PATHOLOGICAL DISSOCIATION MEASURES AMONG CHINESE

Abstract

Purpose: Pathological dissociation (PD) is an easily-overlooked phenomenon in the mental health field. Standardized assessment is important for identifying dissociative symptoms and disorders. However, the use of PD measures in Chinese cultures needs investigation. This pilot study investigated the psychometric properties of three PD measures among Hong Kong Chinese.

Methods: The psychometric properties of the Dissociative Experiences Scale-Taxon, the 5-item Somatoform Dissociation Questionnaire, and the Self-Report Version of the Dissociative Disorders Interview Schedule (SR-DDIS) were evaluated using online methods in Hong Kong.

Results: The PD measures exhibited adequate to excellent internal consistency. The PD measures were negatively related to family support and can discriminate between participants with and without self-reported childhood abuse. There was excellent agreement between the online SR-DDIS results and the clinical diagnoses for presence of any dissociative disorder (DD) versus no DD. The DDs group scored significantly higher on PD measures than the depression group and the college student group.

Discussion: The initial findings suggest that PD can be assessed online in Hong Kong. Further investigation is necessary.

Keywords: Pathological dissociation; Mental health; Assessment; Validation; Online methods

Psychometric Properties of the Pathological Dissociation Measures Among Chinese Research Participants – A Pilot Study Using Online Methods

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Pathological dissociation (PD) is a common phenomenon in the mental health field and also a key concept in trauma psychology (Ross, 1997; Van der Hart, Nijenhuis, & Steele, 2006). Defined as a failure in the process of integrating psychophysiological experiences (e.g., memories, identities, sensory-motor functions) (Ross, 1997), PD is a feature of the dissociative disorders (DDs) and other trauma-related disorders, such as post-traumatic stress disorder (PTSD) and borderline personality disorder (BPD) (Ross, 1997; Van der Hart et al., 2006). It has been suggested that many posttraumatic reactions (e.g., flashbacks, amnesia) are dissociative in nature (Van der Hart et al., 2006) . PD, nevertheless, is an under-recognized condition in the global mental health field (International Society for the Study of Trauma and Dissociation, 2011; Şar, 2011) and also in Chinese cultures (Fung & Lao, 2017), although PD is fairly prevalent in both clinical and non-clinical settings (see Şar, 2011) and is a cross-cultural condition which can also be recognized in Chinese cultures (Chiu et al., 2017; Fung, 2018). There are many reasons behind the problem, such as lack of training in trauma and dissociation, the polysymptomatic nature of PD and clinical bias. As a result, PD is not often assessed in general screening procedures and the DDs are rarely considered as potential differential diagnoses of other psychiatric disorders. Patients with PD are often misdiagnosed and given inappropriate services for many years (Ross, 1997). As

the authors observed, PD does not receive sufficient attention in the mental health field in Hong Kong; the diagnoses of DDs are also rarely made by local professionals. PD may be more prevalent than traditionally believed in Hong Kong (Fung, 2016). This prediction is supported by a recent study of a local college student sample (n = 177), which found that 4.52% may have a DSM-5 DD .

Since PD is often overlooked, standardized assessment is crucial (Ross, 2015; Welburn et al., 2003). There are reliable and valid PD instruments, such as the Dissociative Experiences Scale (DES), the Somatoform Dissociation Questionnaire (SDQ), and the Dissociative Disorders Interview Schedule (DDIS). However, the reliability, validity and norms of PD measures in the Chinese context still need further investigation. Validated measures could aid Chinese mental health professionals to screen for PD and could provide important data for them to make differential diagnosis. If PD can be recognized, timely psychosocial interventions can be implemented.

Therefore, this study examined the psychometric properties of PD measures in Hong Kong. The DES-Taxon (a subscale of the DES), the 5-item SDQ (SDQ-5), and the self-reported version of the DDIS (SR-DDIS) were investigated in this study because they are widely-used measures in the international dissociation field and because they can be self-administered. The DES-Taxon is a short measure for

psychoform dissociation, and the SDQ-5 is a short measure for somatoform dissociation; while the SR-DDIS could provide useful clinical data related to the DSM-5 DDs.

