MMPI-2 Item Endorsements in Dissociative Identity Disorder vs. Simulators

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Elevated scores on some MMPI-2 (Minnesota Multiphasic Inventory-2) validity scales are common among patients with dissociative identity disorder (DID), which raises questions about the validity of their responses. Such patients show elevated scores on atypical answers (F), F-psychopathology (Fp), atypical answers in the second half of the test (FB), schizophrenia (Sc), and depression (D) scales, with Fp showing the greatest utility in distinguishing them from coached and uncoached DID simulators. In the current study, we investigated the items on the MMPI-2 F, F_p, F_B, Sc, and D scales that were most and least commonly endorsed by participants with DID in our 2014 study and compared these responses with those of coached and uncoached DID simulators. The comparisons revealed that patients with DID most frequently endorsed items related to dissociation, trauma, depression, fearfulness, conflict within family, and self-destructiveness. The coached group more successfully imitated item endorsements of the DID group than did the uncoached group. However, both simulating groups, especially the uncoached group, frequently endorsed items that were uncommonly endorsed by the DID group. The uncoached group endorsed items consistent with popular media portrayals of people with DID being violent, delusional, and unlawful. These results suggest that item endorsement patterns can provide useful information to clinicians making determinations about whether an individual is presenting with DID or feigning.

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Dissociative identity disorder (DID) is a psychiatric condition characterized by the presence of two or more personality states and recurrent gaps in memory, according to the Diagnostic and Statistical Manual of Mental Disorders-Fifth Edition.[1] In DSM-5, a dissociative subtype was added to the posttraumatic stress disorder (PTSD) diagnosis because of an increased interest in and awareness of dissociation. It is important to assess dissociative reactions, such as DID, more accurately as they gain greater recognition. DID and PTSD share a similar etiology and are often comorbid conditions, as most patients with DID have reported experiencing complex trauma in childhood.[2–4]

Accurate assessment requires being able to distinguish DID and complex trauma survivors from feigned presentations, especially in forensic settings. Malingering is estimated to occur in one-sixth of forensic cases, for a variety of reasons, including to obtain undeserved rewards or to succeed in legal circumstances.[5–7] There are severe penalties for unsuccessful feigning, such as experiencing negative outcomes in forensic cases or not receiving disability benefits.[6]

The ability to classify individuals with severe trauma and DID correctly is challenging, as individuals with trauma-related disorders characteristically display high scores on clinical and validity scales, including on the MMPI-2.[8–16] These traumatized patients may be misclassified as malingering or psychotic because of the elevated scores on multiple scales. Wolf and colleagues[17] found that 81 percent of adults who were abused in childhood could be distinguished correctly from nonabused controls be-

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cause of differences on 11 items on the schizophrenia (Sc) scale. These items had content relating to trauma exposure and reflected difficulty regulating impulses, affect, and cognitive processes, including dissociation. Elevations in validity scales can also be related to trauma, because these scales often contain items that are characteristic of trauma survivors, including low self-confidence, fearfulness, and dissociation.[10,18] Patients with PTSD have displayed extreme elevations on the atypical answers (F), back F (F_B; atypical answers in last half of the test), and F-psychopathology (F_p) scales of the MMPI-2, with F_p being most effective in assessing feigned PTSD, especially among victims of child sexual abuse (CSA).[13,15,18] Dissociative reactions may be influential in these elevated scores, as dissociation accounted for 40 percent of the variance in the F scale when combined with depression, PTSD, and family environment among women who had experienced CSA.[18]

There have been only three MMPI-2 studies of feigning DID.[10,19,20] A pilot study found that patients with DID had an extreme F score ($M > 100$T) and extreme elevated scores ($M > 80$T) on depression (D), psychopathic deviate (Pd), paranoia (Pa), psychasthenia (Pt), and Sc.[20] The MMPI-2 did not discriminate the 12 patients with DID from 10 feigners, although the small sample sizes made detection improbable. The test that best distinguished the feigners from patients with DID was the Structured Clinical Interview for Dissociative Disorders-Revised (SCID-D-R).[21] The SCID-D-R is a semistructured interview that is considered the gold standard for diagnosing dissociative disorders because it has good-to-excellent reliability and good discriminant validity.[22] A drawback of the SCID-D-R is that it can take as long as three hours to administer to highly dissociative patients and requires specialized training.

