

Dissociative disorders and possession experiences in Israel: A comparison of opiate use disorder patients, Arab women subjected to domestic violence, and a nonclinical group

Eli Somer

University of Haifa, Israel

Colin Ross

The Colin A. Ross Institute for Psychological Trauma, USA

Revital Kirshberg

University of Haifa, Israel

Rana Shawahdy Bakri

University of Haifa, Israel

Shefa Ismail

University of Haifa, Israel

Abstract

This study examined the association between exposure to domestic violence and dissociative symptoms. A sample of 68 Israeli opiate use disorder patients in recovery, 80 battered Arab Israeli women, and 103 respondents from a community sample participated in structured interviews that included the Dissociative Disorders Interview Schedule (DDIS), the Dissociative Trance Disorder Interview Schedule (DTDIS), and the Dissociative Experiences Scale (DES). As predicted, community participants reported significantly less exposure to traumatizing events and lower levels of dissociative psychopathology than individuals sampled from specialized treatment centers. In all, 91% of battered female participants were taxon-positive for dissociative disorder with 1 of every 2 respondents reporting symptoms corresponding to dissociative amnesia and depersonalization disorder, suggesting that this group may be particularly vulnerable to

Corresponding author:

Eli Somer, School of Social Work, University of Haifa, Mt. Carmel, Haifa 31905, Israel.

Email: somer@research.haifa.ac.il

dissociative psychopathology. Extrasensory and paranormal experiences (ESP) and dissociative trance disorder experiences were strongly related to dissociative experiences and features of dissociative identity disorder (DID). These statistical associations suggest that dissociative disorders and ESP/trance experiences may share an underlying construct. Further research is needed on trauma and dissociation among female victims of domestic abuse in patriarchal, collectivist societies, particularly in the Arab world.

Keywords

dissociation, dissociative trance, domestic violence, possession states, trauma

Dissociative phenomena have been documented in many non-Western societies where psychiatric models of dissociation are less dominant and the ethos and metaphors for illness and healing differ from those employed in the industrialized West (Boddy, 1988; Cardeña, van Duijl, Weiner, & Terhune, 2009; Ginzburg, Somer, Tamarkin, & Kramer, 2010; Somer, 1993, 1997; van Duijl, Cardeña, & de Jong, 2005; Xiao et al., 2006a, 2006b; Yu et al., 2010). In approaching research on Western psychiatric constructs in such contexts, strong arguments have been made in favor of a more interpersonal study of behavior in local worlds (e.g., Lewis-Fernández & Kleinman, 1994) and against reductionistic, decontextualized views of mental illness and the reification of mental processes (e.g., Kirmayer, 2011). The literature on mental health and multiculturalism has critiqued essentialist notions of psychopathology (Littlewood, 1991). Contemporary comparative psychiatry posits that non-Western illnesses should not be construed merely as primitive forms of universal taxonomic classes (Radwin, 1991). As a result of this less ethnocentric stance, the DSM-IV grouped illnesses unclassifiable in terms of Western psychiatry under the non-pathologizing heading of “culture-bound syndromes” (Yap, 1967, 1974), a term intended to represent a compromise between essentialist Western psychiatry and more social constructionist approaches to psychopathology (e.g., Kirmayer, 2001; Kirmayer & Sartorius, 2007). In the DSM-5, the term “culture-bound syndromes” has been discarded in favor of more nuanced approaches to recognizing the influence of culture on the experience and expression of mental illness, for example, the identification of cultural idioms of distress (American Psychiatric Association, 2013).

Many of the cultural syndromes and idioms of distress addressed in recent versions of the DSM involve dissociative phenomena, broadly defined as possession or nonpossession experiences involving sudden, time-limited alterations in identity, behavior, and mental state (Bourguignon, 1976; Cardeña et al., 2009; Huskinson, 2010; Krippner, 1997; Lewis-Fernandez, 1994; Somer, 2006; Suryani & Jensen, 1993). Examples include amok, a dissociative episode characterized by a period of brooding followed by an outburst of aggressive behavior (American Psychiatric Association, 1994; Prince, 1991); latah in Java, Indonesia (Simons, 1983), a condition characterized by an exaggerated motor startle

response, often followed by hyper-suggestibility and mimicry sometimes accompanied by obscene expressions (Ward, 1989); or *pibloktoq* among the native people of the Arctic, an alteration of consciousness accompanied by erratic behaviors (Foulks, 1985). These and other nonpossession trance syndromes were grouped under the broader diagnosis of dissociative trance disorder in the DSM-IV (American Psychiatric Association, 1994).

To date, very little research exists on the prevalence of possession/trance phenomena (PTP), or dissociative trance disorder (DTD) and related paranormal experiences in various cultures and on their relationship to dissociative disorders. It is noteworthy, however, that the definition of possession trance offered by Cardeña et al. (2009), which includes identity alteration, made movements (a Schneiderian first rank symptom common in DID), and amnesia is similar to dissociative identity disorder (DID) symptoms. Moreover, Ross (2011) showed that trance, sleepwalking, paranormal, and possession experiences were more common among DID patients than in two comparison samples. It has been recently suggested by one research group that PTP be differentiated from similar phenomena that are culturally sanctioned and nondistressing and included under the revised umbrella category of DID in DSM-5 (Spiegel et al., 2011).

