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Dissociative experiences and psychopathology among Italian and Portuguese inmates

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Abstract

The association between dissociation and psychopathological symptoms is well established, yet few studies have analyzed their relationship among inmates. If higher rates of dissociation and psychiatric symptoms are reported in inmate samples, it is not clear whether they represent two separate, albeit related, characteristics. In the present study, we sought to confirm and extend previous knowledge enrolling a sample of 320 Italian subjects (122 inmates and 198 community participants) and a Portuguese inmate sample ( $n = 67$ ). First, we examined the association between dissociation and psychopathological symptoms in both inmate and community samples. Then, we tested whether dissociation and psychopathology levels were higher among inmates. Both hypotheses were supported, confirming the relevance of dissociative, paranoid, and psychotic symptoms among inmates, as well as their interrelations. Finally, the group difference in dissociative experiences remained significant after partialing out the variance associated with other psychopathological symptoms. Conversely, only the difference in paranoid symptoms remained (marginally) significant when partialing out the variance explained by dissociation. As a whole, these findings add to the literature in this field, suggesting that dissociation may have unique relevance for the psychological functioning of inmates, partly explaining their general psychopathology.

Keywords: Dissociation, Psychopathology, Inmates, Italy, Portugal

## Introduction

Dissociation involves the alteration in those functions that allow an integration of the self, including identity, memory, consciousness, affectivity, perception, and cognition (American Psychiatric Association, 2013; Bernstein & Putnam, 1986). The construct of dissociation, especially as measured by the most widely used questionnaire [i.e., the Dissociative Experiences Scale, (Bernstein & Putnam, 1986)], seems stable across different cultural contexts, in terms of presence and degree of presentation in various countries (Barker-Collo, 2001; Bauer & Power, 1995; Collins & Jones, 2004; Espirito-Santo & Abreu, 2009; Garofalo et al., 2014; Larøi, Billieux, Defeldre, Ceschi, & Van der Linden, 2013; Lipsanen, Saarijärvi, & Lauerma, 2003; Ross, Joshi, & Currie, 1991; Spitzer, Freyberger, & Stieglitz, 1998; Xiao et al., 2006). The association between dissociation and psychopathological symptoms is also well established in a broad range of nonclinical (Bauer & Power, 1995; Levin & Spei, 2004; Maaranen et al., 2008; 2005; Martínez-Taboas & Bernal, 2000; Mulder, Beautrais, Joyce, & Fergusson, 1998) and clinical populations (Allen, Coyne, & Console, 1996; 1997; Belli, Ural, Vardar, Yesilyurt, & Oncu, 2012; Bob et al., 2008; Espirito-Santo, Gonçalves, Marques, Rocha, & Cassimo, 2013; Lewis-Fernandez et al., 2002; Löffler-Stastka, Szerencsics, & Blüml, 2009; Modestin, Ebner, Junghan, & Erni, 1996; Oedegaard et al., 2008; Rufer, Fricke, Held, Cremer, & Hand, 2005; Sar et al., 2007; Schäfer et al., 2011; 2007; Simões, Espirito-Santo, Jesus, & Marques, 2014; Somer, Altus, & Ginzburg, 2010), with stronger correlations between dissociative and psychotic symptoms (Allen et al., 1997; Allen & Coyne, 1995; Barker-Collo, 2001; Lysaker & LaRocco, 2008; Sar et al., 2010; Simões et al., 2014). Taking a closer look at the dissociation literature, one could conclude that there is a disproportion of samples recruited, with a landslide majority of studies involving clinical, community, and student samples (e.g., Evren et al., 2013; Foote, Smolin, Kaplan, Legatt, & Lipschitz, 2006; Gutiérrez Wang, Cosden, & Bernal, 2011; Maaranen, 2008; Maaranen et al., 2005; Van

IJzendoorn, 1996; Vogel, Spitzer, Barnow, Freyberger, & Grabe, 2006; Xiao et al., 2006; Yoshizumi, Murase, Murakami, & Takai, 2007), and only a handful of them addressing dissociation in offender samples (Dietrich, 2003; Lancaster, Compton, White, Bowers, & Herring, 1998; D. O. Lewis, Yeager, Swica, Pincus, & Lewis, 1997; Mitchell, 2006; Ruiz, Poythress, Liliane, & Douglas, 2008; Stefano Ciulla & Caretti, 2012; Walker, 2002).

Although inmates often present with higher rates of dissociative symptoms (Barker-Collo & Moskowitz, 2005; Dietrich, 2003; Espirito-Santo & Costa, 2013; McLeod, Byrne, & Aitken, 2004; Snow & Beckman, 1996), and dissociation itself has been reported as a risk factor for antisocial and violent behavior in offender populations (Dietrich, 2003; Moskowitz, 2004; Poythress, Skeem, & Liliane, 2006), there is a lack of studies exploring the associations of dissociation with external correlates in these populations. Some of them (e.g., Ruiz et al., 2008; Spitzer et al., 2001) supported the relationship of dissociation with antisocial behavior and aggression, as well as with early traumatic experiences. Notably, in most studies, inmate samples reached a mean score equal to a clinical sample, except those with diagnosed Dissociative Disorder (i.e., a mean score around 18, see for example: Moskowitz, Barker-Collo, & Ellson, 2005; Ruiz et al., 2008; Van IJzendoorn, 1996; Espirito-Santo & Costa, 2013; McLeod et al., 2004). However, only a few studies have investigated the association between dissociative symptoms and psychopathological disease among inmates (Moskowitz et al., 2005). They have reported a high correlation between dissociation and psychotic symptoms as assessed with the Symptom Checklist-90-Revised (Derogatis, 1994), along with other smaller correlations with various forms of psychiatric symptoms, as well as with general psychopathological distress. Based on these findings, Moskowitz et al. (2005) proposed that dissociative experiences may either predispose or underlie some psychiatric—especially psychotic—symptoms. Indeed, they argued that at least some psychiatric symptoms could be driven by dissociative mechanisms, and thus should be considered