Coons and Milstein[19] compared 10 patients with malingered or factitious DID to 42 patients with DID who presented to a dissociative disorders clinic. The MMPI was not useful in detecting simulators because of similarly elevated scores (e.g., the groups had identical F scores (84) and almost identical scores on Sc (91 and 92)). The most striking differences between the groups were the presence of behaviors that typically characterize malingering and factitious individuals (e.g., highly dramatic presentations, hospital-seeking behavior, refusal of collateral interviews, lack of prior dissociation, and eagerness to have DID). To our knowledge, no studies to date have examined differential item endorsement between patients with DID and DID simulators on the MMPI-2. There is need for an easily administered self-report measure, such as the MMPI-2, that can adequately distinguish DID from feigned presentations of DID.

In our prior study,[10] the only one thus far to incorporate adequate statistical power for detecting group differences while simultaneously diagnosing DID using a gold-standard instrument, we found that, whereas F, F_B, Sc, and D scores were notably higher among patients with DID ($M > 80T$), F_p was less elevated and performed better than the other scales in distinguishing DID from simulated DID. Simulators were unable to feign DID accurately, despite exposure to factual information about the disorder before their attempt at feigning. The simulating groups displayed more elevated scores on many scales compared with the patients with DID, including the Pd, Pa, Sc, and Ma scales.

The goal of this study was to extend our earlier investigation[10] to determine the MMPI-2 items most and least frequently endorsed by patients with DID on the F, F_B, F_p, Sc, and D scales, and to compare the responses of the patients with DID to those of the coached and uncoached DID simulators on these items. Whereas our earlier study showed differences in scale scores, we did not examine individual items to determine whether the simulators accurately imitated patterns of the least and most item endorsements by the patients with DID. We wanted to evaluate whether, as we hypothesized, content themes endorsed by the DID group would be suggestive of trauma and dissociation, whereas endorsements by the simulators would be consistent with stereotypic views of DID, as portrayed in popular media. Media portrayals tend to characterize individuals with mental illness, particularly those with DID, as psychotic, dangerous, and homicidal.[23,24] More specifically, we hypothesized that the DID group would endorse dissociative items at a high frequency (e.g., Item 168: "Sometimes do things and don't remember doing them"; item 229: "Have had blank spells").[8] We chose to compare the items from D, Sc, F, F_B, and F_p, because patients with DID have the highest mean score elevations on these scales.[10] The overall aim was to identify other ways of further distinguishing DID versus simulated DID on the MMPI-2, clarify the

nature of score elevations among validity and clinical scales in the DID group, and provide guidance about specific items that subsequently could be developed into an index for identifying DID feigning.

Methods

DID Participants

We recruited patients with DID from an inpatient trauma unit within a psychiatric hospital in the Mid-Atlantic region (34%; $n = 18$) and from outpatient therapy practices (66%; $n = 35$). The trauma unit is internationally recognized for expertise in assessing and treating dissociative disorders, including conducting research on the differential diagnosis of genuine versus feigned dissociative disorders. Because of its reputation, the unit has a high prevalence of patients with the DID diagnosis. The outpatients were recruited from therapists who were known to treat complex trauma and dissociative patients and were willing to inform their patients with DID about the study. The hospitalized patients had been observed continuously by a treatment team experienced in assessing DID, including distinguishing DID from feigning. No patients were involved in litigation or were under evaluation for disability or similar entitlements, reducing the probability that they were motivated to malinger a DID presentation. They were compensated $20 for their participation. Most of the participants were female ($n = 47$) and ranged from 22 to 62 years of age (mean $(M)_{age} = 41.21$, standard deviation (SD) = 9.95). The DID sample was 83 percent Caucasian ($n = 44$), 9 percent African-American ($n = 5$), 2 percent Asian ($n = 1$), and 2 percent biracial ($n = 1$). None was Latino, and 4 percent did not specify their ethnicity ($n = 2$).

Patients were not excluded on the basis of comorbid disorders, to increase the likelihood that findings would generalize to the DID population, which exhibits high rates of comorbidity, including depression, PTSD, anxiety disorders, substance abuse disorders, and eating disorders.[2,25] Data from Brand and Chasson[10] indicated that this DID group experienced high levels of depression, PTSD, and anxiety.

Coached Simulators

The coached simulating participants were recruited from a Mid-Atlantic university's psychology research pool ($n = 77$). To be included in the sample, the undergraduate students were required to have:

- passed a course in abnormal psychology;
- read the book *Sybil*[26] or watched the movie, a dramatization of a young woman with DID;
- read accurate Internet information about DID; and
- passed a knowledge test showing they could accurately identify DID symptoms (i.e., received a score of 70% or above).

