

Detecting Clinical and Simulated Dissociative Identity Disorder With the Test of Memory Malingering

Bethany L. Brand
Towson University

Aliya R. Webermann
University of Maryland, Baltimore County

Briana L. Snyder and Parisa R. Kaliush
Towson University

Objective: Few studies have assessed malingering in individuals with complex trauma and dissociation. This is concerning because these individuals' severe and ranging symptoms are associated with elevations on some, but not all, validity scales that detect symptom exaggeration. Dissociative individuals may experience dissociative amnesia, yet no study to date has examined how to distinguish clinical from malingering amnesia with dissociative samples. The current study examined whether the Test of Memory Malingering (TOMM) can accurately distinguish patients with clinically diagnosed dissociative identity disorder (DID) and simulators coached to imitate DID. **Method:** Utility statistics classify individuals' TOMM scores as suggestive of clinical or simulated DID. TOMM scores from 31 patients diagnosed with DID via structured interviews were compared to those of 74 coached DID simulators. **Results:** Discriminant analyses found scores from TOMM Trials 1 and 2 and total TOMM scores accurately classified clinical or simulated DID group status. In addition, TOMM Trial 1 demonstrated high specificity (87%) and positive predictive power (94%), as well as moderate sensitivity (78%), negative predictive power (63%), and overall diagnostic power (81%). Despite exposure to DID-specific information, simulators were not able to accurately feign the DID group's TOMM scores, which is inconsistent with the iatrogenic/sociocultural model of DID. **Conclusion:** The TOMM shows promise as useful in clinical and forensic contexts to detect memory malingering among DID simulators without sacrificing specificity. Accurate distinction between genuine and feigned complex trauma-related symptoms, including dissociative memory, is integral to the accurate diagnosis of traumatized populations.

Clinical Impact Statement

This study examines whether the Test of Memory Malingering (TOMM) can identify individuals with clinical dissociative identity disorder (DID) from students coached on malingering DID. Amnesia is a hallmark symptom of DID. Analyses found TOMM scores accurately identified clinical and malingering DID participants and that simulators were not able to malingering DID. This study is the first to validate the TOMM among individuals with complex trauma and dissociation, a short measure appropriate for clinical and forensic settings. This is crucial given the severe symptomatology and high costs associated with untreated DID, which can be attenuated through accurate diagnosis and treatment.

Keywords: dissociation, trauma, malingering, dissociative identity disorder, feigning

Knowledge of and interest in the assessment and treatment of complex trauma has increased in recent years. Researchers and practitioners in the trauma field use the term *complex trauma* to

describe experiences of multiple and prolonged traumas that often are of early life onset and interpersonal in nature (van der Kolk, 2005). Complex trauma has many adverse psychological outcomes, including but not limited to posttraumatic stress disorder (PTSD) and dissociative disorders (DDs; American Psychiatric Association [APA], 2013; Brand et al., 2013; Dalenberg, Brand, et al., 2012; Foote, 2013; Putnam, 1991). The impact of interpersonal trauma is additive; those with multiple types of traumas and more severe traumas (e.g., childhood sexual abuse) tend to evidence more complex comorbid psychopathology (Briere, Dietrich, & Semple, 2016; Briere, Kaltman, & Green, 2008; Cloitre, Miranda, Stovall-McClough, & Han, 2005; Putnam, Harris, & Putnam, 2013). A common outcome of childhood trauma is dissociation,

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Bethany L. Brand, Department of Psychology, Towson University; Aliya R. Webermann, Department of Psychology, University of Maryland, Baltimore County; Briana L. Snyder, Department of Nursing, Towson University; Parisa R. Kaliush, Department of Psychology, Towson University.

