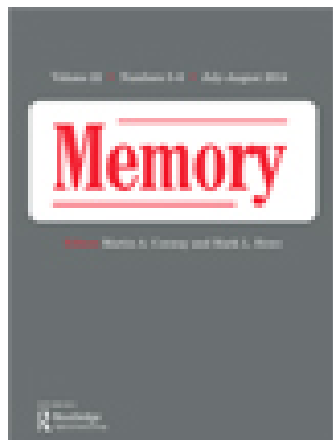


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People who expect to enter psychotherapy are prone to believing that they have forgotten memories of childhood trauma and abuse

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We asked 1004 undergraduates to estimate both the probability that they would enter therapy and the probability that they experienced but could not remember incidents of potentially life-threatening childhood traumas or physical and sexual abuse. We found a linear relation between the expectation of entering therapy and the belief that one had, but cannot now remember, childhood trauma and abuse. Thus individuals who are prone to seek psychotherapy are also prone to accept a suggested memory of childhood trauma or abuse as fitting their expectations. In multiple regressions predicting the probability of forgotten memories of childhood traumas and abuse, the expectation of entering therapy remained as a substantial predictor when self-report measures of mood, anxiety, post-traumatic stress disorder symptom severity, and trauma exposure were included.

Keywords: False memory; Autobiographical memory; Recovered memory.

One of the most heated theoretical questions in psychology in the past decades, and one of great practical importance, is whether memories of childhood abuse can be forgotten and recovered during psychotherapy: the so-called “memory wars” (e.g., Baker, 1998; Brandon, Boakes, Glaser, & Green 1998; Conway, 1997; Kihlstrom, 2005; Loftus & Davis, 2006; Lynn & McConkey, 1998). This question hinges in large part on knowing how easy it would be to create a false memory of childhood abuse or other events during therapy (Pezdek & Blandon-Gitlin, 2009; Pezdek, Blandon-Gitlin, & Gabbay, 2006; Rubin & Berntsen, 2007, 2009). If implanting a false memory is relatively easy, then the likelihood of

false memory occurrence during psychotherapy warrants serious attention.

What kinds of memories are easier to create? One of the basic observations of psychology is the unsurprising finding that memories of non-existent objects, words, or events are easier to create if they fit a person’s expectations. For instance, Bartlett (1932) found that distortions in the recall of complex material, including intrusions of ideas not originally presented, tended to be consistent with existing schemata (Alba & Hasher, 1983; Brewer & Nakamura, 1984; Rumelhart, Smolensky, McClelland & Hinton, 1986; see also Rubin, 1995, pp. 21–24). In the highly controlled laboratory list-learning tradition, the false recall

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of specific targeted non-presented words that are associated with the presented words has become a standard classroom demonstration (Gallo, 2006; Roediger & McDermott, 1995). Thus objects or words that are schema consistent intrude more often as false memories than those that are not. Similarly, it is easier to create a memory of a plausible than an implausible event (Pezdek et al., 2006).

We therefore ask whether there is a relationship between the likelihood of a person believing that they have forgotten memories of childhood trauma and abuse (i.e., a measure of schema consistency) and their likelihood of entering therapy. A positive relationship between these two constructs would suggest that individuals who seek therapy are particularly vulnerable to creating false memories of past abuse.

We had four reasons to focus on the probability of entering psychotherapy. First, historically, many individuals have recalled memories of childhood abuse in psychotherapy (Loftus & Davis, 2006). Second, memories recovered in psychotherapy have been more difficult to corroborate (Geraerts et al., 2007). Third, the cognitive processes of people who have recovered memories in psychotherapy differ from those of people who always remembered similar events or spontaneously recovered them outside psychotherapy (McNally & Geraerts, 2009). Fourth, participants who reported a high likelihood of entering therapy also thought it was plausible that they had unrecalled memories of childhood sexual abuse (Pezdek & Blandon-Gitlin, 2009). This latter finding suggests a quantitative relationship might exist between direct estimates of the probability of entering therapy and the probability of forgotten memories of childhood abuse.

We are asking about memories of traumatic events, and so measures of the number and psychological impact of traumatic events could help to clarify our findings. We therefore obtained measures of the number of kinds of previous traumas, traumatic stress disorder (PTSD) symptom severity, anxiety, and negative mood.

METHOD

Participants

A sample of 1004 University of North Texas Undergraduates completed our study.

