Utility of the SIRS-2 in Distinguishing Genuine From Simulated Dissociative Identity Disorder

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Individuals with trauma histories often elevate on validity scales and forensic interviews intended to detect symptom exaggeration or "faking bad." A widely used forensic interview designed to detect feigned psychiatric illness, the Structured Interview of Reported Symptoms (SIRS; Rogers, Bagby, & Dickens, 1992), overclassifies individuals with complex trauma, including patients with dissociative identity disorder (DID), as feigners (Brand, McNary, Loewenstein, Kolos, & Barr, 2006; Rogers, Payne, Correa, Gillard, & Ross, 2009). However, a new Trauma Index shows promise of being useful in accurately distinguishing feigned versus genuine individuals with severe trauma (Rogers et al., 2009). No studies have examined the performance of the new edition of the SIRS, the SIRS-2 (Rogers, Sewell, & Gillard, 2010), with severely traumatized or dissociative individuals. This study sought to determine the utility of the SIRS, the SIRS-2, and the Trauma Index in distinguishing genuine DID from simulated DID. A sample of 49 DID patients was compared to 77 well-coached DID simulators. The SIRS classification rules combined with the Trauma Index, as well as the Trauma Index alone, provided the best balance of sensitivity and specificity, with similar overall diagnostic power. The SIRS-2, either alone or combined with the Trauma Index, was not as sensitive as the SIRS or Trauma Index alone. However, the SIRS-2 demonstrated excellent specificity.

Keywords: dissociative identity disorder, malingering, simulating, dissociation, SIRS-2

The past two decades have seen an increase in published studies regarding the ability for individuals to malinger psychological disorders for external incentives such as exculpation of legal offenses or financial benefit (Rogers, 1997). Experts estimate that rates of malingering range from approximately 7% in nonforensic settings (e.g., treatment facilities) to 17% in forensic settings (Rogers, Sewell, & Goldstein, 1994).

Complexities of Distinguishing Feigned From Genuine Dissociative Disorders

A burgeoning area of interest has been the malingering of posttraumatic stress disorder (PTSD). Cases involving individuals who were subsequently diagnosed with malingered PTSD after seeking external incentives (including Not Guilty by Reason of Insanity (NGRI) defenses, disability benefits, and monetary settlements) have been on the rise (Guriel & Fremouw, 2003). Dissociative identity disorder (DID) has been conceptualized as a childhood-onset posttraumatic developmental disorder and has been shown to have high rates of comorbid PTSD (Spiegel, 1986; Vermetten, Schmahl, Lindner, Loewenstein, & Bremner, 2006). Despite the overlap in PTSD and DID, little research has focused on the formal assessment of potential malingering in DID-diagnosed individuals (Brand, McNary, Loewenstein, Kolos, & Barr, 2006). Among the psychiatric disorders diagnosed in forensic cases, DID defenses are relatively uncommon due to lack of awareness of, and therefore assessment for, this disorder, as well as concern that a diagnosis of DID may be indicative of feigning, if defendants allege amnesia for acts ostensibly committed while experiencing the self as a "bad" dissociated personality state (Loewenstein & Putnam, 2004; Nakic & Thomas, 2012). Literature exists outlining the ways in which the courts have grappled with DID defendants, plaintiffs, and witnesses (e.g., Beahrs, 1994; Behnke, 1997; Farrell, 2011; Lewis & Bard, 1991; Nakic & Thomas, 2012; Saks & Behnke, 1997) and the differential diagnosis of malingered versus genuine DID in the criminal forensic

setting (Coons, 1991; Kluft, 1987; Lewis & Bard, 1991; Lewis, Yeager, Swica, Pincus, & Lewis, 1997; Loewenstein & Putnam, 2004).

Furthermore, DID may be feigned for "factitious" reasons. According to the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM–IV–TR*; American Psychiatric Association, 2000), factitious disorders are characterized by "the intentional production of physical or psychological signs or symptoms [in order to] assume the sick role" (p. 513). This contrasts with malingering, which is motivated by external factors such as financial or legal matters. Forensic psychologists have a tendency to ignore the possibility of factitious dissociation and label individuals with factitious DID as malingerers (Drob, Meehan, & Waxman, 2009). Further complicating the detection of feigning among psychiatric patients is the possibility of individuals presenting with a combination of genuine intermingled with factitious elaboration of some symptoms and/or elements of their history (Draijer & Boon, 1999).

While the rates of factitious psychiatric disorders among the general psychiatric population are estimated to range from 0.5%–6% (Eisendrath, 1995; Pope, Jonas, & Jones, 1982), the rates of factitious dissociative disorders (DD) have been found to be somewhat higher, ranging from 2%–14%, with higher rates in specialty DD units and those being referred to DD experts (Friedl & Draijer, 2000; Thomas, 2001). Individuals with fully or partially factitious DD have sometimes read about the disorder and its characteristics and may have learned how to better portray the disorder (Coons & Milstein, 1994; Draijer & Boon, 1999). Patients with factitious presentations of psychiatric disorders require different treatment than individuals with genuine disorders (Brown & Scheflin, 1999; Coons & Milstein, 1994; Ford, King, & Hollander, 1988). Given the high stakes in forensic and clinical settings, it is important to have more precise and well-defined methods to aid in discriminating factitious and malingered DID from genuine DID. Greater diagnostic accuracy will contribute to better-informed decisions in the legal, disability, and clinical arenas.

