

Trauma and dissociation among inpatients diagnosed with schizophrenia spectrum disorders in Taiwan

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ABSTRACT

Background: The overlapping symptoms of schizophrenia and dissociation have been increasingly recognized. This paper explains why it is reasonable to expect that there would be a substantial subgroup of patients diagnosed with schizophrenia spectrum disorders (SSDs) who suffer from pathological dissociation.

Objective: As little is known about the prevalence of dissociative disorders and symptoms among patients with SSDs, we investigated the prevalence of dissociative disorders and symptoms among patients with SSDs.

Method: We used both self-report measures and structured interviews to examine dissociative disorders and symptoms in a randomly recruited sample of inpatients with a clinical diagnosis of SSDs in Taiwan ($N = 100$).

Results: Over 60% of participants exhibited pathological dissociation, and 54% had a dissociative disorder according to structured interview data; three participants met the DSM-5 diagnostic criteria for dissociative identity disorder. The concurrent validity of pathological dissociation in this sample was similar to that of depression among patients with schizophrenia reported in the literature. Participants with a dissociative disorder were more likely to report high-betrayal traumas and meet DSM-5 criteria for post-traumatic stress disorder; they also reported more psychotic symptoms than those without a dissociative disorder.

Conclusions: This was one of very few studies that used structured interviews to examine pathological dissociation in patients with SSDs. The results indicate that pathological dissociation in SSDs is not uncommon. Clinical assessment should include measures of dissociation to facilitate early identification.

Trauma y disociación entre pacientes hospitalizados diagnosticados con trastornos del espectro de la Esquizofrenia en Taiwán

Antecedentes: Los síntomas superpuestos de Esquizofrenia y Disociación han sido cada vez más reconocidos. Este artículo explica por qué es razonable esperar que estos sean un subgrupo sustancial de pacientes diagnosticados con trastornos del espectro de la esquizofrenia (SSDs por sus siglas en inglés) que sufren de disociación patológica.

Objetivos: Como se conoce poco sobre la prevalencia de los trastornos y síntomas disociativos entre pacientes con SSDs, nosotros investigamos la prevalencia de trastornos y síntomas disociativos entre los pacientes con SSDs.

Método: Utilizamos medidas de autoinforme y entrevistas estructuradas para examinar los trastornos y síntomas disociativos, en una muestra reclutada al azar de pacientes hospitalizados con diagnóstico clínico de SSDs en Taiwán ($N = 100$).

Resultados: Más del 60% de los participantes exhibieron disociación patológica, y el 54% tuvo un trastorno disociativo según datos de entrevistas estructuradas; tres participantes cumplieron con los Criterios diagnósticos del DSM-5 para trastorno de identidad disociativo. La validez concurrente de la disociación patológica en esta muestra, fue similar a la de depresión entre los pacientes con esquizofrenia reportada en la literatura.

Los participantes con trastorno disociativo tuvieron más probabilidad de informar traumas de alta-traición y cumplían los criterios del DSM-5 para trastorno de estrés postraumático; también informaron más síntomas psicóticos que aquellos sin un trastorno disociativo.

Conclusiones: Este fue uno de los pocos estudios que utilizó entrevistas estructuradas para examinar disociación patológica en pacientes con SSDs. Los resultados indican que la disociación patológica en SSDs no es infrecuente. La evaluación clínica debe incluir medidas de disociación para facilitar la identificación temprana.

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HIGHLIGHTS

- Patients with dissociative disorders are often diagnosed with a psychotic disorder.
- Our study found that unrecognized dissociation is common in a sample of Taiwan inpatients with schizophrenia.
- Patients with schizophrenia spectrum disorders should be screened for dissociation.
- Trauma and dissociation are not rare among inpatients diagnosed with schizophrenia spectrum disorders in Taiwan.