Correspondence concerning this article should be addressed to Bethany L. Brand, Department of Psychology, Towson University, 8000 York Road, Towson, MD 21252. E-mail: bbrand@towson.edu

which individuals may utilize to cope with unbearable trauma, especially trauma perpetrated by a caregiver (Dalenberg, Brand, et al., 2012; Freyd, 1996; Loewenstein & Putnam, 1990; Putnam, 1991; Spiegel, 1984). Individuals with the most chronic and severe DD, dissociative identity disorder (DID), report childhood abuse rates of 80–95% (Brand et al., 2009; Dalenberg, Brand, et al., 2012; Putnam, Guroff, Silberman, Barban, & Post, 1986), compared to 4–37% in the general public (Finkelhor, Turner, Shattuck, & Hamby, 2015; Stoltenborgh, van Ijzendoorn, Euser, & Bakermans-Kranenburg, 2011).

Awareness of dissociation has expanded within the most recent iteration of the *Diagnostic and Statistical Manual of Mental Disorders (DSM–5; APA, 2013)*. The *DSM–5* describes dissociative symptoms as those that yield discontinuity and fragmentation in identity, memory, consciousness, affect, senses, motor functioning, and bodily control. A dissociative subtype, encompassing depersonalization (one's self feeling unreal) and derealization (one's environment seeming unreal), was added as a specifier to PTSD in the *DSM–5* due to research showing that between 12% and 30% of PTSD patients show pronounced dissociative features along with a pattern of symptomatology, risk factors, and neurobiology that distinguishes them from nondissociative PTSD patients (Armour, Karstoft, & Richardson, 2014; Dalenberg, Glaser, & Alhassoon, 2012; Lanius, Brand, Vermetten, Frewen, & Spiegel, 2012; Lanius et al., 2010). Dissociation and the DDs, particularly DID, remain largely underresearched and often misunderstood and misdiagnosed (Akyüz, Doğan, Şar, Yargıç, & Tutkun, 1999; Brand, Loewenstein, & Spiegel, 2014; Brand, Webermann, & Frankel, 2016; Dorahy et al., 2014; Vissia et al., 2016). The lack of training about complex trauma and DDs among mental health professionals contributes to difficulty in accurately diagnosing DDs (Brand, Armstrong, & Loewenstein, 2006; Courtois & Gold, 2009; Dorahy et al., 2014), treatment delays, and patients feeling misunderstood and poorly treated (Leonard, Brann, & Tiller, 2005).

Detecting Psychological Malingering and Feigning Among Dissociative Patients

Individuals may mangle to obtain financial gain or beneficial legal outcomes, or for care from clinicians and others (Guriel & Fremouw, 2003). Any psychological disorder can be malingered, including DDs. Some people may mangle DID due to the belief that claiming amnesia for criminal behavior or claiming to have conducted a crime while in a dissociated self-state may result in reduced sanctions. Research is emerging that can guide clinicians in distinguishing feigned from clinical DID. However, making the differential diagnosis between clinical versus malingered DID is complicated by the fact that items that are dissociative in nature are included on some personality tests' validity and clinical scales. For example, the Personality Assessment Inventory's (PAI) Negative Impression Management (NIM) scale, which was developed to detect exaggeration of symptoms, includes items inquiring about loss of memory and having multiple personalities (Morey, 1991). Both of these are *DSM–5* required symptoms of DID; it is not surprising that individuals with DID have elevated ratings on the NIM and other scales that include dissociative items (Stadnik, Brand, & Savoca, 2013). Yet individuals with DID score below cutoffs on the PAI's validity subscales that do not include dissociative and trauma-related items (Brand et al., 2013). Importantly for the validity of the diagnosis, DID individuals do not usually

score higher than other samples with childhood abuse on validity scales of measures including the PAI, the Minnesota Multiphasic Personality Inventory–2 (MMPI-2), and the Structured Interview of Reported Symptoms (SIRS and SIRS-2), if the scales do not include trauma-related content (Brand & Chasson, 2015; Brand, Chasson, et al., 2016).