dissociative in nature. Also, Allen et al. (1997) asserted that dissociative experiences may constitute a vulnerability for psychotic and other psychopathological experiences by depriving a person of external and internal “anchors”. Unfortunately, to the best of our knowledge, this has not been empirically tested yet. Indeed, whether dissociative experiences may (at least partially) account for and explain the presence of psychiatric symptoms in general, and psychotic symptoms, in particular, is still an open question. In other terms, previous studies did not report if differences in dissociative experiences remained significant when accounting for the influence of psychiatric symptoms, and vice-versa. According to the models reviewed above (Allen et al., 1997; Moskowitz et al., 2005) it could be expected that levels of dissociation would remain significantly higher among inmates after controlling for other psychopathological symptoms, while dissociation could account for the levels of psychopathology.

Finally, notwithstanding the excellent reliability, the good validity, and the well-established stability across cultures of the DES (Espirito-Santo & Abreu, 2009; Van IJzendoorn, 1996), there is a dearth of studies on the DES and its correlates directly comparing samples from different countries and different settings simultaneously, and this is especially true in Europe (Spitzer et al., 2006). Specifically, to our knowledge, there are no studies available that have compared cross-culturally neither dissociative symptoms, nor the dissociation-psychosis link, let alone cross-cultural comparison gathering data from different samples, such as inmates. Thus, another controversial issue regards the actual comparability of results across studies belonging to different countries and targeting different populations.

The present study aimed to address most of the controversial issues mentioned above. First, in line with previous findings (Espirito-Santo & Costa, 2013; Mitchell, 2006; Moskowitz et al., 2005; Ruiz et al., 2008; Snow & Beckman, 1996), we expected that inmates reported higher degrees of dissociative experiences than controls. Then, we sought to

corroborate evidence of the relationships between dissociative and other psychiatric symptoms. Particularly, based on the extant literature (Allen et al., 1997; Moskowitz et al., 2005; Watson, 2001), we expected to replicate previous findings attesting to the strong correlation between the DES total score and self-reported psychotic symptoms above and beyond other significant relations (Lysaker & LaRocco, 2008), both in community and offender samples. Furthermore, we wanted to test whether dissociation explained higher levels of psychopathological symptoms among inmates, and if the degree of dissociative experiences would remain significantly higher among inmates after accounting for the influence of other forms of psychopathology. Finally, in order to avoid capitalizing on the characteristics of a single offenders group belonging to a given country, we confronted rates of both dissociative symptoms and psychopathological disease in an Italian and a Portuguese inmate samples. It is worth noting that we used the DES total score only because the DES has two different factorial structures in Italy (Garofalo et al., 2014) and Portugal (Espirito-Santo & Abreu, 2009). Moreover, since the factorial structure of the DES mostly varies across different populations, the authors themselves suggested using the total score for research purpose (e.g., Bernstein & Putnam, 1986). The present study also adds to the literature on the factorial models of the DES, by examining the DES-II factorial structures in the two inmate samples, seeking evince for confirming in the Portuguese sample the two-factor model recently reported for the Italian version of the DES-II (Garofalo et al., 2014).

## 2. Methods

### 2.1. Participants

The Italian sample consisted of 320 individuals, including 122 inmates convicted of violent offenses (mean age = 39.97, SD = 11.76) and 198 controls (mean age = 32.51, SD = 10.30); most of them were males (inmates = 98%; controls = 58.6%). To test cross-cultural differences between Italian and Portuguese inmates, we compared the data of the Italian

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inmates with a sample composed by 67 Portuguese inmates, with an average age of 34.85 years ( $SD = 8.98$ ). All Portuguese inmates were males, and 37.3% ( $n = 25$ ) committed violent crimes. Portuguese inmates were younger than inmates of the Italian sample ( $t = 3.43$ ;  $p < .01$ ).

### 2.2. Procedures

After the study received approval from the Ethics Board Research of the “Sapienza” – University of Rome and the Italian Ministry of Justice, the Italian participants in the control group were enrolled through local advertisement posted online and throughout the community, requesting potential volunteers for psychological studies. The Italian inmate group consisted of individuals recruited from different jails and prisons located around two big Italian cities (Rome and Genoa), which filled out the measures and an informed consent to voluntarily take part in the study.

For the Portuguese inmates sample, participants were recruited from a high-security correctional facility within the Centro region. Attendance to psychological and medical consultations, and an informational poster were used to inform the inmates about the study, and those who manifested interest were selected for the study. Participants could request a follow-up psychological consultation if distressed by issues evoked by the questionnaires (three of them required this follow-up). Respondents were interviewed individually in the psychological consultation room over one session lasting approximately one hour. Inmates were initially informed about the study, their rights and asked to sign an informed consent form. Then, a trained clinical psychologist orally administered all measures. The Miguel Torga Higher Institute and correctional agency Research Review Boards and Committees approved the whole procedure.

Participation was entirely voluntary, no payment was offered, answers were entirely anonymous and confidential, and there was no coercion for the subjects, especially inmates, to participate.

