experience of distress.

We calculated correlations among DT scores (i.e., time to quit on the BIRD), risk-taking propensity scores, full PTSD symptoms, and PTSD Clusters B-Re-experiencing, C-Avoidance, and D-Hyperarousal symptoms for the full sample and by gender (see Table 1). Although the correlation between PTSD Cluster C-Avoidance symptoms and DT was of robust magnitude and in the anticipated direction ( $r = -.41$ ), this association was not significant. No other significant correlations between PTSD symptoms and DT resulted. The association between DT and risk-taking propensity also was not significant.

Because performance on the BIRD was measured dichotomously, we computed Cohen's  $d$  effect sizes to reflect comparisons between the participants with low versus high DT on mean full-scale and cluster specific PTSD scores for the overall sample and by gender (see Table 2). All effect size estimates were corrected for small sample bias using the formula specified by Hedges and Olkin (1985). Corresponding 95% confidence intervals were computed to specify the precision of each estimate. These effect size calculations yielded two large effect sizes ( $ES > 1.0$ ) in the anticipated direction,

in comparing overall PTSD score between girls with low vs. high DT and in comparing Cluster C (Avoidance) symptoms between girls with low vs. high DT. We also found a large effect in an unanticipated direction with regard to PTSD Cluster D (Hyperarousal symptoms) between boys with low DT vs. high DT, where boys with high DT were actually more likely to report a greater number of hyperarousal symptoms.

A general linear model also was used to further determine if quitting the BIRD task, gender, or an interaction between the two factors, were related to PTSD symptoms. Although no effects were found for overall PTSD symptoms, effects were found at the PTSD symptom clusters level. Specifically, for PTSD Cluster C-Avoidance symptoms, the Quit  $\times$  Gender interaction was significant,  $F(1, 23) = 4.94, p < .05$ . Girls who quit the task (i.e., those with low DT) reported more avoidance symptoms than girls who did not quit the task (i.e., those with high DT), whereas boys who quit the task were less likely to report avoidance symptoms than those who did not quit the task (see Figure 1). In addition, of the girls who quit the task, 100% met the DSM-IV PTSD Cluster C three symptom diagnostic criteria (i.e., that are required for a PTSD diagnosis), whereas only 29% of the nonquitters met the 3-symptom criteria. With regard to boys, 40% of quitters and 57% of nonquitters met the 3-symptom criteria for Cluster C. No other main or interaction effects were significant at the PTSD Cluster symptom level.

### Risk-Taking Propensity

Z-scores were used to standardize and calculate risk-taking propensity based on the average number of pumps on nonexploded balloons on the BART task, with higher BART scores representing higher risk-taking propensity. Neither age, nor recruitment site, were related to performance on the BART ( $p$ 's  $> .05$ ). According to the correlation analyses (see Table 1), risk-taking propensity was significantly related to PTSD Cluster B—Re-experiencing symptoms in girls. Specifically, girls with higher risk-taking propensity reported higher levels of re-experiencing symptoms. In addition, robust associations (at the  $p < .10$  level) resulted between risk-taking propensity and re-experiencing symptoms in the full sample—and between risk-taking propensity and hyperarousal symptoms in girls. We then tested for main effects and interaction effects for risk-taking propensity

and gender through a series of regressions; however, none of the effects were significant. The Risk-Taking Propensity  $\times$  Gender interaction also was not significant; however, as reported in Table 1, the magnitude of the correlations between risk-taking propensity and Cluster B—Re-experiencing and Cluster D—Hyperarousal symptoms were robust for girls ( $r = .69, r = .57$ , respectively). Although our statistics do not allow us to discuss this as a significant difference between girls and boys, our preliminary data suggest that associations are moderate to strong.

### Discussion

Our primary hypothesis that DT and risk-taking propensity would be significantly related to PTSD symptoms was partially supported. Specifically, large effect sizes suggest that trauma-exposed girls with low DT report more PTSD symptoms, and avoidance symptoms in particular, in comparison to girls with high DT. However, this relation between DT and PTSD was clearly not present for boys, suggesting that the relation between DT and PTSD may be moderated by gender.

With regard to the large avoidance symptom effect found for girls with low DT, avoidance behaviors may negatively reinforce trauma-related distress in response to cues, memories, and emotions, thereby increasing the likelihood that they will continue to engage in avoidance behavior and affiliated functional impairment (e.g., avoiding school). Likewise, experiencing traumatic events introduces distress-inducing circumstances that perhaps are better tolerated by girls with high DT, who will have less behavioral/functional impairment

and shorter recovery periods as compared with girls with low DT. Another possibility is that the BIRD task may serve as a reliable indicator for trauma-exposed girls at risk for avoidance behavior, which would suggest its potential utility as a predictive tool with this population. Interestingly, this gender difference was not a function of girls having lower DT than boys, as female participants were no more likely to quit the BIRD task than male participants.

Our hypothesis that PTSD Re-experiencing and Hyperarousal symptoms would be more frequently reported, and Avoidance symptoms would be less likely reported, among youth with high risk-taking propensity also was partially supported. Specifically, a signal of a potential association between risk-taking propensity and hyperarousal symptoms was found in the full sample ( $p < .10$ ). In addition, a significant relation between risk-taking propensity and re-experiencing symptoms was found among girls but not boys. These results suggest that risk-taking propensity may indeed increase vulnerability to trauma-related sequelae among trauma-exposed girls. However, larger scale, longitudinal research is necessary to replicate these findings and to understand the specific nature of this relation.

This was a pilot study intended to gather preliminary data to inform hypotheses for future research in this area. As such, a primary limitation of the current study is that it was a small, cross-sectional sample, which included a mixture of youth recruited from both clinical and a community sample settings. The small sample size may have prohibited detection of other potential significant effects among these variables.

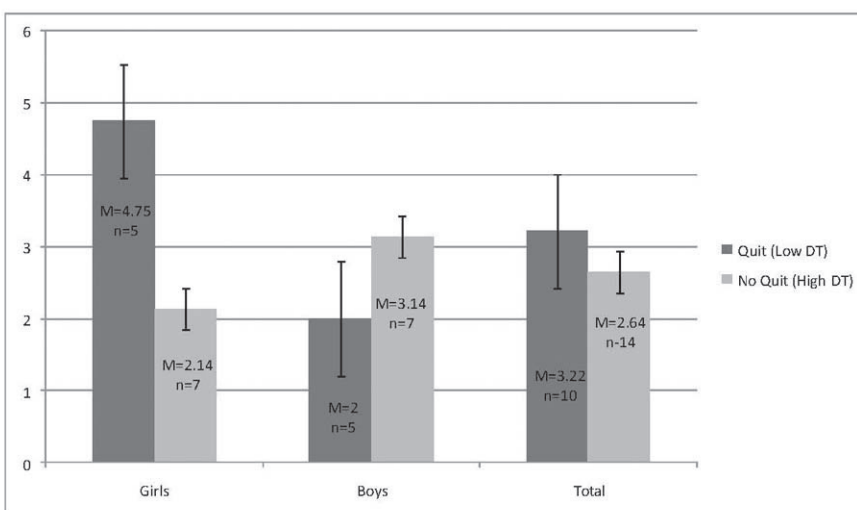


Figure 1. Mean PTSD Cluster C-Avoidance Symptoms (and Standard Error) By Low Vs. High Distress Tolerance (BIRD Quit Group) and Gender. DT = distress tolerance.