Most were women ($n = 64$), ranging from 18 to 27 years of age ($M_{age} = 21.97$, $SD = 3.73$). The coached sample was 80 percent Caucasian ($n = 62$), 8 percent African-American ($n = 6$), 3 percent Latino ($n = 2$), 1 percent Asian ($n = 1$), and 1 percent biracial ($n = 1$); 7 percent did not specify their ethnicity ($n = 5$).

Uncoached Simulators

The uncoached simulating participants were recruited from a Mid-Atlantic university's psychology research pool ($n = 67$). This group was included to represent individuals who attempt to feign DID with little exposure or training in the disorder. The uncoached simulators in the study had received no formal training in DID and had been exposed to the disorder only through popular media. To be included in the uncoached simulating group, the undergraduate students were not permitted to have taken an abnormal psychology course. These students were not provided with information about DID, nor were they required to have passed a knowledge test showing that they could accurately identify DID symptoms, although they completed the knowledge test as a manipulation check. Most were women ($n = 46$), ranging from 18 to 21 years of age ($M_{age} = 19.43$, $SD = 2.09$). The uncoached sample was 69 percent Caucasian ($n = 46$), 16 percent African-American ($n = 11$), 7.5 percent Asian ($n = 5$), 1.5 percent Latino ($n = 1$), and 1.5 percent biracial ($n = 1$); 4.5 percent did not specify their ethnicity ($n = 3$).

Materials

DID Knowledge Test

This quiz contained 10 true/false items that described eight accurate and two inaccurate symptoms associated with DID. Accurate symptoms included amnesia, presence of PTSD comorbidity, history of severe childhood abuse, hearing voices, experiencing

trance states, referring to themselves with different names, behaving differently across various situations, and having different personality states. Inaccurate symptoms included psychotic symptoms and compulsive hand washing. Although both simulator groups were administered the DID Knowledge Test, only the members of the coached group were required to pass the test for inclusion in the sample (with a score of ≥70%). All coached simulators scored above this cutoff and remained in the sample. A manipulation check indicated that the coached simulators accurately identified more DID symptoms on the knowledge test than did the uncoached group ($M = 9.49$, $SD = .60$ versus $M = 8.40$, $SD = 1.14$), $t(110.44) = 7.41$, and $p < .001$.

Sources of Knowledge About DID

Participants specified which sources of information had provided them with information about DID. This measure contained a list of eight sources, including Internet information, books, chapters in psychology textbooks, movies, and other, in which the participants could note their own sources (e.g., psychology classes and television programs).

MMPI-2

The MMPI-2 is a self-report instrument for assessing adult psychopathology that contains 567 true-false items.[8] The DID group completed the MMPI-2 according to standardized procedures (i.e., they were not instructed to lie on items or feign), whereas the simulator groups were instructed to complete the MMPI-2 as if they had DID.

SCID-D-R

The SCID-D-R[21] is a semistructured interview containing 277 items and is considered the gold standard instrument for diagnosing dissociative disorders. The SCID-D-R has good discriminant validity and good-to-excellent reliability.[22] It was used in this study to ensure that the diagnoses in the DID group had been accurate. SCID-D-R were conducted by the first author, an expert in dissociative disorders who also has forensic and research expertise in distinguishing genuine from feigned DID, or a psychology postdoctoral fellow or psychologist from the hospital's trauma disorders program under the supervision of the first author.

Dissociative Experiences Scale

The Dissociative Experiences Scale (DES)[27] is a self-report measure of dissociative symptoms that includes 28 items rated as present or absent from 0 to 100 percent of the time. It has a convergent validity of 0.67 with a combination of self-report and structured interviews of dissociation, Cronbach's α of 0.93, and a test–retest reliability of 0.78–0.93.[28] Cronbach's α for this study was 0.92 (DID), 0.87 (coached), and 0.84 (uncoached). Both simulator groups were asked not to fake DID while completing the DES, to rule out the possibility that they had a dissociative disorder themselves. Five simulators who scored an average of 30 or above on the DES were excluded from the sample to minimize the possibility of the simulators having a dissociative disorder.