Studies using the Structured Interview of Reported Symptoms–2 (SIRS-2; Rogers, Sewell, & Gillard, 2010) indicate that if the Trauma Index is used, feigners can be distinguished from DID patients with overall diagnostic power (ODP) as high as 83.3 (Brand, Tursich, Tzall, & Loewenstein, 2014). The Trauma Index is an empirically derived index of subscales that accurately classifies severely traumatized individuals because, unlike some SIRS/SIRS-2 subscales, its subscales do not include dissociative and trauma-related items. Without the Trauma Index, the overall utility of the SIRS/SIRS-2 is considerably lower among patients with DID (i.e., ODP on SIRS ranges from 61.1–66.7 and ODP on SIRS-2 ranges from 58.7–71.4). Brand and Chasson (2015) examined differences in MMPI-2 validity scales among those with clinical versus simulated DID (e.g., coached and uncoached simulators) and found that although DID patients demonstrated elevations on four MMPI-2 overreporting scales (e.g., “faking bad” and infrequency scales), DID simulators scored even higher; thus, these MMPI-2 validity scales were effective in distinguishing between clinical and simulated DID. As many as 15% of the DID patients had F and Fb scores higher than 100T, which could lead assessors to misclassify them as malingering. Despite the validity scores being extremely elevated, the DID group's scores were similar to those of PTSD samples with complex trauma (Rogers, Sewell, Martin, & Vitacco, 2003) and less elevated than those found in some childhood sexual abuse survivors without DID (Elhai, Gold, Mateus, & Astaphan, 2001). This growing area of research shows the importance of validating forensic measures and validity scales with complex trauma populations, including DID samples. To date, no study has examined the Test of Memory Malingering (TOMM; Tombaugh, 1997) with DID samples, although this test has been found to be useful in distinguishing feigned from clinical PTSD (see below) and by forensic experts working with DDs (including the first author as well as Dalenberg, 2009). Given DID patients are required by *DSM–5* criteria to experience amnesia, it is important to determine how those with clinical DID and DID simulators perform on this test of malingered memory deficits.

TOMM

The TOMM is a visual recognition memory test designed to detect lack of cognitive effort, although to examinees, it appears to be a test of visual memory (Tombaugh, 1997). The TOMM includes two learning trials in which 50 drawings of everyday objects are shown to the examinee in a row. The TOMM elicits a possible score of 50 for Trials 1 and 2 and a total combined score of 100. Low scores indicate possible exaggeration of memory deficits. The test encourages underperformance among feigners by giving an impression of being difficult, despite being a relatively easy test in which to obtain a perfect or near-perfect score, as individuals often underestimate their ability to store and retrieve visual information (Tombaugh, 1997). Individuals with genuine cognitive deficits, including intellectual disability, dementia, trau-

matic brain injury, and aphasia, obtained an average score of > 45 by Trial 2 (Tombaugh, 1997). A score of 45 (specifically 44 points or less) is typically used as a cutoff score to indicate a lack of effortful performance and potential malingering (Love, Glassmire, Zanolini, & Wolf, 2014).

The use of TOMM with traumatized populations is limited. Simotas (2000) found that individuals high in dissociation via the Dissociative Experiences Scale–II (DES-II; Carlson & Putnam, 1993) were no more likely to exaggerate memory impairment than those with low trait dissociation. Similarly, TOMM scores of individuals endorsing high amnesia on the Dissociative Experiences Scale (DES) did not differ from those with low amnesia. The TOMM showed considerable promise in distinguishing clinical versus simulated PTSD and clinical PTSD versus healthy controls (Connell, 2005). Connell (2005) created a Malingering Scale, a composite score that combined cutoffs from a number of validity measures, one of which was the TOMM. The Malingering Scale misclassified two PTSD individuals with high dissociation, leading Connell to conclude that “dissociation may negatively impact the ability to distinguish between groups” (p. 113). However, when using the TOMM cutoffs alone, every individual with PTSD, even those high in dissociation, scored above 48 on Trial 2. The TOMM also performed moderately well in distinguishing PTSD versus feigned PTSD among African immigrants who had been tortured (Weiss & Rosenfeld, 2017). Specifically, TOMM scores misclassified 12.5% of the low PTSD group and none of the high PTSD group, but they only detected 42.9% of the feigning group. This low sensitivity rate led the authors to conclude that assessors can be confident that if individuals are classified as feigning on the TOMM, they are quite likely to be feigning, although those who are not classified as feigning should not be assumed to be genuine.