A proposed common denominator potentially linking experiences of trance, dissociation, and possession is *absorption* (Luhrmann, 2004). Tellegen and Atkinson (1974, p. 275) defined absorption as an “openness to absorbing and self-altering experiences.” However, absorption might not be sufficient to explain involuntary, distressful forms of (pathological) possession and is considered only one component of dissociation as measured by the Dissociative Experiences Scale (Dalenberg et al., 2012).

Several case studies have reported a relationship between exposure to precipitant stress and the development of DTD (e.g., Ferracuti & DeMarco, 2004; Somer, 1993), yet controlled studies of DTD are very sparse. Ng, Yap, Su, Lim, and Ong (2002) described a consecutive sample of 58 Chinese, Malay, and Indian patients in Singapore diagnosed as suffering from DTD following diagnostic criteria adapted from DSM-IV. Most respondents reported being possessed by Buddhist, Taoist, and Hindu deities or the Holy Spirit, with a minority reporting possession by departed relatives and ancestral spirits or animal spirits. In a later report Ng and Chan (2004) suggested that military stressors, conflicts over religious and cultural issues, and domestic conflicts had influenced the precipitation of DTD in this group. While no standardized structured instruments for the diagnosis of DTD were employed in this study, it does provide some evidence that DTD in an Asian sample was both stress-related and associated with such dissociative experiences as loss of control, altered identities, and amnesia. In another study, the newly developed Dissociative Trance Disorder Interview Schedule (DTDIS; Ross, Schroeder, & Ness, 2013) was instrumental in demonstrating that a wide range of possession experiences and classic “culture-bound syndromes” were present among predominantly Caucasian, American, English-speaking trauma program inpatients and that both possession and the syndromes were predominantly dissociative in nature.

The purpose of the present article is to report data on the frequency of possession, DTD, and dissociative disorders and the relationships between these phenomena in three Israeli samples including one nonclinical group and two clinical groups: opiate use disorder (OUD) patients and Arab female victims of domestic violence. OUD patients were recruited because opiate users are known to have a high incidence of reported childhood abuse (Somer, 2003) and a documented yearning to experience (chemical) dissociation (Somer, 2009; Somer & Avni, 2003). Arab women subjected to domestic violence were invited to take part in this study not only because of the gender discrimination and chronic traumatization this group has been exposed to, but also because we were interested in the prevalence of our target phenomena in an ethnic group known to use possession and trance as idioms of illness and healing (e.g., Lewis, 1971; Somer, 1997; Somer & Saadon, 2000).

Hypotheses

1. Our clinical samples will report higher levels of traumatization than our nonclinical sample.
2. Our clinical samples will report higher levels of dissociative psychopathology than our nonclinical sample.
3. Our clinical samples will report higher levels of possession experiences than our nonclinical sample.
4. Dissociative Trance Disorder Interview Schedule total scores will be positively correlated with scores on standardized measures of dissociative symptoms.

Method

Participants

Sixty-eight consenting, Israeli OUD patients in recovery (92% response rate) were recruited from a specialized inpatient substance abuse recovery program. To be included, the routine blood and urine tests of consenting respondents had to indicate a continuous 1-month drug-free period and all participants had to be fluent in Hebrew. The typical responder with OUD was an unemployed, single, Jewish male in his early 30s with a substantial history of abuse (primarily physical, both early and recent). Recruitment of our Arab respondents proved more challenging. One hundred fifty-three Arab women treated ambulatorily in specialized clinics for women subjected to domestic violence were approached and 80 provided informed consent (52% response rate). Despite our reassurances of confidentiality, cited reasons for declined invitation to participate in our study related mostly to fear of reprisal if involvement were to be discovered by disapproving conservative family members. The typical Arab responder was an unemployed, divorced mother in her early 30s with a substantial history of both sexual and physical

abuse (both early and recent). The nonclinical group included 103 respondents: graduate students who received academic credit for recruitment and participation and their friends and family members (95% response rate). The typical community responder was an unmarried, Jewish female student in her early 30s with no history of abuse. For a more detailed comparison of our samples, see Table 1.

Instruments

The Dissociative Experiences Scale (DES) was developed in the United States (Bernstein & Putnam, 1986; Carlson & Putnam, 1993) and is used to measure the frequency of 28 dissociative experiences that are considered important aspects of the dissociation construct (Putnam, 1991). The instrument was shown to be a valid and reliable screening instrument (Frischholtz et al., 1990; Waller, 1995). The Hebrew translation of the DES (H-DES) demonstrated high reliability and validity (Somer, Dolgin, & Saadon, 2001).

The Dissociative Disorders Interview Schedule (DDIS) has been used in a series of research projects in North America, Turkey, and China (e.g., Ross, Duffy, & Ellason, 2002; Ross & Ellason, 2005; Ross & Halpern, 2009; Sar & Ross, 2009; Xiao et al., 2006a). It is a 131-item structured interview that inquires about a range

Table 1. Sociodemographic variables of the research groups: Opiate use disorder patients, battered Arab women, and a nonclinical group in Israel.