Multidimensional Inventory of Dissociation

The Multidimensional Inventory of Dissociation (MID)[29] is a 168-item self-report measure that assesses the symptoms of DID in addition to screening for factitious behavior, symptom amplification caused by emotional distress and characterological symptoms, and PTSD symptoms. It distinguishes individuals with DID, mixed psychiatric disorders, and nonclinical adults. It demonstrates internal reliability on the diagnostic scales (Cronbach's α = 0.84–0.96) and the facets (Cronbach's α = 0.91–0.97). These facets measure pathological dissociation and include self-alteration experiences, ancillary ego-alien experiences, depersonalization, derealization, identity confusion, discontinuities of time, unrecalled evidence of one's actions, voices, trance, self-states/alters, somatoform symptoms, memory problems, and flashbacks. The MID also demonstrates construct validity, discriminant validity, and convergent validity. An expert in DID selected the best feigner for each semester of the MID.

Procedure

The current study is an extension of Brand and Chasson[10] and is part of a larger study of the assessment of DID. The study received institutional review board (IRB) approval from the Institutional Review Boards at Sheppard Pratt Health System and Towson University, and all participants provided informed consent.

The undergraduate students who served as coached and uncoached simulators were informed that they did not have to behave in person as if they

Table 1 Group Differences on the F Scale

Item	Item Theme	DID Group Endorsement Direction	DID Group Endorsement (%)	Coached Group Endorsement (%)	Uncoached Group Endorsement (%)	DID vs. C		DID vs. UN		C vs. UN	
						χ^2	OR	χ^2	OR	χ^2	OR
12	Sexual difficulty	Most	90	76.6	59.7	3.66		13.23*	6.08	4.78	
24	Delusions	Least	5.7	27.3	32.8	9.74*	6.25	13.25*	8.15	0.53	
66	Lack of regard for laws/enforcement	Least	1.9	28.9	49.3	15.61*	21.19	32.70*	50.47	6.20*	0.42
126	Rejection of laws/enforcement	Least	3.8	16.9	53.7	5.29		34.13*	0.03	21.67*	5.72
138	Delusions of persecution	Least	7.5	39.0	53.7	16.04*	7.82	28.40*	14.23	3.15	
144	Delusions of persecution	Least	7.7	37.7	49.3	14.64*	7.25	23.60*	11.65	1.96	
150	Self-destructiveness	Most	75.5	72.7	50.7	0.12		7.65*	0.34	7.39*	2.59
162	Delusions of persecution	Least	1.9	29.9	41.8	16.33*	22.15	25.71*	37.33	2.23	
168	Dissociation	Most	84.9	90.9	68.7	1.11		4.26		11.33*	4.57
180	Awareness of psychological problems	Most	77.4	80.5	59.7	0.19		4.21		7.52*	2.79
216	Delusions of persecution	Least	5.7	29.9	52.2	11.50*	7.10	29.67*	18.23	7.45*	0.39
228	Delusions of persecution	Least	7.5	37.7	64.2	15.03*	7.40	39.83*	21.95	10.08*	0.34
252	Sensory dulling	Least	7.5	35.1	41.8	13.09*	6.62	17.75*	8.80	0.69	
270	Sadism towards animals	Least	7.5	19.5	38.8	3.58		15.42*	7.77	6.57*	0.38

DID group (n = 53); coached group (C; n = 77); uncoached group (UN; n = 67). Least indicates that the item was 1 of the top 10 least endorsed items by the DID group in that particular scale. Most indicates that the item was 1 of the top 10 most endorsed items by the DID group in that particular scale.
* $p < .015$ (α was adjusted by using false-discovery rate procedure).

had DID; they were simply to answer the MMPI-2 as if they had DID. To enhance motivation to simulate well, the best simulator each semester was provided with a $50 incentive. All simulators earned course credit.

Data Analysis

The items that were selected in this study were the top 10 most and least endorsed items by the DID group on the F_B, F_p, Sc, and D scales. Multiple pairwise comparisons (i.e., DID versus coached DID simulators, DID versus uncoached DID simulators, and coached versus uncoached DID simulators) were completed for these items by Chi square analysis. Given that 165 pairwise comparisons were completed, a false-discovery rate control procedure[30] was applied to maintain an experiment-wise error rate of $\alpha = .05$ while preserving statistical power.[31] Based on this procedure, $\alpha_{critical} = .015$.