The present study examined whether the TOMM could distinguish between individuals with DID and DID simulators. We hypothesized that TOMM scores from Trial 1, Trial 2, and the sum of both trials would accurately differentiate clinical from simulated DID. In addition, we hypothesized that the simulated DID group would have significantly lower TOMM scores than would those with clinical DID, indicating the simulators would perform in such a way as to give the impression that they have memory difficulties.

Method

Participants

DID participants. Thirty-one individuals diagnosed with DID were recruited from either a Mid-Atlantic psychiatric inpatient unit ($n = 22$, 71%) or local outpatient private practices ($n = 9$, 29%). The inpatient unit specializes in the assessment and treatment of trauma disorders, including DDs. Inpatient participants were recruited through announcements made during community meetings and were encouraged to speak with their treatment team (i.e., psychiatrist and therapist) if interested in participating. The study was approved by the ethics board at the sponsoring psychiatric organization. Outpatient participants were recruited through their therapists, who were informed of the study through mental health professional listservs and e-mail announcements about the study. The inpatient treatment team or outpatient therapist determined if patients were stable and suitable for participation in the study, considering their clinical histories, ability to tolerate study tasks, and whether they met inclusion criteria,

including having a DID diagnosis. In addition to being recommended for participation by their treatment providers, all DID participants had to be clinically diagnosed with DID, 18 years or older, able to read English at the eighth-grade level, currently in psychotherapy, and able to complete study tasks without becoming significantly distressed. None of the patients were involved in litigation or disability evaluations, and there were no known reasons for them to feign their disorders or any suspicion that they were feigning psychopathology. Patients with psychotic disorders and traumatic brain injuries were excluded. Patients with other comorbid psychiatric disorders were not excluded in order for results to generalize to the DID patient population, which exhibits high rates of PTSD, depression, anxiety disorders, eating disorders, personality disorders, and substance use disorders (Brand & Chasson, 2015; Brand et al., 2009; Foote, 2013; Rodewald, Wilhelm-Göling, Emrich, Reddemann, & Gast, 2011). DID patients' diagnoses were confirmed via the Structured Clinical Interview for *DSM-IV* Dissociative Disorders–Revised (SCID-D-R; Steinberg, 1994), which was conducted by the first author (B.L.B.), an expert in DDs, or senior research assistants, under the supervision of the first author. Two patients were excluded from data analyses because the first author determined they did not meet SCID-D-R criteria for DID (i.e., they met criteria for dissociative disorders not otherwise specified and possibly DID, but to be conservative, they were not included in the study). DID participants' ages ranged from 19 to 60 years ($M = 43.16$, $SD = 12.04$), and the majority identified as female ($n = 30$, 96.8%). Participants were Caucasian ($n = 28$, 90.3%), African American ($n = 2$, 6.5%), and Hispanic/Latino/a ($n = 1$, 3.2%). In addition, 74.2% had at least a college degree, and 38.7% ($n = 12$) were single (nonmarried), 38.7% ($n = 12$) were married, and 22.6% ($n = 7$) were divorced.

Simulated DID participants. Seventy-four students were recruited from the psychology research pool at a Mid-Atlantic university and coached to simulate DID. These participants were required to be at least 18 years of age, a registered student at the sponsoring university in which the study took place, and below the DES cutoff of 30 suggestive of a possible DD (Carlson & Putnam, 1993). Their ages ranged from 18 to 47 years old ($M = 20.86$, $SD = 4.23$). Furthermore, 54 (72.4%) identified as female, 19 (26.3%) as male, and one (1.3%) as transgender. Forty-seven (63.2%) participants identified as Caucasian, 14 (19.7%) as African American, 3 (3.9%) as Asian American, 3 (3.9%) as Hispanic/Latino, 6 (7.9%) as biracial, and 1 (1.3%) as other. The study was approved by the ethics board at the sponsoring university.