**Table 1. Correlations Among Distress Tolerance, Risk-Taking Propensity, and Total and Cluster-Specific PTSD Symptoms in Full Sample and by Gender**

Full Sample ( <i>n</i> = 24)	RTP	PTSD-Total	PTSD-(B) Reexper	PTSD-(C) Avoid	PTSD-(D) Arousal
DT	.13	-.03	-.01	-.06	.13
RTP	1.0	.21	.34	.01	.40*
PTSD-Total	--	1.0	.79**	.76**	.64**
PTSD-(B) Reexper	--	--	1.0	.60**	.69**
PTSD-(C) Avoid	--	--	--	1.0	.49**
PTSD-(D) Arousal	--	--	--	--	1.0
Girls Only ( <i>n</i> = 12)	RTP	PTSD-Total	PTSD-(B) Reexper	PTSD-(C) Avoid	PTSD-(D) Arousal
DT	.08	-.03	.26	-.41	.02
RTP	1.0	.41	.69**	.09	.56*
PTSD-Total	--	1.0	.74**	.78**	.58*
PTSD-(B) Reexper	--	--	1.0	.53*	.82**
PTSD-(C) Avoid	--	--	--	1.0	.47
PTSD-(D) Arousal	--	--	--	--	1.0
Boys Only ( <i>n</i> = 12)	RTP	PTSD-Total	PTSD-(B) Reexper	PTSD-(C) Avoid	PTSD-(D) Arousal
DT	.20	-.04	-.15	.17	.27
RTP	1.0	-.01	.04	-.02	.17
PTSD-Total	--	1.0	.88**	.78**	.74**
PTSD-(B) Reexper	--	--	1.0	.68**	.58**
PTSD-(C) Avoid	--	--	--	1.0	.57**
PTSD-(D) Arousal	--	--	--	--	1.0

*Note.* \*  $p < .10$ ; \*\*  $p < .05$ . DT=Distress Tolerance (measured by the BIRD); RTP=Risk Taking Propensity (measured by the BART) PTSD-Total=UCLA PTSD Reaction Index-Total Score; PTSD-(B) Reexper=UCLA PTSD Reaction Index-Cluster B (Re-experiencing) Subscale Score; PTSD-(C) Avoid=UCLA PTSD Reaction Index- Cluster C (Avoidance) Subscale Score; PTSD-(D) Arousal=UCLA PTSD Reaction Index- Cluster D (Arousal) Subscale Score.



**Table 2. Effect Sizes for PTSD Total and Symptom Cluster Scores for Overall Sample and by Gender**

Outcome	Low DT vs. High DT Overall Sample (n=24)		Low DT vs. High DT Girls (n=12)		Low DT vs. High DT Boys (n=12)	
	ES	CI (95%)	ES	CI (95%)	ES	CI (95%)
PTSD-Total	0.23	-0.59 to -1.04	1.02	-0.27 to 2.14	-0.36	-1.49 to 0.82
PTSD-(B) Reexp	-0.06	-0.87 to 0.75	-0.18	-1.32 to 0.98	0.00	-1.15 to 1.15
PTSD-(C) Avoid	0.27	-0.55 to 1.08	1.77	0.31 to 2.95	-0.48	-1.60 to 0.72
PTSD-(D) Arousal	-0.48	-1.28 to 0.36	0.10	-1.05 to 1.25	-1.37	-2.52 to -0.01

*Note.* DT=Distress Tolerance (Low DT=Participants who quit the BIRD task; High DT= Participants who persisted on the BIRD task through final level completion.ES = Effect Size. PTSD-Total=UCLA PTSD Reaction Index-Total Score; PTSD-(B) Reexper=UCLA PTSD Reaction Index-Cluster B (Re-experiencing) Subscale Score; PTSD-(C) Avoid=UCLA PTSD Reaction Index- Cluster C (Avoidance) Subscale Score; PTSD-(D) Arousal=UCLA PTSD Reaction Index- Cluster D (Arousal) Subscale Score.

Future studies ideally should examine this empirical question regarding PTSD, DT, and risk-taking propensity in a large community sample through a longitudinal design. The potential role of comorbid conditions also should be examined in future studies, as should additional personality constructs, such as anxiety sensitivity, to determine other potential contributing factors to the development of PTSD among trauma-exposed youth. DT and risk-taking propensity are constructs that may play a significant role in development of mental health problems among youth exposed to PTEs.

The current study serves as a first step in a line of research that ultimately aims to address PTSD symptoms through identification of individuals with DT difficulties, as well as those with high risk-taking propensity. We currently have a NIMH-funded longitudinal study under way that will examine the predictive power of these constructs in an adolescent disaster-exposed population (1R21MH086313). These data will inform efforts to develop prevention and intervention components specific to child and adolescent trauma-exposed populations. For example, in the aftermath of a traumatic event, interventions that incorporate strategies to address DT difficulties (e.g., to accept and better tolerate negative emotions) among youth with low DT may foster resilience and rapid recovery post-

event. Further, for youth who have already developed PTSD, it may be beneficial to supplement behavioral trauma-focused interventions with existing techniques designed to teach and encourage practicing of DT skills (e.g., Linehan, 1993). In sum, although much additional research is warranted in this area, this investigation represents a preliminary step in better understanding pathways from childhood traumatic event exposure to PTSD symptoms—with the ultimate goal of bolstering resilience within this vulnerable population.