Online methods were used in this study for several reasons. First, the use of online methods in psychometric studies and assessment is beneficial. For example, online methods could facilitate participant recruitment (Amon, Campbell, Hawke, & Steinbeck, 2014; Chan & Holosko, 2016), data collection (Chan, 2013), scale development/validation (Chan, Fung, Choi, & Ross, 2017) and mental health studies (Chu & Snider, 2013).

Second, online assessment could facilitate early identification of psychosocial needs in regions where the Internet is highly accessible, such as in Hong Kong. Information and communication technology (ICT)-enhanced assessment is not limited by time and geographical factors; ICT could also reduce the stigma of receiving psychosocial assessment because people do not need to go to a specific center (Chan & Holosko, 2018).

Third, the technological infrastructure of Hong Kong enables the use of online assessments. In 2015, 84.9% of Hong Kong people aged 10 or above reported themselves as regular Internet service users (Census and Statistics Department of the HKSAR, 2016). The internet has become a part of daily life for most Hong Kong

people.

Against this background, this pilot study investigated the psychometric properties of three PD measures in Hong Kong using online methods, and examined the suitability and potential of such online methods in the local context.

Methods

This study examined the psychometric properties of three PD measures in Hong Kong. Informed by the literature, we hypothesized that:

1) The three different PD measures should be positively correlated (Nijenhuis, 2010; Ross, 1997);
2) PD should be negatively related to family support (Ross, 2007).
3) Participants with childhood physical/sexual abuse should score significantly higher on the PD measures than those without childhood physical/sexual abuse (Ross, 1997, 2007).
4) Participants with DDs should score significantly higher on PD measures than participants without DDs (Ross, 1997);
5) Participants with DDs should report more somatic symptoms, BPD symptoms and Schneiderian First-rank symptoms than participants without DDs (Ross & Ellason, 2005; Ross et al., 1989);

6) Participants with DDs should report more childhood physical/sexual abuse than participants without DDs (Ross, 2007; Ross & Ellason, 2005);
7) Participants with DDs should report a lower level of family support than participants without DDs (Ross, 1997).

Online methods were used in participant recruitment and data collection in this study. Details are provided in the following subsections.

Participants

The sample of this study consisted of three groups of participants: (1) the dissociative disorders (DDs) group, (2) the depression (DP) group, and (3) the college students (control) group.

This study obtained ethical approval from The Hong Kong Polytechnic University (PolyU) Research Committee to recruit participants for the DDs group and the DP group. The data of the control group came from another study which obtained approval from the Ethics Committee at the City University of Hong Kong (CityU); part of the data has been reported elsewhere (Fung et al., 2018). Demographic data of the participants are shown in Table 1.

The DDs and the DP groups

Using online methods to recruit participants for research purposes is not new in

the field (Chu & Snider, 2013). Since the diagnosis of DD is rarely made in Hong Kong and the number of patients diagnosed with DDs is extremely small even in clinical settings, as the authors observed, people with DDs are hard to recruit using traditional methods in the local context. Thus, participants for both the DDs and the DP groups were recruited via the Internet, including Facebook fan pages, Facebook groups and Blogger. Interested participants were invited to complete an online survey in the MySurvey system of the PolyU. Formal informed consent was obtained at the beginning of the online survey. The online survey included the three PD measures. The only difference between the survey for the DDs group and for the DP group was the 5 questions regarding their clinical diagnosis (e.g., *Have you ever been confirmed as having any kind of dissociative disorders / depression by any psychiatrist and/or clinical psychologist? How many psychiatrist and/or clinical psychologist have confirmed you as having a diagnosis of DD / depression?*).

Although the collected data were totally self-reported by the participants, some questions were set to ensure the participants' background. For example, they needed to report when the diagnosis was made and who made the diagnosis, and they also needed to briefly describe their experiences/symptoms. Only diagnoses reported as having been made by psychiatrist and/or clinical psychologist were considered as valid in this study.