Results

Descriptive data for MMPI-2 items in the study are presented in Tables 1–5. There was a significant association between group membership and MMPI-2 item themes for 99 of 165 pairwise comparisons. For the DID group, themes of the most commonly endorsed items included mood disruptions, severe anxiety, dissociation, self-destructiveness, low self-esteem, pervasive fear, sleep abnormalities, weight changes, memory problems, relational and sexual difficulties, and occupational challenges. Also, for the DID group, themes of the least endorsed items revolved around patients' delusions of persecution, magical thinking, rejection of law enforcement, sadism, masochism, antisocial urges, and viewing others as unable to help them. The uncoached simulators did not tend to endorse items related to dissociation, family conflict, trauma, memory problems, low self-esteem, fear, depression, self-destructiveness, and awareness of psychological problems. Furthermore, the uncoached simulators endorsed items indicating delusions, violence, sadism, and rejection of laws. The coached simulators also tended to endorse delusions.

Discussion

In this study, we sought to characterize the content of the items most and least frequently endorsed by patients with DID and to compare them to the responses of DID simulators. The DID group's most commonly endorsed items indicated problems with mood, anxiety, dissociation, memory, poor self-image, self-destructiveness, sleep, weight, relationships, sexuality, and occupational functioning. These psychiatric difficulties are characteristic of patients with DID.[2,25,32] As hypothesized, the pattern of endorsement by patients with DID on the validity scales suggests that phenomena common to trauma survivors, including dissociation, contributed to ele-

Table 2 Group Differences on the F_B Scale

Item	Item Theme	DID Group Endorsement Direction	DID Group Endorsement (%)	Coached Group Endorsement (%)	Uncoached Group Endorsement (%)	DID vs. C		DID vs. UN		C vs. UN	
						χ^2	OR	χ^2	OR	χ^2	OR
311	Dissociation	Most	62.3	83.1	65.2	7.21*	2.98	0.11		6.09*	2.63
323	Sadistic towards loved ones	Least	1.9	29.9	47.0	16.33*	22.15	30.39*	46.06	4.42	
383	Lack of family support	Most	59.6	84.2	52.2	9.76*	0.28	0.65		17.09*	0.21
387	Possible alcohol abuse	Least	7.5	38.2	43.9	15.37*	7.56	19.43*	9.60	0.49	
395	Pervasive fear	Most	41.5	68.4	73.1	9.25*	3.05	12.25*	3.84	0.38	
463	Pervasive fear	Most	49.1	84.2	63.1	18.29*	5.54	2.34		8.23*	3.12
478	Hatred of family	Least	9.4	40.3	40.9	14.90*	6.47	14.81*	6.65	0.01	
489	Substance abuse	Least	5.7	35.5	39.4	15.61*	9.18	18.15*	10.83	0.23	
501	Viewing others as unable to help	Least	5.7	53.9	51.5	32.39*	0.051	28.85*	0.06	0.08	
506	Suicidal ideation	Most	81.1	79.2	60.6	0.07		5.87		5.94	
516	Depression	Most	47.2	75.3	54.5	10.78*	3.42	0.64		6.81*	2.54
525	Possible depression	Most	62.3	84.4	62.7	8.30*	3.28	0.002		8.86*	3.22
528	Lack of self-blame for problems	Least	7.7	42.9	57.6	18.76*	9.00	31.57*	16.29	3.08	
540	Substance abuse	Least	9.4	55.8	49.3	29.03*	12.14	21.68*	9.32	0.62	

DID group (n = 53); coached group (C; n = 77); uncoached group (UN; n = 67). Least indicates that the item was 1 of the top 10 least endorsed items by the DID group in that particular scale. Most indicates that the item was 1 of the top 10 most endorsed items by the DID group in that particular scale.
* $p < .015$ (α was adjusted using false discovery rate procedure).

vated scores on F and F_B, and, to a lesser extent, on F_P. These patterns are consistent with correlational links between these subscales and dissociation found in the research literature.[18] Similarly, the most common endorsements on Sc in the DID group were related to dissociation (Items 168 and 229), perceived difficulties with memory and one's mind, and being afraid of family members, all of which commonly relate to chronic traumatization.[33,34] Individuals with DID did not endorse persecutory delu-