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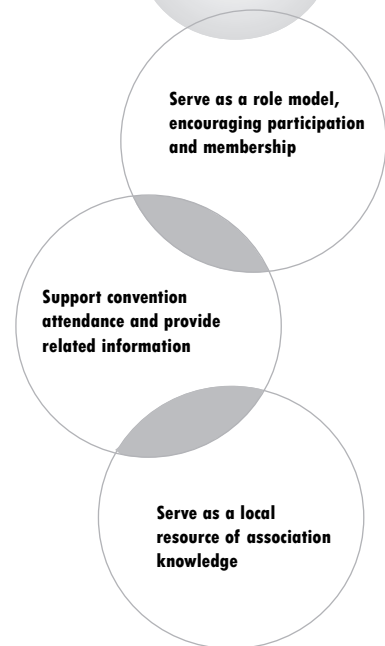
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**Correspondence to** Carla Kmett Danielson, Ph.D., National Crime Victims Research & Treatment Center, 67 President Street, MSC86, Charleston, SC 29425; danielso@muscd.edu

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## Research Forum

# Clinical Use of D-Cycloserine Augmentation in a Complex, Refractory Case of Anxiety

Melissa G. Hunt, *University of Pennsylvania*

In general, cognitive-behavioral approaches to anxiety disorders work remarkably well (Butler, Chapman, Forman, & Beck, 2006). Moreover, variants of CBT either alone, or in combination with serotonergic drugs, are probably the most effective treatments currently available for panic disorder, obsessive-compulsive disorder, and social anxiety (Hembree, Riggs, Kozak, et al., 2003; Landon & Barlow, 2004; Rodebaugh & Heimberg, 2005). However, despite the significant reduction in symptoms and even total remission achieved by many patients, a substantial minority of patients are not helped much at all (e.g., Landon & Barlow, 2004).

Comorbidity on both Axis I (especially with mood disorders) and Axis II (especially with avoidant personality disorder) may complicate treatment, making it less likely that the patient will achieve high end-state functioning, and more likely that the patient will seek further treatment after termination (Brown, Antony, & Barlow, 1995; Chambless, Renneberg, Goldstein, & Gracely, 1992). Comorbid personality disorders also make it more likely that panic disorder patients will relapse in response to withdrawal of anti-panic medication (Green & Curtis, 1988; Roy-Byrne et al., 2003). Finally, many patients spend years in other kinds of treatments, and may arrive

on the doorstep of a CBT practitioner with benzodiazepine dependence (Otto et al., 1993) and a long history of chronic and severe disability.

Thus, the advent of any promising new treatment, or adjunctive treatment, should be viewed with cautious optimism. D-cycloserine (DCS) augmentation may be such a treatment. DCS is an antibiotic that has been FDA approved for years for the treatment of tuberculosis. It is also a partial agonist at the N-methyl-D-aspartate (NMDA) glutamatergic receptor (Sheinin, Shavit, & Benveniste, 2001). It appears to enhance memory and emotional learning in rodents (Lelong, Duaphin, & Boulouard, 2001), and has been observed to facilitate the extinction of conditioned fear in animal models (e.g., Ledgerwood, Richardson, & Cranney, 2003; Walker, Ressler, Lu, & Davis, 2002).

D-cycloserine has also been used successfully in a number of randomized, double-blind, placebo-controlled clinical trials with humans. In the first such trial, Ressler et al. (2004) treated 28 height-phobic community volunteers using exposure therapy

in combination with either DCS or placebo. They found that combining virtual reality exposure therapy with DCS (versus placebo) administered acutely 2 to 4 hours prior to each session resulted in significantly larger reductions of phobic symptoms across a range of outcome measures, including subjective fear, behavioral avoidance, and physiological arousal. The treatment gains were apparent after the first exposure session, and were maintained at 3 months posttreatment. The DCS (normally prescribed in 250 mg pills) was reformulated by Eli Lilly and Co. for the investigators into 50 mg and 500 mg capsules, but they found no significant differences across the main outcome measures by dosage, suggesting that 50 mg of DCS was sufficient to enhance the effects of exposure therapy.

Hofmann et al. (2006) published a similar randomized, double-blind, placebo-controlled trial in which they tested DCS as an augmentation to exposure therapy for social anxiety disorder. The participants were outpatients who were seeking treatment at specialty anxiety clinics. Moreover, 11 of the 28 participants had at least 1 additional DSM-IV diagnosis. They also used more exposure sessions (5) and treatment was conducted at multiple sites, by different therapists, in both group and individual settings to more closely mimic conditions encountered in actual clinical practice. Given the finding by Ressler et al. (2004) that there was no difference in outcome between the 50 mg and 500 mg doses, they administered only the 50 mg dose of DCS. They found that DCS augmentation resulted in significantly more improvement on both self-report and clinician ratings than exposure therapy plus placebo, with effect sizes in the medium to large range. The gains were maintained at 1 month posttreatment.

Since that time, a number of other studies have replicated and extended these findings, using DCS to augment exposure therapy for OCD (Kushner et al., 2007; Wilhelm et al., 2008) and social anxiety disorder (Guastella et al., 2008). Indeed, enough clinical trials in humans have been completed that Norberg, Krystal, and Tolin (2008) were able to complete a meta-analysis which strongly suggested that DCS is an effective way to enhance fear extinction and is therefore a useful augmentation strategy for exposure-based treatments of the anxiety disorders.

In mid-2004 to mid-2005, the author was working with a patient in private practice who had failed to benefit sufficiently from a full year of intensive CBT. DCS aug-

mentation appeared to offer hope of further gains. What follows is a brief account of the course of treatment both before and after DCS augmentation. Note that the case could not be tested in an ABAB design, since DCS augmentation should facilitate generalization and maintenance of extinction learning, and such gains should not be lost when the medication is withdrawn.

### Case Description

Esther was a 52-year-old, divorced, unemployed White woman with a 30-year history of major depression, panic with severe agoraphobia, obsessive-compulsive disorder (primarily obsessional with no marked compulsions), and dependent personality disorder. She began treatment with the author in July of 2004, seeking help for what she called her severe "driving phobia," panic attacks, depression, numerous obsessional, quasi-hypochondriacal somatic complaints, and obsessional fears of death and sexual impropriety. At the time that she entered treatment, she was on a regimen of bupropion HCL, 100 mg, 3x a day, olanzapine, 10 mg at bedtime, and alprazolam, 6 mg per day. She had been on 6 mg of alprazolam for 17 years. A full 12 months of weekly (and sometimes biweekly) exposure therapy (supplemented with considerable cognitive restructuring) had a moderate impact on her general level of functioning, but only minimal impact on her mobility. Both the author and a graduate student, who served as an adjunctive therapist, spent many hours engaging in exposure therapy around driving. She would usually achieve within-session habituation, but had difficulty maintaining the gains across sessions, and was unable to generalize the gains across settings.

For example, the author spent three separate sessions (60-90 minutes) with the patient in the therapist's car, with the therapist driving, going back and forth over a major urban bridge. By the end of the third session, Esther was able to tolerate the drive over that specific bridge without experiencing acute panic or engaging in safety behaviors such as clutching the handlebar over the door. Moreover, she was no longer subvocalizing prayers and was not experiencing intrusive thoughts that she might open the car door and hurl herself out. However, she was unable to generalize these gains to driving over any other bridge with the therapist or to driving over the same bridge with a trusted family member. As a result, she was unable to attend a fam-

ily reunion, which caused her significant distress and disappointment.

