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Schneiderian First Rank Symptoms Significantly Predict a Dissociative Disorder Diagnosis in Psychiatric In-Patients

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ABSTRACT

Previous empirical studies on the relationship between psychotic symptoms and dissociative disorders focused on auditory hallucinations only or employed limited statistical analyses. We investigated whether the frequency of Schneiderian first rank symptoms (FRS) predicts the presence or absence of a dissociative disorder (DD). Psychiatric in-patients ($n = 116$) completed measures of dissociation, FRS and general psychological distress (GPD). DD diagnoses were confirmed by multidisciplinary teams or administering the Structured Clinical Interview for DSM-IV Dissociative Disorders-Revised (SCID-D-R). The FRS were recorded in the Multidimensional Inventory of Dissociation (MID) and a mean score obtained for 35 relevant items: Voices arguing, voices commenting, made feelings, made impulses, made actions, influences on body, thought withdrawal, and thought insertion. A global severity index (GSI) of GPD was obtained from the Symptom Checklist–90–Revised (SCL-90-R). Logistic regression models examined whether FRS predict diagnostic classification of patients under a DD ($n = 16$) or not ($n = 100$), controlling for GSI. The overall fit of the model was significant ($p = .0002$). DD was correctly classified using frequency of FRS, controlling for GSI. The latter was moderately associated with FRS ($r = 0.56$). FRS more than doubled the odds of a DD diagnosis (odds = 2.089; 95% CI = 1.409–3.098; correct classification rate 87.1%). The study provides convincing evidence that FRS are closely related to DDs. FRS should alert clinicians to consider DDs in differential diagnosis of psychiatric in-patients. Future research should analyze whether FRS also predict a diagnosis of schizophrenia or other psychiatric disorders.

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Introduction

Kurt Schneider's first rank symptoms (FRS) have been widely used in psychiatric diagnostic classification systems to diagnose schizophrenia since the

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late 1970s, and were only recently de-emphasized in the DSM-5 when it became apparent that they lacked specificity for schizophrenia (American Psychiatric Association/APA, 2013; Moskowitz & Heim, 2019). The FRS include voices conversing or arguing, voices commenting on one's behavior, somatic influences, thought insertion, thought withdrawal, thought influences/"made" thoughts, "made" feelings, "made" actions, audible thoughts, thought broadcasting, and delusional perception (Schneider, 1950/1959). Notwithstanding Schneider's consideration of these FRS as pathognomonic of schizophrenia, many of these symptoms have also been observed in patients with dissociative disorders (DDs) (Kluft, 1987).

Schneider conceptualized his FRS as reflecting problems with the "ego-world boundary" in schizophrenia (Moskowitz & Heim, 2019; Moskowitz et al., 2019). Possible reasons why Schneider believed these FRS to be predictive of schizophrenia rather than DDs may have included Schneider's skepticism about the validity of experiences of dissociative identity and the resultant inadvertent misdiagnosis of patients with these experiences in his sample as suffering from schizophrenia (Moskowitz & Heim, 2019).

An overview of the rich historical development of the concepts of dissociation, psychosis and schizophrenia prior to and after Schneider – while forming the extremely relevant background to this study – falls outside of the scope of this article, but the reader is referred to Moskowitz et al. (2019) and Middleton et al. (2019) where many of these historical considerations are eloquently covered.

In empirical attempts to clarify the confusion, the relationship between FRS and dissociative symptoms has been studied in non-clinical participants. Fung et al. (2020) found prominent co-occurrence of dissociative, FRS and borderline personality symptoms in 190 college students. Longden et al. (2020) conducted a meta-analysis at symptom level of 58 non-clinical studies and 46 clinical studies and found that dissociation was associated with hallucinations and other positive psychotic symptoms.

In clinical samples, most research investigating the relationship between DDs and schizophrenia spectrum disorders (SSDs) has focused on symptoms of dissociation in SSDs, whilst fewer studies have investigated the occurrence of psychotic symptoms in DDs (Renard et al., 2017). Renard et al.'s (2017) systematic review concluded that DDs and SSDs shared several similar symptoms, suggesting that the boundaries between these disorders are not so clear cut. A good example is the occurrence of auditory verbal hallucinations, which are common to schizophrenia, posttraumatic and dissociative disorders (Moskowitz et al., 2017). Based on the prevalence and similarity of voice hearing in all these disorders, Moskowitz et al. (2017) suggest that all voices might be dissociative in nature.

FRS or other psychotic symptoms are common in patients diagnosed with dissociative identity disorder (DID), the most severe of the DDs (Ross et al.,

1990b; Şar et al., 1996), and indeed more common and more severe in patients with DID than in patients with schizophrenia (Dorahy et al., 2009; Ellason & Ross, 1995; Laddis & Dell, 2012; Ross et al., 1990a, 1994; Yargiç et al., 1998). Few studies have, however, statistically analyzed the association between FRS and various diagnoses. Some studies have addressed the relationship of individual FRS and various diagnoses.

Dorahy et al. (2009) conducted a backwards likelihood-ratio logistic regression analysis to study voice hearing in patients with DID ($n = 29$) and schizophrenia ($n = 34$ of which 16 had a history of childhood maltreatment and 18 no history of childhood maltreatment). They found that DES-Taxon scores for pathological dissociation significantly predicted certain aspects of auditory hallucinations, especially in the patients with DID (Dorahy et al., 2009).

Nesbit et al. (2022) assessed dissociation as a mediator of the relationship between childhood abuse and hallucinations in patients with DID ($n = 50$) and SSD ($n = 49$). Correlational analyses demonstrated that different dissociative experiences were associated with non-auditory hallucinations in DID and SSD. For patients with DID, the mediators were depersonalization and amnesia, whilst for SSD patients the mediator was absorption.