### 2.3. Measures

The Dissociative Experiences Scale-Revised (DES-II; Carlson & Putnam, 1993). The DES-II is a self-report scale measuring 28 dissociative phenomena in daily life related to depersonalization, derealization, amnesia, and absorption. Respondents are asked to indicate on 100-mm visual analogue scales to what extent they experience these phenomena, without being under the influence of alcohol or drugs. Each analogue scale ranges from 0%, meaning never, to 100%, meaning at least once per week (containing 11 options at 10% increments). The total DES-II score is the mean of all 28 items scores. Original research demonstrated that DES-II has high reliability (test-retest =  $0.79 < r < 0.84$ ; split-half =  $0.83 < r < 0.93$ ; Cronbach's  $\alpha = 0.95$ ; Carlson & Putnam, 1993). Consistent with these findings, both the Italian DES-II version/translation (Cronbach's  $\alpha = 0.91$ ; split-half:  $r = 0.92$ ; Fabbri Bombi, Bertin, Cristante, & Colombo, 2014) and the Portuguese version (Cronbach's  $\alpha = 0.94$ ; Espirito-Santo & Abreu, 2009) were reliable. In the present study, we used the Italian translation reported by Conti (1999), which showed excellent internal consistency in previous research (Cronbach's  $\alpha = 0.95$ , Garofalo et al., 2014). Our data showed excellent internal consistencies of the DES-II in both samples (Italian sample: Cronbach's  $\alpha = 0.95$ ; Portuguese sample: Cronbach's  $\alpha = 0.93$ ).

The Brief Symptom Inventory (BSI; (Derogatis, 1975; Derogatis & Melisaratos, 1983). The BSI is a 53-item short-form version of the Symptom Checklist-90-R (Derogatis, 2011). It is a self-report measure of psychological distress and items from nine orthogonal subscales, including Somatization (SOM), Obsession-Compulsion (O-C), Interpersonal Sensitivity (I-C), Depression (DEP), Anxiety (ANX), Hostility (HOS), Phobic Anxiety



(PHOB), Paranoid Ideation (PAR) and Psychoticism (PSYCHOT). It also includes three global indexes: the Positive Symptom Total (PST), the Positive Symptom Distress-Index (PSDI) and the Global Severity Index (GSI). PTS is the number of symptoms endorsed in a pathological direction without considering intensity. PSDI provides information about the severity of distress the respondent experiences. GSI combines the number of endorsed symptoms and their severity. Possible scores range from 0 (not at all) to 4 (extremely), with higher scores indicating greater severity. When answering, subjects are asked to consider the past 30 days including today. As to the BSI reliability and validity, Derogatis and Melisaratos (Derogatis & Melisaratos, 1983) showed that its internal consistency (Cronbach's alpha) for each of the nine subscales ranged between 0.71 (PSY) and 0.85 (DEP), and test-retest varying from 0.68 (SOM) and 0.91 (PHOB). In our study, Cronbach's alphas for the whole scale in the Italian sample ( $\alpha = 0.95$ ), and in the Portuguese sample ( $\alpha = 0.90$ ) were good.

### 2.4. Statistical Analyses

2.4.1. Correlations between DES-II and BSI subscales and differences between inmates and controls. Correlations between DES-II and psychiatric symptoms measured by BSI were estimated separately for inmates and controls. A test for heterogeneity of correlations (Brown, 1997) between inmates and controls was performed. This test is based on the estimation of a statistic ( $X^2$ ), which approaches a  $\chi^2$  distribution with  $k - 1$  degrees of freedom ( $k$  is the number of groups). If  $X^2$  is significant ( $p < .05$ ) then the correlations are different.

To test if there were significant differences between inmates and controls, we carried on multiple t-tests. The principal risk of performing multiple t-tests is the inflation or first type error (Howell, 2012). The classical procedure, Bonferroni's test, to correct first type error, results to be a strongly conservative test, especially when many comparisons should be performed (Curran-Everett, 2000). A valid alternative is the False Discovery Rate Procedure

(Benjamini & Hochberg, 1995). According to this procedure, estimated probability values ( $d^*$ ) for each t-test are compared with empirical probability values ( $p$ ). If  $p < d^*$  then the difference is considered significant.

To explore the unique associations between group status (i.e., community participants versus inmates) and both DES-II and BSI scores, over and above the influence of the other, the DES-II total score and relevant BSI scale scores were used as covariates in ANCOVA/MANCOVA designs testing between group differences in the other variable.

2.4.2. Cross-cultural differences between DES-II and BSI subscales. To test if there were cross-cultural differences in inmates' populations, multiple t-tests with the False Discovery Procedure (Benjamini & Hochberg, 1995) were performed. Additionally, we conducted a confirmatory factorial analysis of the Portuguese DES-II in order to compare factorial structures between the different cultures (see (Garofalo et al., 2014) for details on the Italian factorial structure).

### 3. Results

#### 3.1. Correlations between DES-II and BSI subscales and Differences between Inmates and Controls

Table 1 shows the correlations between the DES-II total score and BSI subscales and general indices (GSI, PST and PSDI). Correlations were estimated separately for Italian inmates and controls. Because 8 inmates did not respond contemporarily to all BSI subscales items, they were excluded from the original group of 122 inmates. An analysis of heterogeneity of correlations (Brown, 1997) was applied to test if correlations significantly differ between groups.

[Insert Table 1 about here]

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All correlations between BSI subscales and global indices were identical both for inmates and controls, except for the I-S subscale, in which controls showed a lower correlation in comparison to inmates. Therefore, group affiliation did not affect correlations between DES-II and BSI subscales.

Descriptive statistics for outcome measures of both inmates and controls are presented in Table 2. We also displayed the multiple t-tests for BSI subscales, BSI global indices, and global score of DES-II.

[Insert table 2 about here]

According to the False Discovery Rate Procedure, p values of each t-test should be compared with corrected probabilities ( $d^*$ ). If  $p < d^*$ , then the test is significant. Table 2 shows that only the PSYCHOT and PAR subscales were significant. Inmates expressed psychotic and paranoid symptoms at a greater level than controls. In addition, PSDI index of BSI was significantly different between inmates and controls. Therefore, this index can be used to compare the general impairment attributable to psychiatric symptoms between inmates and normal subjects. Finally, the two groups showed a significant difference in DES-II score: the inmates reported more experiences of dissociative symptoms than controls.