Research on Feigned Dissociative Identity Disorder

Despite the importance of accurate diagnosis, there remains little systematic data on detection of feigned DID, particularly using standard forensic assessment measures already in use for detecting malingering (Brand, McNary et al., 2006). Most of the research on feigned DID has been based on a collections of cases assessed by DD experts (e.g., Draijer & Boon, 1999; Thomas, 2001) using the Structured Clinical Interview for *DSM–IV* Dissociative Disorders (SCID-D/SCID-D-R; Steinberg, 1994) or the Dissociative Experiences Scale (DES; Bernstein & Putnam, 1986). However, a few systematic studies using standardized measures have been conducted. Coons and Milstein (1994) reported that 10% of 112 consecutive admissions to a DD unit were found to have factitious or malingered DID. Neither the self-report tests nor electroencephalograms (EEG) distinguished DID patients diagnosed by experts as genuine or feigned. Feigners were more likely to exhibit behaviors associated with deception such as refusal for collateral interviews, overly dramatic presentation, and inconsistent psychological signs and symptoms. However, a small percentage of patients diagnosed with DID (estimated to be less than 5% in the Kluft, 1987 research) present in a dramatic, seemingly exaggerated manner, illustrating the potential difficulty with relying on a patient's seemingly exaggerated presentation as an indicator of feigning (Kluft, 1987). Further complicating the diagnostic process, some patients meeting SCID-D-R criteria for DID present with characterological difficulties including antisocial features and partially factitious histories, medical, or psychological symptoms (Goodwin, 1988; Putnam, 1999). Additionally, traumatized individuals, particularly those with diagnosed with genuine DID, often elevate on validity and clinical scales, making it difficult to distinguish genuine traumatic and dissociative pathology from partially or fully feigned presentations (Brand & Chasson, 2014; Brand, Armstrong, & Loewenstein, 2006; Brown, 2009; Stadnik, Brand & Savoca, 2013; Welburn et al., 2003). Draijer and Boon (1999) used clinical judgment of DD experts using the SCID-D to successfully differentiate DID patients from non-DID patients who erroneously believed they had DID, whom they called "Imitative DID." Although this study illustrated the utility of DD experts' clinical judgment in distinguishing genuine and simulated DID, as well as the utility of the SCID-D interview, it did not provide empirical data that can assist in detecting feigned DID by nonexperts. There is a need for valid and reliable measures that are shorter than the SCID-D-R and feasible for evaluators to use, including those without expertise in DD that are more reliable than self-report measures for distinguishing feigned from genuine DID.

Guriel and Fremouw (2003) noted that the Structured Interview of Reported Symptoms (SIRS; Rogers, Bagby, & Dickens, 1992), which is the most widely used forensic measure of malingering (Archer, Buffington-Vollum, Stredny, & Handel, 2006), showed promise in potentially detecting malingered PTSD. While the SIRS does not specifically assess feigned PTSD or dissociation, it has a consistent record of differentiating genuine from feigned psychiatric disorders (Rogers, 1997). Only one study has investigated whether the SIRS can distinguish genuine from feigned DID using the SCID-D-R as the criterion for determining DID diagnosis (Brand, McNary et al., 2006). Brand, McNary et al. (2006) compared 43 "coached" or knowledgeable simulators to 20 SCID-D-R diagnosed DID patients and found that the SIRS incorrectly classified approximately 35% of the DID group as feigning. Simulators were found to have significantly higher mean scores than DID patients on four subscales: Symptoms Combinations (SC), Reported versus Observed Symptoms (RO), Symptom Onset (SO), and Inconsistency of Symptoms (INC; that is, symptoms that the patient reports inconsistently throughout the interview). DID patients had higher mean scores on all eight SIRS scales than those in a general psychiatric sample (Rogers, Kropp, Bagby, & Dickens, 1992). The DID simulators, who had received more coaching compared to simulators in most studies, had lower means than did a previously published comparison sample of coached feigners on all scales except RO (Rogers, Bagby, et al., 1992). The study demonstrated that the SIRS overclassified feigning in SCID-D-R diagnosed DID patients and that well-informed, motivated simulators were able to fairly successfully simulate DID and avoid detection on the SIRS.

Similar results were found by Rogers, Payne, Correa, Gillard, & Ross, 2009 in severely traumatized inpatients (*N* = 75; 45.7% with DID). The authors asked trauma patients to first respond honestly to the SIRS items and then to "role-play a person who is pretending to be totally disabled" (p. 431). The average sensitivity of the SIRS scoring rules ranged from .68 to .82, specificity ranged from

.68 to .81, and the positive and negative predictive power estimates were between .72 and .78. In response to these low utility scores, the authors developed a new scale, the Trauma Index (TI), to reduce false positives (i.e., incorrectly classifying genuine patients as feigners). The TI was developed after researchers found that even severely traumatized individuals with serious psychiatric illness rarely endorsed the following subscales (Brand, McNary et al., 2006; Rogers et al., 2009): Symptom Combinations (SC), Improbable or Absurd Symptoms (IA), and Reported versus Observed Symptoms (RO). The SC scale consists of pairs of common psychiatric symptoms that are not frequently reported in such combinations (e.g., obsessive symptoms that co-occur with grandiose delusional thinking). Items on the IA scale are "extreme variant[s] of rare symptoms . . . that have a fantastic or preposterous quality to them" (p. 32; Rogers, Sewell, & Gillard, 2010) and are therefore unlikely to be accurate among genuine psychiatric patients. The RO scale provides a measure of the consistency and accuracy of self-reported behavioral tendencies with those behaviors directly observed during the interview, which are scored as "Consistent (if the person accurately reports behaviors that are consistent with their behavior)," "Inconsistent (if the self-report does not match the person's behavior)," or "Suddenly Worse (if a behavior suddenly increases in frequency or intensity upon inquiry)". The TI consists of the sum total of these three scales, with TI scores above 6 on the TI interpreted as feigned. Rogers et al. (2009) found that the TI improved the specificity such that only 9% of severely traumatized patients, responding honestly, were misclassified as feigning, although the authors also reported decreased sensitivity to only 58% accurate identification of dishonest responding.