Table 3 Group Differences on the F_p Scale

Item	Item Theme	DID Group Endorsement Direction	DID Group Endorsement (%)	Coached Group Endorsement (%)	Uncoached Group Endorsement (%)	DID vs. C		DID vs. UN		C vs. UN	
						χ^2	OR	χ^2	OR	χ^2	OR
51	Unwilling to admit to normal flaws	Least	DID: 3.8	C: 19.5	UN: 43.3	6.81*	0.16	24.11*	0.05	9.57*	3.15
66	Lack of regard for laws/enforcement	Least	DID: 1.9	C: 28.9	UN: 49.3	15.61*	21.19	32.70*	50.47	6.20*	0.42
93	Unwilling to admit to normal flaws	Least	DID: 1.9	C: 13.0	UN: 25.4	4.99		12.80*	0.06	3.61	
114	Antisocial urges	Least	DID: 9.4	C: 41.6	UN: 50.7	15.91*	6.83	23.02*	9.89	1.22	
126	Rejection of laws/enforcement	Least	DID: 3.8	C: 16.9	UN: 53.7	5.29		34.13*	0.03	21.67*	5.72
162	Delusions of persecution	Least	DID: 1.9	C: 29.9	UN: 41.8	16.33*	22.15	25.71*	37.33	2.23	
193	Magical thinking and behavior	Least	DID: 9.4	C: 41.6	UN: 58.2	15.91*	6.83	30.32*	13.37	3.97	
216	Delusions of persecution	Least	DID: 5.7	C: 29.9	UN: 52.2	11.50*	7.10	29.67*	18.23	7.45*	0.39
228	Delusions of persecution	Least	DID: 7.5	C: 37.7	UN: 64.2	15.03*	7.40	39.83*	21.95	10.08*	0.34
270	Sadism towards animals	Least	DID: 7.5	C: 19.5	UN: 38.8	3.58		15.42*	7.77	6.57*	0.38
282	Sleep abnormalities	Most	DID: 22.6	C: 75.3	UN: 64.2	35.06*	10.43	20.57*	6.12	2.13	
291	Lack of romantic love	Most	DID: 18.9	C: 57.1	UN: 41.8	18.94*	5.73	7.19*	3.09	3.38	
294	Physiological activation	Most	DID: 13.2	C: 32.5	UN: 47.8	6.28*	3.16	16.11*	6.01	3.50	
322	Fear of dangerous objects	Most	DID: 30.2	C: 61.0	UN: 40.9	11.96*	3.62	1.46		5.80	
323	Sadistic towards loved ones	Least	DID: 1.9	C: 29.9	UN: 47.0	16.33*	22.15	30.39*	46.06	4.42	
336	Mind control	Most	DID: 13.7	C: 42.1	UN: 64.6	11.55*	4.57	30.33*	11.48	7.12*	0.40
387	Possible alcohol abuse	Least	DID: 7.5	C: 38.2	UN: 43.9	15.37*	7.56	19.43*	9.60	0.49	
478	Hatred of family	Least	DID: 9.4	C: 40.3	UN: 40.9	14.90*	6.47	14.81*	6.65	0.01	
501	Viewing others as unable to help	Least	DID: 5.7	C: 53.9	UN: 51.5	32.39*	0.051	28.85*	0.06	0.08	
555	Fearful at home	Most	DID: 20.8	C: 70.1	UN: 57.6	30.61*	8.96	16.45*	5.18	2.44	

DID group (n = 53); coached group (C; n = 77); uncoached group (UN; n = 67). Least indicates that the item was 1 of the top 10 least endorsed items by the DID group in that particular scale. Most indicates that the item was 1 of the top 10 most endorsed items by the DID group in that particular scale.
* $p < .015$ (α was adjusted using false discovery rate procedure).

Table 4 Group Differences on the Sc Scale

Item	Item Theme	DID Group Endorsement Direction	DID Group Endorsement (%)	Coached Group Endorsement (%)	Uncoached Group Endorsement (%)	DID vs. C		DID vs. UN		C vs. UN	
						χ^2	OR	χ^2	OR	χ^2	OR
12	Sexual difficulty	Most	DID: 90.0	C: 76.6	UN: 59.7	3.66		13.23*	6.08	4.78	
138	Delusions of persecution	Least	DID: 7.5	C: 39.0	UN: 53.7	16.04*	7.82	28.40*	14.23	3.15	
165	Poor memory	Most	DID: 83.0	C: 79.2	UN: 55.2	0.29		10.42*	3.96	9.49*	0.32
168	Dissociation	Most	DID: 84.9	C: 90.0	UN: 68.7	1.11		4.26		11.33*	4.57
180	Awareness of psychological problems	Most	DID: 77.4	C: 80.5	UN: 59.7	0.19		4.21		7.52*	2.79
210	Dislikes travel	Least	DID: 18.9	C: 44.2	UN: 43.9	8.97*	0.29	8.39*	0.30	0.001	
229	Dissociation	Most	DID: 83.0	C: 93.5	UN: 71.6	3.59		2.14		12.33*	5.70
252	Sensory dulling	Least	DID: 7.5	C: 35.1	UN: 41.8	13.09*	6.62	17.75*	8.80	0.69	
277	Loneliness	Most	DID: 75.5	C: 83.1	UN: 61.2	1.15		2.75		8.72*	3.12
290	Does not worry about career	Least	DID: 17.0	C: 37.7	UN: 41.8	6.49*	0.34	8.54*	0.29	0.26	
291	Lack of romantic love	Least	DID: 18.9	C: 57.1	UN: 41.8	18.94*	5.73	7.19*	3.09	3.38	
292	Family trauma	Most	DID: 84.9	C: 83.1	UN: 58.2	0.07		10.04*	0.25	10.91*	3.54
323	Sadistic towards loved ones	Least	DID: 1.9	C: 29.9	UN: 47.0	16.33*	22.15	30.39*	46.06	4.42	
332	Masochism	Least	DID: 11.3	C: 27.3	UN: 46.2	4.85		16.71*	6.71	5.46	