Materials

Centrality of Events Scale. The Centrality of Events Scale (CES; Berntsen & Rubin, 2006) is a seven-item questionnaire designed to measure the extent to which an event is viewed as being central to one's identity. Participants are asked to rate the extent to which they agree with the statements from 1 (totally disagree) to 5 (totally agree). Example items include, "This event permanently changed my life" and "I feel that this event has become part of my identity". The scale's reliability ranges from .88 to .94.

PTSD Checklist. The PTSD Checklist (PCL; Blanchard, Jones-Alexander, Buckley, & Forneris, 1996) is a 17-item measure of PTSD symptoms in reference to a specific event. Participants are asked to rate on a scale of 1 (not at all) to 5 (extremely) scale, how much an event has produced each of the official 17 B, C, and D symptoms of PTSD in the DSM-IV-TR (American Psychiatric Association, 2000) during the past month. The correlation between the PCL-S and the Clinician-assisted Post-traumatic Stress Disorder Scale is $r = .93$. The reported internal consistency is $\alpha = .97$ and the test-retest reliability is $r = .96$ (Weathers, Litz, Herman, Huska, & Keane, 1993).

Positive Affect (PA) and Negative Affect (NA) Scales of the PANAS. The PANAS (Watson, Clark, & Tellegen, 1988) consists of two 10-item subscales, the Negative Affect Scale and the Positive Affect Scale. Both scales have high reliability ranging from 0.84 to 0.87 for the NA Scale and 0.89 to 0.90 for the PA Scale (Crawford & Henry, 2004). The NA scale has high internal consistency. It is uncorrelated with the positive affect scale, and is reliable over a 2-month period. Negative Affect (NA) is correlated with symptoms of depression and anxiety, while the PA scale is highly correlated with depression but not anxiety.

The Quick Inventory of Depressive Symptomatology – Self Report. The 16-item Quick Inventory of Depressive Symptomatology – Self Report questionnaire (QIDS; Rush et al., 2003) asks the participant to rate how much each depression symptom has been applicable within the last 7 days. Symptoms include sleep patterns, sadness, appetite, weight levels (gain and loss), general interest, view of self, suicidal thoughts, energy level, and feelings of restlessness. Items

are rated on a 4-point scale ranging from non-depressive levels to more extreme. Internal consistency is $\alpha = .86$. The measure has shown to be highly correlated with other measures of depression such as the Inventory of Depressive Symptomatology (Trivedi et al., 2004).

Traumatic Events Questionnaire. The Traumatic Events Questionnaire (TEQ; Vrana & Lauterbach, 1994) is used to assess lifetime exposure to traumatic events. The TEQ includes nine potentially traumatic events, such as being a victim of physical or sexual abuse as well as an open category of “any other traumatic events like these”. Participants respond either “yes” or “no” as to whether they experienced each event during their lifetime. The Traumatic Events Questionnaire shows good test-retest reliability over a 2-week period for the number of traumatic events experienced ($r = .91$) (Vrana & Lauterbach, 1994).

Probability of Seeking Psychotherapy (“therapy”). The following five questions assessed how likely participants think they are to enter therapy. “What are the chances out of 100 that at sometime in the future you will seek psychological counseling for the following reasons? Please use any number between 0 (not at all likely) and 100 (definitely): (1) to help with a major depression or other serious condition, (2) to help with stress management, (3) to help with marital or relational problems, (4) for personal growth, (5) for issues at your job or professional life.”

Probability of Forgotten Memories (“forgotten memories”). The following five questions assessed how likely it is that participants think they have an unrecalled memory of negative childhood events. “What are the chances out of 100 that the following things occurred to you in your youth, but you cannot now remember them. That is we are asking about events that could have happened but you do not now remember. We are not asking about any events that you can actually remember happening: (1) a potentially life-threatening traumatic event, (2) a potentially life-threatening natural disaster such as a violent storm or a flood or earthquake, (3) one or more incidents of childhood sexual abuse, (4) one or more incidents of childhood physical abuse, (5) negative but non-traumatic events that to you at the time were extremely upsetting.” The “potentially life-threatening” phrase was included to

specify events that could meet the criteria for PTSD (American Psychiatric Association, 2000).