Responding to these and other studies indicating the SIRS criteria needed improvement, Rogers and colleagues recently published a second edition of the SIRS, the SIRS-2 (Rogers et al., 2010). The SIRS-2 items are identical to the SIRS items, but new scoring and interpretation criteria include additional interpretative scales and indices that evaluate questionable responses more thoroughly. To date, no studies have examined the SIRS-2's performance in severely traumatized populations including DID patients.

Goals and Hypotheses

The current study seeks to determine the accuracy of the SIRS, the SIRS-2, and the TI in distinguishing genuine DID from simulated DID. Our goal was to create highly knowledgeable simulators to approximate individuals with factitious DID who have had extensive exposure to information about DID including case descriptions, the Internet, and movies. The simulators in the present study were more knowledgeable about the disorder than are most simulators, thereby making this a rigorous test of the SIRS-2's ability to distinguish feigned from genuine DID. A stringent test of the SIRS-2 is important, given the difficulty in distinguishing genuine DID from factitious presentations of DID.

We hypothesized that the SIRS-2 scoring criteria would classify participants more accurately than the original SIRS criteria, and that the Coached Simulators would be classified as feigning more often than those in the SCID-D-R diagnosed DID group using the SIRS-2 classification rules. We further expected that DID patients would score above the "honest responding"/or genuine range on the scales measuring Subtle Symptoms (SU; i.e., symptoms that

might be seen as everyday problems rather than as indicative of mental illness yet actually occur in psychiatric disorders), Severity of Symptoms (SEV; i.e., symptoms endorsed as being unbearable), and Selectivity of Symptoms (SEL; i.e., high endorsement of a range of psychiatric problems) due to the range and severity of their symptoms. There are three items on the Rare Symptoms (RS) scale that may be dissociative in nature (i.e., feeling outside one's body, one's face looking unfamiliar in the mirror, and changes in the perception of one's body), which could also cause elevations among the DID group on RS scale. We hypothesized that the DID patients would not elevate on the TI, although we predicted that the Coached Simulators would elevate on TI.

Method

Participants

Coached simulating participants.[1] Seventy-eight undergraduate students were recruited from advanced psychology courses. This study sought to provide a very high level of knowledge to the coached simulators so that they approximated individuals with factitious DID who often have gathered information from books, professional articles, movies, and the Internet about DID. Simulating participants were required to read factually accurate material about DID obtained from the Internet and provided by the researchers, to read the book *Sybil* (Schreiber, 1973) and/or watch the motion picture based on the book, and to pass a knowledge test demonstrating their ability to distinguish the symptoms of DID from those of other psychiatric disorders prior to participation. The simulators were told they did not need to act as if they had DID; rather, they only had to answer test items and interviewer questions as if they had DID. Simulators were provided with several hours of course credit for participating if they passed the knowledge test, and a $50 incentive was provided for the best simulation each semester. Simulators were asked to truthfully complete the DES with individuals scoring above 30 being excluded to ensure that simulators did not have a true DD. In addition, one simulating participant was excluded from the analyses due to excessive missing data. Most of the 77 remaining simulators (*n* = 62; 82%) were female, and they ranged in age from 18–37 years (*M* = 21.7, *SD* = 3.2). Sixty-one simulating participants (80%) described themselves as Caucasian, seven as African American (9%), two as Hispanic or Latino (3%), one as Asian (1%), one as biracial (1%), and two (3%) did not specify an ethnic background.

DID participants. DID patients were recruited from an inpatient unit specializing in trauma disorders (*n* = 20; 40.8%) and from community outpatient therapy practices known for treating complex trauma patients (*n* = 29; 59.2%) via flyers inviting participation in a study about the assessment of DID. The outpatient and inpatient therapists informed those clients they had clinically diagnosed with DID about the study. The inpatients had been observed 24 hours per day for several days by a treatment team

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[1] A subset of these participants were used in the analyses previously published by Brand, McNary, Loewenstein, Kolos, and Barr (2006) using SIRS scoring and interpretation criteria. That smaller sample (*N* = 43 coached simulators, *n* = 20 DID) has been included in the current study to create larger samples and were analyzed using the SIRS-2 scoring and interpretation criteria.

experienced in assessing and treating DID, including distinguishing genuine from feigned DID. None of the patients were involved in litigation and none were seeking disability, so it was unlikely that they had external incentives to malinger DID. All DID participants were diagnosed by the first author, an expert in DID who has clinical, forensic, and research experience distinguishing feigned from genuine DID and who has encountered cases of genuine, exaggerated, imitative or factitious, as well as malingered DID in these contexts. Diagnoses were made using the Structured Clinical Interview for DSM–IV Dissociative Disorders-Revised (SCID-D-R). In order to remove DID participants who may have had psychotic features, extreme exaggeration, or other highly atypical responses, those with scores at or above 90 T on the Atypical Response Scale (ATR) from the Trauma Symptom Inventory (TSI; Briere, 1995) were excluded; only one patient was removed due to an elevated ATR. The 49 remaining DID participants used in the analyses ranged in age from 22 to 62 years ($M = 42.2$, $SD = 9.8$) and most (89%) were women. Forty-three (86%) participants identified as Caucasian, three as African American (6%), one as Asian (2%), one as Biracial (2%), and two (4%) did not specify an ethnic background. The DID participants did not differ significantly from the Coached participants in terms of gender ($\chi^2(1) = .79$, $p = .37$) or ethnicity ($\chi^2(5) = 3.88$, $p = .57$). Patients were paid $20 for their participation. Additionally, DID participants were offered the opportunity to have the first author provide a brief summary of their responses on the study's measures with the treating therapist (if the patient signed a release authorizing the disclosure of this information).

