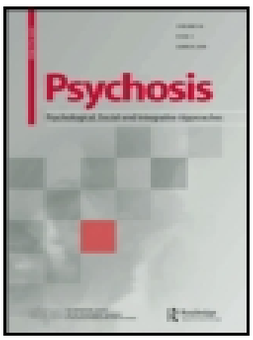

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Clinical correlates of hearing voices among people seeking interventions for dissociation: a cross-cultural investigation

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ABSTRACT

Auditory hallucinations are common among people seeking treatment for trauma and dissociation and can result in diagnostic challenges. This study examined the correlates of hearing voices in two samples of people seeking interventions for dissociation – a sample of 83 English speakers and a sample of 82 Chinese speakers. We found that, compared with depersonalization, hearing voices was more closely associated with trauma and other dissociative phenomena (especially identity dissociation) across two samples from different cultures. We recommend that careful assessment of trauma and dissociation should take place before a clinician assumes that auditory hallucinations are a psychotic symptom. Our findings support the idea that at least some forms of hearing voices are a cross-culturally occurring trauma-related dissociative phenomenon.

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Hearing voices; auditory verbal hallucinations (AVH); psychosis; dissociation; dissociative disorders; trauma

Hearing voices, also known as auditory verbal hallucinations (AVH), was long believed to be a symptom indicating a psychotic disorder (Schneider, 1959). In contradiction to this traditional belief, empirical studies showed that Schneiderian first-rank symptoms, which include hearing voices, are more common in severely traumatized and dissociative patients than in patients diagnosed with schizophrenia (Ross, 2004; Laddis & Dell, 2012; Ross et al., 1990). Additionally, it has been shown that the voice-hearing experience is phenomenologically similar in trauma-related disorders and in psychotic disorders (Moskowitz et al., 2017; Slotema et al., 2012).

Hearing voices is common and can be a very distressing and demoralizing experience (Jongeneel et al., 2018). It can also be a confusing symptom diagnostically, in terms of dissociation versus psychosis. The differential diagnosis of dissociation versus psychosis has important treatment implications, primarily whether the main treatment is medication or psychotherapy (Beatson et al., 2019; Steinberg & Schnall, 2000). The main differences between dissociative and psychotic voices identified in research to date are that dissociative auditory hallucinations more often include child voices and they tend to start earlier in life (Dorahy et al., 2009); psychotic and dissociative voices do not differ in terms of whether they are perceived as coming from inside or outside the head, whether they are angry and conflicted, and whether they take the form of command hallucinations (Honig et al., 1998). In recent years, hearing voices has been increasingly linked to trauma and dissociation (e.g., Daalman et al., 2012; Longden et al., 2012). Some scholars have suggested that many psychotic experiences, including hearing voices, are dissociative in nature (e.g., Moskowitz et al., 2009). This conceptualization has been increasingly emphasized in the literature. For instance, McCarthy-Jones and Longden (2015) stated that voice-hearing experience in people with post-traumatic stress disorder and people with schizophrenia is etiologically identical (i.e., related to trauma in a similar

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way) and may require trauma-informed interventions irrespective of diagnosis. There is strong evidence showing an association between hearing voices and dissociation (Pilton et al., 2015), including studies from different cultures (e.g., Fung, Liu et al., 2019).

Dissociation is defined as a failure in the process of integrating biopsychosocial components of experience within a unified personality system (American Psychiatric Association, 2013); dissociation can take place in, or affect, all areas or levels of psychobiological function (e.g., emotion, memory, identity, sensory perception, and motor control) (Indelli et al., 2018). Some, if not most, voices that people hear may be understood as coming from dissociated parts of the personality. This is particularly true of two types of Schneiderian auditory hallucinations (voices talking to each other, or voices keeping up a running commentary on the person's behavior). Up until DSM-IV (American Psychiatric Association, 1994) only one of these two types of voices was required to make a diagnosis of schizophrenia, and no other symptoms were required. In the context of complex dissociative disorders (DDs), such voices usually come from dissociated self-states or identities (thus, hearing voices may be a diagnostic indicator of identity dissociation in patients with DDs). This may also be true in a subset of cases of schizophrenia, according to Ross's (2004) theory of a dissociative subtype of schizophrenia (Laferriere-Simard et al., 2014).

