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

Zi Yi Wu*, Hong Wang Fung †, Wai Tong Chien ‡, Colin A. Ross § and Stanley Kam Ki Lam ¶

*Yuli Hospital Ministry of Health and welfare, Hualien County, Hualien, Taiwan; †Department of Social Work, Hong Kong Baptist University, Kowloon Tong, Hong Kong; ‡The Nethersole School of Nursing, Faculty of Medicine, The Chinese University of Hong Kong, Shatin, Hong Kong; §The Colin A. Ross Institute for Psychological Trauma, Richardson, Texas, United States

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 ESPACIO 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 espacio 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 disociativa. 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 posttraumático; 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.

CONTACT Hong Wang andyhwfung@gmail.com Department of Social Work, Hong Kong Baptist University, Hong Kong

Supplemental data for this article can be accessed online at https://doi.org/10.1080/20008066.2022.2105576.

© 2022 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group. This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial License (http://creativecommons.org/licenses/by-nc/4.0/), which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.
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 Schneidarian 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; Šar & 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 < 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 = 0.299 to 0.769, 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 et al., 2018). The mean DES-T score was 14.8 (SD = 15.5) in a Chinese college student sample (Fung 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 fulfill 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 IID 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 IID 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 schizo-affective 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)       |            |
| Provisional diagnosis based on the PCL-5a   |            |
| Percentage                                  | 67%        |
| Borderline Personality Disorder (BPD)       |            |
| Percentage                                  | 4%         |
| DDIS BPD symptoms ≥ 5                       |            |
| Dissociative symptoms and disorders         |            |
| Percentage                                  | 62%        |
| DES-T total score ≥ 28                      |            |
| Dissociative amnesia                        | 19%        |
| DDIS Dissociative fugue                     | 5%         |
| DDIS Depersonalization/derealization disorder | 0%    |
| DDIS Dissociative identity disorder (DDI)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 Check-list 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     |
|--------------------------------------------|-------------------------------|---------------------------------|-------------|-------|
| 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                                 |                               |                                 |             |       |
| BBTS Any high-betrayal trauma              | 70.4%                         | 47.8%                           | 5.260       | .022  |
| BBTS Any low-betrayal trauma               | 64.8%                         | 60.9%                           | 0.166       | .884  |
| 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, the 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).

ORCID

Hong Wang Fung https://orcid.org/0000-0002-4606-2173
Wai Tong Chie https://orcid.org/0000-0001-3321-5791
Colin A. Ross https://orcid.org/0000-0001-9583-7046
Stanley Kam Ki Lam https://orcid.org/0000-0002-6544-795X

References

Alameda, L., Rodriguez, V., Carr, E., Aas, M., Trotta, G., Marino, P., … Spinazzola, E. (2020). A systematic review on mediators between adversity and psychosis: Potential targets for treatment. Psychological Medicine, 50(12), 1966–1976. doi:10.1017/S0033291720002421
Bernstein, E. M., & Putnam, F. W. (1986). Development, reliability, and validity of a dissociation scale. The Journal of Nervous and Mental Disease, 174(12), 727–735. doi:10.1097/00005053-198612000-00004
Bovin, M. J., Marx, B. P., Weathers, F. W., Gallagher, M. W., Rodriguez, P., Schnurr, P. P., & Keane, T. M. (2016). Psychometric properties of the PTSD checklist for diagnostic and statistical manual of mental disorders—fifth edition (PCL-5) in veterans. Psychological Assessment, 28(11), 1379–1391. doi:10.1037/pas0000254
Brand, B. L., & Loewenstein, R. J. (2010). Dissociative Disorders: An overview of assessment, phenomenology, and treatment. Psychiatric Times, 27(10), 62–69.
Brand, B. L., Myrick, A. C., Loewenstein, R. J., Classen, C. C., Lanius, R., McNary, S. W., … Putnam, F. W. (2012). A survey of practices and recommended treatment interventions among expert therapists treating patients with dissociative identity disorder and dissociative disorder not otherwise specified. Psychological Trauma: Theory, Research, Practice, and Policy, 4(5), 490. doi:10.1037/a0026487
Chien, W. T., Lee, I. Y.-M., & Wang, L.-Q. (2017). A Chinese version of the psychotic symptom Rating Scales: Psychometric properties in recent-onset and chronic psychosis. Neuropsychiatric Disease and Treatment, 13, 745. doi:10.2147/NDT.S131174
Chiu, C.-D., Tseng, M.-C., Chien, Y.-L., Liao, S.-C., Liu, C.-M., Yeh, Y.-Y., … Ross, C. A. (2017). Dissociative Disorders in acute psychiatric inpatients in Taiwan. Psychiatry Research, 250, 285–290. doi:10.1016/j.psychres.2017.01.082
Coons, P. M. (1998). The Dissociative Disorders: Rarely considered and underdiagnosed. Psychiatric Clinics of North America, 21(3), 637–648. doi:10.1016/S0193-953X(05)70028-9
Dell, P. F. (2009). The phenomena of pathological dissociation. In P. F. Dell, & J. A. O’Neil (Eds.), Dissociation and the dissociative disorders: DSM-V and beyond (pp. 228–233). Routledge.
Doraby, M. J., Shannon, C., Seeger, L., Corr, M., Stewart, K., Hanna, D., … Middleton, W. (2009). Auditory hallucinations in dissociative identity disorder and schizophrenia with and without a childhood trauma history. Journal of Nervous & Mental Disease, 197(12), 892–898. doi:10.1097/NMD.0b013e3181c299ea
Drill, R., Nakash, O., DeFife, J. A., & Westen, D. (2015). Assessment of clinical information: Comparison of the validity of a structured clinical interview (the SCID) and the clinical diagnostic interview. Journal of Nervous & Mental Disease, 203(6), 459–462. doi:10.1097/NMD.0000000000003300
Fung, H. W. (2016). Trauma-related pathological dissociation in a case with cerebral palsy. Journal of
Fung, H. W., Chan, C., Lee, C. Y., & Ross, C. A. (2019). Using the Post-traumatic Stress Disorder (PTSD) Checklist for DSM-5 to screen for PTSD in the Chinese context: A pilot study in a psychiatric sample. *Journal of Evidence-Based Social Work*, 16(6), 643–651. doi:10.1080/26408066.2019.1676858