A subsequent ANCOVA revealed that, after controlling for the variance explained by PSYCHOT, PAR, GSI and PSDI scores, the main effect of group on DES-II total score remained significant [ $F(1, 307) = 8.439, p < .01, \eta^2_{\text{partial}} = .027$ ], with inmates reporting higher levels of dissociative experiences. Thus, a significant, unique, association between the DES-II total score and group status was found. On the other hand, when partialing out the variance associated with the DES-II (Pillai  $V = 0.334, p < .001$ ), a significant multivariate effect of group emerged for the BSI scales included (Pillai  $V = 0.119, p < .001$ ). However, the univariate effect was significant only for the PAR scale [ $F(1, 307) = 4.332, p < .05, \eta^2_{\text{partial}} = .014$ ], while the between group differences in PSYCHOT, PSDI, and GSI were non-

significant (all  $ps > .05$ ). Accordingly, DES-II total score mediated (i.e., accounted for by) between-group differences on these three scales.

### 3.2. Cross-Cultural Differences between DES-II and BSI subscales

Table 3 shows the descriptive statistics (means and standard deviations) both for Italian and Portuguese inmates and the multiple t-test for BSI subscales, BSI global indices, and global score of DES-II. Thirty-two Portuguese inmates answered to Depression, Anxiety, and Stress Scales instead of BSI, and because of that, they were not included in BSI comparisons. Student t-test did not show significant cross-cultural differences between Italian and Portuguese inmates. Only scores on the PAR subscale of BSI were significant, where Portuguese inmates were higher than Italian inmates. The global scores of DES-II do not show a significant cross-cultural difference between Italian and Portuguese inmates.

Additionally, we compared the DES-II factors between the two samples. The hypothesized two-model structure of the Italian version (Garofalo et al., 2014) was tested with a confirmatory factorial analysis of Portuguese DES-II, and it was showed a remarkable similitude with the Italian version (Garofalo et al., 2014). Portuguese Factor 1 (compartmentalization) included items 1, 2, 5, 6, 9, 10, 11, 14, 15, 17, 18, 19, 20, 22, 23, 24, and 26. Factor 2 (detachment) comprised items 3, 4, 7, 8, 12, 13, 16, 21, 25, 27, and 28. Items differences between the Italian and Portuguese versions were as follows. Item 5 (finding new things among personal belongings) and item 11 (looking in a mirror and not recognizing) was in Factor 2 in the Italian version, and items 16 (familiar place seems strange), 21 (talk out loud when alone), and 25 (evidences of doing things not remembering doing) were in Factor 1 in the Italian study (Garofalo et al., 2014).

[Insert table 3 about here]

## 4. Discussion

Our study showed that our samples' scores were in line with normative data reported in the literature worldwide, concerning the presence and severity of dissociation in both normal (Carlson & Putnam, 1993; Carlson, Putnam, & Ross, 1993; Espirito-Santo & Abreu, 2009; Spitzer et al., 2006; Stockdale, Gridley, Balogh, & Holtgraves, 2002) and offender populations (Moskowitz et al., 2005; Ruiz et al., 2008; Snow & Beckman, 1996; Van IJzendoorn, 1996). Interestingly, as expected, inmates reported higher rates of dissociative experiences compared to healthy subjects dwelling in the community, along with few other differences of general psychiatric symptomatology (as assessed with the Brief Symptom Inventory). Moreover, these results were consistent with a Portuguese inmate sample, suggesting that the relevance of dissociation for the mental health of prisoners was not related to the particular Italian context. This evidence suggests that dissociation may represent a distinctive feature of incarcerated individuals, so that they suffer from dissociative symptoms as much as patients with psychiatric disorders (e.g., van IJzendoorn & Schuengel, 1996). It is worth noting that inmates also reported higher rates of psychotic and paranoid symptoms if compared with controls. However, our findings add to the extant literature by demonstrating that the between-group difference in psychotic symptoms was accounted for by levels of dissociation. In line with Moskowitz et al.'s (2005) model, this result provides partial support for the underlying role of dissociation in psychotic symptoms. On the other hand, after controlling for the influence of general psychopathological distress, as well as of paranoid and psychotic symptoms, the unique relevance of dissociative experiences among inmates remained significant. In the wake of these findings confirming an overrepresentation—and a unique relevance—of dissociation among inmates, we suggest that mental health services in prison should include an evaluation of dissociative symptoms in their standard assessment for newly incarcerated individuals, as well as during the period of imprisonment. This seems particularly important given the other results that we reported, confirming the strong

association between dissociative and other psychiatric symptoms. In line with previous findings (Moskowitz et al., 2005), the degree of self-reported dissociation was significantly related to a variety of psychopathological symptoms across different domains, as well as with the overall severity of general symptomatology. However, in both the community and inmate Italian samples, differences among correlation coefficients linking each type of psychiatric symptom (i.e., BSI subscales) with the DES-II total score, were too slight to hazard selective associations with specific domains more than others [as stated by Moskowitz et al. (2005) about psychotic symptoms]. It is noteworthy that, to our knowledge, this is the first study testing for statistical differences in the correlation patterns for the dissociation–general psychopathology associations, comparing an inmate sample with a control group.

Interestingly, our data did provide evidence of invariability across the two samples, about relations mentioned above between dissociative and other psychopathological symptoms.

This implies that, regardless the severity, dissociation is likely to represent a symptom highly associated with—and perhaps underlying—other forms of psychopathological disease, instead of representing an isolated sign. Further research could help to understand the causal direction of this association with longitudinal designs, as well as to highlight the underlying mechanism and the clinical implications of these relations.