	1 Arab women subjected to violence (<i>n</i> = 80)	2 Opiate use disorder (OUD) patients (<i>n</i> = 68)	3 Nonclinical Israeli group (<i>n</i> = 103)	1 versus 2	1 versus 3	2 versus 3
Age	33.29	32.44	34.80	<i>t</i> = 0.565 <i>df</i> = 146 NS	<i>t</i> = 1.040 <i>df</i> = 181 NS	<i>t</i> = 1.503 <i>df</i> = 169 NS
Percentage Jewish	0.0	79.4	95.2	<i>t</i> = 10.000 <i>df</i> = 146 <i>p</i> < .0001	<i>t</i> = 12.809 <i>df</i> = 181 <i>p</i> < .0001	<i>t</i> = 3.221 <i>df</i> = 169 <i>p</i> < .01
Percentage female	100	5.9	68.0	<i>t</i> = 17.558 <i>df</i> = 146 <i>p</i> < .0001	<i>t</i> = 5.841 <i>df</i> = 181 <i>p</i> < .0001	<i>t</i> = 12.225 <i>df</i> = 169 <i>p</i> < .0001
Percentage employed	44	3	77	<i>t</i> = 7.211 <i>df</i> = 146 <i>p</i> < .0001	<i>t</i> = 5.855 <i>df</i> = 181 <i>p</i> < .0001	<i>t</i> = 13.225 <i>df</i> = 169 <i>p</i> < .0001
Percentage married	37.5	10.3	43.7	<i>t</i> = 3.660 <i>df</i> = 146 <i>p</i> < .001	<i>t</i> = 0.843 <i>df</i> = 181 NS	<i>t</i> = 4.742 <i>df</i> = 169 <i>p</i> < .0001
Number of children	1.57	0.68	0.71	<i>t</i> = 4.021 <i>df</i> = 139 <i>p</i> < .0001	<i>t</i> = 4.336 <i>df</i> = 176 <i>p</i> < .0001	<i>t</i> = 0.151 <i>df</i> = 167 NS

NS; not significant.

of symptoms and DSM-IV diagnoses, as well as childhood abuse. The DDIS had good concurrent validity with the Dissociative Experiences Scale (DES; $\kappa = 0.81$; Bernstein & Putnam, 1986), the Structured Clinical Interview for DSM-IV Dissociative Disorders (SCID-D; $\kappa = 0.74$; Steinberg, 1995), and a clinical interview ($\kappa = 0.71$) in an inpatient psychiatric hospital in the United States (Ross et al., 2002).

The Dissociative Trance Disorder Interview Schedule (DTDIS), a new instrument, has been used only once previously (Ross et al., 2013) and no data on its psychometric properties are available. The DTDIS gathers standardized data on possession states and related experiences including symptoms of classic culture-bound syndromes (*amok*, *latah*, *bebainan*, *pibloktoq*, and *ataque de nervios*). These syndromes overlap with each other and involve discrete episodes of behavioral, vocal, and emotional dyscontrol, confusion, exaggerated startle and, in the case of *amok*, aggressive and sometimes murderous behavior. The DTDIS has eight sections: Traditional Treatment (25 items); Identity Changes (15); Environmental Precipitants (16); Memory (7); Dissociative Trance (10); Cognition (5); Physical and Somatic Symptoms (16); and DSM-IV Dissociative Trance Disorder (6). Seven of the section scores are added together to yield a DTDIS overall score that ranges from 0 to 84. The symptom score is calculated as follows: Total score = (Traditional Treatment + Environmental Precipitants). The diagnostic criteria for the culture-bound syndromes are embedded in the seven symptom sections. The DTDIS makes DSM-IV diagnoses of dissociative trance disorder, trance subtype, dissociative trance disorder, and possession trance subtype; questions are close to verbatim transcriptions of the DSM-IV criteria.

The DDIS and the DTIS were translated into Hebrew and Arabic. The Arabic version of the DES was translated from the H-DES. Translations were done by the first author (a native Hebrew speaker) and the third and fourth authors (native Arabic speakers) and were then back-translated into English and Hebrew by native English speakers who were blind to the original English and Hebrew versions. The back-translations were compared to the original versions and differences were reconciled.

Data analyses

For the 261 participants, average DES total scores and the numbers of participants in the DES-taxon (DES-T; Waller, Putnam, & Carlson, 1996) were calculated. For the DDIS, average section scores were calculated including Schneiderian symptoms, somatic symptoms, DSM-IV borderline personality disorder criteria, secondary features of DID, and ESP/paranormal experiences; in addition, the numbers of participants positive for the five dissociative disorders were tabulated, as was the average number of dissociative disorders positive. For the DTDIS, the average section scores and overall scores were calculated. In addition, the number of participants responding "Yes" to individual items was tabulated, as was the number of participants meeting criteria for dissociative trance disorder.

For the demographic variables shown in Table 1, groups were compared to each other using *t* tests for continuous variables and chi squares for dichotomous variables. An analysis of covariance was conducted on the DES, DDIS, and DTDIS results with gender, age, being married, and being separated entered as covariates. Each of the individual groups was compared to the other two using two-tailed *t* tests; for these comparisons, each group was compared separately to the other two. We applied the Bonferroni correction for multiple comparisons was applied (Dunn, 1961), resulting in a corrected significance level of $p < .001$. This was done in order to avoid Type 1 errors, due to the large number of comparisons. Additionally, these variables were entered into a Pearson correlation matrix. After a Bonferroni correction, significance for these correlations was $p < .001$.