Fung, H. W., Chan, C., Lee, C. Y., Yau, C. K. M., Chung, H. M., & Ross, C. A. (2020). Validity of a web-based measure of Borderline Personality Disorder: A preliminary study. *Journal of Evidence-Based Social Work*, 17(4), 443–456. doi:10.1080/26408066.2020.1760162

Fung, H. W., Chien, W. T., Ling, H. W. H., Ross, C. A., & Lako, I. M., Bruggeman, R., Knegtering, H., Wiersma, D., McCarthy-Jones, S., & Varese, F. (2020). The relationship between dissociation and symptoms of psychosis: A meta-analysis. *Schizophrenia Bulletin*, 46(5), 1104–1113. doi:10.1093/schbul/sbaa037

McCarthy-Jones, S., & Longden, E. (2015). Auditory verbal hallucinations in schizophrenia and Post-traumatic Stress Disorder: Common phenomenology, common cause, common interventions? *Frontiers in Psychology*, 6(1071). doi:10.3389/fpsyg.2015.01071

McCUTCHEON, R. A., REIS MARQUES, T., & HOWES, O. D. (2020). Schizophrenia—an overview. *JAMA Psychiatry*, 77(2), 201–210. doi:10.1001/jamapsychiatry.2019.3360

Moise, J. (1996). Dissociative symptoms and disorders within an adult outpatient population with schizophrenia. *Dissociation*, 9(3), 7.

Moskowitz, A., Mosquera, D., & Longden, E. (2017). Auditory verbal hallucinations and the differential diagnosis of schizophrenia and Dissociative Disorders: Historical, empirical and clinical perspectives. *European Journal of Trauma & Dissociation*, 1(1), 37–46. doi:10.1016/j.jtjd.2017.01.003

Moskowitz, A., Read, J., Farrelly, S., Rudegeair, T., & Williams, O. (2009). Are psychotic symptoms traumatic in origin and dissociative in kind. In P. F. Dell, & J. A. O’Neil (Eds.), *Dissociation and the dissociative disorders: DSM-V and beyond* (pp. 521–533). Routledge.

Moskowitz, A., Schafer, I., & Dorahy, M. J. (2011). *Psychosis, trauma and dissociation: Emerging perspectives on severe psychopathology*. John Wiley & Sons.

Mueller, A. E., & Segal, D. L. (2014). Structured versus semi-structured versus unstructured interviews. *The Encyclopedia of Clinical Psychology*, 1–7. doi:10.1002/9781118625392.wbecp009

National Center for PTSD. (n.d.). Using the PTSD checklist for DSM-5 (PCL-5). https://www ptsd va government/professional/assessment/documents/using-PCL5.pdf.

Oh, H. Y., Kim, D., & Kim, Y. (2015). Reliability and validity of the Dissociative Experiences Scale among South Korean patients with schizophrenia. *Journal of Trauma & Dissociation*, 16(5), 577–591. doi:10.1080/15299732.2015.1037040

Read, I., Fink, P., Rudegeair, T., Felitti, V., & Whitfield, C. (2008). Child maltreatment and psychosis: A return to a genuinely integrated bio-psycho-social model. *Clinical Schizophrenia & Related Psychoses*, 2(3), 235–254. doi:10.3371/CSR.P.2.3.5

Renard, S. B., Huntjens, R. J. C., Lysaker, P. H., Moskowitz, A., Aleman, A., & Pijnenborg, G. H. M. (2017). Unique and overlapping symptoms in schizophrenia spectrum and dissociative disorders in relation to models of psychopathology: A systematic review. *Schizophrenia Bulletin*, 43(1), 108–121. doi:10.1093/schbul/sbw063

Ross, C. A. (1997). *Dissociative Identity Disorder: Diagnosis, clinical features, and treatment of multiple personality disorder*. John Wiley & Sons.

Ross, C. A. (2004). *Schizophrenia: Innovations in diagnosis and treatment*. Haworth Press.

Ross, C. A. (2019). Dissociative schizophrenia: A proposed subtype of schizophrenia. In A. Moskowitz, M. J. Dorahy, & I. Schafer (Eds.), *Psychosis, trauma and dissociation: Evolving perspectives on severe psychopathology* (2 ed.) (pp. 321–334). John Wiley & Sons.

Ross, C. A. (2020). Voices: Are they dissociative or psychotic? *Journal of Nervous & Mental Disease*, 208(9), 658–662. doi:10.1097/NMD.0000000000001206

Ross, C. A., Duffy, C. M., & Ellason, J. W. (2002). Prevalence, reliability and validity of dissociative disorders in an inpatient setting. *Journal of Trauma & Dissociation*, 3(1), 7–17. doi:10.1300/J229v03n01_02