Another purpose of this study was to compare the factorial model of the Italian DES-II with data from the Portuguese sample, to promote a reliable comparison of the dissociation construct across cultures, at least as assessed with the DES. A two-factor model provided the best fit for the Italian sample (Garofalo et al., 2014). Results with the Portuguese sample provided evidence for the replicability of this two-factor model. It is also noteworthy that items 5, 11, 16, 21, and 25 loaded on a different factor across the two samples, possibly because of differences in contextual aspects of the prisons of both countries. The differences in paranoid symptoms between the two samples (with statistically significant higher values in

the Portuguese inmates), could also reflect these differences, suggesting that Italian prisons are perceived as safer by inmates. As a whole, it seems that a bi-dimensional conceptualization of dissociation is valid across cultures.

Some limitations of the study should be taken into consideration and addressed in future research. First, we did not assess for possible psychiatric diagnosis affecting the inmate participants, nor we knew if they were taking psychotropic medication at that moment. Thus, we cannot exclude that the inmates' higher level of psychotic symptoms was due to an actual overlap with psychotic conditions, instead of representing the effect of captivity. However, it is noteworthy that Ruiz et al. (2008) argued that the degree of psychotic symptoms among inmates is roughly equal across countries. Thus, this limitation does not preclude the possibility for further replication of our results. Nevertheless, in future studies, it would be useful to exclude those inmates with diagnosed psychotic disorders, or to compare those receiving psychotropic medication with those that are not pharmacologically treated.

Second, our assessment methodology included only self-report measures, limiting our ability to reduce measurement bias, although DES-II and BSI are extensively used measures, with well-established psychometric properties. The replication of our findings by adding a structured interview for dissociative experiences might be useful to overcome measurement bias (Ross, Heber, Norton, & Anderson, 1989; Steinberg, Cicchetti, & Buchanan, 1993).

Third, this study used a cross-sectional design and thus did not allow an investigation of causal relationships. Moreover, conflicting findings across different samples point out the issue of whether results obtained within a specific sample can be generalized to other populations (Cima, Merckelbach, Klein, Shellbach-Matties, & Kremer, 2001; Spitzer et al., 2003; Van IJzendoorn, 1996). This is particularly true regarding offender samples, where a number of confounding variables may affect the external validity of the DES. For example, according to Snow et al. (1996), it has been advanced the hypothesis that dissociative states

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of inmates may represent either a dissociative psychopathology or a defense mechanism induced by their peculiar environment. Other authors have proposed that it could also reflect faking or malingering (McLeod et al., 2004). Future research is encouraged to control for these possible confounding factors.

Finally, several authors argued that traumatic experiences may act as antecedents of dissociative symptoms (e.g., Aydin & Altindag, 2009; Foote et al., 2006; Gutiérrez Wang et al., 2011; Nilsson, Gustafsson, & Svedin, 2010). Further studies, aiming to understand dissociative phenomena among inmates, should integrate the assessment of traumatic events. In conclusion, our results corroborate the relevance of considering dissociative symptoms in their relation with general symptomatology and psychopathological distress, highlighting the alarming severity of dissociative symptoms in prisoners. Moreover, these data are validated across different samples from different countries. Hence, another important implication of our findings is the importance of providing interventions to reduce dissociative symptomatology among the inmate population.



## References

- Allen, J. G., & Coyne, L. (1995). Dissociation and vulnerability to psychotic experience. The Dissociative Experiences Scale and the MMPI-2. *Journal of Nervous and Mental Disease*, 183(10), 615–622.
- Allen, J. G., Coyne, L., & Console, D. A. (1996). Dissociation contributes to anxiety and psychoticism on the Brief Symptom Inventory. *Journal of Nervous and Mental Disease*, 184(10), 639–641.
- Allen, J. G., Coyne, L., & Console, D. A. (1997). Dissociative detachment relates to psychotic symptoms and personality decompensation. *Comprehensive Psychiatry*, 38(6), 327–334.
- American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorders: DSM-V (5 ed.)*. Washington: American Psychiatric Pub.

## Dissociation in Italian and Portuguese inmates

- Aydin, Y. E., & Altindag, A. (2009). Childhood traumatic events and dissociation in university students. *International Journal of Psychiatry in Clinical Practice*, 13(1), 25–30.
- Barker-Collo, S. L. (2001). Relationship of the Dissociative Experiences Scale to demographics, symptomatology, and coping strategies in a New Zealand student sample. *Journal of Trauma & Dissociation*, 2(3), 79–98.
- Barker-Collo, S., & Moskowitz, A. K. (2005). Profiles of DES performance in inmate and student samples. *Journal of Trauma & Dissociation*, 6(1), 113–124.  
doi:10.1300/J229v06n01\_07
- Bauer, A., & Power, K. G. (1995). Dissociative experiences and psychopathological symptomatology in a Scottish sample. *Dissociation*, 8(4), 209–219.
- Belli, H., Ural, C., Vardar, M. K., Yesilyurt, S., & Oncu, F. (2012). Dissociative symptoms and dissociative disorder comorbidity in patients with obsessive-compulsive disorder. *Comprehensive Psychiatry*, 53(7), 975–980. doi:10.1016/j.comppsy.2012.02.004
- Benjamini, Y., & Hochberg, Y. (1995). Controlling the false discovery rate: A practical and powerful approach to multiple testing. *Journal of the Royal Statistical Society. Series B (Methodological)*, 57(1), 289–300.
- Bernstein, E., & Putnam, F. W. (1986). Development, reliability, and validity of a dissociation scale. *Journal of Nervous and Mental Disease*, 174(12), 727–735.
- Bob, P., Fedor-Freybergh, P., Jasova, D., Bizik, G., Susta, M., Pavlat, J., et al. (2008). Dissociative symptoms and neuroendocrine dysregulation in depression. *Medical Science Monitor*, 14(10), CR499–504.
- Brown, R. P. (1997). Testing for heterogeneity among phenotypic correlations: a comparison of methods using Monte Carlo simulations. *Genetica*, 101(1), 67–74.  
doi:10.1023/A:1018305905597

## Dissociation in Italian and Portuguese inmates

Carlson, E. B., & Putnam, F. W. (1993). An update on the Dissociative Experiences Scale.