Results

As described in Table 2, the Israeli community group reported levels of abuse that were low in absolute terms and remarkably lower than those reported by Israeli clients we sampled in half-way treatment centers, thus confirming our first hypothesis.

While our two clinical samples reported similar levels of exposure to physical abuse, Arab women subjected to domestic violence were 2.6 times more likely to report a history of sexual abuse than recovering OUD patients, a group that has repeatedly shown extensive levels of trauma exposure (e.g., Somer & Avni, 2003; Somer, Altus, & Ginzburg, 2010).

The data we present in Table 3 show that the respondents from our clinical groups reported higher levels of dissociative experiences and psychopathology than

Table 2. Trauma histories among opiate use disorder patients, battered Arab women, and a nonclinical group in Israel.

	1 Arab women subjected to violence (<i>n</i> = 80)	2 Opiate use disorder (OUD) patients (<i>n</i> = 68)	3 Nonclinical Israeli group (<i>n</i> = 103)			
				1 versus 2	1 versus 3	2 versus 3
Percentage physical abuse	65.0	60.3	1.9	$t = 0.586$ $df = 146$ NS	$t = 12.683$ $df = 181$ $p < .001$	$t = 11.372$ $df = 169$ $p < .001$
Percentage sexual abuse	61.3	23.5	0.0	$t = 6.445$ $df = 146$ $p < .001$	$t = 11.583$ $df = 181$ $p < .001$	$t = 4.244$ $df = 169$ $p < .001$
Percentage physical and/or sexual abuse	77.5	60.3	1.9	$t = 0.125$ $df = 146$ NS	$t = 17.113$ $df = 181$ $p < .001$	$t = 11.372$ $df = 169$ $p < .001$

NS; not significant.

Table 3. Dissociative symptoms and disorders in opiate use disorder patients, battered Arab women, and a nonclinical group in Israel (life-time).

	1 Arab women subjected to violence (n = 80)	2 Opiate use disorder (OUD) patients (n = 68)	3 Nonclinical Israeli group (n = 103)	1 versus 2	1 versus 3	2 versus 3
DES	32.5	18.2	7.2	t = 5.021	t = 0.228	t = 2.884
Average score				df = 144 p < .001	df = 95 NS	df = 83 p < .01
DEST-T (%)	91.0	40.0	20.8	t = 6.697	t = 4.690	t = 2.634
				df = 131 p < .001	df = 165 p < .001	df = 142 p < .01
Amnesia (%)	57.5	29.4	12.6	t = 4.555	t = 10.147	t = 4.869
				df = 146 p < .001	df = 181 p < .001	df = 169 p < .001
Depersonalization (%)	53.8	5.9	9.7	t = 7.994	t = 8.141	t = 0.883
				df = 146 p < .001	df = 181 p < .001	df = 169 NS
Dissociative fugue (%)	5.0	2.9	0.00	t = 0.643	t = 0.227	t = 0.173
				df = 146 NS	df = 181 NS	df = 169 NS
Dissociative disorders not otherwise specified (%)	0.0	27.9	0.0	t = 7.210	t = 0.000	t = 7.611
				df = 146 p < .001	df = 181 NS	df = 169 p < .001
DTD (%)	2.3	1.1	3.3	t = 2.295	t = 1.998	t = 4.328
				df = 146 NS	df = 181 NS	df = 169 p < .001
DID (%)	2.5	1.5	0.0	t = 0.428	t = 0.160	t = 0.124
				df = 146 NS	df = 181 NS	df = 169 NS
Average number of dissociative disorders per person	1.2	0.7	0.2	t = 3.777	t = 8.840	t = 4.444
				df = 146 p < .001	df = 181 p < .001	df = 169 p < .001

NS; not significant.

our comparison community sample. These findings are in line with our second research hypothesis and commensurate with the varying degrees of traumatization measured in our three research groups.

While possession experiences seemed to be rather rare among community participants in this study, 1 of every 3 participants from our clinical samples reported having been possessed at some point during their lives by an alien entity, mostly of a discarnate nature (see Table 4). Hypothesis 3 was, therefore, also confirmed.

To shed further light on the meaning of the data that had confirmed our third hypothesis, we explored the relationship between reported paranormal and dissociative trance experiences and other clinical indices measured in this research study. We hypothesized that Dissociative Trance Disorder Interview Schedule total scores would be positively correlated with scores on standardized measures

Table 4. Reported possession experiences in opiate use disorder patients, battered Arab women, and a nonclinical group in Israel (percent positive, life-time).

Possession by	1 Arab women subjected to violence (<i>n</i> = 80)	2 Opiate use disorder (OUD) patients (<i>n</i> = 68)	3 Nonclinical Israeli group (<i>n</i> = 103)	1 versus 2	1 versus 3	2 versus 3
Demon	18%	13%	1%	<i>t</i> = 0.077 <i>df</i> = 146 NS	<i>t</i> = 0.393 <i>df</i> = 181 NS	<i>t</i> = 0.032 <i>df</i> = 169 NS
Deity, spirit, or other supernatural force	13%	9%	1%	<i>t</i> = 0.073 <i>df</i> = 146 NS	<i>t</i> = 0.322 <i>df</i> = 181 NS	<i>t</i> = 0.250 <i>df</i> = 169 NS
Dead person	3%	6%	1%	<i>t</i> = 0.087 <i>df</i> = 146 NS	<i>t</i> = 0.098 <i>df</i> = 181 NS	<i>t</i> = 0.185 <i>df</i> = 169 NS
Living person	1%	6%	0%	<i>t</i> = 0.167 <i>df</i> = 146 NS	<i>t</i> = 0.101 <i>df</i> = 181 NS	<i>t</i> = 0.249 <i>df</i> = 169 NS
Total rate of experienced possession	34%	34%	2%	<i>t</i> = 0.000 <i>df</i> = 146 NS	<i>t</i> = 5.859 <i>df</i> = 181 <i>p</i> < .001	<i>t</i> = 5.779 <i>df</i> = 169 <i>p</i> < .001

Note. Data are percent positive for the experience.