Although the phenomenon of hearing voices in patients with trauma and dissociation has been widely discussed, we are not aware of studies that specifically look at the clinical correlates of the voice-hearing experience among people who seek treatment for dissociation. Previous studies showed that hearing voices was associated with increased suicidal risk and higher rates for PTSD and emotional abuse in patients with borderline personality disorder (BPD) (Slotema et al., 2018). Some studies have also indicated a relationship between hearing voices and other clinical variables including higher dissociation scores, and more intense PTSD symptoms in patients with chronic PTSD (Anketell et al., 2010; Mueser & Butler, 1987). However, there is a lack of empirical data showing whether hearing voices is also associated with more trauma and more clinical symptoms in people with dissociative symptoms and disorders. The correlates of hearing voices among people suffering from dissociative symptoms is a topic requiring further investigation. For example, in this specific population, little is known about the extent to which hearing voices is associated with identity dissociation (being aware of another person existing inside); little is known about whether hearing voices – as compared with other dissociative symptoms – is a stronger, or weaker, indicator of severe trauma and dissociation.

We believe that, conceptually, Schneiderian or other voices that speak in sentences and express opinions, attitudes and feelings must originate from disowned, disavowed aspects of self and that these aspects of self must be dissociated from the executive self by basic logic (Ross, 2004, 2007). Other voices that only mumble, repeat single phrases or call the person's name may not be dissociative in nature. We are not saying that AVH must be based on a postulated dissociative defense mechanism, only that they arise from a dissociated aspect of self. Many possible mechanisms and etiologies could give rise to such dissociation although, in practice, trauma is likely the major contributor.

To our knowledge, few studies have investigated the correlates and potential meaning of specific dissociative symptoms. As mentioned, dissociation can affect all areas or levels of psychobiological functioning – for example, dissociation in memory could result in amnesia or flashbacks of trauma, and dissociation in emotion could result in numbing or intrusive emotions. Some efforts have been made in this regard: for example, Hariri et al. (2015) showed that amnesia and depersonalization/derealization, but not identity confusion/alteration, were correlated with illness duration in patients with bipolar disorder; Cramer et al. (2020) also found that depersonalization was the most central symptom in their symptom network among people reporting PTSD symptoms. Some important work has been done by Schimmenti and Şar (2019) in a recent study – they examined the interrelationships between different symptom domains of dissociation and demonstrated, in a non-clinical sample, that some dissociative experiences may give rise to other dissociative experiences.

This study examined the symptom correlates of hearing voices in two samples of people seeking treatment interventions for dissociation (an English-speaking sample and a Chinese-speaking sample). For the purpose of comparison, we also examined the correlates of depersonalization (feeling unreal), which is generally believed to be the third most common mental health symptom after depression and anxiety (Guralnik et al., 2000) and therefore is perhaps one of the most common dissociative symptoms that drive people to seek interventions for dissociation.

We hypothesized that hearing voices would also be associated with trauma, dissociation and other mental health symptoms in our samples. If hearing voices is a dissociative phenomenon, as proposed in the trauma model of dissociation (Ross, 2004, 2007; Dalenberg et al., 2012; Fung & Lao, 2017), it should have consistent relationships with trauma and other dissociative symptoms across samples in different cultures. We also hypothesized that, compared with depersonalization, hearing voices would have a stronger relationship with trauma and symptoms related to identity dissociation because we assumed that depersonalization does not always involve trauma-related dissociation of the personality (Van der Hart et al., 2004) while voices often arise from dissociated self-states (whether or not they are fully differentiated and developed as separate identities).