診斷為思覺失調類群障礙症之台灣住院患者的創傷與解離

背景: 思覺失調症和解離在症狀上之重疊漸漸為人所關注。本文解釋為何我們預料不少被診斷患有思覺失調類群障礙症(SSD)之患者可能有病態解離。

目的: 由於我們對解離症狀及解離症在SSD患者之盛行率知之甚少，我們探討SSD患者中解離症狀及解離症之普遍性。

方法: 我們隨機招募台灣臨床診斷為SSD之住院患者($N = 100$)，以自評問卷及結構性晤談來探討他們的解離症狀及解離症。

結果: 根據結構性晤談的數據，超過60%的參加者呈現病態解離，54%患有解離症；三名參加者符合DSM-5 解離性身份障礙之診斷標準。在我們的樣本中，病態解離的效度與文獻中思覺失調症患者的抑鬱之效度相近。跟沒有解離症的參加者相比，有解離症的參加者更有可能報告高度背叛創傷，並更大機會符合創傷後壓力症之診斷標準，而他們也報告更多精神病症狀。

結論: 這是少數使用結構式晤談來探討SSD 患者之病態解離的研究。結果表明SSD患者之病態解離並不罕見，臨床評估應該包括解離的評估工具，以助及早識別相關狀況。

1. Introduction

Psychotic disorders and Dissociative Disorders (DDs) are two different diagnostic categories of mental disorders. Schizophrenia is generally understood as a brain disease and treated with pharmacological treatments (McCutcheon et al., 2020), while DDs are conceptualized as trauma-related disorders and treated with psychological interventions (Brand & Loewenstein, 2010). However, the relationship between schizophrenia and dissociation has been increasingly emphasized because of their overlapping symptoms (Moskowitz et al., 2011). One important finding from early studies was that people with dissociative identity disorder (DID) reported even more Schneiderian first-rank symptoms (e.g. voices arguing, voices commenting) than those with schizophrenia (Laddis & Dell, 2012; Ross et al., 1990). Some psychotic symptoms, especially auditory hallucination, could be similar between patients with schizophrenia and those with trauma and pathological dissociation (e.g. McCarthy-Jones & Longden, 2015; Moskowitz et al., 2017). Both psychosis and pathological dissociation are also closely related to trauma (Read et al., 2008). Because of the increasingly recognized relationships between trauma, pathological dissociation and psychosis, some theories have proposed that most psychotic symptoms are dissociative in nature (Moskowitz et al., 2009) or that there may be a subgroup of schizophrenia spectrum disorders (SSDs) to be characterized by high levels of pathological dissociation (Ross, 2004, 2019).

It is reasonable to expect that there might be a substantial subgroup of patients diagnosed with SSDs also suffering from pathological dissociation because of the following reasons. First, patients with DDs are commonly diagnosed with psychotic disorders before their trauma and pathological dissociation can be recognized because of their overlapping symptoms (Renard et al., 2017) and because DDs are rarely considered and diagnosed in psychiatric settings due to

diverse reasons (e.g. unfamiliarity with the diagnoses and their epidemiology) (Coons, 1998). Second, a study using structured interviews showed that patients with schizophrenia reported more dissociative features than other diagnostic groups, except those with complex DDs (Ross & Ellason, 2005). Third, a meta-analysis indicated that dissociation has robust relationships with major positive symptoms of psychosis ($r = .437$) in both clinical and nonclinical samples, mainly including hallucinations ($r = .461$), delusions ($r = .418$) and paranoia ($r = .447$) (Longden et al., 2020). Fourth, systematic reviews also indicated that dissociation mediates the relationship between childhood adversities and psychosis (Alameda et al., 2020; Williams et al., 2018), and therefore dissociative symptoms may also co-occur with psychotic symptoms in trauma survivors.

In clinical practice, dissociative patients usually report experiences that could be regarded as psychotic symptoms, thus indicating a schizophrenia related disorder. Dorahy et al. (2009) found that auditory hallucinations in DDs and in schizophrenia could be similar. For example, patients might report hearing voices arguing inside their head where the known and/or unknown dissociated self-states are talking; they appeared to have 'delusions' that their feelings or actions were made by someone else whenever they experienced intrusions during partial dissociation; and/or they might have flat affect when they were emotionally numb or during trance states. These well-documented phenomena of pathological dissociations (Dell, 2009) could lead to challenges in differential diagnosis. Moreover, although dissociative patients generally have intact reality testing (Steinberg & Siegel, 2019), some patients may suffer from temporary dissociative psychosis; for instance, they might see visions or become afraid of being persecuted without insights during flashbacks, under extreme stress or under the influences of some unaddressed dissociated self-states (Fung, 2016; Şar & Ross, 2006).