Measures

SCID-D-R. The SCID-D-R (Steinberg, 1994) is a 277-item semistructured interview that is considered the “gold standard” for diagnosing dissociative disorders. The SCID-D-R has good to excellent reliability and good discriminant validity (Steinberg, 1994, 2000).

DES. The DES (Bernstein & Putnam, 1986) is a 28-item self-report measure of dissociative symptoms with good reliability and validity (Carlson & Putnam, 1993). It was used as a screening instrument for dissociation among the simulated DID participants. The simulators gave accurate answers on the DES, and those with scores above 30 were removed to ensure that they did not have a DD (Bernstein & Putnam, 1986).

TOMM. The TOMM (Tombaugh, 1997) is a visual recognition memory test designed to measure cognitive effort in memory tasks. Each trial starts with the presentation of 50 common line-drawn images for 3 s each. These 50 pictures are followed by 50 panels, each containing one of the previously shown images and one new image. Participants receive a point each time they identify an image they had previously seen. Only the first two trials (100 items total) were used for the present study, as they are considered sufficient to detect malingering. Previous research has shown the TOMM to be highly successful in differentiating genuine versus feigned effort, classifying 95% of cases accurately (Love et al., 2014; Tombaugh, 1997). Internal consistency in the present sample was $\alpha = .98$.

Procedure

The data in this study were collected as part of a larger assessment project focused on detecting clinical and feigned DID. This study was approved by the institutional review boards of the sponsoring university as well as the sponsoring psychiatric inpatient unit specializing in the treatment of traumatized individuals. Prior to beginning participation, all participants read and signed an informed consent outlining study procedures, risks and inconveniences, and reiterating the voluntary nature of participation. DID participants completed a battery of tests and interviews, which took approximately 3–5 hr to complete. DID participants received two \$20 gift cards, one each at the beginning and end of the assessment. Participants were given opportunities for breaks throughout the assessment period and provided the option to temporarily discontinue the assessment or utilize additional support mechanisms as needed.

DID simulators completed their assessment packets in small groups in 90-min sessions. They gave informed consent, which indicated that they would receive extra credit for participating and have a chance to win a \$50 gift card if their responses were the most accurate portrayal of DID that semester. The simulators were told they did not need to behaviorally act as if they had DID; rather, they completed tests as if they had the disorder. Simulators honestly reported their background information on the Demographic Questionnaire and their dissociative experiences on the DES. Then, they were provided with factually accurate information about DID symptoms. They were required to obtain a score of 70% or higher on a test that described symptoms of DID and other psychiatric disorders to prove that they could accurately identify DID symptoms. Every simulator passed the knowledge test. After that, simulators were instructed to complete the TOMM, answering as though they had DID to the best of their ability. After completing the rest of the measures, simulators were told that the

\$50 gift card would be distributed randomly to ensure the anonymity of DES responses.

Analyses

Analyses were conducted using IBM SPSS Version 23. Discriminant function analysis (DFA) was used as a classification method to identify clinical versus simulated DID based on TOMM scores, including Trial 1, Trial 2, and total scores. DFA was utilized instead of such approaches as logistic regression because of the small sample size that would not have achieved adequate power to detect statistical effects in models that were parsimonious with only three predictors. All data-analytic assumptions of DFA were met.