Esther did make incremental progress on a number of fronts. As treatment progressed over months, she became significantly less focused on obsessive somatic concerns (e.g., bands around her head, pressure "in her brain," floaters in her visual field, etc., all of which had previously frightened her, and led her to the catastrophic conclusion that she had a brain tumor). Her acute panic attacks also ceased. Her mood, energy level, and personal hygiene improved somewhat. For example, she bathed more regularly, took greater care to comb her hair, went for walks occasionally, and began to dress in slacks and blouses rather than her habitual stained sweatpants. She began to attend synagogue (which she could walk to) more regularly, and to volunteer there in various capacities.

In collaboration with her psychiatrist, she also managed, over time, to decrease her benzodiazepine usage substantially, from 6 mg of alprazolam daily, down to a mere .5 mg of clonazepam at bedtime. This was accomplished by February of 2005, approximately 8 months into treatment. This reduction in benzodiazepine use was considered critical, since concurrent benzodiazepine use can reduce the efficacy of exposure therapy (Marks et al., 1993). However, neither she, nor the author, was satisfied with her progress. She seemed very concrete, and continued to seek reassurance (which the author rarely provided) about material that had been covered many times previously. Moreover, she made very little progress toward attaining mobility or being able to drive independently outside of a narrow four to five block radius from her home, despite dozens of hours of exposure therapy in the author's car and in the patient's car.

Concerned about the lack of further progress and her apparent inability to generalize and maintain treatment gains, the author referred Esther for neuropsychological assessment in April of 2005, and discovered that she had significant deficits across a number of domains. According to the Wechsler Adult Intelligence Scale-III (Wechsler, 1997a), her Verbal IQ was solidly average (100, 50th percentile) but her Performance IQ was in the low average range (86, 18th percentile). Of greater concern were her scores on the Wechsler Memory Scale-III (Wechsler, 1997b). Her visual and working memory were relatively intact. However, her general memory was in the borderline range (75, 5th percentile) and her auditory memory was severely impaired (immediate and delayed auditory

memory scores were 68, 2nd percentile and 67, 1st percentile, respectively.) Thus, in the verbal domain, where she had relatively solid intelligence, she was unable to retain information over time, and in the nonverbal, visual or performance domain, where her memory was relatively intact, she had only low average IQ. This seemed to help explain her inability to retain corrective information delivered verbally by the author. It also suggested that her inability to maintain therapeutic gains from exposure therapy across sessions might be due, in part, to cognitive impairment. It seemed clear that further exposure therapy was pointless, as she was receiving almost no further benefit in terms of mobility despite substantial investment of time and money.

At this point, the author suggested a consultation with the patient's psychiatrist about the possibility of adding D-cycloserine to the treatment package. Given that general cognitive deficits and memory impairment seemed to be contributing to treatment failure, the addition of DCS made good sense, not to enhance general memory capabilities, but to facilitate the efficacy of extinction learning (i.e., exposure therapy). The author faxed the psychiatrist a copy of the Ressler et al. (2004) paper with the dosage and administration sections highlighted, and consulted with him about the results of the neuropsychological testing and the rationale behind DCS augmentation. He prescribed the DCS to be taken acutely, 1 to 2 hours before an exposure therapy session. The prescription called for the standard 250 mg formulation that was available at Esther's pharmacy.

Beginning in July of 2005, over the next 15 exposure therapy sessions, with DCS administered acutely prior to each session, Esther made remarkable progress in terms of increased mobility and driving (see Figure 1). During the first session, the patient drove her own car, with the therapist accompanying her in the passenger seat, around her home and over a very small overpass/bridge close to her home. Esther and the author drove over the bridge multiple times until her initial acute anxiety declined and she was able to do it without experiencing physiological reactivity or giving in to the urge to pull the car over. Note that Esther and the author had conducted just such exposure sessions on a number of occasions previously. In the next session, Esther repeated the drive over the overpass, accompanied by the therapist, but the therapist then got out of the car in front of Esther's home, and waited while Esther repeated the drive by herself. Esther had never

been able to do this by herself previously. In the following several sessions, Esther and the author drove over a larger, much busier overpass/bridge into a different part of the city. Esther was amazed that she was able to do this, since she hadn't driven over that bridge herself in over 15 years. During the next several sessions, we drove to distant parts of the city, on busy thoroughfares, and through large, complex intersections. Several times she experienced the urge to shift the car into neutral or pull over, and experienced accelerated heart rate and shallow breathing. She continued to do U-turns and drive through the intersection multiple times until she achieved within-session habituation. She continued to experience within-session habituation, as she had always done, but the gains were maintained between and across sessions, and Esther began to generalize the gains on her own. As she had done prior to initiating DCS augmentation, Esther drove every day for homework between therapy sessions, and did not take DCS prior to those drives. Unlike her previous experience, however, she found that she was able to venture into new territory on her own that she had not driven in with the author.

After approximately 10 sessions of DCS augmentation, to the therapist's surprise and gratification, Esther had her hair styled, took to wearing perfume, and began dating a man from her synagogue. Since he was visually impaired, and unable to drive himself, she began to drive him around to various appointments all over the city. These drives took her over overpasses and through busy intersections similar to those she had conquered with the therapist.

The next several sessions were devoted to getting "stuck" in traffic, or behind trash trucks or construction vehicles on narrow streets. Both Esther and the author saw the humor involved in actively searching out such situations, and would laugh whenever the construction workers or trash collectors obligingly tried to wave the car through. Finally, Esther was able to drive herself over a major urban bridge with the therapist as a passenger, and then drove all the way out to the suburbs to visit her family, again with the therapist along. In the next session, the therapist followed Esther, who was driving alone, in a different car, and repeated the drive out to the suburbs. Esther was able to generalize those sessions, and drove herself and her boyfriend out to the suburbs to visit her family several times after that. In a final test, she reported that she was able to ride in a car over a major bridge, on her way to a family funeral, calmly eating an egg sand-

wich, without experiencing panic, feeling the need to engage in safety utilization behaviors or compulsive prayer, or experiencing obsessive fears that she would jump out of the car. This would have been unthinkable several months previously.

Figure 1 illustrates Esther's gains in mobility over the course of treatment. Esther generated an anxiety hierarchy, ranging from 0 (*easy, no anxiety*) to 10 (*intolerably difficult, utter panic*) in the first few weeks of treatment starting in July of 2004. As can be seen from the figure, she progressed through the first three stages of the hierarchy over the first 30 sessions, and then plateaued, unable to make any further treatment gains until the addition of the DCS. In the final 15 sessions, she progressed from 3 on her hierarchy all the way up to 8.