Early identification of dissociation in patients with schizophrenia is important because it has significant clinical implications. Whether the symptoms are understood as psychotic or dissociative could affect treatment plans (Ross, 2020). Dissociative symptoms require specialized psychotherapy (Brand et al., 2012; Ross & Halpern, 2009). Although there is a lack of randomized controlled trials, clinical experience suggested that treatment with medications that does not take dissociation into account may be ineffective in treating dissociative symptoms (Brand & Loewenstein, 2010; International Society for the Study of Trauma and Dissociation, 2011). However, pathological dissociation in patients with SSDs has not been fully explored and thus requires further investigation. Although some studies have examined dissociative experiences using the Dissociative Experiences Scale (DES) in patients with schizophrenia, this self-report measure assesses both pathological and nonpathological dissociation, and can provide only limited evidence regarding the prevalence of pathological dissociation in this specific population. In addition, only a few studies employed structured interviews to investigate the prevalence rates of dissociative symptoms and disorders in patients with schizophrenia-related disorders (for a review, see Schäfer et al., 2019). The use of structured interviews has been the 'gold standard' to assess mental disorders since the 1970s in psychiatric settings, especially for research purposes because it could be less biased and more reliable (Drill et al., 2015; Mueller & Segal, 2014).

Four early studies used the Dissociative Disorders Interview Schedule (DDIS) and/or the Structured Clinical Interview for DSM Dissociative Disorders (SCID-D) to investigate pathological dissociation in schizophrenia. These studies were conducted before 2000 with small sample sizes ($N \leq 53$), but they provided insightful findings regarding the high prevalence of pathological dissociation among patients with schizophrenia: 57.1% of patients with schizophrenia indicated that they experienced moderate to severe dissociative amnesia; and 50% met the diagnostic criteria for a current DD (Haugen & Castillo, 1999; Moise, 1996; Ross, Heber, Norton, & Anderson, 1989; Steinberg et al., 1994). Ross and Keyes (2004) administered the DDIS to a convenience sample of 60 patients with chronic schizophrenia and found that 16 patients (26.6%) had DID. Şar et al. (2010) also administered the SCID-D and the DDIS to a sample of 70 patients with a schizophrenic disorder and found that childhood trauma was associated with dissociation; however, they did not report the prevalence of DDs. Yu et al. (2010) administered clinical interviews together with the DDIS to 96 randomly selected inpatients with clinically diagnosed schizophrenia in Shanghai and reported that the prevalence of a DD was 15.3% and that those with a DD were

significantly more likely to report childhood abuse, but none of them had a prior clinical diagnosis of DD in their medical record. In a more recent study, Sun et al. (2019) administered the SCID-D to 66 patients with first episode psychosis and reported that 13.6% of participants met criteria for either a past or current diagnosis of a DD; similar to the Shanghai study, they found that the dissociative subgroup had significantly higher rates of childhood trauma.

This limited literature regarding the prevalence of pathological dissociation in schizophrenia points to the needs for recognizing pathological dissociation in patients with schizophrenia-related disorders. The findings in prior research regarding the prevalence of pathological dissociation in patients with schizophrenia imply that there may be a considerable subgroup of SSDs with unmet dissociation-specific intervention needs. However, as reviewed above, only two studies used structured interviews to investigate the prevalence of DDs among patients with psychotic disorders since 2010. Therefore, the present study aimed to investigate dissociative symptoms and disorders in a random sample of inpatients clinically diagnosed with SSDs in Taiwan. The first objective of this study was to examine the prevalence of trauma and dissociative symptoms and disorders in our sample.

The second objective was to examine the concurrent validity of pathological dissociation in patients with SSDs, because it has been of concern because of their low levels of insight (see Oh et al., 2015). In a systematic review, the pooled means of concurrent validity of six depression measures range from 0.54–0.77 in patients with schizophrenia (Lako et al., 2012). We expected that the correlation between different measures of pathological dissociation would be within this range in our sample.

The third objective was to examine whether the well-documented differences between dissociative and non-dissociative patients (e.g. trauma histories, psychotic symptoms, post-traumatic and borderline personality symptoms) could be observed in our sample so as to characterize the dissociative subgroup of patients with SSDs.

2. Methods

2.1. Participants and procedures

This study was conducted in the Yuli Hospital of Ministry of Health and Welfare, which is the largest psychiatric hospital for patients with chronic psychiatric conditions in Taiwan; and ethics approval was obtained from its Institutional Review Board. The study was conducted in accordance with local regulations for ethical research practices and the Helsinki

declaration. This hospital provides long-term care for about 2600 patients with chronic mental disorders. This hospital has five branches. Our original plan was to randomly recruit patients with a clinical diagnosis of SSDs from the entire patient population (i.e. all five branches). Because of the infection control policy during the COVID-19 pandemic, we could only recruit patients from one specific branch. Considering the limited time and resources, we planned to randomly recruit 100 inpatients with SSD from a total of 486 inpatients in this hospital branch in 2021.