*Dissociation*, 6(1), 16–27.

Carlson, E. B., Putnam, F. W., & Ross, C. A. (1993). Validity of the Dissociative

Experiences Scale in screening for multiple personality disorder: A multicenter study.

*American Journal of Psychiatry*, 150, 1030–1036.

Cima, M., Merckelbach, H., Klein, B., Shellbach-Matties, R., & Kremer, K. (2001). Frontal

lobe dysfunctions, dissociation, and trauma self-reports in forensic psychiatric

patients. *Journal of Nervous and Mental Disease*, 189(3), 188–190.

Collins, F., & Jones, K. (2004). Investigating Dissociation Online: Validation of a Web-

Based Version of the Dissociative Experiences Scale. *Journal of Trauma &*

*Dissociation*, 5(1), 133–147. doi:10.1300/J229v05n01\_08

Conti, L. (1999). Repertorio delle scale valutazione in psichiatria [Psychiatric assessment

scales repertory]. Florence, IT: SEE Editrice Firenze.

Curran-Everett, D. (2000). Multiple comparisons: philosophies and illustrations. *American*

*Journal of Physiology. Regulatory, Integrative and Comparative Physiology*, 279(1),

R1–8.

Derogatis, L. R. (1975). *Brief Symptom Inventory* (pp. 1–3). Baltimore, MD: Clinical

Psychometric Research.

Derogatis, L. R. (1994). *Symptom Checklist-90-Revised (SCL-90-R): Administration, scoring*

*and procedures manual* (3rd ed., pp. 1–4). Minneapolis, MN: National Computer

Systems.

Derogatis, L. R. (2011). *Symptom Checklist-90-R. Adattamento italiano*. (I. Sarno, E. Preti,

A. Prunas, & F. Madeddu) (pp. 1–5). Firenze: Giunti O. S.

derogatis, L. R., & Melisaratos, N. (1983). The brief symptom inventory: an introductory

report. *Psychological Medicine*, 13(03), 595–605.

- Dietrich, A. (2003). Characteristics of child maltreatment, psychological dissociation, and somatoform dissociation of Canadian inmates. *Journal of Trauma & Dissociation*, 4(1), 81–100. doi:10.1300/J229v04n01\_06
- Espirito-Santo, H., & Abreu, J. L. P. (2009). Portuguese validation of the Dissociative Experiences Scale (DES). *Journal of Trauma & Dissociation*, 10(1), 69–82. doi:10.1080/15299730802485177
- Espirito-Santo, H., & Costa, M. (2013). Inmates trauma and dissociation. *European Psychiatry*, 28(Suppl. 1). doi:10.1016/S0924-9338(13)76555-6
- Espirito-Santo, H., Gonçalves, L., Marques, M., Rocha, P., & Cassimo, S. (2013). Psychoform and somatoform dissociation severity in eating disorders (ed). *European Psychiatry*, 28(Suppl. 1). doi:10.1016/S0924-9338(13)76557-X
- Evren, C., Cınar, O., Evren, B., Ulku, M., Karabulut, V., & Umut, G. (2013). The mediator roles of trait anxiety, hostility, and impulsivity in the association between childhood trauma and dissociation in male substance-dependent inpatients. *Comprehensive Psychiatry*, 54(2), 158–166. doi:10.1016/j.comppsy.2012.06.013
- Fabrizio Bombi, A., Bertin, I., Cristante, F., & Colombo, G. (2014). Un contributo alla standardizzazione della Dissociative Experiences Scale (DES) di Bernstein e Putnam. *Bollettino Di Psicologia Applicata*, 219, 39–46.
- Foot, B., Smolin, Y., Kaplan, M., Legatt, M. E., & Lipschitz, D. S. (2006). Prevalence of dissociative disorders in psychiatric outpatients. *The American Journal of Psychiatry*, 163(4), 623–629. doi:10.1176/appi.ajp.163.4.623
- Garofalo, C., Velotti, P., Zavattini, G. C., Tommasi, M., Romanelli, R., Espirito-Santo, H., & Saggino, A. (2014, November 2). Understanding dissociation in terms of detachment and compartmentalization: Evidence from an Italian version of the DES-II.

## Dissociation in Italian and Portuguese inmates

- Gutiérrez Wang, L., Cosden, M., & Bernal, G. (2011). Dissociation as a mediator of posttraumatic symptoms in a puerto rican university sample. *Journal of Trauma & Dissociation*, 12(4), 358–374. doi:10.1080/15299732.2011.573759
- Howell, D. C. (2012). *Statistical methods for psychology* (7 ed.). Belmont, CA: Cengage Learning.
- Lancaster, W., Compton, D., White, N., Bowers, N., & Herring, P. (1998). MMPI-A and Dissociative Experiences Scale responses of violent and non-violent youth offenders. *Journal of Offender Rehabilitation*, 26(1-2), 45–52. doi:10.1300/J076v26n01\_03
- Larøi, F., Billieux, J., Defeldre, A. C., Ceschi, G., & Van der Linden, M. (2013). Factorial structure and psychometric properties of the French adaptation of the Dissociative Experiences Scale (DES) in non-clinical participants. *Revue Europeenne De Psychologie Appliquee*, 63(4), 203–208. doi:10.1016/j.erap.2013.04.004
- Levin, R., & Spei, E. (2004). Relationship of purported measures of pathological and nonpathological dissociation to self-reported psychological distress and fantasy immersion. *Assessment*, 11(2), 160–168. doi:10.1177/1073191103256377
- Lewis, D. O., Yeager, C. A., Swica, Y., Pincus, J. H., & Lewis, M. (1997). Objective documentation of child abuse and dissociation in 12 murderers with dissociative identity disorder. *The American Journal of Psychiatry*, 154(12), 1703–1710. doi:10.1176/ajp.154.12.1703
- Lewis-Fernandez, R., Garrido-Castillo, P., Bennasar, M. C., Parrilla, E. M., Laria, A. J., Ma, G., & Petkova, E. (2002). Dissociation, childhood trauma, and ataque de nervios among Puerto Rican psychiatric outpatients. *The American Journal of Psychiatry*, 159(9), 1603–1605.