Results

Descriptive statistics can be found in Table 1. The discriminant model statistics can be found in Table 2. The omnibus discriminant model was statistically significant, indicating that a participant's total TOMM score on Trials 1 and 2 significantly identified their DID status (i.e., whether a participant had DID or simulated DID), $\chi^2(2) = 37.75$, Wilks's $\lambda = .69$, $p < .001$, and the predictors accounted for 59% of the variance in the outcome, canonical correlation = .57. Trial 1 scores identified DID status, $F(1, 103) = 44.78$, $p < .001$, indicating that those with DID had higher TOMM scores on Trial 1 ($M = 47.55$, $SD = 4.62$) compared to those who simulated DID ($M = 34.19$, $SD = 10.68$). Trial 2 scores also identified DID status, $F(1, 103) = 34.95$, $p < .001$, indicating that those with DID had higher scores on Trial 2 of the TOMM ($M = 49.52$, $SD = 14.20$) compared to those who simulated DID ($M = 34.27$, $SD = 14.20$). Utility statistics based on the TOMM's trial predictions are listed in Table 3. The strongest utility scores were achieved with TOMM Trial 1 scores, wherein 81% of the participants were correctly classified. TOMM Trial 1 scores had a sensitivity of 78%, a specificity of 87%, a positive predictive value of 94%, and a negative predictive value of 63%. In addition, TOMM Trial 2 scores achieved acceptable utility scores and classified 73% of the participants correctly. TOMM Trial 2 scores had a sensitivity of 64%, a specificity of 97%, and a positive predictive value of 98% but a negative predictive value of only 53%.

Discussion

DID can be a severely debilitating pathology that is largely misunderstood and misdiagnosed in clinical settings (Brand, Loewenstein, et al., 2014; Brand, Webermann, et al., 2016). Inaccurate

Table 1
TOMM Descriptives for Simulated and Clinical DID Participants

DID status	Patient status	Trial 1, <i>M</i> (<i>SD</i>)	Trial 1 range	% below malingering cutoff (<i>n</i>)	Trial 2, <i>M</i> (<i>SD</i>)	Trial 2 range	Total, <i>M</i> (<i>SD</i>)	% below malingering cutoff (<i>n</i>)	Total range
Simulated DID	No DID	34.19 (10.68)	2–50	78.4 (54)	34.27 (14.26)	0–50	68.50 (23.62)	63.5 (47)	4–100
Clinical DID	Inpatient	47.32 (5.30)	34–50	13.6 (3)	49.32 (2.46)	39–50	96.64 (7.14)	4.5 (1)	75–100
Clinical DID	Outpatient	48.11 (2.42)	44–50	11.1 (1)	50.00 (.00)	50–50	98.11 (2.42)	0 (0)	94–100

Note. TOMM cutoff indicative of potential malingering ≤ 45 (score of 44 or below). DID = dissociative identity disorder; TOMM = Test of Memory Malingering.

Table 2
 Classification Results of Discriminant Function Analyses of TOMM Scores Predicting DID Status

Actual group membership	TOMM Trial 1 ^a : Predicted group membership				TOMM Trial 2 ^b : Predicted group status				TOMM total score ^c : Predicted group status			
	Simulated DID		Clinical DID		Simulated DID		Clinical DID		Simulated DID		Clinical DID	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Simulated DID	49	66.2	25	33.8	43	58.1	31	41.9	47	63.5	27	36.5
Clinical DID	3	9.7	28	90.3	1	3.2	30	96.8	2	6.5	29	93.5

Note. DID = dissociative identity disorder; TOMM = Test of Memory Malingering.

^a Total of 73.3% of original grouped cases correctly classified. ^b Total of 69.5% of original grouped cases correctly classified. ^c Total of 72.4% of original grouped cases correctly classified.

public and media portrayals of DID can fuel misunderstandings and skew people's, including clinicians', beliefs about the presentation and even existence of DID (Webermann & Brand, 2017). Individuals with DID may be harmed by clinicians' lack of knowledge and inability to accurately diagnose the condition, as they may suffer from stigmatization and improper treatment for their often life-threatening symptoms (Leonard et al., 2005).