During the period from May 25, 2017 to June 18, 2017 (no more responses were obtained after June 18), we recruited Hong Kong adults with a clinical diagnosis of any DD to participate in an online survey. Since DDs are generally under-diagnosed in Hong Kong (Fung, 2016), it is reasonable and theoretically proper to assume that individuals with a clinical diagnosis of DD in Hong Kong suffer from obvious PD. Twenty-four individuals with unique email addresses registered to participate in the online survey, and 19 individuals completed the online survey. Three of them were excluded because: two reported no DD diagnoses made by any psychiatrist and/or clinical psychologist; and one was only aged 17. N = 16 participants with a clinical DD made up the DDs group for analysis in this study. A clinical diagnosis of dissociative identity disorder (DID) was reported by 62.5% of the participants, dissociative amnesia (DA) by 25%, depersonalization/derealization disorder (DPD) by 25%, and other specified dissociative disorder (OSDD) by 6.3%, while 12.5% did not report which type of DDs was diagnosed by their psychiatrist(s)/clinical psychologist(s). 25% reported that they had been diagnosed with “early psychosis” or schizophrenia, 93.8% with depression, 37.5% with BPD, 18.8% with bipolar disorder, and 68.8% with PTSD.

During the period from June 16, 2017 to June 18, 2017, we recruited Hong Kong adults with a clinical diagnosis of depression to participate in the online survey.

Forty-five individuals with unique email addresses registered to participate in the online survey, and 31 individuals completed the online survey. Although in the recruitment message it was stated that we only invited Hong Kong adults with clinical depression and without any other psychiatric diagnosis, many participants reported comorbid diagnoses. To reduce the chance of including participants with undiagnosed DDs in the DP group, participants were excluded from analysis in this study if they reported clinical diagnosis of "early psychosis", schizophrenia, bipolar disorder, PTSD or DDs, or reported being prescribed antipsychotic medications. Participants were also excluded if their clinical diagnosis of depression was not made by a psychiatrist or clinical psychologist. N = 27 participants with a clinical depression made up the DP group for analysis in this study.

The college students group

In another study on delinquency and dissociation reported elsewhere (Fung et al., 2018), during the period of March to April, 2017, CityU students from 23 different general education courses were recruited to complete an online survey, which also included the three PD measures (although a few sections were not adopted in this college students study) in addition to the Reactive–Proactive Aggression Questionnaire (RPQ) and a delinquent behaviors checklist. The online survey was set in the Qualtrics system of the CityU. Formal informed consent was also obtained

online. For analysis in the current study, to ensure they are non-clinical participants, those who had used mental health service before were excluded. N = 160 CityU college students made up the control group of the current study.

Measures

The Dissociative Experiences Scale-Taxon (DES-T) is an 8-item subscale of the original DES, which is a widely-used, copyright-free, self-report instrument with good reliability (Cronbach's alpha: 0.78 and test-retest reliability: 0.93) and validity (covergent validty: 0.78) (Bernstein & Putnam, 1986; Ross, 1997; Waller, Putnam, & Carlson, 1996; Wilson & Tang, 2007). The DES primarily assesses psychoform dissociation, including both normal and PD. The DES-T is particularly used to measure PD. Ross, Duffy, and Ellason (2002) found that the DES-T had excellent agreement with other diagnostic interviews to detect complex DDs (Cohen's kappa: DES-T and DDIS, 0.81; DES-T and clinician, 0.74). Scores above 35 on the DES-T generally indicate strong evidence of PD (Waller & Ross, 1997). The Hong Kong Chinese version of the DES (HKC-DES), including the HKC-DES-T, has established psychometric properties (Chan et al., 2017). All the three groups completed the HKC-DES-T.