Measures

The Structured Interview of Reported Symptoms, 2nd Edition (SIRS-2; Rogers et al., 2010). The SIRS/SIRS-2 is frequently used for detecting feigning in forensic settings. The SIRS-2 is clinician administered interview developed to assess feigning of psychiatric symptoms. It is made up of the same eight primary scales and the same 172 items from the original SIRS. The SIRS-2 holds many advances over the SIRS including broader coverage and more in-depth analyses and discussion (Rogers et al., 2010). Moreover, changes have been implemented with regard to the scales and indexes. A new classification scale, the Rare Symptoms Total (RS-Total), and two new indices, the Modified Total Index (MT Index) and the Supplementary Scale Index (SS Index; to evaluate the use of disengagement to evade detection) were added to improve classification accuracy (Rogers et al., 2010). For cognitive issues, the Improbable Failure (IF) scale, which contributes to the SS Index, was added (Rogers et al., 2010). The primary scales remain unchanged from the original SIRS and are composed of Rare Symptoms (RS), Symptom Combinations (SC), Improbable and Absurd Symptoms (IA), Blatant Symptoms (BL), Subtle Symptoms (SU), Selectivity of Symptoms (SEL), Severity of Symptoms (SEV), and Reported versus Observed Symptoms (RO). The primary scales have demonstrated good internal consistency and excellent interrater reliability (Rogers et al., 2010). Items are rated on a 3-point likert scale, for the presence or absence of each symptom. Each subscale has its own set of cut points to indicate "genuine responding," "indeterminate responding," "probable feigning" and "definite feigning." Thus, references to "definite" using the SIRS terminology indicate that the SIRS

classifies the individual as *feigning*, rather than being classified as a having a disorder. Individuals are classified as feigning under the SIRS criteria if any of three conditions are met: if any SIRS-2 scale is in the "definite feigning" range; if three or more primary scales are in the "probable feigning" range; or if the sum total of SIRS-2 scores (all scores except repeated inquiries) is above 76.[2] The SIRS-2 comprehensive decision model (cf. Rogers et al., 2010, p. 38) provides for a more nuanced approach, classifying individuals into one of four classifications: Feigning, Indeterminate-Evaluate (i.e., additional evaluation of feigning beyond the SIRS-2 should be used to clarify if the individual is feigning), Indeterminate-General (i.e., the individual cannot be categorized on basis of the SIRS-2 so evaluators should look closely at other forms of data to clarify status), and Genuine Responding.

Trauma Index (Rogers et al., 2009). The TI is the sum of the scores SC, IA, and RO, scales that are relatively unelevated among severe trauma survivors (Rogers et al., 2009; Brand et al., 2006). If individuals exceed both the general SIRS-2 criteria for feigning as well as the TI cut score of 6, they are classified as feigning. The TI can be calculated from either version of the SIRS/SIRS-2.

Structured Clinical Interview for DSM–IV Dissociative Disorders-Revised (SCID-D-R; Steinberg, 1994). The SCID-D-R is a 277-item semistructured interview that quantifies five categories of dissociative symptoms and diagnoses the five *DSM–IV* DD. The SCID-D-R has good-to-excellent reliability and validity. The SCID-D-R has been shown to be the most reliable measure for distinguishing malingered, factitious or "imitative DID" from genuine DID (Draijer & Boon, 1999; Welburn et al., 2003). Only individuals clinically diagnosed with DID by their outpatient therapists or the inpatient team and who then had DID diagnoses confirmed with the SCID-D-R were included in this study.

Trauma Symptom Inventory (TSI; Briere, 1995). The TSI is a 100-item self-report assessment which includes 10 clinical scales of common trauma-related symptoms and three validity scales to assess atypical responding (ATR), inconsistency of responses, and potential underreporting of symptoms. The ATR was used to evaluate the possibility of exaggeration, psychotic symptoms, or other atypical features within the DID patient group.

Procedure

Each patient was diagnosed with DID using the SCID-D-R by the first author (BB), an expert in assessing DID and distinguishing it from feigned DID, or by a psychology postdoctoral fellow from the hospital's trauma disorders program, under the supervision of the first author (BB). DID participants were administered the SIRS by either the first author, by postdoctoral fellows from the trauma disorders program, or by research assistants who were trained in SIRS administration and had experience working with psychiatric inpatients. All SIRS interviews were supervised and scored by the first author.

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[2] In some studies (e.g., Brand, McNary et al., 2006), the SIRS total has been used as an equal and independent criterion for classification, whereas in others (e.g., Rogers et al., 2009), the SIRS total was only applied to cases in which 1–2 scales were in the Probable feigning range. Therefore, we tested each of these methods independently in the present sample.

Simulating participants were interviewed by senior undergraduate students enrolled in a specialized program for students intending to pursue graduate training in a mental health field. The interviewers had been formally trained in a semester-long course in diagnostic interviewing, had participated in clinical internships, and had received extensive training in SIRS administration and scoring, as recommended by Rogers et al. (2010). The interviewers were blind to the research literature and study hypotheses.