Dissociative amnesia is a symptom required by the *DSM-5* for the diagnosis of DID. Given that some individuals may be motivated to malingering dissociative amnesia and/or DID, particularly in forensic assessments, it is both useful and necessary to scrutinize the utility of psychological and forensic tests in detecting clinical DID and distinguishing it from feigned DID. To achieve this goal, the present study examined whether the TOMM, a test used to measure cognitive effort, masked with the appearance of testing visual memory, could distinguish between individuals with clinical DID and coached, simulated DID. We hypothesized that the TOMM would differentiate the groups and that simulators would have significantly lower TOMM scores than would those with clinical DID. We found support for these hypotheses, indicating the simulators performed in such a way as to give the impression that they have memory difficulties. DID patients did not show this lack of effort, meaning they did not show any sign of feigning memory difficulties.

Our simulators were coached by researchers about DID symptoms, including amnesia. TOMM scores adequately distinguished

between simulated and clinical DID participants using both DFA and utility statistics for TOMM Trials 1 and 2. TOMM scores demonstrated superior specificity in correctly identifying DID (87% for Trial 1 and 97% for Trial 2) compared to the specificity of the MMPI-2's validity scores (i.e., F, Fb, Fp, Ds2) in correctly classifying DID versus simulated DID (i.e., specificity ranged from .60–.88 in Brand & Chasson, 2015). The TOMM's specificity scores are consistent with those for the SIRS-2 in correctly classifying DID compared to simulated DID (79.6–100%; Brand, Tursich, et al., 2014). However, the SIRS-2 performed less well than the TOMM in terms of overall accuracy of distinguishing feigned from clinical DID with the exception of the SIRS/SIRS-2 Trauma Index. The TOMM also outperformed the Trauma Symptom Inventory-2's (Briere, 2011) Atypical Response Scale (ATR) in distinguishing complex DD patients from coached DID simulators (ATR's ODP, .60–.73; Palermo & Brand, in press). In summary, the TOMM performed as well as or better than any standardized measure or subscale of feigning that has been studied thus far regarding utility in distinguishing feigned from clinical DID. TOMM scores misclassified only four DID participants in Trial 1 and one in Trial 2 while detecting 64–78% of the feigning group. These results are considerably better than those presented in the study of torture victims with PTSD in which the TOMM detected only 42.9% of the feigning PTSD group (Weiss & Rosenfeld, 2017). Our results suggest that assessors can be confident that TOMM classifications do not overclassify DID patients as feigners, although a significant number of feigners evaded detection.

The validity of the SCID-D-R DID diagnoses is supported by several methodological strengths. First, treatment providers referred only patients who they had clinically diagnosed with DID; for inpatients, this diagnosis was based on around-the-clock assessment by a treatment team with experience in diagnosing clinical and feigned DID, including factitious DID. Second, the DID diagnoses were made using the SCID-D-R, an interview that has efficacy in distinguishing patients who have been diagnosed by other means as genuine, factitious, and malingered (Draijer & Boon, 1999; Welburn et al., 2003). Third, the diagnoses were made directly by, or under the supervision of, the first author, a psychologist with clinical, research, and forensic experience in assessing various presentations of DID (i.e., genuine, factitious, simulated, and malingered). Fourth, none of the DID patients were undergoing litigation or attempting to secure disability; this decreases external motivation to feign symptoms. Fifth, in other analyses of these DID patients and simulators, the DID group was distinguished from sim-

Table 3
 Utility Statistics for TOMM Trial 1 and 2 Scores Based on DID Status

Status predicted by TOMM	Trial 1: Actual group status		Trial 2: Actual group status	
	Simulator	DID	Simulator	DID
Simulator (<i>n</i>)	58	4	47	1
DID (<i>n</i>)	16	27	27	30
Sensitivity		.78		.64
Specificity		.87		.97
PPV		.94		.98
NPV		.63		.53
ODP		.81		.73