The inclusion criteria included inpatients who: 1) agreed to provide written consent and participate; 2) were aged 18 or above; and 3) had a clinical diagnosis of DSM-5 Schizophrenia Spectrum and Other Psychotic Disorders according to their medical records. The exclusion criteria included those who had/were: 1) difficulties in communication because of cognitive impairments; 2) had a clinical diagnosis of dementia; 3) speech or hearing impairments; and 4) discharged from the hospital before the assessments.

The interviewer (the first author) was an occupational therapist in the hospital. She used an online randomizer to select potential participants in the hospital branch, explained the research to them, and emphasized that only the research team could access the data and that their treatment would not be affected by their participation. After informed written consent obtained, the interviewer invited individual participants to complete a questionnaire consisting of several self-report measures described below. She provided assistance when needed as some elderly patients had difficulties in reading the questionnaire. Within ten days of completion of the self-report measures, the interviewer conducted a structured interview with each individual participant, and collected their clinical and demographic data and confirmed their clinical diagnosis of SSDs by checking their clinical records. All participants received a gift or coupon valued at TWD\$100 (about USD\$3.57) upon completion.

2.2. Instruments

The self-report questionnaire included measures of trauma, dissociation and Post-traumatic Stress Disorder (PTSD) as follows:

Brief Betrayal Trauma Survey (BBTS). The BBTS, which has 24 items, assesses 12 types of traumatic events before and after age 18, and the traumatic events can be further divided into two forms: high-betrayal traumas (e.g. being abused or attacked by a close one) and low-betrayal traumas (Goldberg & Freyd, 2006). For each experience, a participant was considered to have had such an experience if he/she endorsed 'one or two times' or more for the item. The Chinese version of the BBTS has been used in several studies (e.g. Fung et al., 2021) and it had an acceptable test-retest reliability with an average

agreement of 90.7% (SD = 4.98) (Cohen's kappa = .299 to .769, $p < .001$) for 21 out of 24 items in a Chinese sample of young adults ($N = 116$) (Fung et al., 2022).

Dissociative Experiences Scale-Taxon (DES-T). The DES-T, which has 8 items, is a subscale of the original DES and can be used to assess pathological dissociation (Bernstein & Putnam, 1986; Waller et al., 1996). Waller and Ross (1997) suggested that scores above 35 on the DES-T indicate strong evidence of pathological dissociation. The Chinese version of the DES-T had excellent internal consistency (Cronbach's alpha = .894) and good construct validity ($r = .626$ to $.653$); to detect clinically diagnosed DDs, a cutoff score of 28 had a sensitivity of 93.8% and a specificity of 77.8%, and a cutoff score of 36 had a sensitivity of 81.3% and specificity of 92.6% (Fung, Choi, et al., 2018). The mean DES-T score was 14.8 (SD = 15.5) in a Chinese college student sample (Fung, Ho, et al., 2018).

PTSD Checklist for DSM-5 (PCL-5). The PCL-5, which has 20 items, is a self-report measure of DSM-5 PTSD symptoms (Bovin et al., 2016). The PCL-5 can be scored in different ways, including: 1) a total cutoff score; 2) a provisional diagnosis of PTSD can be made according to the DSM-5 rules using the PCL-5, treating each item rated as 2 = 'Moderately' or higher as a symptom endorsed; to meet the diagnostic criteria, a participant needs to have at least one B item (questions 1-5), one C item (questions 6-7), two D items (questions 8-14), and two E items (questions 15-20) positive (National Center for PTSD, n.d.), and he/she should also report at least one traumatic experience on a trauma checklist (i.e. the BBTS in this study) to fulfil the Criterion A. In an outpatient sample, the Chinese version of the PCL-5 had excellent internal consistency (Cronbach's alpha = .951) and had a sensitivity of 70.6% and a specificity 72.7% when a cutoff score of 49 was used (Fung et al., 2019).