Both Esther and the author attribute the success of the latter part of therapy to the addition of DCS. It is possible that the DCS served in part as a placebo. However, Esther had tried many different medications and treatments over the years, experiencing a surge of hope followed by disappointing results each time. Substantially decreasing her benzodiazepine use was also not sufficient, as that was accomplished by February of 2005, and DCS augmentation, and her rapid treatment response, did not begin until July of 2005. With DCS augmentation, the exposure therapy began to "stick" in a way that it simply hadn't previously. In other words, she was able to generalize gains made in session with the therapist to other safe people and other driving routes, and those gains were maintained between sessions. In the last several months of treatment, in addition to dating, she began to look for part-time work and put a deposit down for a new apartment in a better neighborhood. While it is unlikely that she'll ever achieve true "high end-state functioning" she had made significant progress towards her goals of increased mobility and functioning, especially with regards to visiting family and expanding her social network. DCS augmentation was initiated in July of 2005 and regular therapy was terminated in January of 2006, replaced by monthly or bimonthly booster sessions with no further exposure therapy. In November of 2006, 11 months after DCS-augmented therapy ended, Esther attended a follow-up "booster" session. She reported that she had maintained all the gains in terms of driving mobility acquired under DCS augmentation. She was still driving out to the suburbs to visit family with her boyfriend, and was able to go anywhere

in the city she needed to, although she still had not ventured onto an expressway. Interestingly, some of her obsessional concerns regarding sexuality, which were never treated with DCS augmentation, had returned.

### Discussion

The results of a small, but well-designed and -executed clinical trial with humans (Ressler, et al., 2004) led the author to try a course of DCS augmentation with a treatment-resistant case. The DCS appeared to have made the difference between a disappointing treatment outcome and a treatment success. Of course, this single case design lacked the rigorous controls of an experimental protocol. By its nature, DCS is not amenable to an ABAB single-case design, as the treatment gains should not decline when the patient is "off" the drug. Moreover, given Esther's extreme anxiety and apprehension about trying an "experimental" drug, it was not deemed appropriate to attempt a double-blind DCS-placebo switch with an independent third party sometimes administering DCS and sometimes administering a look-alike placebo. Thus, we cannot conclude with certainty that the DCS caused Esther's treatment gains. Nevertheless, both the therapist and Esther were on the verge of concluding that Esther's driving "phobia" was treatment refractory and that further work was pointless. DCS plus exposure therapy appeared to accomplish what a full year of intensive, creative exposure therapy alone had not.

One of the challenges of translational research is determining when new findings are ready to be put into clinical practice. Early findings should always be approached with caution. The very promising results of the Ressler et al. (2004) trial offered hope in this particular case. While later clinical trials have by and large replicated the usefulness of DCS augmentation (e.g., Hofmann et al., 2006; Wilhelm et al., 2008), some have failed to find much use for DCS. For example, Storch et al. (2007) found that DCS did not augment the efficacy of 12 weekly sessions of exposure and response prevention for adult OCD. Guastella et al. (2007) found that DCS did not improve the efficacy of a single session of exposure therapy in subclinical spider-fearful individuals. DCS augmentation did not enhance the reduction of spider fears or the generalization of treatment at either 50 or 500 mg doses. However, these trials, while well designed, and tightly controlled, thus maximizing internal validity, were conducted with under-

graduates with subclinical fears, not true phobias, who had not sought treatment. Thus, the generalizability of such findings to severe psychopathology in genuine clinical populations is unclear. The case history presented here, while lacking the rigor of tight experimental control, maximized external validity with regards to real-world applications of DCS augmentation in clinical practice.

Obviously, a number of significant questions regarding DCS augmentation still remain to be addressed. For example, it is not clear at this point whether DCS augmentation makes sense in every case, or whether there are specific indicators that make it more likely to be useful. It may be that DCS augmentation makes little sense in mild cases, which would be expected to respond well to relatively short-term CBT. Rather, DCS augmentation may only make sense in more complex, treatment-refractory cases such as Esther's. The results of the Guastella et al. (2007) trials suggest that DCS augmentation may not be effective with subclinical populations. It is possible that DCS appeared to be helpful in Esther's case precisely because she was already experiencing cognitive and memory deficits. Moreover, there is a possibility that DCS augmentation might actually compromise the efficacy of exposure therapy, if patients attribute their successes to "the pill." These issues, and many others, such as optimal dosing and timing, can only be addressed by further research with genuine clinical populations.

Taken together, however, the results of basic neuroscience, behavioral neuroscience using animal models, and a number of small RCTs, suggest that DCS may ultimately prove to be a useful part of our treatment strategy for anxiety disorders. It appears to augment the efficacy of the most empirically supported psychosocial intervention we have available in the treatment of clinically significant anxiety disorders. We should always exercise caution about moving early to incorporate tentative research findings into clinical practice. Nevertheless, the author hopes that this case study serves to illustrate the potential benefits of DCS augmentation in severe cases.

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Correspondence to Melissa G. Hunt, Ph.D., Department of Psychology, University of Pennsylvania, 3720 Walnut Street, Philadelphia, PA 19104-6241; email: mhunt@psych.upenn.edu

## Science Forum

# When a Stats Cliché Can Lead You Astray

Gregory S. Chasson, *Massachusetts General Hospital and Harvard Medical School*, and Sarah L. Garnaat, *University of Houston*

Clichés develop over time, often as en-dearing and diplomatic ways of communicating a message without undue explanation. Perhaps the shining example of Dawkinsonian memetics (1976), clichés have spread into the statistical world, where myriad expressions provide rules of thumb for analyzing and interpreting data. The intention of most data analytic adages seems beneficial—*warning, please steer clear of these common traps*—but statistical sayings often overcorrect and thus can be misleading when applied too concretely.

The current article highlights a few data analytic expressions, which are helpful on average, but can be deceptive when applied blindly to all situations. This article is not intended to shame those who respond rigidly to such statistical heuristics, as the current authors freely admit to falling into the trap of overemphasizing these clichés on more than one occasion. Indeed, most behavior researchers, regardless of expertise, will often base data analytic decisions on these statistical maxims. We hope that this article will at least provide a new perspective on these common sayings.

### “Correlation doesn’t imply causation”

This is perhaps one of the most common statistical expressions. Echoed through the halls of training programs everywhere, this saying is meant as a helpful warning. Just because two variables are related does not mean one variable necessarily causes the other. Entertaining versions of this statistical trap have become lore—*The more firefighters that show up to extinguish a blaze, the more property damage that ensues. They really should be more careful. Or, Did you know that Cesarean-section child birth is directly related to child intelligence? Vaginal delivery must result in slight brain damage.*

It is a useful rule of thumb to keep in mind that significant correlation does not necessarily mean causation (for an historical and thought-provoking account of the spurious correlation, see Haig, 2003). However, the simplicity of this axiom masks the underlying principle that seems to get lost when interpreting research findings: statistical relationships alone are never sufficient for inferring causation. In addition to uncovering statistical covariation, establishing causation typically requires

systematically addressing confounding variables (i.e., ruling out alternative explanations) and identifying meaningful temporal patterns. While statistical techniques can certainly help detect temporal precedence and rule out alternative explanations, the gold-standard tool for maximizing confidence in causal attributions remains the carefully controlled experiment. Thoughtful experimental design can obviate the need for fancy rhetoric or advanced data analyses as methods for establishing causation.