Note. *N* = 105 for both trials. DID = dissociative identity disorder; TOMM = Test of Memory Malingering; PPV = positive predictive value; NPV = negative predictive value; ODP = overall diagnostic power.

ulators on the basis of MMPI-2 validity scales that are valid with complex trauma survivors as well as on the Trauma Index of the SIRS/SIRS-2; additionally, the DID sample's SIRS/SIRS-2 and MMPI-2 scores were consistent with those found in other DID and complex trauma samples (Brand & Chasson, 2015; Brand, McNary, Loewenstein, Kolos, & Barr, 2006; Brand, Tursich, et al., 2014). In summary, this study took considerable care to create a clinical DID group.

The TOMM shows promise in identifying whether an individual is likely to be exaggerating memory deficits when comparing groups with clinical versus feigned DID. This makes the TOMM valuable in clinical and forensic contexts as well as future research, as amnesia is a hallmark symptom of DID. Like other measures of malingering (e.g., the MMPI-2 and SIRS/SIRS-2), the TOMM was not developed specifically to be used with individuals with complex trauma and dissociation (Brand et al., 2017). However, the current study shows that the TOMM can differentiate those with DID from coached simulators with a high level of accuracy, particularly compared to research showing low utility rates with complex trauma patients (Brand & Chasson, 2015; Elhai et al., 2001; Elhai et al., 2004).

Limitations, Implications, and Future Research

The results are limited by a homogeneous DID sample that differed demographically from the simulator sample. Our results may not generalize to more diverse DID individuals involved in clinical and forensic cases. Furthermore, we used a simulation design rather than comparing the DID sample to a known sample of DID feigners. However, there is an advantage to studying undergraduate simulators. Specifically, their level of education and likely high intelligence may contribute to their being more sophisticated at simulation because successful simulators have been found to have more education and higher IQs than do unsuccessful simulators (Kanser et al., 2017). Another limitation is that we educated simulators on the symptoms of DID but not the necessity of evading detection on validity tests. Coaching feigners about both symptoms and the need to evade detection may result in a more stringent test of malingering (Lau et al., 2017). Future studies should compare symptom- and test-coached simulators to clinical DID patients and symptom-coached simulators to see if the TOMM is resistant to DID symptom plus test coaching, as it has proven to be among students coached to feign impairment (Jelicic, Ceunen, Peters, & Merckelbach, 2011). Future studies should include a control sample of forensic patients to further clarify the utility of the TOMM with DD populations.

Individuals with DID may exhibit symptoms of amnesia under conditions of high stress or when faced with a stimulus (i.e., trigger) that causes them to recall a traumatic experience (Frewen & Lanius, 2015). Thus, although participants with clinical DID did not exhibit amnesia on the TOMM during the present study, our assessment was not particularly stressful or triggering. Professionals using the TOMM in high-stakes contexts, such as forensic or immigration status assessments, should be mindful that stress may impact a genuinely dissociative person's performance.

Given their high rates of self-injury and suicide attempts, severe symptomatology, and comorbidity with mood disorders, substance use disorders, eating disorders, and trauma disorders, the costs of untreated or suboptimally treated DID are high. The health care

costs associated with DID treatment decline over time in treatment (Myrick, Webermann, Langeland, Putnam, & Brand, 2017). Those with DID are disproportionately represented among recipients of psychiatric disability (Mueller-Pfeiffer et al., 2012). Accurately detecting DID and feigned presentations of DID could result in cost savings to the criminal justice system, earlier and more accurate diagnoses, and referral for DID treatment for those found to have a genuine diagnosis, reducing suffering and disability. With accurate distinction between clinical DID and simulated or malingered dissociative amnesia and DID, researchers can more readily screen for DID. Although accurate diagnosis of clinical DID and malingered DID is challenging, well-validated tools and literature exist. Clinicians who want to claim competency in assessing trauma-related disorders in clinical and forensic contexts should be knowledgeable about the differential diagnosis of trauma-based reactions and disorders, including DID and other DDs.

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