This study was part of a larger study investigating the assessment of DID and its simulation. In the larger study, we performed a manipulation check that assessed whether coached DID simulators were more knowledgeable about DID than were uncoached simulators (Brand & Chasson, 2014). The coached DID simulators reported exposure to significantly more sources of knowledge about DID than did an uncoached simulator group. The coached group scored higher on a knowledge test that required accurate identification of DID symptoms as well as distinguishing those symptoms from the symptoms indicative of other psychiatric disorders.

Data Analysis

Classifications of each participant based on the SIRS-2 and SIRS criteria were calculated. Individuals classified as Indeterminate on the SIRS were considered to be not feigning and were combined with the Genuine groups (i.e., genuine DID) for model evaluations. Since the SIRS-2 Indeterminate-Evaluate classification was designed to prompt further investigation, the SIRS-2 criteria were evaluated both by comparing those classified as Feigning to those otherwise classified and by comparing those classified as either Feigning or Indeterminate-Evaluate to those classified as Indeterminate-General, or Genuine. Trauma Index (TI) classifications were determined using the cut score of TI >6, as developed by Rogers et al. (2009). The TI was evaluated both independently and in conjunction with the other models (as an additional requirement for classification as Feigning). Supplemental between subjects t tests were used to compare groups on each of the SIRS-2 primary scales, while holding the False Discovery Rate (FDR; Benjamini & Hochberg, 1995) at 0.05. Statistical tests were conducted using SPSS version 20, and post hoc power analyses were conducted using G*Power version 3 (Faul, Erdfelder, Lang, & Buchner, 2007).

Missing data. A substantial minority of both simulators ($n = 7$) and DID participants ($n = 15$) failed to answer at least one item on the SIRS-2, despite being prompted to give an answer. Participants with DID with missing items tended to respond, "I don't know" on these missing items, particularly when answering questions related to appearance or personal habits, often citing distress related to looking at mirrors (on an item about the stability of their appearance) or poor awareness and/or recall for their habits or appearance. Although fewer of the coached participants had missing data, those who failed to respond to items tended to stare off into space and did not respond to the items; this appeared to be part of their "act" of simulating DID, even though they had been told they did not need to behaviorally enact DID. None of the DID participants demonstrated this unusual staring behavior. The SIRS-2 manual provides no guidelines for scoring of missing items, but automatic scoring of missing items as 0 could artificially lower the scale score. Thus, scale means were computed by averaging the item totals and multiplying by the total number of items in the given scale. One simulator was missing more than 10 items and was excluded from the analyses.

Results

A summary of the classification efficacies is provided in Tables 1 and 2. As shown in Table 1, use of the Trauma Index alone (without either the SIRS or SIRS-2 classifications) provided the highest overall diagnostic power (83.3%), with a sensitivity of 85.7% (i.e., proportion of feigners correctly identified by a test) and a specificity of 79.6% (i.e., proportion of genuine patients correctly identified by a test). The SIRS-2 classification rules (comparing individuals classified as Feigning to those classified as Genuine or Indeterminate) did not misclassify any DID participants but showed poor sensitivity, correctly classifying only 32.5% of the simulators as feigning. The SIRS-2 rules fared slightly better when those in the Indeterminate-Evaluate classification were also considered to be feigning, but 44.2% of simulators were still missed. Compared to the SIRS-2, the SIRS classification rules showed better sensitivity, particularly when the SIRS total cut score of 76 was applied, but this corresponded to substantial reductions in specificity, with false positive rates (i.e., 1–Specificity) between 57.1% and 63.3% of DID participants (see Table 2). The addition of the Trauma Index to the SIRS rules significantly improved overall classification rates, resulting in an overall diagnostic power of 81.0% when the Feigning criteria also included the SIRS Total cut score (see Table 2). The effect was most pronounced when the SIRS Total rule was applied to all participants, rather than only to "questionable cases" (i.e., individuals with 1–2 scores in the probable feigning range).

As hypothesized, the majority of SCID-D-R diagnosed DID patients scored above the Genuine range on SU (92%), SEL (100%), and SEV (80%). As shown in Table 3, a substantial number of the DID group's scores were in the Probable or Definite ranges on these scales. Between-subjects t tests of each of the individual SIRS and SIRS-2 scales revealed that simulators scored significantly higher than DID participants on each of the Primary Scales except the SU scale, as well as on each of the SIRS-2 classification scales and indices: RS-Total, MT Index, and SS Index, as shown in Table 4. Overall, the effect sizes for most of the scales and indices were large ($d > .80$), with the exception of the SU, SEL, and SEV scales ($d = .14, .51,$ and $.51,$ respectively).

As anticipated, most of the SCID-D-R diagnosed DID patients (88%) also endorsed at least one of the three Rare Symptoms (RS) scale items that are potentially dissociative in nature (feeling physically outside one's body, one's face looking strange or unfamiliar, and changes in the way one's body looks). More than half (57%) of DID participants scored above the Genuine range on the RS scale, with 32% scoring in the Probable or Definite range. Both DID participants (63%) and simulators (84%) also scored above the cut score on the SIRS Total scale (as used in the original SIRS scoring criteria). However, relatively few DID participants (20%) scored above the TI cut score whereas 86% of simulators elevated on the TI.