The 5-item Somatoform Dissociation Questionnaire (SDQ-5) is a shortened

version of the 20-item SDQ (SDQ-20); both are widely used to assess somatoform dissociation with established psychometric properties (Cronbach's alpha: 0.95, Sensitivity: 0.94 and Specificity: 0.98) (Nijenhuis, Spinhoven, van Dyck, Van der Hart, & Vanderlinden, 1996, 1997, 1998). The SDQ assesses how often the participant has had a given experience/condition (e.g., *"I have pain while urinating"*) in the past year. An item scores only one if any known physical cause of a given experience/symptom is reported. Higher scores indicate higher levels of somatoform dissociation. To screen DDs using the SDQ-5, Nijenhuis (2010) recommended a cutoff score of 8. The SDQ was translated into Chinese by Dr. Chui-De Chiu, and has demonstrated acceptable psychometric properties recently (Fung, Ross, Yu, Tse, & Lau, under review). Permissions to use the SDQ has been obtained from both the developer and the translator. All the three groups completed the Chinese version of the SDQ-5.

The Dissociative Disorders Interview Schedule (DDIS) (DSM-5 Version) is a reliable and valid structured interview (Inter-rater reliability: 0.68; Sensitivity: 90%; Specificity: 100%; Kappa: 0.96) for the DSM-5 DD diagnoses (Ross, 1997; Ross et al., 1989; Wilson & Tang, 2007). It also assesses somatic symptom disorder, major depressive episode, BPD, Schneiderian First-rank symptoms and DID-associated features. These symptom clusters can discriminate between severe DD patients and

other non-DD patients (Ross & Ellason, 2005). The DDIS correctly detected 96% of DID patients in a large sample and the false-positive rate of using the DDIS-DSM-IV version to diagnose DID was under 1% (Ross & Halpern, 2009). The self-report version of the DDIS (SR-DDIS) is also available (Ross & Browning, 2017). However, the diagnosis of OSDD cannot be made with the SR-DDIS. Permission to use and translate the DDIS has been obtained from its developer. The Chinese version of the DDIS was translated by the first author and approved by a counselling psychology associate professor from the Hong Kong Shue Yan University and a retired psychiatrist. Sections II, V, VIII, X, XI, XII, XII, XIV of the Chinese version of the SR-DDIS were completed by all the three groups. The DDs and the DP groups also completed Section I (about somatic symptom disorder) and IV (about major depressive episode), and the two items in Section VII about childhood physical and sexual abuse.

The Multidimensional Scale of Perceived Social Support (MSPSS) is a 12-item instrument that inquires about perceptions of social support with established psychometric properties (Cronbach's alpha: 0.85 to 0.91; test-retest reliability: 0.72 to 0.85) (Zimet, Dahlem, Zimet, & Farley, 1988; Zimet, Powell, Farley, Werkman, & Berkoff, 1990). The Chinese version of the MSPSS (C-MSPSS) has been used in previous studies (e.g., Chou, 2000; Zhang & Norvilitis, 2002). A 4-item subscale is particularly used to measure perceived support from the family. This subscale was also

completed by the DDs and the DP groups. In an unpublished pilot study on Hong Kong college students (N = 102), this family subscale was negatively correlated with the HKC-DES-T ($r = -.302$, $p < .01$).

Data analysis

The level of PD was operationalized as the DES-T score, SDQ-5 score and the number of DID-associated features on the SR-DDIS. The dissociation-related symptoms included (1) the number of Schneiderian first-rank symptoms, (2) the number of BPD symptoms, and (3) the number of somatic symptoms on the SR-DDIS. Self-reported childhood physical/sexual abuse was assessed with two items from the SR-DDIS Section VII. The level of family support was measured with the MSPSS subscale score.

The reliability of the DES-T and the SDQ-5 was evaluated by assessing their internal consistency (Cronbach's alpha).

The validity of the three PD measures was evaluated by assessing the Pearson correlations among the three major PD measures and the differences in PD and dissociation-related symptoms across groups. We also examined the relationships of PD with family support and childhood abuse because PD is theoretically and empirically related to adverse interpersonal experiences (Ross, 2007; Van der Hart et al., 2006). .