Methods

Participants

We analyzed baseline data from two intervention studies that evaluated the feasibility and potential benefits of using web-based psychoeducation for people suffering from dissociation. Both the studies were approved by The Hong Kong Polytechnic University (PolyU) Human Subjects Ethics Sub-committee. Study 1 (Fung, Chan, Ross et al., 2020) was the pilot study of Study 2. Study 1 recruited English-speaking people who self-reported suffering from dissociation through online channels in March, 2019; they were told that they would be offered a 6-session online dissociation-focused psychoeducation program. Study 2 recruited Chinese-speaking people who self-reported suffering from dissociation through both online and offline channels in February, 2020; they could access a 12-session online dissociation-focused psychoeducation program. In both studies, in order to ensure that potential participants knew about our target participants, a list of examples of dissociative experiences (adapted from the dissociation measures) were provided in the recruitment poster.

There were 83 participants who gave informed consent and completed the online screening (baseline) survey for Study 1. Most of them were female (90.4%). Their ages ranged from 19 to 70 (M = 40.96; SD = 10.78). They were from diverse regions (e.g., 47.0% United States, 12.0% United Kingdom, 8.4% Canada, 8.4% Hong Kong, 6.0% Australia). Most of them self-reported a clinical diagnosis of PTSD (69.9%), 15.7% reported borderline personality disorder (BPD), and 54.2% reported a DD diagnosis, including 31.3% who reported dissociative identity disorder (DID). Their average Dissociative Experiences Scale-Taxon (DES-T) score was 45.3 (SD = 23.1) and they reported an average of 2.93 (SD = 1.51) types of childhood betrayal trauma on the Brief Betrayal Trauma Survey (BBTS) (Goldberg & Freyd, 2006), indicating that they were highly traumatized and dissociative.

There were 82 participants in Study 2. Most of them were also female (90.2%). They were generally younger than the participants in Study 1 (M = 28.77; SD = 7.61). Forty-two participants were from Hong Kong (51.2%), and 36 participants (43.9%) were from Taiwan, while a few were from other countries (e.g., Malaysia and Australia). About one-third of them self-reported a clinical diagnosis of PTSD (35.4%), 19.5% reported BPD, and 31.7% reported a DD diagnosis, including 18.3% who reported DID. Their average DES-T score was 45.1 (SD = 22.3) and they reported an average of 2.28 (SD = 1.52) types of childhood betrayal trauma on the BBTS, indicating that they were also highly traumatized and dissociative.

Measures

At baseline of each study, participants completed an online survey (English for Study 1 and Chinese for Study 2) that included the following measures:

The DES-T is an 8-item subscale of the original DES and can be used to assess pathological dissociation (Bernstein & Putnam, 1986; Waller et al., 1996; Waller & Ross, 1997). The Chinese version of the DES-T is reliable and valid (Fung, Choi et al., 2018) and has been used in previous studies (Fung & Chan, 2019; Fung, Ho et al., 2018). The DES-T is calculated by dividing the sum of the item scores divided by the number of items. As the DES-T also includes an item regarding hearing voices, we also calculated a DES-T-R score that only included the 7 items (excluding the hearing voices item)

The PTSD Checklist for DSM-5 (PCL-5) is a 20-item measure of DSM-5 PTSD symptoms (Blevins et al., 2015; Weathers et al., 2013). Its Chinese version is reliable and valid and can discriminate between psychiatric outpatients with and without a clinically diagnosed DSM-5 PTSD (Fung, Chan et al., 2019). The PCL-5 is calculated by summing all 20 items.

The Self-Report Dissociative Disorders Interview Schedule (SR-DDIS) is a self-administered version of the original DDIS, which can be used to assess secondary features of DID and Schneiderian symptoms, along with several DSM-5 diagnoses, including DDs and BPD (Ross & Ellason, 2005; Ross et al., 1989). The SR-DDIS is reliable and valid (Ross & Browning, 2017). The Chinese version of the SR-DDIS has been validated and can discriminate participants with and without a DD (Fung, Choi et al., 2018). Moreover, the validity of the BPD section of the DDIS (i.e., SR-DDIS-BPD) has been examined – it can detect DSM-5 BPD with excellent discriminative validity (Fung, Chan, Lee et al., 2020). The secondary features of DID section, the BPD section and the DD section were used in both studies. The scoring guidelines of the SR-DDIS are available at https://www.rossinst.com/ddis.