Discussion

The current study sought to determine the efficacy of the SIRS and SIRS-2, both with and without the addition of the Trauma Index, in distinguishing genuine DID from simulated DID. Our

Table 1
Classification Rates Using SIRS-2 Classification Rules and Trauma Index, With Corresponding Utility Estimates

	Trauma Index alone		SIRS-2 classifications					
			SIRS-2 Model 1[a]		SIRS-2 Model 2[b]		SIRS-2 Model 2 + TI[c]	
	TI > 6	TI ≤ 6	Feigning	Other	Feigning	Other	Feigning	Other
Simulators	66 (86%)	11 (14%)	25 (33%)	52 (68%)	43 (56%)	34 (44%)	43 (56%)	34 (44%)
DID	10 (21%)	39 (80%)	0 (0%)	49 (100%)	4 (8%)	45 (92%)	2 (4%)	47 (96%)
Sensitivity	85.7%		32.5%		55.8%		55.8%	
Specificity	79.6%		100.0%		91.8%		95.9%	
PPP	86.8%		100.0%		91.5%		95.6%	
NPP	78.0%		48.5%		57.0%		58.0%	
ODP	83.3%		58.7%		69.8%		71.4%	

Note. TI = Trauma Index; SIRS-2 classifications: Feigning = Classified as feigning mental illness; Other = Classified as not feigning; PPP = Positive Predictive Power; NPP = Negative Predictive Power; ODP = Overall Diagnostic Power.
[a] *Model 1*: Compared those classified as Feigning vs. all other SIRS-2 classifications. (For this model, all classified as Feigning scored above the Trauma Index cut score (TI > 6), so results were equivalent with or without the TI). [b] *Model 2*: Compared those classified as Feigning or Indeterminate-Evaluate vs. Indeterminate-General or Genuine. [c] *Model 2* + TI: Compared only those scoring above the TI cut score (TI > 6) and also classified as Feigning or Indeterminate-Evaluate vs. anyone scoring below the TI cut score (TI ≤ 6) *or* classified as Indeterminate-General or Genuine.

goal was to create highly knowledgeable simulators who could approximate individuals with factitious DID, thereby providing a stringent test of the SIRS and SIRS-2 utility in detecting feigned DID. The current study's methodology produced motivated, knowledgeable simulators that can be distinguished from un-

coached DID simulators in that the former were found to have a higher number of sources of information about DID as well as greater factual knowledge about DID (Brand & Chasson, 2014).

There are several elements of the study that support the validity of the SCID-D-R DID diagnoses. First, treatment providers re-

Table 2
Classification Rates Using Original SIRS Classification Rules, With Corresponding Utility Estimates

	SIRS Model 1[a]:				SIRS Model 2[b]:				SIRS Model 3[c]:			
	Feigning		Other		Feigning		Other		Feigning		Other	
	n	%	n	%	n	%	n	%	n	%	n	%
Simulators	44	57%	33	43%	56	73%	21	27%	66	86%	11	14%
DID	9	18%	40	82%	28	57%	21	43%	31	63%	18	37%
Sensitivity	57.1%				72.7%				85.7%			
Specificity	81.6%				42.9%				36.7%			
PPP	83.0%				66.7%				68.0%			
NPP	54.8%				50.0%				62.1%			
ODP	66.7%				61.1%				66.7%			
	SIRS Model 1 + TI[d]				SIRS Model 2 + TI[e]				SIRS Model 3 + TI[f]			
	Feigning		Other		Feigning		Other		Feigning		Other	
	n	%	n	%	n	%	n	%	n	%	n	%
Simulators	43	57%	34	43%	52	73%	25	27%	61	86%	16	14%
DID	3	18%	46	82%	6	57%	43	43%	8	63%	41	37%
Sensitivity	55.8%				67.5%				79.2%			
Specificity	93.9%				87.8%				83.7%			
PPP	93.5%				89.7%				88.4%			
NPP	57.5%				63.2%				71.9%			
ODP	70.6%				75.4%				81.0%			

Note. TI = Trauma Index; PPP = Positive Predictive Power; NPP = Negative Predictive Power; ODP = Overall Diagnostic Power.
[a] *Model 1*: Feigning was defined as 1 + scale in the Definite feigning range or 3 + scales in the Probable feigning range. [b] *Model 2*: Feigning was defined as 1+ Definite or 3+ Probable scales (as in Model 1) or a SIRS Total score above 76. For this model, the SIRS Total cut score was applied only to "questionable cases" (i.e., 1–2 scales in the Probable range), as per Rogers et al. (2009). [c] *Model 3*: Feigning was defined 1+ Definite or 3+ Probable scales (as in Model 1) or a SIRS Total score above 76. For this model, the SIRS Total cut score was applied to all cases, as per Brand, McNary et al. (2006). [d] *Model 1*: Feigning was defined as 1 + scale in the Definite feigning range or 3 + scales in the Probable feigning range and TI > 6. [e] *Model 2*: Feigning was defined as 1 + Definite or 3 + Probable scales (as in Model 1) or a SIRS Total score above 76 and TI > 6. For this model, the SIRS Total cut score was applied only to "questionable cases" (i.e., 1–2 scales in the Probable range), as per Rogers et al. (2009). [f] *Model 3*: Feigning was defined 1 + Definite or 3 + Probable scales (as in Model 1) or a SIRS Total score above 76 *and* TI > 6. For this model, the SIRS Total cut score was applied to all cases, as per Brand, McNary et al. (2006).