## Dissociation in Italian and Portuguese inmates

- Lipsanen, T., Saarijärvi, S., & Lauerma, H. (2003). The Finnish version of the Dissociative Experiences Scale-II (DES-II) and psychiatric distress. *Nordic Journal of Psychiatry*, 57(1), 17–22. doi:10.1080/08039480310000211
- Löffler-Stastka, H., Szerencsics, M., & Blüml, V. (2009). Dissociation, trauma, affect regulation and personality in patients with a borderline personality organization. *Bulletin of the Menninger Clinic*, 73(2), 81–98. doi:10.1521/bumc.2009.73.2.81
- Lysaker, P. H., & LaRocco, V. A. (2008). The prevalence and correlates of trauma-related symptoms in schizophrenia spectrum disorder. *Comprehensive Psychiatry*, 49(4), 330–334. doi:10.1016/j.comppsy.2007.12.003
- Maaranen, P. (2008). Dissociation in the Finnish general population. Faculty of Medicine of the University of Kuopio, Kuopio.
- Maaranen, P., Tanskanen, A., Hintikka, J., Honkalampi, K., Haatainen, K., Koivumaahonkanen, H., & Viinamäki, H. (2008). The course of dissociation in the general population: a 3-year follow-up study. *Comprehensive Psychiatry*, 49(3), 269–274. doi:10.1016/j.comppsy.2007.04.010
- Maaranen, P., Tanskanen, A., Honkalampi, K., Haatainen, K., Hintikka, J., & Viinamäki, H. (2005). Factors associated with pathological dissociation in the general population. *The Australian and New Zealand Journal of Psychiatry*, 39(5), 387–394. doi:10.1111/j.1440-1614.2005.01586.x
- Martínez-Taboas, A., & Bernal, G. (2000). Dissociation, psychopathology, and abusive experiences in a nonclinical Latino university student group. *Cultural Diversity & Ethnic Minority Psychology*, 6(1), 32.
- McLeod, H., Byrne, M., & Aitken, R. (2004). Automatism and dissociation: Disturbances of consciousness and volition from a psychological perspective. *International Journal of Law and Psychiatry*, 27(5), 471–487. doi:10.1016/j.ijlp.2004.06.007

## Dissociation in Italian and Portuguese inmates

- Mitchell, J. A. (2006). Symptoms of dissociation in a forensic population. *Journal of Orthomolecular Medicine*, 21(2), 85–94.
- Modestin, J., Ebner, G., Junghan, M., & Erni, T. (1996). Dissociative experiences and dissociative disorders in acute psychiatric inpatients. *Comprehensive Psychiatry*, 37(5), 355–361.
- Moskowitz, A. (2004). Dissociation and violence: A review of the literature. *Trauma, Violence, & Abuse*, 5(1), 21–46. doi:10.1177/1524838003259321
- Moskowitz, A. K., Barker-Collo, S., & Ellson, L. (2005). Replication of dissociation-psychosis link in New Zealand students and inmates. *Journal of Nervous and Mental Disease*, 193(11), 722–727. doi:10.1097/01.nmd.0000185895.47704.62
- Mulder, R. T., Beautrais, A. L., Joyce, P. R., & Fergusson, D. M. (1998). Relationship between dissociation, childhood sexual abuse, childhood physical abuse, and mental illness in a general population sample. *American Journal of Psychiatry*, 155(6), 806–811.
- Nilsson, D., Gustafsson, P. E., & Svedin, C. G. (2010). Self-reported potentially traumatic life events and symptoms of post-traumatic stress and dissociation. *Nordic Journal of Psychiatry*, 64(1), 19–26. doi:10.3109/08039480903264846
- Oedegaard, K. J., Neckelmann, D., Benazzi, F., Syrstad, V. E. G., Akiskal, H. S., & Fasmer, O. B. (2008). Dissociative experiences differentiate bipolar-II from unipolar depressed patients: The mediating role of cyclothymia and the Type A behaviour speed and impatience subscale. *Journal of Affective Disorders*, 108(3), 207–216. doi:10.1016/j.jad.2007.10.018
- Poythress, N. G., Skeem, J. L., & Liliane. (2006). Associations among early abuse, dissociation, and psychopathy in an offender sample. *Journal of Abnormal Psychology*, 115(2), 288–297. doi:10.1037/0021-843X.115.2.288