The Patient Health Questionnaire (PHQ) is a 9-item measure that is commonly used to assess the level of depression; its psychometric properties have been well-established (Kroenke & Spitzer, 2002; Manea et al., 2012). The Chinese version of the PHQ is reliable and valid (Yeung et al., 2008). The PHQ is calculated by summing all 9 items.

The Brief Betrayal Trauma Survey (*BBTS)*, which has 12 items, can be used to assess 12 different types of traumatic experiences that happen during childhood and adulthood (Goldberg & Freyd, 2006). Items 3a/b, 5a/b, 6a/b, 8a/b and 10a/b assess childhood/adulthood trauma with more betrayal (e.g., "*you were emotionally or psychologically mistreated over a significant period of time by someone with whom you were very close (such as a parent or lover)*"). Items 1a/b, 2a/b, 4a/b, 7a/b and 9a/b assess childhood/adulthood trauma with less betrayal (e.g., "*you have been in a major automobile, boat, motorcycle, plane, train, or industrial accident that resulted in similar consequences*"). For each item, participants can answer "never", "one or two times" or "more than that". For analysis in this study, only "one or two times" or "more than that" were regarded as positive for that item. The Chinese version of the BBTS has been used in previous studies (Chiu et al., 2010).

Data analysis

In this study, "hearing voices" and "feeling unreal" were assessed with item 96 ("*Do you hear voices talking to you sometimes or talking inside your head?*") and item 95 ("*Do you ever have long periods when you feel unreal, as if in a dream, or as if you're not really there, not counting when you are using drugs or alcohol?*"), respectively, on the SR-DDIS (only "fairly often" or "frequently" were regarded as positive for that item).

In each sample, we examined the relationship of these two experiences with other dissociative phenomena on the SR-DDIS. We examined their relationship with other variables in other measures. We also compared the differences in symptom variables between participants who heard voices, participants who felt unreal but did not hear voices, and participants who reported neither experience.

Results

In Study 1, 48 participants (57.8%) reported hearing voices (93.8% of these reported voices coming from inside), and 81.3% of them ($n = 39$) also reported feeling unreal. In Study 2, 48 participants (58.5%) reported hearing voices (83% of these reported voices coming from inside), and 47.9% of them ($n = 23$) reported feeling unreal. Hearing voices was not associated with gender or age in either sample.

We conducted chi-square tests to compare the group differences in dissociative symptoms. Since a total of 26 analyses were performed in each sample, a Bonferroni correction was used to adjust the criterion for statistical significance for the chi-square tests to .0019 to hold the familywise error probability at .05. As shown in Table 1, hearing voices was closely associated with several other dissociative phenomena, such as symptoms indicating a dissociation in memory (e.g., being told of unremembered events, and objects are present that cannot be accounted for) that were measured using the SR-DDIS (under the section "secondary features of DID"). In particular, compared with feeling unreal, hearing voices is a stronger indicator of symptoms indicating identity dissociation (e.g., a person inside has a different name, and another person taking control). Only flashbacks had a closer relationship with feeling unreal than with hearing voices across the two samples (see Table 1).

We examined whether feeling unreal and hearing voices were correlated with other clinical measures (i.e., DES-T-R, PCL-5, DDIS-BPD, PHQ and BBTS) using point biserial correlation (see Table 2). The relationships of feeling unreal with depressive, PTSD and BPD symptoms and high-betrayal trauma were inconsistent across the two samples. Hearing voices, in contrast, was significantly correlated with depressive, PTSD and BPD symptoms and high-betrayal trauma across the two samples (see Table 2). Both hearing voices and feeling unreal were strongly correlated with the DES-T-R (see Table 2). After the DES-T-R scores were controlled for using the partial point-biserial correlation, only hearing voices was significantly correlated with childhood and adulthood high-betrayal trauma across the two samples (see Table 2).

When we examined the differences between participants who heard voices, participants who felt unreal but did not hear voices, and participants who reported neither experience using one-way ANOVA (see Table 3), it was found that participants who heard voices had significantly higher scores on the DES-T, DES-T-R, PCL-5 and DDIS-BPD and reported significantly more high-betrayal traumas than participants with neither experience; this pattern was consistent across the two samples. Participants who heard voices also had higher DES-T scores and reported more childhood low-betrayal traumas than participants who only felt unreal in Sample 1, and they reported more adulthood high-betrayal traumas in Sample 2.