Part of the problem with this cliché may involve semantics. Often *correlation* is confused with a *correlation coefficient*, with the former referring to general statistical covariation and the latter referring to just one index of such covariation. When these terms are confused, further misinterpretations of data may result from placing too much emphasis on statistical technique at the expense of careful consideration of temporal precedence and potential confounding variables. Indeed, the complexity of the data analytic technique becomes generally unimportant within the context of controlled experimentation. If one were to compute a correlation coefficient as the sole method for analyzing data that were derived from a tightly controlled experiment, in which potential confounds were addressed and temporal relations were ensured, one could feel confident inferring causation from the resultant correlation coefficient. After all, a correlation coefficient is mathematically the same as a standardized coefficient in a simple linear regression

analysis (i.e., univariate regression model with only one predictor). If we can use a simple linear regression equation to aid in interpreting causation, why not use a correlation? Thus, more complex statistical techniques are not necessarily more useful for making causal attributions than less complex techniques. For establishing causality, a study utilizing only correlation coefficients with thoughtful experimentation likely yields more value than a study with sophisticated path analyses, replete with fancy mediating variables, with little attention paid to temporal or confound concerns.

Ultimately, perhaps this statistical cliché should be changed to *Nonexperimental statistical covariation does not imply causality*. While considerably less charming, this revised saying might decrease the likelihood that psychological researchers will use purely statistical reasoning, in the absence of experimental data, to argue causation.

#### *“The plural of ‘anecdote’ isn’t ‘data’”*

Much like the correlation expression, this saying is meant as a warning to well-intentioned clinicians and researchers: personal observations are inherently biased and do not necessarily reflect fact. Indeed, data-minded clinical psychologists have long argued this notion. Paul Meehl (1954) made his case most famously concerning clinical versus actuarial prediction. With respect to making a clinical decision, he argued that drawing upon data would yield a more accurate response compared to drawing upon clinical judgment, regardless of experience (Grove, 2005). We are not attempting to discredit Meehl’s central argument by claiming that this statistical cliché is inaccurate. Instead, we are arguing that—much like the correlation and causation expression—the adage works well on average but tends to be misinterpreted on occasion.

Anecdotes and data are both forms of evidence. First, informal observation is part of the scientific method and is often useful for developing research questions for subsequent experimentation. Second, one could argue that individual data points in a dataset are just a specific type of anecdote, albeit ones that would make terrible campfire stories. However, each data point or anecdote has an important context that reveals the extent to which the evidence was gathered in a controlled situation or in a purely observational manner.

Much like the aforementioned discussion about correlation and causation, the issue often revolves around experimental methodology. A tightly designed interven-

tion study with an ABA design that enrolls only one child (and thus yields limited anecdotal data points) might provide considerably stronger evidence for a treatment’s efficacy compared to a study involving 1,000 children with no experimental manipulation (e.g., no control group, no random assignment). While single-case designs address experimental confounds and temporal precedence in distinct ways (e.g., reversal of treatment, establishing multiple baselines) compared to treatment trials with large samples, the evidence is nonetheless helpful for inferring causality.

The research literature on early intensive behavioral interventions for young children with autism serves as a terrific example of this misconception. Most behavioral research on autism intervention utilizes rigorous single-case designs, which have accumulated into a strong evidence base supporting the efficacy of interventions like Discrete Trial Training (Lovaas, 1987; McEachin, Smith, & Lovaas, 1993). However, for decades, these clearly helpful strategies have been largely overlooked, even in the research community. Critics downplay the efficacy of these approaches because of the lack of randomized controlled trials (e.g., Marcus, Rubin, & Rubin, 2000), failing to see the larger picture. While considered the gold standard of most psychological intervention research, randomized controlled trials are just one way of rigorously testing an intervention technique. The single-case design is yet another approach that serves as a useful alternative when the nature of the psychopathology makes randomized controlled trials challenging (but not impossible) due to ethical reasons, as in the case with childhood autism intervention research. The belief that single-case designs—or anecdotes within the context of highly controlled experiments—are not sufficient evidence has resulted in millions of children with autism missing out on helpful behavioral interventions, despite advocates arguing for their dissemination (see Chasson, Harris, & Neely, 2007).

#### *“The data don’t lie”*

This expression is usually treated as fact when arguing an intellectual point: *You are wrong—the data tell a different story*. In actuality, with some mining and spinning, the data can tell virtually any story from any angle. This is captured best with a quote attributed to famed author and humorist, Samuel Clemens: *Figures don’t lie, but liars figure*. This seems particularly obvious for

certain trades, like campaign managers or pharmaceutical advertisers, but even purportedly objective scientists fall prey to statistical misrepresentation or interpretation. However, Mr. Clemens captured only part of the phenomena. Not all one-sided statistical interpretations or arguments are explicit lies. Indeed, there are many ways that researchers and consumers of research can trick themselves into believing a convenient result (e.g., confirmation bias; Wason, 1960).

Regardless of intent, statistical misunderstanding is quite pervasive and poses a significant public health concern, which was outlined in an eloquent and thorough exposition by Gigerenzer, Gaissmaier, Kurz-Milcke, Schwartz, and Woloshin (2008). The article not only highlights evidence concerning statistical illiteracy rates with patients, but also the alarming rates in health service providers. According to Gigerenzer and colleagues, evidence suggests that patients exhibit such problems as lacking basic numeracy skills, having difficulty comparing known treatment options based on available data, and overestimating the certainty of medical tests (which are all inherently imperfect). More surprisingly, physicians also demonstrate similar issues, such as overestimating the certainty of medical tests, misunderstanding test sensitivity and specificity, and miscalculating basic numeracy questions. Although the physicians tended to be more accurate on most of these issues compared to patients, much of the onus is on the physicians to protect the public by understanding and communicating accurate information. The mental health field is no different.