In the two clinical groups (i.e., only DDs and DP groups), the agreement rate (Cohen's kappa) between the SR-DDIS results and the clinical diagnoses reported by the participants for presence of any DD versus no DD was calculated, and the sensitivity and specificity of using the measures to detect clinical DDs were also calculated (ROC analysis).

Results

Internal consistency

Cronbach's alpha for the DES-T was .920 in the clinical groups (i.e., only DDs and DP groups) and .894 in the entire sample. Cronbach's alpha for the SDQ-5 was .677 in the clinical groups (i.e., only DDs and DP groups) and .637 in the entire sample.

In the entire sample, the corrected item-to-total correlations ranged from .49 to .78 (M = .68; SD = .088) for the DES-T, and .22 to .53 (M = .40; SD = .124) for the SDQ-5.

Correlations among the three PD measures (hypothesis 1)

The DES-T was highly correlated with the SDQ-5 ($r = .653$, $p < .001$) and with the number of DID-associated features ($r = .626$, $p < .001$). The SDQ-5 was also highly correlated with the number of DID-associated features ($r = .613$, $p < .001$).

The relationship between PD and family support (hypothesis 2 and hypothesis 7)

The MSPSS family support subscale was negatively correlated with the DES-T ($r = -.394$, $p < .01$), the SDQ-5 ($r = -.535$, $p < .001$) and the number of DID-associated features ($r = -.452$, $p < .01$). Moreover, the DDs group reported a significantly lower level of family support than the DP group ($M = 2.53$; $SD = 1.38$ vs $M = 3.82$; $SD = 1.76$), $t = -2.515$, $p < .05$, $d = 0.79$, 95% CI [2.33, 2.55]. The effect size was large.

The relationship between PD and childhood abuse (hypothesis 3 and hypothesis 6)

A chi-square test of independence was performed comparing the frequency of childhood physical/sexual abuse in the DDs group and the DP group.

Participants with clinical DDs were more likely to report both childhood physical and sexual abuse than those in the DP group (see Table 2).

In addition, participants who reported childhood physical abuse scored significantly higher on the DES-T and the SDQ-5, and they also reported significantly more DID-associated features, compared with participants who reported no childhood physical abuse (see Table 3). The effect sizes were large.

Moreover, participants who reported childhood sexual abuse also scored significantly higher on the DES-T and the SDQ-5, and they reported significantly more DID-associated features too, compared with participants who reported no

childhood sexual abuse (see Table 4). The effect sizes were large.

Differences across the DDs group, the DP group and the control group (in response to hypothesis 4 and hypothesis 5)

We compared the online assessment results between the three groups of participants.

The findings are summarized in Table 5. The DDs group scored significantly higher on the three PD measures (i.e., the DES-T, the SDQ-5, and the number of DID-associated features) than the other two groups. The DDs group also reported significantly more dissociation-related symptoms (i.e., first-rank symptoms and BPD symptoms) than the other two groups. The DDs group reported significantly more somatic symptoms than the DP group too. The DP group reported significantly more BPD symptoms than the college students group, but these two groups did not have significant differences between them in the three PD measures and in the number of first-rank symptoms. The effect sizes ranged from medium to large.

In addition, participants in the DDs group were significantly more likely to report most of the first-rank symptoms (see Table 6). This is consistent with the literature which suggests that patients with DDs generally suffer from more first-rank symptoms than other diagnostic groups (Ross, 1997).

Agreement between the SR-DDIS and the clinical diagnoses

In the two clinical groups, we calculated Cohen's kappa for the agreement rate between the SR-DDIS results and the clinical diagnoses reported by the participants for presence of any DD versus no DD. The kappa was .900.

The SR-DDIS successfully identified 15 (i.e., 93.8%) out of 16 participants who had a clinical DD made by psychiatrists and/or clinical psychologists.

The SR-DDIS identified DD (dissociative amnesia) in only one participant in the DP group who did not have any prior clinical diagnosis of DD.

Sensitivity and Specificity

Based on our data in the DDs group and the DP group, we also examined the sensitivity and specificity of the three PD measures in detecting clinical DDs.

To detect DDs, the area under the curve (AUC) of the DES-T was .944.