Discussion

In this study, we examined the correlates of hearing voices among English-speaking and Chinese-speaking people seeking treatment for dissociation. The main findings include: (1) compared with depersonalization (feeling unreal), hearing voices was more closely associated with other dissociative phenomena across two samples from different cultures, especially experiences indicating identity dissociation (e.g., a person inside has a different name, and another person taking control), (2) compared with feeling unreal, hearing voices had a stronger relationship with trauma, especially childhood high-betrayal trauma, across the two samples, (3) participants who heard voices scored significantly higher on the DES-T-R, PCL-5, DDIS-BPD and PHQ and reported significantly more high-betrayal traumas across two samples than participants reporting no voices and no depersonalization, and (4) when compared to participants reporting neither depersonalization nor hearing voices, participants who felt unreal had elevated DES-T-R across two samples, and they also had elevated PCL-5 scores and more childhood high-betrayal traumas in Sample 1 and more adulthood high-betrayal traumas in Sample 2 (see Table 3).

Taken together, although hearing voices may be understood differently in different cultures (e.g., hearing voices may be regarded as being messages from ghosts in the traditional Chinese culture,

Table 1. Feeling unreal and hearing voices as discriminators across two samples.

	Sample 1				Sample 2			
	Participants who felt unreal (n = 59) vs who did not (n = 24)		Participants heard voices (n = 48) vs who did not (n = 35)		Participants who felt unreal (n = 37) vs who did not (n = 45)		Participants who heard voices (n = 48) vs who did not (n = 34)	
Dissociative phenomena as measured with the SR-DDIS	%	χ2 (df = 1)	%	χ2 (df = 1)	%	χ2 (df = 1)	%	χ2 (df = 1)
Noticing that objects are missing	39.0 vs 25.0	1.467	43.8 vs 22.9	3.887*	13.5 vs 13.3	0.001	11.8 vs 5.9	2.837
Objects are present that cannot be accounted for	25.4 vs 16.7	0.741	35.4 vs 5.7	10.117***	16.2 vs 15.6	0.007	22.9 vs 5.9	4.329*
Different handwriting style	61.0 vs 29.2	6.932**	66.7 vs 31.4	10.067**	13.5 vs 11.1	0.109	14.6 vs 8.8	0.617
Strangers know the person	27.1 vs 16.7	1.019	33.3 vs 11.4	5.310*	21.6 vs 13.3	0.985	22.9 vs 8.8	2.792
Being told of unremembered events	40.7 vs 41.7	.007	52.1 vs 25.7	5.820*	45.9 vs 28.9	2.546	52.1 vs 14.7	11.985***
Blank spells	61.0 vs 25.0	8.854**	66.7 vs 28.6	11.752***	48.6 vs 28.9	3.372	47.9 vs 23.5	5.034*
Coming out of blank spells in a strange place	27.1 vs 12.5	2.065	31.3 vs 11.4	4.505*	18.9 vs 11.1	0.991	20.8 vs 5.9	3.561
Amnesia for childhood	79.7 vs 75.9	0.218	85.4 vs 68.6	3.382	45.9 vs 46.7	0.004	50.0 vs 41.2	0.623
Flashbacks	79.7 vs 37.5	13.817***	83.3 vs 45.7	13.051***	70.3 vs 33.3	11.081***	54.2 vs 44.1	0.804
Referring to oneself as “we” or “us”	54.2 vs 58.3	0.116	75.0 vs 28.6	17.660***	54.1 vs 26.7	6.400*	58.3 vs 11.8	18.138***
Another person existing inside	59.3 vs 54.2	0.186	77.1 vs 31.4	17.300***	73.0 vs 51.1	4.078*	83.3 vs 29.4	24.319***
Person inside has a different name	45.8 vs 37.5	0.474	66.7 vs 11.4	25.146***	32.4 vs 26.7	0.326	43.8 vs 8.8	11.727***
Another person taking control	45.8 vs 45.8	0.000	68.8 vs 14.3	24.189***	48.6 vs 28.9	3.372	54.2 vs 14.7	13.181***

* p <.05 ** p <.01 *** p <.0019

SR-DDIS = the Self-report Dissociative Disorders Interview Schedule

Table 2. Correlations between hearing voices and feeling unreal and other major variables across two samples.