The misuse and misunderstanding of data affect the mental health field, as well, both in clinical practice and research. For example, exposure and response prevention is considered the gold-standard psychological intervention for obsessive-compulsive disorder (OCD) (Foa, Franklin, & Moser, 2002), since 85% of patients at treatment completion experience clinically significant relief from their symptoms (Jenike, 2004). Based on this percentage of treatment responders, which is relatively robust for the mental health field, it seems like the war has generally been won. However, this 85% figure is deceptive. As Jenike points out, 85% of those who participate in treatment respond, but 25% of patients drop out after initiating and a similar percentage refuse from the outset. Thus, when considering all treatment seekers, it seems that only 43% of patients actually improve, highlighting the need for further research to devise

strategies for treating the other 57% of OCD sufferers. One cannot help but wonder if the general consensus that the war has been won has slowed down the process of uncovering methods for helping the thousands of patients with OCD who do not respond to exposure and response prevention or find it too unpalatable.

In conclusion, statistical clichés serve a useful purpose as helpful heuristics that tend to work in most scenarios, but can lead even the most well-intentioned researchers astray. In the service of being witty, statistical expressions often miss the big picture or overvalue the importance of statistical tools for building an argument. The issue is not whether correlation can or cannot imply causation, but rather that statistical analyses in general do not provide sole justification for determining causation; this requires thoughtfully discarding alternative explanations and establishing temporal precedence, both often accomplished best through controlled experimentation. It is not as simple as declaring that all anecdotes yield questionable research and that more subjects equals better research. One must determine whether the data, regardless of sample size, were collected as part of a well-designed study. Finally, interpretations of

data are not fact and should be regarded with appropriate skepticism. As mental health providers and researchers, we have an obligation to understand statistics and their context to bring meaning to what is otherwise arbitrary and easily misleading.

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Correspondence to Gregory S. Chasson, Ph.D., Massachusetts General Hospital, OCD and Related Disorders Program, 185 Cambridge St., Floor 2, Boston, MA 02114; gchasson@gmail.com

## Book Review

### Dryden, W. (2009). *Understanding emotional problems: The REBT perspective*. East Sussex, United Kingdom: Routledge.

Reviewed by Kristene A. Doyle, *Albert Ellis Institute*

One of the foundations of the cognitive-behavioral model is a clear understanding of emotions. Prior to identifying and challenging cognitive distortions, inferences, or in the case of Rational Emotive Behavior Therapy (REBT), irrational beliefs, it is essential that both the client and clinician be clear about the nature of the emotional disturbance. Oftentimes clients, regardless of age, lack a sound emotional vocabulary and understanding when they enter therapy. When this is the case, affective education frequently becomes a clinical first step.

Windy Dryden offers a clear description of the origins of unhealthy negative emotions (UNEs) (Neenan & Dryden, 2000)

suitable for both seasoned practitioners as well as those in training. In a repetitive manner, a chapter is devoted to each of the unhealthy negative emotions generated by irrational beliefs, including: anxiety, depression, shame, guilt, and hurt. Additionally, the distinction between healthy and unhealthy anger, jealousy, and envy is clarified for the reader. Each chapter follows the same layout, making the REBT perspective on emotional disturbance quite clear. The purposeful, recurring format of the chapters enables the reader to make comparisons of similarities and differences between the eight unhealthy negative emotions. The predictability of the structure of each chapter and the reiteration of particular points, sentences, and phrases drives home the

essence of REBT's perspective on emotional disturbance.

Each chapter begins with a discussion of how an individual makes him/herself feel the UNE, namely, by making an inference and then bringing an irrational belief to that inference. Dryden is persistent in pointing out that the inference does not have to accurately reflect what is happening or has happened; rather, what is significant is that the individual believes the inference to be true. The REBT perspective holds that while inferences are linked with emotional disturbance, more importantly it is the evaluative beliefs, referred to as *irrational beliefs*, about the inferences we make that are at the heart of emotional disturbance (Walen, DiGiuseppe, & Dryden, 1980). Each chapter goes on to teach the specific irrational belief(s) associated with the particular emotion, followed by a discussion of how the irrational belief(s) influence subsequent thinking and behavior by the individual. The chapter then focuses on how people develop and rehearse irrational beliefs that guide the individual to experience the unhealthy emotion in a range of different situations. Finally, each chapter closes with a discussion of how worldviews founded on



the irrational beliefs of the particular emotion leave the individual susceptible to the unhealthy emotion. A useful component of each chapter is an academic as well as self-help recommendation for further reading on the particular emotion.

A final chapter is dedicated to a discussion of the various ways in which individuals maintain their emotional problems, including: denying having emotional disturbance, not assuming responsibility for one's disturbance, constructing and acting on self-fulfilling prophecies and the construction of meta-emotional problems (i.e., anxiety about being anxious, shame about feeling unhealthy envy, etc.). Psychological health is promoted by the development of rational beliefs (RBs). A philosophy consisting of nondogmatic beliefs, anti-awfulizing beliefs (i.e., avoid exaggerating the badness of a situation), high frustration tolerance beliefs, and acceptance of self, others, and life conditions is the recommended approach to combat the development and maintenance of emotional problems. A table is included summarizing REBT's eight unhealthy nega-

tive emotions with the relevant inferences, cognitive, and behavioral consequences, facilitating an easy comparison of the different emotions.

While Dryden is unambiguous with the purpose of this book—to assist the reader in understanding, not treating, the emotional problems for which individuals seek therapy—it may be frustrating for those readers seeking guidance on treatment. However, Dryden emphasizes that a sound treatment approach rests on a clear comprehension of each emotional problem. This book is best suited for individuals wishing to learn REBT's distinctive view of emotional problems.

Overall, *Understanding Emotional Problems* is an excellent resource for clinicians looking to gain a more comprehensive grasp of the main emotional disturbances that present in therapy. Although skilled REBT practitioners may find this book at first glance to be elementary, Dryden does a proficient job at demonstrating the relationship between irrational beliefs about inferences and the subsequent cognitive and

behavioral consequences. Practitioners with all levels of experience will benefit from adding this book to their library.

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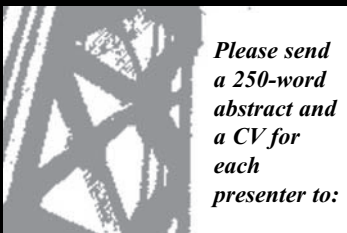
*Correspondence to* Kristene A. Doyle, Ph.D., Associate Executive Director & Director of Clinical Services, Albert Ellis Institute, 45 East 65th Street, New York, NY 10065, e-mail: krisdoyle@msn.com

## Call for



# Workshop Submissions

44th Annual Convention | November 18–21, 2010 | San Francisco



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a CV for  
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Jillian C. Shipherd, Ph.D.  
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# Preparing to Submit an Abstract

ABCT will once again be using the Scholar One abstract submission system. The step-by-step instructions are easily accessed from the ABCT home page. As your ready materials please keep in mind:

- **Presentation type:** Please see “Understanding the ABCT Convention” (right-hand column) for descriptions of the various presentation types.