The items are about the likelihood of such occurrences, as opposed to the plausibility, because likelihood/belief is a higher-level construct than plausibility (Scoboria, Mazzoni, Kirsch, & Relyea, 2004), which allows for a direct quantitative estimate. The five items concerning therapy were placed before the five items concerning forgotten memories to eliminate any possibility that answering questions about traumatic events could influence subsequent items about seeking therapy. A 0–100 scale is used to communicate more clearly with our participants; all results are presented as probabilities.

Procedure

We administered our instruments as part of a mass testing session in the following order: PANAS, Probability of Seeking Psychotherapy, Probability of Forgotten Memories, TEQ, PCL, CES, and QIDS.

RESULTS

The mean age of our participants was 20.04 ($SD = 2.94$, range 18–40). There were 681 females. The mean scores on our measures were: CES: 2.43 ($SD = 1.23$, range of 1.00–5.00, $\alpha = .94$); PA: 33.31 ($SD = 6.74$, range of 11.00–50.00, $\alpha = .85$); NA: 21.70 ($SD = 6.88$, range of 10.00–50.00, $\alpha = .84$); PCL: 27.75 ($SD = 12.78$, range of 17.00–85.00, $\alpha = .94$); QIDS: 6.53 ($SD = 4.18$, range of 0.00–20.00, $\alpha = .76$); and TEQ: 1.92, ($SD = 1.79$, range of 0.00–10.00, $\alpha = .59$).

We averaged the five therapy items to produce a reliable scale (mean = .27, $SD = .23$, $\alpha = .83$). A similar five-item scale for unrecalled memories was also reliable (mean = .22, $SD = .20$, $\alpha = .71$). Because there are separate literatures on trauma and abuse, we grouped the five items concerning forgotten memories into three conceptual groups: (1) the extremely upsetting event question (mean = .44, $SD = .36$), (2) the two traumatic event questions (mean = .22, $SD = .25$, $\alpha = .54$), and (3) the two abuse questions (mean = .11, $SD = .23$, $\alpha = .73$). In order to plot the data the therapy scale was grouped into bins of 0.10, except for the 145 participants who answered 0 to all five therapy questions. We considered the latter group as their own bin (i.e., probability bins

of .000–.000, .001–.099, .100–.199, .200–.299, etc.). To keep a minimum of about 100 participants in each bin, we combined the .400 to .499 and .500 to .599 bins into one bin, and all probabilities .600 and above into one bin. The resulting seven bins had 145, 182, 151, 142, 126, 159, and 99 participants each. Figure 1 presents the main findings: a linear increase in the probability of forgotten memories of extremely upsetting events, traumatic events, and childhood abuse as a function of the probability of expected entry into therapy.

Consistent with Figure 1, ANOVAs showed a significant effect of the three types of forgotten memory questions, $F(2, 1994) = 540.18$, and the seven therapy bins, $F(6, 997) = 21.86$. For the upsetting, traumatic, and abuse plots considered individually, the ANOVAs are $F(6, 997) = 16.99$, $F(6, 997) = 9.66$, and $F(6, 997) = 10.77$, respectively (all $ps < .0001$). There were strong linear trends measured by a $-3, -2, -1, 0, 1, 2, 3$ planned comparison of $F(1, 997) = 100.72$, $F(1, 997) = 53.39$, and $F(1, 997) = 62.85$, respectively (all $ps < .0001$). The sums of squares of the linear trends account for 99, 92, and 97% of the sums of squares of the effect of the therapy scale.

The results also revealed a significant interaction, $F(12, 1994) = 3.48$, $p < .0001$. Given the strong linear relationships just demonstrated, this interaction can be seen as being caused by the different slopes of the lines in Figure 1. The mean estimate of the probability of a forgotten memory in the participants who estimated their chances of entering therapy at .0 are the three points on the far left of Figure 1. For the upsetting, traumatic, and abuse items, they are

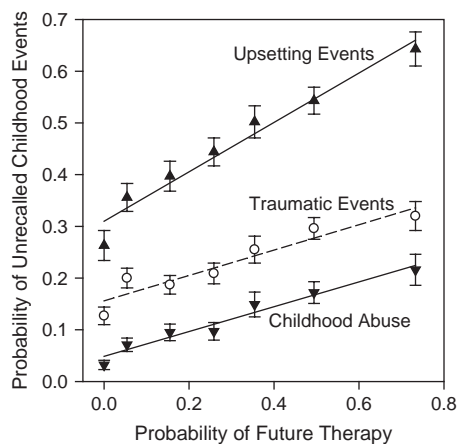


Figure 1. The probability of forgotten childhood upsetting, traumatic, and abuse memories as a function of the participants' estimated probability of entering psychotherapy. Error bars are standard errors.