Table 3
Frequency of Scores in Genuine, Indeterminate, Probable, and Definite Ranges on Primary Scales, SIRS Total, and Trauma Index

	DID patients (N = 49)								Simulators (N = 77)							
	Gen		Ind		Prob		Def		Gen		Ind		Prob		Def	
Scale	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
RS	21	43%	12	25%	14	29%	2	4%	13	17%	14	18%	28	36%	22	29%
SC	44	90%	5	10%	0	0%	0	0%	26	34%	28	36%	14	18%	9	12%
IA	48	98%	1	2%	0	0%	0	0%	50	65%	11	14%	8	10%	8	10%
BL	18	37%	24	49%	7	14%	0	0%	12	16%	31	40%	30	39%	4	5%
SU	4	8%	18	37%	25	51%	2	4%	4	5%	32	42%	38	49%	3	4%
SEL	0	0%	38	78%	11	22%	0	0%	2	3%	42	55%	33	43%	0	0%
SEV	10	20%	25	51%	10	20%	4	8%	10	13%	26	34%	25	33%	16	21%
RO	41	84%	6	12%	2	4%	0	0%	15	20%	27	35%	34	44%	1	1%
	Gen				Feign				Gen				Feign			
SIRS Total	18	37%			31	63%			12	16%			65	84%		
Trauma Index	39	80%			10	20%			11	14%			66	86%		

Note. Gen = Genuine Range; Ind = Indeterminate Range; Prob = Probable Range; Def = Definite Range; Feign = Feigning Range. All primary scale ranges were computed based on the SIRS-2 scoring criteria; SIRS Total and Trauma Index scores were counted as Genuine unless the participant scored above the specified cut score (SIRS Total > 76 and Trauma Index > 6).

ferred only patients whom they had clinically diagnosed with DID, which for the inpatients included around-the-clock assessment by the treatment team. Second, the DID diagnoses were made using the SCID-D-R, a structured interview that has shown efficacy in distinguishing groups of patients who have been diagnosed by other means as genuine, factitious, and malingered (Draijer & Boon, 1999; Welburn et al., 2003). Third, the SCID-D-R diagnoses were made directly by, or under the supervision of, the first author, a psychologist with clinical, research and forensic experience in assessing genuine, factitious, and malingered DID. Fourth, none of the DID patients were undergoing litigation or attempting to secure disability; thus, there would have been little external motivation to feign illness. Fifth, the DID group's performance on the SIRS is consistent with that found among other severely traumatized, dissociative individuals (Rogers et al., 2009; Brand et al., 2006. Sixth,

Table 4
Between Subjects Comparisons of DID Patients and Simulators: Descriptive Information and Effect Sizes

	DID patients (n = 49)		Simulators (n = 77)			
Scale	M	SD	M	SD	t	d
RS[b]	3.61	2.53	6.48	3.86	−5.06***	0.88
SC[b]	1.36	1.42	5.14	3.72	−8.05***	1.34
IA[b]	0.51	0.91	2.94	2.91	−6.79***	1.12
BL[b]	7.09	3.39	11.38	6.56	−4.81***	0.82
SU[a]	15.34	5.45	16.12	5.51	−0.77	0.14
SEL[b]	14.51	3.55	16.83	5.37	−2.92**	0.51
SEV[b]	7.91	4.91	10.66	5.92	−2.71**	0.51
RO[b]	1.99	2.10	6.32	2.95	−9.63***	1.70
RS Total[b]	0.71	0.96	4.96	5.31	−6.85***	1.11
MT Index[b]	12.57	5.69	25.94	14.77	−7.15***	1.19
SS Index[b]	31.48	6.42	37.15	8.54	−3.98***	0.75
SIRS Total[b]	80.73	15.60	112.28	33.15	−6.23***	1.22
Trauma Index[b]	3.86	2.93	14.40	7.86	−10.65***	1.78

[a] Equal variances assumed.   [b] Equal variances not assumed.
** p < .01.   *** p < .001.

in another analysis using this study's sample of DID patients and coached simulators, the DID group could be distinguished from coached and uncoached simulators on the basis of Minnesota Multiphasic Personality Inventory (MMPI)-2 validity scales that are not elevated among trauma survivors; furthermore, the DID sample's MMPI-2 clinical and validity scores were consistent with those found in other DID samples and among individuals who experienced childhood sexual abuse (Brand & Chasson, 2014). In summary, this study took considerable care to create a clinically defensible genuine DID group.

Contrary to expectations, the overall diagnostic power of the SIRS-2 was similar to that of the SIRS. Without the addition of the TI, neither the SIRS nor the SIRS-2 achieved acceptable levels of correct classification of DID patients and DID simulators. The TI alone, without the addition of either the SIRS or the SIRS-2 classification rules, showed slightly higher sensitivity (85.7% vs. 79.2%) but at the trade-off of lower specificity (79.6% vs. 83.7%) than the SIRS + TI classifications. The false positive rate, that is, the rate at which DID patients were misclassified as feigners, was excellent when using the SIRS-2, alone or in combination with the TI (range 0–8.2%), and was better than that of the SIRS. Although many of the feigners were successful in avoiding detection using the SIRS-2 rule of Feign/Indeterminate-Evaluation + Trauma Index >6, almost all (95.6%) of those identified as feigning were, in fact, feigning. This has important implications for forensic contexts. If an individual falls above this cut-off, evaluators can conclude that the evidence for DID does not meet forensic standards. Nonetheless, these high levels of specificity for the SIRS-2 were associated with unacceptably low sensitivity (32.5%–55.8%). Even when the TI was combined with the SIRS-2, its sensitivity and overall classification power were below acceptable levels. In sum, the SIRS combined with the TI and the TI alone provided the best balance of sensitivity and specificity, with similar overall diagnostic power noted for both methods. However, for forensic, rather than clinical purposes, evaluators can be quite confident in concluding that an individual is feigning DID if they score above the SIRS-2 cutoff of Feign/I-E + TI >6.