NS; not significant.

of dissociative symptoms. The data presented in Table 5 suggest that extrasensory and paranormal (ESP) experiences and dissociative trance disorder experiences are strongly related to dissociative experiences, secondary features of DID, symptoms of borderline personality disorder, as well as to Schneiderian first rank and somatic symptoms. Our fourth hypothesis was, therefore, also supported by the data.

The DDIS total trauma score was only mildly related to the likelihood of reporting extrasensory and paranormal experiences and was not associated with our Dissociative Trance Disorder Interview Schedule total score, as shown in Table 5. Statistical information for the significant findings is included in the tables.

Discussion

The results were consistent with our hypotheses. First, Israeli community participants reported significantly less exposure to traumatizing events than responding individuals sampled from specialized treatment centers. The reported trauma levels of the Israeli community sample were lower than those measured in comparable samples in North America (Briere & Elliot, 2003; MacMillan et al., 1997) and in line with a previous comparison of Israeli and American respondents (Lauterbach, Somer, Dell, & Vondeylen, 2008). Second, our clinical samples reported higher levels of dissociative psychopathology than our community sample. In fact, the average DES score among Arab women subjected to domestic violence exceeded

Table 5. Pearson correlation matrix for key DDIS and DTDIS variables among all research respondents.

Measure	DDIS	DES	2 ^o DID	Somatic	Schneiderian	BPD	ESP
DDIS							
DES	.714*						
2 ^o DID	.726*	.844*					
Somatic	.596*	.791*	.576*				
Schneiderian	.438*	.560*	.499*	.440*			
BPD	.406*	.630*	.402*	.635*	.402*		
ESP	.696*	.477*	.294*	.435*	.294*	.323*	
Trauma	.074	.368*	.330*	.426*	.182	.542*	.183

Note. Significance level: * = correlation significant at $p < .001$; DDIS = Dissociative Trance Disorder Interview Schedule total score; DES = Dissociative Experiences Scale; 2^o DID = secondary features of dissociative identity disorder; Somatic = somatic symptoms; Schneiderian = Schneiderian first rank symptoms; BPD = borderline personality disorder; ESP = extrasensory and paranormal experiences; Trauma = total trauma score on DDIS.

the commonly accepted cut-off score of 30, a suggested boundary between normal and abnormal dissociation (Carlson & Putnam, 1993). Fully, 91% of the Arab participants were taxon-positive for dissociative disorder (Waller et al., 1996), with 1 of every 2 respondents reporting symptoms corresponding to dissociative amnesia and depersonalization disorder, suggesting that this group may be particularly vulnerable to dissociative psychopathology. To the best of our knowledge, no systematic studies on dissociative psychopathology in Arab samples have been published. In line with interpretations offered by Boddy (1988) concerning phenomena of spirit possession among Muslim Sudanese women, we propose that some abused women in conservative, male-dominated cultures, such as the one we sampled from, use dissociation as a coping strategy to manage painful memories, threatening environments, and aching bodies.

Other studies in traditional societies have shown how sanctioned paranormal and possession experiences may allow the “ventilation” of distress via “non-me” agents and permit communal healing rituals that do not involve any explicit verbal expression of psychological distress (Somer, 1993, 1997, 2006; Somer & Saadon, 2000).

Recently, a wide range of possession experiences and exorcism rituals, as well as culture-bound syndromes listed in the DSM-IV, were identified in an American clinical sample (Ross et al., 2013). Consequently, we predicted that our clinical samples would report higher levels of possession experiences than our nonclinical sample. While only 2% of our community sample reported having had a possession experience, 34% of our clinical respondents endorsed items describing possession experiences, thus substantiating our third hypothesis. This trend appeared to transcend ethnicity, as rates of reported possession experience were identical both in the mostly Jewish and the purely Arab Israeli samples. These data indicate that possession may not be “culture-bound,” as Ross et al. (2013) have already suggested.

To explore the assumption that paranormal and possession phenomena (as measured by the DTDIS) are dissociative in nature, we tested the hypothesis that DTDIS total scores would be positively correlated with scores on standardized measures of dissociative symptoms. The data we collected supported this fourth prediction. However, our data also showed that extrasensory and paranormal (ESP) experiences and dissociative trance disorder experiences were strongly related to dissociative experiences, secondary features of DID, and symptoms of borderline personality disorder, as well as to Schneiderian first rank and somatic symptoms. These statistical associations suggest that dissociative disorders and ESP/trance experiences may share a common underlying construct that is not associated with trauma, as trauma appeared to correlate with dissociation but not ESP. Our data are in line with findings by Ross (2011) who recently reported that patients with DID in North America disclose paranormal, trance, and possession experiences much more frequently than those in control samples. Our results diverge, however, from arguments presented by Targ, Schlitz, and Irwin (2000) who reviewed evidence showing that psi-related phenomena (PRE) had been reported by up to 67% of community respondents. Different definitions and measures of ESP/PRE may account for some of these discrepancies.