.26, .13, and .03, respectively. Participants who estimated their chances of entering therapy at .6 or above are the points on the far right of Figure 1. For the upsetting, traumatic, and abuse items, they are .64, .32, and .22, respectively. Thus, in terms of differences, the upsetting events have twice the increase of the traumatic and abuse events (i.e. $.38 = .64 - .26$ versus $.19 = .32 - .13$ and $.19 = .22 - .03$). However, in terms of percentages, the upsetting and traumatic events both increased by 246% ($.64/.26$ and $.32/.13$), which is one third the 733% percentage increase of the abuse items ($.22/.03$). Thus, in terms of differences, the upsetting events increased most, but in terms of ratios the abuse questions did so. As is often the case with non-crossover interactions, this makes interpretation of the interaction difficult without a priori reasons for favouring one measure over the other.

The correlations among estimates of entering therapy and forgotten memories of extremely upsetting events, traumatic events, abuse, and all five items regarding forgotten memories combined are .30, .23, .25, and .33, respectively; all $r(1002)$, all $ps < .0001$. To examine whether this relationship might be understood, or even fully explained, by several fairly obvious factors that could affect both estimates, we included measures of negative affectivity or neuroticism (NA), negative mood (QIDS and PA), PTSD symptom severity (PCL), the extent to which individuals make traumatic events central to their lives (CES), how many different kinds of traumas individuals experienced (TEQ), and gender (male = 0, female = 1). These variables were allowed to enter simultaneously into a multiple regression as long as their contributions were significant at the $p < .05$ level. Table 1 presents the results in terms of standardised beta weights so that the measures can be compared more directly to each other. In all the regression equations, the estimate of entering therapy remained a substantial predictor.

Although it was not the focus of the paper, given our measures we have the data to ask what predicts estimates of the probability of entering therapy. Using the same variables and methods, and the forgotten memory measure based on all five memory items, the multiple regression is: $\text{therapy} = .21 \text{ forgotten memory} + .10 \text{ PCL} + .13 \text{ QIDS} + .13 \text{ NA} + .12 \text{ gender}$, $r^2 = .20$. Unlike the predictions of forgotten memories, being female is a predictor, but the TEQ measure of past traumas does not enter, implying that the reported number

TABLE 1
Multiple regressions of probability estimates of forgotten events.

<i>Dependent variable</i>	<i>Independent variable beta weights</i>							<i>R</i> ²
	<i>Therapy</i>	<i>TEQ</i>	<i>PCL</i>	<i>QIDS</i>	<i>NA</i>	<i>CES</i>	<i>Gender</i>	
Upsetting events	.18	.14	.10	.17		.08		.29
Traumatic events	.16	.26			.13		-.06	.29
Abuse	.13	.24	.17	.11				.20
All combined	.19	.32	.10	.11	.08			.29

All beta weights have $p < .05$.

of past traumas has its effect through the other measures.

DISCUSSION

In a large sample of undergraduates we found a linear relationship between estimates of the likelihood of entering psychotherapy and the likelihood of unrecalled memories of upsetting childhood events, potentially life-threatening traumatic childhood events, and childhood abuse. Estimates of entering therapy and of having forgotten very negative childhood events are related, but this does not imply that one causes the other. Such estimates do not exist in isolation. A likely reason for the relation is that both estimates are part of a larger constellation of beliefs about the efficacy of therapy and what a therapist can understand or uncover that is hidden from the patient. In addition, other factors correlate with belief in forgotten memories of trauma including the number of different kinds of traumas experienced, negative mood, and PTSD symptom severity. Nonetheless, the relations between estimates of forgotten memories and entering therapy remain when these other factors are considered.

Assuming people's predictions about entering psychotherapy are fairly accurate indicators of their future behaviour, the people who are more likely to enter therapy are the same people who are likely to believe that they could have forgotten memories of their own childhood trauma or abuse. No matter how this co-occurrence is caused, it poses a serious risk. Such a person may seek therapy with a psychotherapist who has the empirically well-supported belief that trauma or abuse in childhood can cause serious psychological problems (e.g., Johnson, Cohen, Brown, Smailes, & Bernstein, 1999) and the empirically less well-supported belief that it is common for such abuse

to be repressed but recoverable through prolonged psychotherapy (Geraerts et al., 2007; Kihlstrom, 2005; Loftus & Davis, 2006; McNally & Geraerts, 2009). The person's chances of creating a memory of childhood trauma or abuse in therapy are increased by their belief in unconscious, repressed, recovered, or forgotten childhood trauma and abuse memories. Our results point out, in a quantitative fashion, the need for caution.