For Symposia please have 1 or 2 Chairs, only 1 Discussant, and a minimum of 3 and a maximum of 5 papers.

For Panel Discussions and Clinical Roundtables please have 1 moderator and between 3 and 5 panelists.

- **Title:** Be succinct.

- **Authors/Presenters:** Be sure to indicate the appropriate order. Please ask all authors whether they prefer their middle initial used or not. Please ask all authors their ABCT category. Possibilities are M – current member; NM – lapsed member or nonmember; PB – postbaccalaureate; SM – student member; SNM – student nonmember; and NP – new professional.

- **Affiliations:** The system requires that you enter affiliations before entering authors. This allows you to enter an affiliation one time for multiple authors. DO NOT LIST DEPARTMENTS. In the following step you will be asked to attach affiliations with appropriate authors.

- **Key Words:** Please read carefully through the pull-down menu of already defined key words and use these if appropriate. For example, the key word “military” already on the list should be used rather than adding the word “army.” Do not list *behavior therapy*, *cognitive therapy*, or *cognitive behavior therapy*.

- **Goals:** For Symposia, Panel Discussions, and Clinical Round Tables, write 3 statements of no more than 125 characters each, describing the goals of the event. Sample statements are: “Described a variety of dissemination strategies pertaining to the treatment of insomnia”; “Presented data on novel direction in the dissemination of mindfulness-based clinical interventions.”

- **Overall:** Ask a colleague to proof your abstract. A second set of eyes often catches inconsistencies or typos.

## Understanding the ABCT Convention

The ABCT Annual Convention is designed for practitioners, students, scholars, and scientists. All of the ABCT members involved in making the convention have as their central goals the provision of opportunities to meet the needs of the diverse audiences interested in the behavioral and cognitive therapies. Attendees have varying disciplines, varying levels of experience, varying theoretical CBT orientations, as well as special clinical concerns. As important are the opportunities to meet people with similar interests for social as well as professional networking.

Some presentations each year will offer the chance to see and hear what is new and exciting in behavioral and cognitive work from our dynamic and vibrant presenters. Other presentations will address the clinical-scientific issues of how we develop empirical support for our work.

The Convention consists of General Sessions and Ticketed Events. There are between 150 and 200 general sessions each year competing for your attention.

### GENERAL SESSIONS

**Symposia.** Presentations of data, usually investigating efficacy of treatment protocol or particular research. Symposia are either 60 minutes or 90 minutes in length. They have one or two Chairs, one Discussant and between three and five papers.

**Panel Discussions and Clinical Round Tables.** Discussions (sometimes debates) by informed individuals on a current important topic. These are organized by a Moderator and have between three and six Panelists who bring differing experience and attitudes to the subject matter.

**Membership Panel Discussion.** Organized by representatives of the Membership Committees, these events generally have a particular emphasis on training or career development.

**Special Sessions.** These events are designed to provide useful information regarding professional rather than scientific issues. For more than 20 years our Internship Overview and Postdoctoral Overview have been helping people find their educational path.

**Clinical Grand Rounds.** Master-level clini-

cians give simulated live demonstrations of therapy. Clients are generally portrayed by graduate students studying with the presenter and specializing in the problem area to be treated.

**Poster Sessions.** One-on-one discussions between researchers who display graphic representations of the results of their studies, and interested attendees. Because of the variety of interests and research areas of the ABCT attendees, between 1,200 and 1,400 posters are presented each year.

**Special Interest Group Meetings.** More than thirty SIGs meet each year to renew relationships, accomplish business, such as electing officers, and often offering presentations. SIG talks are not peer-reviewed by the Association.

### TICKETED EVENTS

In addition to a 250-word description, several goals, and recommended readings, these listings include a level of experience to guide attendees.

**Workshops.** Covering concerns of the practitioner/educator/researcher, these remain an anchor of the Convention. These are offered on Friday and Saturday, are 3 hours long, and are generally limited to sixty attendees.

**Master Clinician Seminars.** The most skilled clinicians explain their methods and show videos of sessions. These are offered throughout the Convention, are 2 hours long, and are generally limited to 40 to 45 attendees.

**Advanced Methodology and Statistics Seminars.** Designed to enhance researchers' abilities, there is generally one offered on Thursday and one offered on Sunday morning. They are 4 hours long and limited to 40 attendees.

**Institutes.** Leaders and topics for Institutes are taken from previous ABCT workshop presentations which need a longer format. They are offered as 7-hour or 5-hour session on Thursday, and are generally limited to 40 attendees.

**Clinical Intervention Training.** One and two-day events emphasizing the “how-to” of clinical intervention. The extended length, either 7 hours or 14 hours, allows for exceptional interaction.

# CALL for PAPERS

*Submissions may be in the form of symposia, round tables, panel discussions, and posters. Information for submitting abstracts can be found on ABCT's web site or in the February issue of the Behavior Therapist.*

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Unifying  
Diverse  
Disciplines  
With  
a Common  
Thread

**One of the many strengths** of cognitive behavioral therapy is the fact that it is flexible and can be adapted to treat a variety of problems that individuals face. This has resulted in the tremendous growth of diverse specialties that utilize cognitive behavioral principles to help people return to a healthier state of both physical and psychological functioning. While there are many specialties within the fields of physical and mental health, our shared understanding of the importance of applying evidence-based cognitive behavioral practices is a common thread that joins us together.

Opportunities to share knowledge across disciplines could be achieved through broadening the scope of our ABCT conference. As multidisciplinary treatment teams are becoming more prevalent, it is important to find avenues for increasing our communication about ways that evidence-based practices can be applied more broadly, adding to the richness of our knowledge about cognitive behavioral theory and its potential applications.

The theme of the 44th annual meeting is intended to emphasize the relevance of cognitive-behavioral theories across varied topics and disorders and across diverse health - and mental-health related professions and disciplines. We welcome submissions for research symposia, clinical sessions, and workshops focused on elucidating ways that cognitive behavioral treatments are relevant to diverse groups of professionals that work with patients.

Submissions that highlight innovative applications of cognitive behavioral treatments or submissions that help highlight ways that we can broaden our focus about the populations, settings, and disciplines in which cognitive behavioral treatments can be used are encouraged and will receive special consideration. We welcome representation in areas or from disciplines that may have been underrepresented in recent years.

**PROGRAM CHAIR: John D. Otis, Ph.D.**

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- ◆ Lifetime Achievement
- ◆ Distinguished Friend to Behavior Therapy
- ◆ Outstanding Service to ABCT

#### STUDENT AWARDS:

- ◆ President's New Researcher
- ◆ Virginia A. Roswell Student Dissertation  
Leonard Krasner Student Dissertation
- ◆ Elsie Ramos Memorial Student Poster Awards

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