The structured interview was conducted with two instruments as follows:

Psychotic Symptom Rating Scales (PSYRATS). The PSYRATS, which has 17 items, is a semi-structured interview that can be used to assess auditory hallucinations and delusions (Haddock et al., 1999). The Chinese version of the PSYRATS is a reliable and valid instrument and it has good concurrent validity with the Positive and Negative Syndrome Scale (PANSS) (Chien et al., 2017). Before the interviewer conducted the interviews, a consultation was made with a clinical psychologist who is an Assistant Professor at a Taiwan university, and training in using the PSYRATS was provided.

The Dissociative Disorders Interview Schedule (DDIS). The DDIS, which has 132 items, is one of the two existing structured interviews for DDs (Ross, Heber, Norton, Anderson, et al., 1989). The DDIS can be administered in research settings without extensive training. It was reported that the false-positive rate was less than 1% when using the DDIS to diagnose DID in clinical populations (Ross, 1997). The DDIS has good to excellent agreement with the Structured

Clinical Interview for DSM-IV Dissociative Disorder (SCID-D) (Cohen's kappa: .74) and clinical interviews conducted by experts (Cohen's kappa: .71) when diagnosing complex DDs; moreover, the DDIS was more conservative than the SCID-D as it made fewer DD diagnoses in an inpatient sample (Ross et al., 2002). The Chinese version of the DDIS has been used in several studies (Chiu et al., 2017; Fung, 2016). There is a self-report version of the DDIS (SR-DDIS); the Chinese version of the SR-DDIS had a sensitivity of 100% and a specificity of 96.3% in detecting DDs when a cutoff score of 5 was used in the DID Features Section; using the SR-DDIS to diagnose DDs according to DSM-5 rules also had excellent agreement (Cohen's kappa = .90) with clinical diagnosis (Fung, Choi, et al., 2018). In addition, the Borderline Personality Disorder (BPD) Section of the SR-DDIS can diagnose BPD according to DSM-5 rules with a sensitivity of 95.2% and a specificity of 64.9% (Fung et al., 2020). In this study, the DID Features Section, the BPD Section and the DSM-5 DDs Sections were used.

2.3. Data analysis

This study focused on a descriptive analysis of the symptoms and disorders regarding dissociation and psychosis in our sample. Moreover, we investigated the concurrent validity of pathological dissociation by examining the Pearson correlations between the DES-T and the number of DID features on the DDIS. We also examined the clinical differences between dissociative and nondissociative participants using Chi-square tests for categorical variables or independent sample t tests for continuous variables.

3. Results

3.1. Sample characteristics

We recruited potential participants until we had 100 participants in 2021. A total of 108 patients were randomly recruited—three patients refused to participate; two patients were transferred to other hospitals for medical reasons; two participants were quarantined because of fever; one was excluded because of hearing impairments. The age of the included participants ($N = 100$) ranged from 36 to 71 ($M = 58.26$; $SD = 7.31$). Fifty-five participants were male, while 45 were female. Seventy-nine participants had a current clinical diagnosis of schizophrenia according to their medical records, while 21 had diagnoses of schizoaffective disorder. Thirteen participants had a past/current diagnosis of a depressive disorder and none of them had a past/current diagnosis of PTSD or DDs. One participant had received a diagnosis of Borderline Personality Disorder (BPD). Although the exact number of years was not recorded in this study, the patients had typically received long-term care in the hospital for around 8–10 years.

Table 1. Frequency of trauma and trauma-related disorders among inpatients diagnosed with schizophrenia spectrum disorders ($N = 100$)

Trauma	Percentage
BBTS Any childhood trauma	72%
BBTS Any adulthood trauma	42%
BBTS Any high-betrayal trauma	60%
BBTS Any low-betrayal trauma	63%
BBTS Any trauma	81%
Post-traumatic Stress Disorder (PTSD)	Percentage
Provisional diagnosis based on the PCL-5 ^a	67%
Borderline Personality Disorder (BPD)	Percentage
DDIS BPD symptoms ≥ 5	4%
Dissociative symptoms and disorders	Percentage
DES-T total score ≥ 28	62%
DDIS Dissociative amnesia	19%
DDIS Dissociative fugue	5%
DDIS Depersonalization/derealization disorder	0%
DDIS Dissociative identity disorder (DID) ^b	3%
DDIS Other specified dissociative disorder (OSDD) ^c	30%
DDIS Any dissociative disorder (DD)	54%

Notes: BBTS = The Brief Betrayal Trauma Survey; PCL-5 = The PTSD Checklist for DSM-5; DES-T = The Dissociative Experiences Scale-Taxon; DDIS = The Dissociative Disorders Interview Schedule

^aThe PTSD provisional diagnosis was made according to the DSM-5 rules using the PCL-5, treating each item rated as 2 = 'Moderately' or higher as a symptom endorsed; to meet the diagnostic criteria, a participant needed to have at least one B item (questions 1-5), one C item (questions 6-7), two D items (questions 8-14), and two E items (questions 15-20), and he/she should also report at least one traumatic experience on the BBTS to fulfil the Criteria A.