Contrary to our expectations, total trauma score was only mildly related to the likelihood of reporting paranormal experiences and was not associated with the Dissociative Trance Disorder Interview Schedule total score in our data set. One possible explanation for this outcome is that trauma, as measured by our instruments, is not the only pathway to the phenomena gauged in this study. For example, ESP and possession trance could represent broader idioms of distress or alternative forms of spiritual experience.

There are several important limitations of this study. First, although our research groups were similar in age, sampling and sociodemographic differences complicate the interpretation of some of our comparative findings. Beyond the obvious ethnic differences between the Arab women and the other groups, additional differences were, arguably, not accounted for among Jewish participants. For example, while both Arabs and Jews were represented in the OUD sample, among Jewish members of this group there were more participants from a Mizrahi (Sephardi) background. Future research should attempt to identify the contribution of Arab ethnicity to the explained variance by sampling a nonclinical female Arab sample. Second, our clinical groups were fairly small and not representative of the majority of the treated populations. Our conversations with individuals belonging to the 48% of Arab women who declined our invitation to participate in the study revealed lingering concerns about confidentiality and fear of reprisal for tarnishing “family honor” by talking to members of the research team. It is conceivable that the troubling psychological outcomes documented among Arab women subjected to domestic violence would have actually been much worse had we had a higher response rate. Third, although literacy level was not measured in this study, many members of our clinical samples, particularly the Arab respondents, were unaccustomed to responding to psychological questionnaires and found

some of the wording difficult to understand. While the research instruments were written in literary Arabic, the interviewers had to translate many of the items into spoken Arabic (which is not a written language). This seemed to enhance the respondents' understanding of our questions, but it also represented a deviation from our strict translation protocol. Lastly, the psychometric properties of the DTDIS, a new instrument, are yet to be established. Further research with the DTDIS should be conducted in a wide range of cultures, languages, and population samples including both clinical and nonclinical groups. Future research on trauma and dissociation among female victims of domestic abuse in patriarchal, collectivist societies is also warranted.

Acknowledgements

We wish to thank Goor Somer and Merav Lapid for their assistance with data collection.

References

- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington DC: American Psychiatric Association.
- American Psychiatric Association. (2013). *The diagnostic and statistical manual, DSM 5*. Washington, DC: APPI.
- Bernstein, E. M., & Putnam, F. W. (1986). Development, reliability, and validity of a dissociation scale. *Journal of Nervous and Mental Disease*, 174, 727–735.
- Boddy, J. (1988). Spirits and selves in northern Sudan: The cultural therapeutics of possession and trance. *American Ethnologist*, 15, 4–27.
- Bourguignon, E. (1976). *Possession*. Prospect Hills, IL: Waveland Press.
- Bowers, K. S. (1991). Dissociation in hypnosis and multiple personality disorder. *International Journal of Clinical and Experimental Hypnosis*, 39, 155–176.
- Briere, J., & Elliot, D. M. (2003). Prevalence and psychological sequelae of self-reported childhood physical and sexual abuse in a general population sample of men and women. *Child Abuse & Neglect*, 27, 1205–1222.
- Cardena, E., van Duijl, M., Weiner, L. A., & Terhune, D. (2009). Possession/trance phenomena. In P. F. Dell, & J. A. O'Neil (Eds) *Dissociation and the dissociative disorders: DSM-V and beyond* (pp. 171–181). New York, NY: Routledge/Taylor & Francis.
- Carlson, E. B., & Putnam, F. W. (1993). An update on the Dissociative Experiences Scale. *Dissociation*, 5, 116–127.
- Dalenberg, C. J., Gleaves, D. H., Dorahy, M. J., Cardena, E., Carlson, E. B., Brand, B. L., . . . Spiegel, D. (2012). Evaluation of the evidence for the trauma and fantasy models of dissociation. *Psychological Bulletin*, 138, 550–588.
- Dunn, O. J. (1961). Multiple comparisons among means. *Journal of the American Statistical Association*, 56, 52–64.
- Ferracuti, S., & DeMarco, M. C. (2004). Ritual homicide during dissociative trance disorder. *International Journal of Offender Therapy and Comparative Criminology*, 48, 59–64.
- Foulks, E. F. (1985). The transformation of "Arctic hysteria." In R. C. Simons, & C. C. Hughes (Eds) *The culture-bound syndromes* (pp. 307–324). Dordrecht, the Netherlands: Reidel.