Participants who estimated the probability of entering therapy in the future at greater than .6, estimated the probability that they themselves had forgotten one or more incidents of their own childhood abuse at .22. This value is high enough to allow the creation of a memory not to be hindered. For example, if you estimated that the chances that you forgot to lock your car or house at .22, you probably would not be surprised to find that you did not lock it, and you might even want to go back and check. If you estimated the chances that you were abused as a child at .22 you probably would not object to considering this as a cause for current problems, and you might even want to consider going back to your memory to check. Moreover, the .22 value is a mean of all participants who estimated the probability of entering therapy in the future at greater than .6. The half of these participants who had the highest estimates of childhood abuse had a mean of .42 for forgotten childhood abuse, and the top quartile had a mean of .66. Thus, among those who think it is likely that they will enter therapy, there are many who find their own forgotten abuse likely.

Most attention has been drawn to the idea of forgotten memories of childhood abuse. However, a milder but related form of the same issue exists in any therapy that tries to uncover forgotten traumatic or stressful memories. It also occurs in post-traumatic stress disorder, where one of the 17 official symptoms is an

“inability to recall an important aspect of the trauma” (American Psychiatric Association, 2000, pp. 467–468; Rubin, Berntsen, & Bohni, 2008). Our results may also help to explain the strongly held divergent views among professionals concerning forgotten memories of childhood trauma and abuse. Most people find it improbable that they themselves could have a forgotten memory of negative events as important as childhood abuse. Others, especially those who accept the efficacy of therapy for themselves, have a different probability estimate. Such basic beliefs may be hard to change.

Our data show that people who expect to enter therapy also believe that it is more likely that they have forgotten memories of trauma and abuse. The co-occurrence of these two sets of beliefs increases the potential for psychotherapy to create false memories.