^bIn addition to the DSM-5 rules for DID, a participant must endorse an additional item 'at least two of the identities or personalities recurrently take control of your behavior' on the DDIS.

^cTo meet the diagnostic criteria for OSDD, a participant must be judged by the interviewer as having a DD but did not satisfy the criteria for a specific DD (Item 131), and he/she should also report at least five secondary features of DID on the DDIS.

3.2. Prevalence

In this sample, the mean DES-T and PCL-5 scores were 44.86 ($SD = 27.16$) and 40.32 ($SD = 13.49$), respectively. On the DDIS, the participants reported an average of 6.99 ($SD = 3.53$) DID-associated features and 1.32 (1.36) BPD symptoms.

Table 1 reports the frequency of trauma, PTSD, BPD and DDs in this sample. According to the BBTS results, over 80% of the participants were exposed to at least one traumatic event during their lifetime. PTSD was found in 67% of the total participants. The lifetime prevalence of DSM-5 BPD was, however, relatively low in this sample as only four participants met the diagnostic criteria for BPD.

Over 60% of the participants scored above the DES-T cutoff for pathological dissociation. On the DDIS, 54% of them met the criteria for a DD. DID was diagnosed in three participants on the DDIS. No participants met the criteria for depersonalization/derealization disorder.

Table 3 reports the frequency of features associated with DID (see supplementary materials). Many participants reported features that are typically found in patients with DID and OSDD, such as awareness of the presence of another person inside (59%), flashbacks (52%) and identity alteration (50%).

Table 2. Clinical differences between participants with and without a Dissociative Disorder (DD)

Variables	Participants with DD (n = 54)	Participants without DD (n = 46)	t (df = 98)	p
	Mean (SD)	Mean (SD)		
BBTS Total number of types of trauma	2.59 (1.47)	1.93 (2.02)	0.926	.357
DES-T	52.29 (25.21)	36.14 (27.04)	3.088	.003
Number of BPD symptoms	1.48 (1.22)	1.13 (1.50)	1.288	.201
PSYRATS (auditory hallucinations)	25.02 (5.22)	21.87 (6.58)	2.668	.009
PSYRATS (delusions)	10.85 (3.92)	9.11 (3.98)	2.199	.030
Variables	Percentage	Percentage	χ^2 (df = 1)	p
BBTS Any high-betrayal trauma	70.4%	47.8%	5.260	.022
BBTS Any low-betrayal trauma	64.8%	60.9%	0.166	.684
Provisional PTSD diagnosis based on the PCL-5	75.9%	56.5%	4.230	.040

Notes: BBTS = The Brief Betrayal Trauma Survey; DES-T = The Dissociative Experiences Scale-Taxon; PCL-5 = The PTSD Checklist for DSM-5; BPD = Borderline Personality Disorder; PSYRATS = The Psychotic Symptom Rating Scales; PTSD = Post-traumatic Stress Disorder

3.3. Concurrent validity of pathological dissociation

The DES-T was significantly correlated with the number of DID features ($r = .682, p < .001$). The concurrent validity of pathological dissociation in our sample was similar to the above-mentioned concurrent validity of depression (range from 0.54–0.77) in patients with schizophrenia reported in the literature.

In addition, the DES-T and the number of DID features were strongly correlated the PCL-5 scores ($r = .665, p < .001$, and $r = .563, p < .001$, respectively).

3.4. Clinical differences between participants with and without a DD

We examined the clinical differences between participants with and without a DD according to the DDIS results. Compared with participants without a DD, participants with a DD scored significantly higher on the DES-T ($p = .003$) and the two PSYRATS subscales ($p = .009$ and $.030$). They were also more likely to have a provisional PTSD diagnosis ($p = .040$) and report any high-betrayal traumas ($p = .022$) (see Table 2).