- Frischholtz, E. J., Braun, B. G., Sachs, R. G., Hopkins, L., Schaeffer, D. M., Lewis, J., ... Schwartz, D. R. (1990). The Dissociative Experiences Scale: Further replication and validation. *Dissociation*, 3, 151–153.
- Ginzburg, K., Somer, E., Tamarkin, G., & Kramer, L. (2010). Clandestine psychopathology: Unrecognized dissociative disorders in inpatient psychiatry. *Journal of Nervous and Mental Disease*, 198, 378–381.
- Huskinson, L. (2010). Analytical psychology and spirit possession: Towards a nonpathological diagnosis of spirit possession. In E. Schmidt & L. Huskinson (Ed.) *Spirit possession and trance: New interdisciplinary perspectives* (pp. 71–96). New York, NY: Continuum.
- Kirmayer, L. J. (2001). Cultural variations in the clinical presentation of depression and anxiety: Implications for diagnosis and treatment [Supplemental material]. *The Journal of Clinical Psychiatry*, 62(13), 22–30.
- Kirmayer, L. J. (2011). Defining and delimiting trauma-related dissociation: A view from cultural psychiatry. *Journal of Trauma and Dissociation*, 12, 465–468.
- Kirmayer, L. J., & Sartorius, N. (2007). Cultural models and somatic syndromes. *Psychosomatic Medicine*, 69, 832–840.
- Krippner, S. (1997). Dissociation in many times and places. In S. Krippner, & S. Powers (Eds) *Broken images, broken selves: Dissociative narratives in clinical practice* (pp. 3–40). New York, NY: Brunner/Mazel.
- Lauterbach, D., Somer, E., Dell, P. F., & Vondeylen, H. (2008). Abuse history and pathological dissociation among Israeli and American college students: A comparative study. *Journal of Trauma and Dissociation*, 9, 51–62.
- Lewis, I. M. (1971). *Ecsatatic religion: An anthropological study of spirit possession and shamanism*. Baltimore, MD: Penguin Books.
- Lewis-Fernández, R. (1994). Culture, personality, and psychopathology. *Journal of Abnormal Psychology*, 103, 67–71.
- Lewis-Fernández, R., & Kleinman, A. (1994). Culture, personality, and psychopathology. *Journal of Abnormal Psychology*, 103(1), 67–71.
- Littlewood, R. (1991). Against pathology: The new psychiatry and its critics. *British Journal of Psychiatry*, 159, 696–702.
- Luhrmann, T. M. (2004). Yearning for God: Trance as a culturally specific practice and its implications for understanding dissociative disorders. *Journal of Trauma and Dissociation*, 5, 101–129.
- MacMillan, H. L., Fleming, J. E., Trocme, N., Boyle, M. H., Wong, M., Racine, Y. A., ... Offord, D. R. (1997). Prevalence of child physical and sexual abuse in the community: Results from the Ontario Health Supplement. *JAMA*, 278, 131–135.
- Ng, B. Y., & Chan, Y. H. (2004). Psychosocial stressors that precipitate dissociative trance disorder in Singapore. *Australian and New Zealand Journal of Psychiatry*, 38, 426–432.
- Ng, B. Y., Yap, A. K., Su, A., Lim, D., & Ong, S. H. (2002). Personality profiles of patients with dissociative trance disorder in Singapore. *Comprehensive Psychiatry*, 43, 212–226.
- Prince, R. H. (1991). Amok then and now. *Transcultural Psychiatric Research Review*, 28, 219–229.
- Putnam, F. W. (1991). Recent research on multiple personality disorder. *Psychiatric Clinics of North America*, 14, 489–502.
- Radwin, J. O. (1991). The multiple personality disorder: Has this trendy alibi lost its way? *Law and Psychology Review*, 15, 69–71.

- Ross, C. A. (2011). Possession experiences in dissociative identity disorder: A preliminary study. *Journal of Trauma and Dissociation*, 12, 393–400.
- Ross, C. A., Duffy, C. M. M., & Ellason, J. W. (2002). Prevalence, reliability, and validity of dissociative disorders in an inpatient setting. *Journal of Trauma and Dissociation*, 3, 7–17.
- Ross, C. A., & Ellason, J. W. (2005). Discriminating among diagnostic categories using the Dissociative Disorders Interview Schedule. *Psychological Reports*, 96, 455–453.
- Ross, C. A., & Halpern, N. (2009). *Trauma model therapy: A treatment approach for trauma, dissociation and complex comorbidity*. Richardson, TX: Manitou Communications.
- Ross, C. A., Schroeder, E., & Ness, L. (2013). Dissociation and symptoms of culture-bound syndromes in North America: A preliminary study. *Journal of Trauma and Dissociation*, 14, 224–235.
- Sar, V., & Ross, C. A. (2009). A research agenda for the dissociative disorders field. In P. F. Dell, & J. A. O'Neil (Eds) *Dissociation and the dissociative disorders: DSM-V and beyond* (pp. 693–708). New York, NY: Routledge.
- Simons, R. C. (1983). Latah II – Problems with a purely symbolic interpretation. *Journal of Nervous and Mental Disease*, 171, 168–175.
- Somer, E. (1993). Possession syndrome in a histrionic personality: Exorcism and psychotherapy [Hebrew]. *Sihot – Israel Journal of Psychotherapy*, 8, 40–47.
- Somer, E. (1997). Paranormal and dissociative experiences in Middle Eastern Jews in Israel: Diagnostic and treatment dilemmas. *Dissociation*, 10, 174–181.
- Somer, E. (2003). Prediction of abstinence from heroin addiction by childhood trauma, dissociation, and extent of psychosocial treatment. *Addiction Research and Theory*, 11, 339–348.
- Somer, E. (2006). Culture-bound dissociation: A comparative analysis. *Psychiatric Clinics of North America*, 29, 213–226.
- Somer, E. (2009). Opiate use disorder and dissociation. In P. F. Dell, & J. A. O'Neil (Eds) *Dissociation and the dissociative disorders: DSM-V and beyond* (pp. 511–518). New York, NY: Routledge.
- Somer, E., Altus, L., & Ginzburg, K. (2010). Dissociative psychopathology among opioid use disorder patients: Exploring the “chemical dissociation” hypothesis. *Comprehensive Psychiatry*, 51, 419–425.
- Somer, E., & Avni, R. (2003). Dissociative phenomena among recovering heroin users and their relationship to duration of abstinence. *Journal of Social Work Practice in the Addictions*, 3, 25–38.
- Somer, E., Dolgin, M., & Saadon, M. (2001). Validation of the Hebrew version of the Dissociation Experiences Scale (H-DES) in Israel. *Journal of Trauma and Dissociation*, 2, 53–66.
- Somer, E., & Saadon, M. (2000). Stambali: Dissociative possession and trance in a Tunisian healing dance. *Transcultural Psychiatry*, 37, 579–609.
- Spiegel, D., Loewenstein, R. J., Lewis-Fernandez, R., Sar, V., Simeon, D., Vermetten, E., ... Dell, P. F. (2011). Dissociative disorders in DSM-5. *Depression and Anxiety*, 28, 824–852.
- Steinberg, M. (1995). *Handbook for the assessment of dissociation. A clinical guide*. Washington, DC: American Psychiatric Press.
- Suryani, L. K., & Jensen, G. D. (1993). *Trance and possession in Bali: A window on Western multiple personality, possession disorder, and suicide*. Kuala Lumpur, Malaysia: Oxford University Press.