	Sample 1 (N = 83)		Sample 2 (N = 82)	
Point-biserial correlation	Feeling unreal	Hearing voices	Feeling unreal	Hearing voices
DES-T	.454**	.548**	.369**	.379**
DES-T-R	.472**	.456**	.398**	.301**
PCL-5	.371**	.275*	.154	.241*
DDIS-BPD	.314**	.284**	.163	.277*
PHQ	.377**	.225*	.146	.245*
Childhood low-betrayal trauma	.011	.334**	.006	.271*
Childhood high-betrayal trauma	.252*	.575**	.075	.321**
Adulthood low-betrayal trauma	.041	.146	.156	.165
Adulthood high-betrayal trauma	.226*	.330**	.151	.335**
Partial point-biserial correlation#	Feeling unreal	Hearing voices	Feeling unreal	Hearing voices
Childhood low-betrayal trauma	−.258*	.161	−.080	.227*
Childhood high-betrayal trauma	−.038	.426**	−.034	.262*
Adulthood low-betrayal trauma	−.072	.053	.053	.089
Adulthood high-betrayal trauma	.100	.227*	.000	.250*

* p <.05 ** p <.01

DES-T = The Dissociative Experiences Scale-Taxon; DES-T-R = the DES-T excluding the hearing voices item; PCL-5 = The Posttraumatic Stress Disorder Checklist for DSM-5; DDIS-BPD = The Borderline Personality Disorder Section of the Dissociative Disorders Interview Schedule; PHQ = The Patient Health Questionnaire; The four types of trauma were measured with the Brief Betrayal Trauma Survey.

controlled variables include: the DES-T-R scores

although such cultural attributions were not explored in the present study), our findings indicate that hearing voices is cross-culturally associated with more traumas and more severe dissociative and other comorbid symptoms among people seeking treatment for dissociation. Compared with a more common dissociative symptom (depersonalization), hearing voices is a stronger indicator of identity dissociation and childhood high-betrayal trauma.

This study has some strengths. For example, we cross-validated the findings across two samples from different cultures and languages, and all the mental health measures have been validated in both the English and Chinese contexts. However, the study suffers from several limitations: we relied only on self-report data; these were convenience samples; most of the participants were female; and voice-hearing experience was assessed with a single item from the SR-DDIS. Future studies should replicate our findings using measures that can comprehensively assess AVH. It should be noted that we did not exclude participants (n = 11 in Sample 1, n = 16 in Sample 2) who scored below 20 on the DES-T because, in clinical practice, some people seeking interventions for dissociation report low DES-T scores. Moreover, we only investigated two specific dissociative symptoms (feeling unreal and hearing voices). Future studies should investigate the correlates, impacts and roles of and inter-relationships among different symptoms of dissociation in a more representative sample of people suffering from dissociation. Finally, although it is reasonable to assume that Chinese speakers and English speakers on the Internet are very likely from different cultures, further cross-cultural studies using more culturally representative samples are needed. Despite these limitations, our current findings have some implications that require discussion.

First, given the close relationship of hearing voices with trauma and identity dissociation in people with trauma and dissociation in the present study, when a dissociative client (e.g., individuals diagnosed as having BPD or the dissociative subtype of PTSD) reports hearing voices, the practitioner should conduct a careful assessment and consider the possibility that the voices arise from a dissociated self-state. Mistaking auditory hallucinations as being symptoms of psychosis rather than dissociation could lead to ineffective or even harmful interventions. Antipsychotic medications should be considered only after thinking carefully about whether a client's voices can be better explained as trauma-related or dissociative. It should be noted that apparently psychotic symptoms with impaired reality testing can result from dissociative processes (e.g., in dissociative psychosis) (Fung, 2016; Şar & Öztürk, 2009).