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REFERENCES

- Alba, J. W., & Hasher, L. (1983). Is memory schematic? *Psychological Bulletin*, *93*, 203–231.
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed. text revision). Washington, DC: American Psychiatric Association.
- Baker, R. A. (Ed.). (1998). *Child sexual abuse and false memory syndrome*. Amherst, NY: Prometheus Books.
- Bartlett, F. C. (1932). *Remembering: A study in experimental and social psychology*. London: Cambridge University Press.
- Berntsen, D., & Rubin, D. C. (2006). Centrality of Events Scale: A measure of integrating a trauma into one’s identity and its relation to post-traumatic stress disorder symptoms. *Behaviour Research and Therapy*, *44*, 219–231.
- Blanchard, E. B., Jones-Alexander, J., Buckley, T. C., & Forneris, C. A. (1996). Psychometric properties of the PTSD checklist (PCL). *Behavior Research and Therapy*, *34*, 669–674.
- Brandon, S., Boakes, J., Glaser, D., & Green, R. (1998). Recovered memories of childhood sexual abuse: Implications for clinical practice. *British Journal of Psychiatry*, *172*, 296–307.
- Brewer, W. F., & Nakamura, G. V. (1984). The nature and function of schemas. In R. S. Wyer Jr. & T. K. Srull (Eds.), *Handbook of social cognition* (Vol. 1, pp. 119–160). Hillsdale, NJ: Lawrence Erlbaum Associates Inc.
- Conway, M. A. (Ed.). (1997). *Recovered memories and false memories*. Oxford, UK: Oxford University Press.
- Crawford, J. R., & Henry, J. D. (2004). The Positive and Negative Affect Schedule (PANAS): Construct validity, measurement properties and normative data in a large non-clinical sample. *British Journal of Clinical Psychology*, *43*, 245–265.
- Gallo, D. A. (2006). *Associative illusions of memory: False memory research in DRM and related tasks*. New York: Psychology Press.
- Geraerts, E., Schooler, J., Merckelbach, H., Jelicic, M., Hauer, B., & Ambadar, Z. (2007). The reality of recovered memories: Corroborating continuous and discontinuous memories of childhood sexual abuse. *Psychological Science*, *18*, 564–568.
- Johnson, J. G., Cohen, P., Brown, J., Smailes, E. M., & Bernstein, D. P. (1999). Childhood maltreatment increases risk for personality disorders during early adulthood. *Archives of General Psychiatry*, *56*, 600–606.
- Kihlstrom, J. F. (2005). Dissociative disorders. *Annual Review of Clinical Psychology*, *1*, 227–253.
- Loftus, E. F., & Davis, D. (2006). Recovered memories. *Annual Review of Clinical Psychology*, *2*, 469–498.
- Lynn, S. J., & McConkey, K. M. (Eds.). (1998). *Truth in memory*. New York: Guilford Press.
- McNally, R. J., & Geraerts, E. (2009). A new solution to the recovered memory debate. *Perspectives on Psychological Science*, *4*, 126–134.
- Pezdek, K., & Blandon-Gitlin, I. (2009). Planting false memories for childhood sexual abuse only happens to emotionally disturbed people . . . not me or my friends. *Applied Cognitive Psychology*, *23*, 162–169.
- Pezdek, K., Blandon-Gitlin, I., & Gabbay, P. (2006). Imagination and memory: Does imagining events lead to false autobiographical memories? *Psychonomic Bulletin & Review*, *13*, 764–769.
- Roediger, H. L., & McDermott, K. L. (1995). Creating false memories: Remembering words not presented in lists. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *21*, 803–814.
- Rubin, D. C. (1995). *Memory in oral traditions: The cognitive psychology of epic, ballads, and counting-out rhymes*. New York: Oxford University Press. [Paperback edition, 1997.]
- Rubin, D. C., & Berntsen, D. (2007). People believe it is plausible to have forgotten memories of childhood sexual abuse. *Psychonomic Bulletin & Review*, *14*, 776–778.
- Rubin, D. C., & Berntsen, D. (2009). Most people who think that they are likely to enter psychotherapy also think it is plausible that they could have forgotten their own memories of childhood sexual abuse. *Applied Cognitive Psychology*, *23*, 170–173.
- Rubin, D. C., Berntsen, D., & Bohni, M. K. (2008). A memory-based model of post-traumatic stress disorder: Evaluating basic assumptions underlying the PTSD diagnosis. *Psychological Review*, *115*, 985–1011.
- Rumelhart, D. E., Smolensky, P., McClelland, J. L., & Hinton, G. E. (1986). Schemata and sequential thought processes in PDP models. In J. L. McClelland, D. E. Rumelhart, & the PDP Research Group (Eds.), *Parallel distributed processing: Explorations in the microstructure of cognition, Vol. 2*,

- Psychological and biological models* (pp. 7–57). Cambridge, MA: MIT Press.
- Rush, A. J., Trivedi, M. H., Ibrahim, H. M., Carmody, T. J., Arnow, B., Klein, D. N., et al. (2003). The 16-item Quick inventory of Depressive Symptomatology (QIDS), clinician rating (QIDS-C), and self-report (QIDS-SR): A psychometric evaluation in patients with chronic major depression. *Biological Psychiatry*, *54*, 573–583.
- Scoboria, A., Mazzoni, G., Kirsch, I., & Relyea, M. (2004). Plausibility and belief in autobiographical memory. *Applied Cognitive Psychology*, *18*, 791–807.
- Trivedi, M. H., Rush, A. J., Ibrahim, H. M., Carmody, T. J., Biggs, M. M., Suppes, T., et al. (2004). The Inventory of Depressive Symptomatology, Clinician Rating (IDS-C) and Self-Report (IDS-SR), the Quick Inventory of Depressive Symptomatology, Clinician Rating (QIDS-C) and Self-Report (QIDS-SR) in public sector patients with mood disorders: A psychometric evaluation. *Psychological Medicine*, *34*, 73–82.
- Vrana, S., & Lauterbach, D. (1994). Prevalence of traumatic events and post-traumatic psychological symptoms in a nonclinical sample of college students. *Journal of Traumatic Stress*, *7*, 289–302.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS Scales. *Journal of Personality and Social Psychology*, *47*, 1063–1070.
- Weathers, F., Litz, B., Herman, D., Huska, J., & Keane, T. (1993, October). *The PTSD checklist (PCL): Reliability, validity, and diagnostic utility*. Poster presented at the Annual Convention of the International Society for Traumatic Stress Studies, San Antonio, TX.