## Dissociation in Italian and Portuguese inmates

- Ross, C. A., Heber, S., Norton, G., & Anderson, D. (1989). The dissociative disorders interview schedule: A structured interview. *Dissociation*, 2(3), 69–189.
- Ross, C. A., Joshi, S., & Currie, R. (1991). Dissociative experiences in the general population: a factor analysis. *Hospital & Community Psychiatry*, 42(3), 297–301.
- Rufer, M., Fricke, S., Held, D., Cremer, J., & Hand, I. (2005). Dissociation and symptom dimensions of obsessive–compulsive disorder. *European Archives of Psychiatry and Clinical Neuroscience*, 256(3), 146–150. doi:10.1007/s00406-005-0620-8
- Ruiz, M. A., Poythress, N. G., Liliane, & Douglas, K. S. (2008). Factor structure and correlates of the Dissociative Experiences Scale in a large offender sample. *Assessment*, 15(4), 511–521. doi:10.1177/1073191108315548
- Sar, V., Koyuncu, A., Ozturk, E., Yargic, L. I., Kundakçi, T., Yazici, A., et al. (2007). Dissociative disorders in the psychiatric emergency ward. *General Hospital Psychiatry*, 29(1), 45–50. doi:10.1016/j.genhosppsy.2006.10.009
- Sar, V., Taycan, O., Bolat, N., Özmen, M., Duran, A., Ozturk, E., & Ertem-Vehid, H. (2010). Childhood trauma and dissociation in schizophrenia. *Psychopathology*, 43(1), 33–40. doi:10.1159/000255961
- Schäfer, I., Fisher, H. L., Aderhold, V., Huber, B., Hoffmann-Langer, L., Golks, D., et al. (2011). Dissociative symptoms in patients with schizophrenia: relationships with childhood trauma and psychotic symptoms. *Comprehensive Psychiatry*, 53(4), 364–371. doi:10.1016/j.comppsy.2011.05.010
- Schäfer, I., Reininghaus, U., Langeland, W., Voss, A., Zieger, N., Haasen, C., & Karow, A. (2007). Dissociative symptoms in alcohol-dependent patients: associations with childhood trauma and substance abuse characteristics. *Comprehensive Psychiatry*, 48(6), 539–545. doi:10.1016/j.comppsy.2007.05.013



## Dissociation in Italian and Portuguese inmates

- Simões, S., Espirito-Santo, H., Jesus, M., & Marques, M. (2014). Traumatic and dissociative experiences in a sample of portuguese patients with schizophrenia and bipolar disorder. *European Psychiatry*, 29(Supl. 1), 1.
- Snow, M. S., & Beckman, D. (1996). Results of the Dissociative Experiences Scale in a jail population (Vol. 9, pp. 98–103). *Dissociation*.
- Somer, E., Altus, L., & Ginzburg, K. (2010). Dissociative psychopathology among opioid use disorder patients: exploring the “chemical dissociation” hypothesis. *Comprehensive Psychiatry*, 51(4), 419–425. doi:10.1016/j.comppsy.2009.09.007
- Spitzer, C., Barnow, S., Grabe, H. J., Klauer, T., Stieglitz, R.-D., Schneider, W., & Freyberger, H. J. (2006). Frequency, clinical and demographic correlates of pathological dissociation in Europe. *Journal of Trauma & Dissociation*, 7(1), 51–62. doi:10.1300/J229v07n01\_05
- Spitzer, C., Dudeck, M., Liss, H., Orlob, S., Gillner, M., & Freyberger, H. J. (2001). Post-traumatic stress disorder in forensic inpatients. *Journal of Forensic Psychiatry & Psychology*, 12(1), 63–77. doi:10.1080/09585180121757
- Spitzer, C., Freyberger, H. J., & Stieglitz, R.-D. (1998). Adaptation and psychometric properties of the German version of the Dissociative Experience Scale. *Journal of Traumatic Stress*, 11(4), 799–809.
- Spitzer, C., Liss, H., Dudeck, M., Orlob, S., Gillner, M., Hamm, A., & Freyberger, H. J. (2003). Dissociative experiences and disorders in forensic inpatients. *International Journal of Law and Psychiatry*, 26(3), 281–288. doi:10.1016/S0160-2527(03)00038-4
- Stefano Ciulla, & Caretti, V. (2012, October 13). Trauma, dissociazione, disregolazione, dipendenza. *Psichiatria E Psicoterapia*. Retrieved October 11, 2014, from <http://www.fioriti.it/riviste/pdf/1/Ciulla.pdf>

- Steinberg, M., Cicchetti, D., & Buchanan, J. (1993). Clinical assessment of dissociative symptoms and disorders: The Structured Clinical Interview for DSM-IV Dissociative Disorders (SCID-D).. *Dissociation*, 6(1), 3–15.
- Stockdale, G. D., Gridley, B. E., Balogh, D. W., & Holtgraves, T. (2002). Confirmatory factor analysis of single and multiple-factor competing models of the Dissociative Experiences Scale in a nonclinical sample. *Assessment*, 9(1), 94–106.  
doi:10.1177/1073191102009001011
- Van IJzendoorn, M. H. (1996). The measurement of dissociation in normal and clinical populations: Meta-analytic validation of the Dissociative Experiences Scale (DES). *Clinical Psychology Review*, 16(5), 365–382.
- Vogel, M., Spitzer, C., Barnow, S., Freyberger, H. J., & Grabe, H. J. (2006). The role of trauma and PTSD-related symptoms for dissociation and psychopathological distress in inpatients with schizophrenia. *Psychopathology*, 39(5), 236–242.  
doi:10.1159/000093924
- Walker, A. (2002). Dissociation in incarcerated juvenile male offenders — a pilot study in Australia. *Psychiatry, Psychology and Law*, 9(1), 56–61. doi:10.1375/pplt.2002.9.1.56
- Watson, D. (2001). Dissociations of the night: Individual differences in sleep-related experiences and their relation to dissociation and schizotypy. *Journal of Abnormal Psychology*, 110(4), 526–535. doi:10.1037/0021-843X.110.4.526
- Xiao, Z., Yan, H., Wang, Z., Zou, Z., Xu, Y., Chen, J., et al. (2006). Trauma and dissociation in China. *The American Journal of Psychiatry*, 163(8), 1388–1391.  
doi:10.1176/appi.ajp.163.8.1388
- Yoshizumi, T., Murase, S., Murakami, T., & Takai, J. (2007). Dissociation as a mediator between perceived parental rearing style and depression in an adult community

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population using college students. *Personality and Individual Differences*, 43(2),  
353–364. doi:10.1016/j.paid.2006.12.010