Table 3. Differences between participants who heard voices, participants who felt unreal but did not hear voices and participants who had neither across two samples.

	Sample 1 (n = 83)								Sample 2 (n = 82)							
	Neither (C) (n = 15)		Participants who felt unreal but did not hear voices (B) (n = 20)		Participants who heard voices (A) (n = 48)		F	post hoc	Neither (C) (n = 20)		Participants who felt unreal but did not hear voices (B) (n = 14)		Participants who heard voices (A) (n = 48)		F	post hoc
	M	SD	M	SD	M	SD			M	SD	M	SD	M	SD		
DES-T	18.17	14.48	39.88	19.24	56.09	18.86	25.824**	A > B > C	28.69	20.44	44.29	18.29	52.11	20.67	9.465**	A > C
DES-T-R	18.48	14.93	42.14	19.12	52.71	19.65	19.108**	A > C, B > C	27.50	20.79	45.92	18.22	48.93	22.09	7.359**	A > C, B > C
PCL-5	49.47	12.63	58.95	12.11	61.33	9.79	6.769**	A > C, B > C	49.65	16.50	55.00	16.32	58.81	12.04	3.068	A > C
DDIS-BPD	3.67	2.44	4.90	2.69	5.71	1.95	4.933*	A > C	3.70	2.54	4.50	1.95	5.31	2.15	3.872*	A > C
PHQ	14.47	6.76	17.80	4.82	18.81	4.79	4.000*	A > C	13.30	6.67	15.07	6.56	17.08	5.63	2.887	/
Childhood low-betrayal trauma	1.47	1.36	1.45	1.43	2.44	1.38	5.037**	A > B	0.95	1.00	0.93	0.92	1.58	1.25	3.132*	/
Childhood high-betrayal trauma	1.53	0.83	2.20	1.44	3.67	1.24	21.699**	A > C, B > C	1.70	1.45	1.71	1.33	2.69	1.49	4.526*	A > C
Adulthood low-betrayal trauma	1.00	1.07	1.90	1.17	1.94	1.58	2.665	/	0.70	1.03	1.00	0.88	1.23	1.36	1.36	/
Adulthood high-betrayal trauma	1.40	1.12	2.00	1.49	2.75	1.49	5.739**	A > C	1.20	1.06	1.07	0.62	1.98	1.33	5.038*	A > B, A > C

* p <.05 ** p <.01

Notes

DES-T = The Dissociative Experiences Scale-Taxon; DES-T-R = the DES-T excluding the hearing voices item; PCL-5 = The Posttraumatic Stress Disorder Checklist for DSM-5; DDIS-BPD = The Borderline Personality Disorder Section of the Dissociative Disorders Interview Schedule; PHQ = The Patient Health Questionnaire

Second, we found that, compared with hearing voices, depersonalization is not a strong indicator of the presence of identity dissociation and betrayal trauma. A client may seek treatment because of depersonalization, which is common among people experiencing stress and anxiety, and the clinical diagnosis may be an anxiety disorder with comorbid depersonalization or a dissociative subtype of PTSD; nevertheless, the practitioner should assess whether the client hears voices or suffers from other dissociative symptoms. Depersonalization by itself cannot reliably indicate whether a client has trauma-related structural dissociation.

Third, our study is preliminary in terms of exploring the interrelationships among different dissociative symptoms. The initial finding is that some dissociative symptoms (e.g., hearing voices) may indicate more severe trauma and structural dissociation while others (e.g., feeling unreal) may not. Further research will be required to better understand the relationships between trauma, betrayal, different forms of dissociation and the comorbidities commonly accompanying complex DDs.

Concluding remarks

This paper reports the correlates of hearing voices among people seeking treatment for dissociation in two samples from different cultures. The data support our hypothesis that, compared with depersonalization, hearing voices has a stronger relationship with trauma and symptoms related to identity dissociation; these findings were consistent across two samples. It should be noted that our findings from different cultural and language contexts support the idea that at least some forms of auditory hallucinations are a cross-culturally occurring trauma-related dissociative phenomenon. Our findings are consistent with the trauma model of dissociation and the theory of a dissociative subtype of schizophrenia.

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Disclosure statement

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