The Impact of Trauma and Dissociation on Testing

A high percentage of the SCID-D-R diagnosed DID patients (88%) endorsed at least one of the three Rare Symptoms (RS) scale items that refer to experiences which are potentially dissociative (i.e., feeling physically outside one's body, one's face looking strange or unfamiliar, and changes in the way one's body looks). Not surprisingly, more than half (57%) of DID participants scored above the Genuine range on the RS scale. Consistent with earlier DID SIRS studies (Brand, McNary et al., 2006; Rogers et al., 2009), this study's DID patients produced high scores on several of the SIRS-2 scales (e.g., SU, SEL and SEV) designed to identify "amplified detection strategies" (Rogers et al., 2010, p. 19), indicating that the items, although endorsed among genuine psychiatric patients, are not typically endorsed at high levels. However, research documents that severely traumatized samples do elevate on these subscales (Brand, McNary et al., 2006; Rogers et al., 2009). The items on the SU, SEL, and SEV scales include symptoms of anxiety and depression that are common among dissociative individuals (Brand et al., 2009; Johnson, Cohen, Kasen, & Brook, 2006). In contrast, DID patients did not show elevations on scales that utilize "unlikely detection strategies" (Rogers et al., 2010, p. 20), which include items not typically endorsed in any genuine psychiatric condition. This pattern was also found by Rogers et al. (2009). The consistency of this pattern of high elevations on SU, SEL, and SEV combined with low scores on unlikely scales among severely traumatized, dissociative patients suggests that trauma exposure and trauma-related symptomatology are likely contributing to the elevations on these scales rather than malingering or factitious presentations.

Many studies have documented that individuals with complex trauma histories are at risk for being misclassified as feigning on tests and interviews that assess for exaggeration of symptoms, including the SIRS/SIRS-2, the MMPI-2, and the PAI (Brand & Chasson, 2013; Stadnik et al., 2013; Klotz Flitter, Elhai, & Gold, 2003; Rogers, Gillard, Wooley, & Ross, 2012; Rogers et al., 2009). Trauma researchers have concluded that the elevations on such validity scales and measures of feigning among traumatized individuals are due to the influence of trauma, PTSD, and/or dissociative symptoms (Brand, McNary et al., 2006; Brown, 2009; Klotz Flitter et al., 2003).

There are several reasons for DD patients' elevations on interviews and validity scales designed to detect feigning or "faking bad." First, DD patients have genuinely high levels of a variety of symptoms related to multiple comorbid psychiatric conditions which result in impaired functioning (Brand et al., 2009; Johnson et al., 2006; Mueller-Pfeiffer et al., 2012; Putnam, Guroff, Silberman, Barban, & Post, 1986). The majority (63%) of DID patients in this study scored above the cutoff on the SIRS Total score, indicating that they endorsed a wide range of symptoms (as assessed by the SEL scale), many of which they reported experiencing at an "unbearable" level (as assessed by the SEV scale). Thus, the findings in the current as well as earlier SIRS studies are consistent with the evidence that complex trauma survivors, particularly DID patients, report myriad severe symptoms, some of which have mistakenly been thought to be rare (Brand, McNary et al., 2006; Rogers et al., 2009). Few psychological tests and interviews were developed with the awareness that individuals with

complex trauma exposure are likely to present with so many severe, and "rare," symptoms.

Second, test developers have also included dissociative items on some of the "fake bad" scales, such as the MMPI-2's F scale (Brand & Chasson, 2014), the PAI's NIM scale (Stadnik et al., 2013), and the RS scale of the SIRS/SIRS-2. When DD patients endorse these dissociative items, and/or the wide range of symptoms that they have repeatedly been shown to experience, they receive high scores on some "fake bad" scales. Third, DD patients' distress about their symptoms may also contribute to the elevation on these scales. Brown (2009) postulates that the degree of elevation on "fake bad" tests or scales may reflect how much distress the trauma and dissociative symptoms are causing, and individuals' lack of adequate coping strategies to manage these symptoms. Given the wide range of severe, disabling symptoms it is reasonable to think that DD patients would likely be distressed about their symptoms (Mueller-Pfeiffer et al., 2012). Thus, tests that were developed before the impact of trauma was widely understood, combined with patients' severe symptomatology and distress, may combine to elevate their profile on clinical as well as "fake bad" scales and interviews. Clearly, the effect of trauma and dissociation makes accurate classification of genuine versus feigned complex trauma cases, particularly DID, challenging.

Limitations and Conclusions

One of the strengths of this study was the use of the SCID-D-R to diagnose DID patients as well as using both inpatient and outpatient participants to increase the generalizability of the findings. However, the study is limited by a relatively small sample of DID patients and its reliance on simulators rather than individuals who were presenting with malingered or factitious DID. Future research should compare SIRS and SIRS-2 data from individuals who present with suspected malingered or factitious DID to individuals diagnosed by experts using structured interviews to meet criteria for genuine DID. Furthermore, the validity of the DID diagnoses would have been enhanced if an additional test of malingering had been used.

The Trauma Index (TI), the only scale developed for the SIRS/SIRS-2 that was specifically informed by research involving individuals with complex trauma histories, showed promise in distinguishing genuine DID patients from highly coached simulators. The SIRS combined with the TI, as well as the TI alone, provided the highest sensitivity and specificity, with similar overall diagnostic power. The SIRS-2 classification rubric, either used alone or combined with the TI, did not perform as well as the combination of the SIRS classifications with the TI or the TI used alone (without the SIRS or SIRS-2 classifications) in this sample. However, the SIRS-2 was superior to the SIRS in terms of its outstanding specificity. These results will be useful in forensic, disability, and clinical assessments.

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