DID group (n = 53); coached group (C; n = 77); uncoached group (UN; n = 67). Least indicates that the item was 1 of the top 10 least endorsed items by the DID group in that particular scale. Most indicates that the item was 1 of the top 10 most endorsed items by the DID group in that particular scale.
* $p < .015$ (α was adjusted using false discovery rate procedure).

sions, although they admitted to feeling that their minds were being controlled and that there was something seriously wrong with their minds. These findings suggest that the higher Sc score is attributable to experiences consistent with trauma and dissociation rather than to schizophrenia or other types of psychotic illness.

The results demonstrate an overall pattern in which the DID group differed from the simulator groups on items that measured psychotic symptomatology, antisocial features, substance abuse, and conflict with family. Both simulating groups overestimated that DID individuals would disregard law enforcement and experience delusions of persecution, antipathy toward their family, and substance abuse problems. They did not anticipate how commonly individuals with DID would believe talking to others would be beneficial. The DID group did not show as much generalized mistrust as the simulators anticipated, although they acknowledged feeling a

Table 5 Group Differences on the D Scale

Item #	Item Theme	DID Group Endorsement Direction	DID Group Endorsement (%)	Coached Group Endorsement (%)	Uncoached Group Endorsement (%)	DID vs. C		DID vs. UN		C vs. UN	
						χ^2	OR	χ^2	OR	χ^2	OR
10	Difficulty functioning at work	Most	DID: 79.2%	C: 59.7%	UN: 49.3%	5.46		11.36*	3.93	1.59	
56	Less happy than others	Most	DID: 96.2%	C: 89.6%	UN:76.1%	1.94		9.38*	0.13	4.70	
68	Not sadistic towards animals	Most	DID: 84.9%	C: 71.4%	UN: 55.2%	3.21		12.05*	4.56	4.08	
73	Low self-confidence	Most	DID: 90.6%	C: 88.2%	UN: 68.7%	0.19		8.37*	0.23	8.17*	3.40
127	Vulnerable to criticism	Most	DID: 90.6%	C: 68.8%	UN: 73.1%	8.56*	0.23	5.80		0.32	
142	Neurological conversion symptoms	Least	DID: 23.1%	C: 61.0%	UN: 65.7%	18.02*	0.19	21.32*	0.16	0.33	
143	Weight changes	Most	DID: 78.8%	C: 51.9%	UN: 49.3%	9.61*	3.45	10.90*	3.84	0.10	
165	Poor memory	Most	DID: 83.0%	C: 79.2%	UN: 55.2%	0.29		10.42*	3.96	9.49*	0.32
223	More anxious than others	Most	DID: 79.2%	C: 63.6%	UN: 49.3%	3.64		11.36*	3.93	3.02	
248	Blame people who take advantage of others	Most	DID: 90.6%	C: 63.6%	UN: 43.9%	12.02*	5.49	27.98*	12.25	5.56	
260	Not humored by sexual jokes	Least	DID: 17.0%	C: 40.3%	UN: 23.9%	7.99*	0.30	0.85		4.37	

DID group (n = 53); coached group (C; n = 77); uncoached group (UN; n = 67). Least indicates that the item was 1 of the top 10 least endorsed items by the DID group in that particular scale. Most indicates that the item was 1 of the top 10 most endorsed items by the DID group in that particular scale.
* $p < .015$ (α was adjusted using false discovery rate procedure).

pervasive lack of confidence, loneliness, and unhappiness. Given the history of chronic trauma exposure typical among DID individuals, their ability to avoid generalizing negative feelings to all others, including all family members, is a noteworthy strength. It is consistent with research showing that dissociation may preserve some aspects of interpersonal functioning, including the ability to see others as being potentially collaborative.[35]

Ultimately, the coaching seems to have been successful in helping simulators imitate many aspects of DID, most notably, dissociation, self-destructive urges, awareness of having serious psychological difficulty, depression, sexual difficulties, and fearfulness. However, the coaching may have resulted in inaccurate generalizations about dissociative individuals, including overendorsed global negative feelings toward one's family (accompanied by a desire to hurt) and overgeneralizing mistrust of others to the point of paranoid delusions.