4. Discussion

This is one of the few studies that used structured interviews to examine the prevalence of dissociative symptoms and disorders among patients with SSDs, and one of few studies that investigated pathological dissociation in Chinese cultures. To our knowledge, this is also the first study that examined PTSD and BPD among Chinese patients with SSDs. Our findings have contributed to the increasing body of knowledge on pathological dissociation in SSDs. The primary finding is that dissociative symptoms and disorders are common in patients with a clinical diagnosis of a SSD. We also demonstrate that the concurrent validity of pathological dissociation is as good as the concurrent validity of depression in patients with SSDs as reported in the literature. Consistent with the literature, the dissociative subgroup was more likely to report high-betrayal traumas (Sun et al., 2019; Yu

et al., 2010). Dissociative patients also reported more psychotic symptoms than nondissociative patients (Longden et al., 2020). These results and their implications are discussed below.

First of all, dissociative symptoms and disorders were very common in our sample according to both self-report and structured interview data, and 54% of participants had a DD according to the DDIS. We believe that the results are reliable because of the acceptable correspondence (i.e. correlation) of DID features on the DDIS to the DES-T scores. The results cannot be explained by self-selection or social expectation effects because we used random sampling methods, because no participant had a prior DD diagnosis, and because not all symptom clusters were highly prevalent. A BPD diagnosis was made only in four participants, which may be partly because of long-term institutionalization effects and the relatively high ages of the participants (Stepp & Pilkonis, 2008). However, the high prevalence of pathological dissociation but low prevalence of depersonalization/derealization disorder in this population require further investigation. Moreover, as many participants had OSDD but did not fully meet the criteria for other DD, the future DSM should be revised to improve the validity of each specific DD and to better capture the phenomena of pathological dissociation (Dell, 2009; Ross et al., 2002).

The findings support the ideas that there is a subgroup of patients with SSDs who have elevated levels of pathological dissociation and that this subgroup is characterized by more traumas and PTSD symptoms. This echoes the recommendation that dissociation measures should be included in routine assessments for SSDs because dissociative patients are often diagnosed with a SSD (Welburn et al., 2003). If the underlying dissociation remains unrecognized and untreated, the patients will not receive proper trauma-informed and dissociation-specific interventions.

This study cannot answer one important question, that is, 'Were the dissociative patients clinically diagnosed with SSDs because their dissociative symptoms were labeled as psychotic symptoms in clinical settings?' Psychotic-like symptoms are common in patients with complex DDs. Our study points to the

importance of further studying pathological dissociation in patients with psychotic disorders. Future studies should also examine whether levels of insight could reliably differentiate DDs from SSDs. Our findings support the theory of a dissociative subtype of schizophrenia (Ross, 2004, 2019) and call for studies that further examine the validity of this subtype and evaluate the effectiveness of dissociation-specific interventions in patients with dissociative schizophrenia.

Although the relationship between dissociation and psychosis is well-documented in the literature, there is a lack of updated studies using structured interviews to examine pathological dissociation in patients with SSDs. The findings of this study contribute to the literature in this regard. Nevertheless, the study has some limitations. First, although we employed random sampling methods, data were collected in one hospital and the findings might not be generalizable to the entire SSD patient population. Second, this study focused on patients with clinically diagnosed SSDs, and we did not conduct independent structured interviews to confirm their clinical SSD diagnosis; the findings indeed point to the needs for further evaluating the validity of clinical diagnosis. Third, the interviewer was not blind to the hypothesis, although the assessments were fully standardized and were not based on the interviewer's subjective judgments; the use of structured interviews is also the gold standard to assess mental disorders. Fourth, although we demonstrated the acceptable correspondence between the DDIS results and the DES-T scores, we did not examine the inter-rater reliability of our findings. Fifth, we did not use the SCID-D, which is supposed to be more comprehensive than the DDIS, because the DDIS is fully standardized and can be administered by research staff without intensive training; the SCID-D has not been validated in the Chinese context too.

4.1. Concluding remarks

This study found that pathological dissociation was common in our sample of Taiwan inpatients with clinically diagnosed SSDs. DDs were associated with high-betrayal traumas, PTSD and psychotic symptoms in this sample. Since unrecognized pathological dissociation in patients with SSDs is not rare, clinical assessment should include measures of dissociation to facilitate early identification. Early identification of pathological dissociation could ensure timely dissociation-specific interventions for those in need. Future studies should further investigate the prevalence, clinical correlates and intervention needs of pathological dissociation in patients with psychotic disorders.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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