To detect DDs, the AUC of the SDQ-5 was .902.

To detect DDs using the number of DID-associated features, the AUC was .979.

Table 7, Table 8 and Table 9 show the sensitivity and specificity of the three PD measures: 27 or 28 seemed to be the optimal DES-T cutoff to detect clinical DDs, and 9 seemed to be the optimal SDQ-5 cutoff to detect clinical DDs in this sample. Interestingly, using 5 as the cutoff on the SR-DDIS, the number of DID-associated features detected 100% of the participants in the DDs group and only one participant (i.e., 3.7%) in the DP group reported more than 5 DID-associated features.

Discussion

This pilot study examined the psychometric properties of three PD measures (i.e., DES-T, SDQ-5, and the DDIS) among Chinese using online methods. The results indicate that the three PD measures are reliable and valid in this sample: (1) the PD measures exhibited adequate to excellent internal consistency; (2) the three PD measures were highly correlated with each other; (3) the three PD measures were negatively related to family support and can discriminate between participants with and without self-reported childhood physical and/or sexual abuse; (4) there was excellent agreement (Cohen's kappa = .900) between the online SR-DDIS results and the clinical diagnoses; (5) the DDs group scored significantly higher on the DES-T and the SDQ-5 and reported significantly more DID-associated features, BPD symptoms and Schneiderian First-rank symptoms than the other two groups; (6) and, the three PD measures demonstrated excellent sensitivity and specificity for detecting clinical DDs. The results are consistent with those reported in other studies (Ross et al., 2002; Ross et al., 1989), that individuals with DDs generally present with a high level of PD and report more first-rank and BPD symptoms, and are more likely to have had adverse experiences (e.g., low level of family support, childhood abuse). The initial findings suggest that PD can be readily assessed online and that the

measures used have sound psychometric properties. The results also suggest that the three PD measures are reliable and valid and can be used to assess PD online in Hong Kong. Although online assessments cannot replace face-to-face assessment, PD assessment using online methods is recommended for research and screening purposes. PD online assessment can aid mental health professionals in collecting extra information when doing assessments or making differential diagnoses. The sensitivity and specificity tables are provided because different uses of the measures may have different requirements for sensitivity and specificity. Since PD can be easily overlooked (Ross, 1997; Şar, 2014), online assessments may be helpful to assist practitioners when screening for service users with PD in actual practice because of their convenience and easy access. Early identification of PD is very important for social work practice because PD is highly related to psychosocial problems (e.g., interpersonal trauma) and requires psychosocial interventions more than pharmaceutical treatments (Ross & Halpern, 2009; Van der Hart et al., 2006). Reliable and valid dissociation measures could assist social workers to identify this group of service users who need psychosocial services and to evaluate the service provided for persons with PD.

Consistent with previous studies (Carlbring et al., 2007; Fein et al., 2010), we found that the online assessment used in this study demonstrates good psychometric

properties. Online assessments could help identify psychosocial problems. As Fein et al. (2010) suggested, such ICT-enhanced, self-administered screenings can be incorporated into routine practice. For instance, service providers could develop an online self-assessment and psychoeducation platform for the public. Such convenient (or even anonymous) self-assessments could facilitate early identification of service needs and encourage help-seeking in the community. Online assessments can be cost-effective aids for screening, assessment and/or evaluation purposes because the answers can be scored automatically and the results can be shown to the service user and/or the practitioner immediately if appropriate. To better serve trauma and dissociation survivors, we recommend the use of the three self-administered PD measures in the Chinese context.

This study is preliminary and has some limitations. First, the test-retest reliability of the measures was not examined. Second, only self-report data were used in this study, and therefore future studies should collect structured interview data. Third, the clinical sample is small, and in this pilot study there was no independently confirmed diagnosis, and therefore future studies should include more DD and non-DD patients with confirmed diagnosis.

These limitations notwithstanding, this pilot study shows that the three PD measures are promising to use in Hong Kong and illustrates the efficacy of using

online methods to assess PD, although future studies with improved research designs are necessary.

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