The uncoached group showed a lack of awareness about the high prevalence of childhood sexual abuse and enduring dissociation among individuals with dissociative disorders, as indicated by failing to endorse multiple items about dissociation, conflict or trauma within the family, and difficulty with sexual functioning. The uncoached group incorrectly anticipated that the DID group would endorse items suggestive of paranoid delusions, sadism, masochism, lawlessness, and antisocial attitudes. These are common stereotypes about mental illness in the media, including cinematic portrayals of patients with DID as psychotic, manipulative, dangerous, and homicidal.[23,24] These findings corroborate our hypothesis that simulators of DID would portray an individual with DID according to common popular media stereotypes, rather than characteristics that are typical of individuals with DID.

The patients with DID endorsed one type of belief that could be misunderstood as symptoms of a delusional disorder: the sense that their minds were being controlled. The experience of one's mind being controlled is a classic symptom of DID and stems from the passive influence and interference with thinking caused by dissociative self-states.[36,37] Professionals should be careful not to interpret this item as a genuine psychotic symptom among individuals who may have a complex dissociative disorder.

Across the scales that we studied, both groups of simulators had considerable difficulty in accurately depicting the items infrequently endorsed by individuals with DID. They were more successful in identifying the most common endorsements. This finding suggests that the infrequently endorsed items could be developed into an MMPI-2 scale that might assist in detecting feigned DID. Potential items include those assessing delusions of persecution, substance abuse problems, antipathy toward one's entire family, antisocial urges, and sadism. Efforts are currently under way to develop and validate an MMPI-2 scale appropriate for dissociative clients that incorporates the items that were least endorsed by the DID group. During subscale development, it may be important to include some of the items that are frequently endorsed by groups with DID, to enhance the subscale's specificity (i.e., many of these infrequently endorsed items are not necessarily specific to DID). It may be important to weight infrequent items more heavily in the subscale scoring, because they seem to be more resistant to malingering. Ultimately, the properties of the proposed subscale are in need of empirical investigation.

Among patients with DID, there was a high level of endorsement of items on the F, F_B, and (to a lesser extent) F_p scales pertaining to dissociation and trauma, as well as related phenomena, such as sexual dysfunction, depression, self-destructive urges, and fearfulness. This observation implies that caution should be used when interpreting elevations in scores on the validity and Sc scales among those who experienced complex trauma, or are highly dissociative, or both.[17,38]

Limitations to the study include using simulator groups, rather than individuals known to be presenting with malingered or factitious DID. None of the patients with DID was involved in litigation or was seeking to secure a determination of being disabled, nor was any patient suspected of exaggeration or malingering by the treatment team. Nonetheless, it is impossible to be absolutely certain that patients in any study are not exaggerating some of their symptoms (or for that matter, minimizing their symptoms). Indeed, when researching malingering and exaggeration, it is important to recognize the limits of simulation research on feigning psychopathology, such as the inherent difficulty of ascertaining whether patients are exaggerating symptoms.[5,39]

Replication of this study is needed and would be particularly useful if individuals known to have factitious or malingered DID could be compared with

patients with DID. Such a follow-up may be difficult, as prior research has not pinpointed specific settings in which malingered or factitious DID individuals present. However, the research literature has estimated that malingering is present in approximately 30 percent of disability cases,[40] 16 percent of forensic cases,[5,7,41] 7 percent of nonforensic cases,[7,41] and 1 percent of cases in clinical practices.[42] Clinicians and researchers can refer to prior malingering research, including the current study, when attempting to detect malingered or factitious DID.[43]

Research should continue to be conducted on other measures of personality and symptomatology to strengthen the diagnosis and assessment of dissociative patients. Further study would coincide with the added goal of improving the identification of dissociation to facilitate referrals to appropriate treatment. Furthermore, developing scales that detect feigned DID may reduce the unnecessary and costly use of treatment and disability benefits and may result in more accurate criminal case outcomes for patients with DID and DID malingerers.

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