- Targ, E., Schlitz, M., & Irwin, H. J. (2000). Psi-related experiences. In E. Cardeña, S. J. Lynn, & S. Krippner (Eds) *Varieties of anomalous experiences: Examining the scientific evidence* (pp. 219–252). Washington, DC: American Psychological Association.
- Tellegen, A., & Atkinson, G. (1974). Openness to absorbing and self-altering experiences (“absorption”), a trait related to hypnotic susceptibility. *Journal of Abnormal Psychology*, 83, 268–277.
- Van Duijl, M., Cardeña, E., & de Jong, J. T. (2005). The validity of DSM-IV dissociative disorders categories in south-west Uganda. *Transcultural Psychiatry*, 42, 219–241.
- Waller, N. G. (1995). The Dissociative Experiences Scale. In J. C. Conoley, & J. C. Impara (Eds) *Twelfth mental measurements yearbook* (pp. 122–123). Lincoln, NE: Institute of Mental Measurement.
- Waller, N. G., Putnam, F. W., & Carlson, E. B. (1996). Types of dissociation and dissociative types: A taxometric analysis of dissociative experiences. *Psychological Methods*, 1, 300–321.
- Ward, C. A. (1989). The cross-cultural study of altered states of consciousness and mental health. In C. A. Ward (Ed.) *Altered states of consciousness and mental health: A cross-cultural perspective* (pp. 125–144). Newbury Park, CA: Sage.
- Xiao, Z., Yan, H., Wang, Z., Zou, Z., Xu, Y., Chen, J., . . . Keyes, B. B. (2006a). Trauma and dissociation in China. *American Journal of Psychiatry*, 163, 1388–1391.
- Xiao, Z., Yan, H., Wang, Z., Zou, Z., Xu, Y., Chen, J., . . . Keyes, B. B. (2006b). Dissociative experiences in China. *Journal of Trauma and Dissociation*, 7, 23–38.
- Yap, P. M. (1967). Classification of the culture-bound reactive syndromes. *Australia and New Zealand Journal of Psychiatry*, 1, 172–179.
- Yap, P. M. (1974). *Comparative psychiatry: A theoretical framework*. Toronto, Canada: University of Toronto Press.
- Yu, J., Ross, C. A., Keyes, B. B., Li, Y., Dai, Y., Zhang, T., . . . Xiao, Z. (2010). Dissociative disorders among Chinese psychiatric inpatients. *Journal of Trauma and Dissociation*, 11, 358–372.

Eli Somer, PhD, is Clinical Professor of Psychology at the University of Haifa, Israel and past president of both the International Society for the Study of Trauma and Dissociation and the European Society for Trauma and Dissociation. His research focuses on trauma and dissociation.

Colin A. Ross, MD, is the President of the Colin A. Ross Institute for Psychological Trauma and past president of the International Society for the Study of Trauma and Dissociation. His research focuses on trauma and dissociation.

Revital Kirshberg, MA, is a clinical social worker and a family therapist in private practice, in Israel. She is supervisor at a residential rehabilitation center for alcohol and substance users. Revital currently specializes in attention deficit disorder/hyperactivity and utilizes a systemic approach in her work with affected children, their families, and their teachers.

Rana Shawahady Bakri, MA, is social worker specializing in cognitive behavior therapy with children and adolescents. She is currently working with at-risk children and youth in after-school programs and residential care in the rural communities of the Misgav Regional Council, Galilee region in Northern Israel.

Shefa Ismail, MA, is a social worker at Daliat el Carmel, near Haifa, Israel, where she chairs the local assessment and treatment committee for children and youth at risk. She is also director of “Yesh Matzav,” a psycho-educational program for at-risk youth in Yafia, near Nazareth, Israel.