Shinn et al. (2020) examined the relationship between voice hearing and trauma spectrum disorders in 73 women with posttraumatic stress disorder (PTSD). For these women, voice hearing was not equivalent to the presence of a psychotic disorder (Shinn et al., 2020).

The frequency of FRS has been compared between DID and SSD patients. Ellason and Ross (1995) found that positive symptom and general psychopathology scores were significantly more severe in a DID group than the norms for schizophrenia. Laddis and Dell (2012) used point-biserial correlations and found that DID patients had significantly higher FRS scores than schizophrenia patients. Dorahy et al. (2023) used multivariate analyses of variance to explore similarities and differences in voice hearing experiences, interpretation of voices, and thought disorder symptoms in DID and SSD patients. They found that the DID patients experienced their voices as more internally generated and located, and more derailment, whereas the SSD patients experienced more distress and metaphysical beliefs about their voices, and more incoherence.

In this study, we further consider the relationship between FRS and DD diagnoses. If FRS are as closely related to DDs as these earlier studies suggest, the question arises whether the frequency of FRS would statistically predict the presence or absence of a DD.

Methods

Design

This quantitative study formed a part of a broader mixed methods research project on DDs in psychiatric in-patients (Krüger & Fletcher, 2017). The

objectives of the broader study included identifying clinical factors associated with a DD diagnosis to facilitate screening and clinical recognition of DDs. In this specific two-group cross-sectional comparison study, we investigated whether FRS statistically predict the classification of psychiatric in-patients into those with, and those without a DD.

Setting, study population and sampling

The study population included mixed psychiatric in-patients in a specialized, academic state psychiatric hospital and a regional hospital rendering primary psychiatric care. One-stage cluster sampling was performed in the two hospitals, where consecutive patients admitted as in-patients, and who fulfilled the inclusion and exclusion criteria, were recruited. The inclusion criteria were an age of 18 years or older, and the ability to read and write English sufficiently to complete self-report questionnaires. The exclusion criteria were severe neurological or general medical conditions, or severe psychiatric impairment that precluded the patient's ability to complete self-report questionnaires. The participants were 116 psychiatric in-patients, 58 patients from each hospital.

The 116 psychiatric in-patients had a mean age of 35 years and a female-to-male ratio of 1.27:1. Sixteen patients (13.8%) had DSM-5 DD diagnoses (American Psychiatric Association/APA, 2013): eleven DID; three other specified dissociative disorder (OSDD); one dissociative amnesia with fugue; and one conversion disorder (functional neurological symptom disorder). The 100 non-DD patients' primary psychiatric diagnoses were mood disorders (74%), psychotic disorders (9%), substance-related disorders (9%), personality disorders (4%), cognitive disorders (2%), anxiety disorders (1%), and eating disorders (1%) (Krüger & Fletcher, 2017). In the psychotic disorder subgroup, six patients had so-called functional psychotic disorders, viz., three schizophrenia, one schizoaffective disorder, one schizophreniform disorder, and one delusional disorder. The mental states of the patients with psychotic disorders were all sufficiently clinically stable to allow participation in the study

Instruments and procedures

The Dissociative Experiences Scale (DES) (Carlson & Putnam, 1993) is a well-validated 28-item self-report scale that measures the usual frequency of dissociative experiences. The DES is widely used as the gold standard screening instrument to identify people who might suffer from a DD, and who might benefit from further diagnostic measures.

The Multidimensional Inventory of Dissociation (MID) (Dell, 2006) is a more recent, well-validated, 218-item self-report scale that measures the presence and frequency of dissociative symptoms, and contains validity items. Notwithstanding the MID's additional potential screening value, importantly

the MID enabled us to measure FRS to use that as the predictor variable in the analyses. In the MID, 35 items cover the following eight FRS: voices arguing, voices commenting, made/intrusive feelings, made/intrusive impulses, made/intrusive actions, influences on body, thought withdrawal, and thought insertion. The FRS score was calculated as the mean of the 35 FRS item scores. FRS scores were not used in the screening decision to administer the SCID-D subsequently (see below).

After screening for high dissociators using primarily the DES (which screening was not disputed by the MID), DD diagnoses were confirmed using multidisciplinary clinical team diagnosis (clinical files), discussion with the treating team, additional clinical psychiatric interviews, and administering the Structured Clinical Interview for DSM-IV Dissociative Disorders – Revised (SCID-D-R) (Steinberg, 1994) to high dissociators. The SCID-D-R is the current gold standard diagnostic interview for DDs. The qualitative information yielded by the SCID-D-R distinguishes DDs from other related disorders. As is the practice in the field, the SCID-D-R was not administered to the comparison patients, as their low DES scores already showed that no significant dissociative symptoms were present.

The Symptom Checklist-90-Revised (SCL-90-R) (Derogatis, 1975/1993), which measures a variety of psychiatric symptoms, often yields the highest scores for patients with dissociative disorders (Brand et al., 2013). Its global severity index (GSI) of general psychological distress (GPD) was chosen on theoretical grounds as potential confounding variable for this study.

Extra care during scale administration and checking with participants where necessary obviated the need for subsequently addressing missing data.

Analysis

Logistic regression models examined whether the frequency of FRS predicted the diagnostic classification of all 116 patients under a DD ($n = 16$) or not ($n = 100$). The dependent variable was the binary classification variable (DD or no DD). The reference category was the subgroup without a DD. The predictor variable was the FRS score, while controlling for GPD as represented by the GSI subscale of the SCL-90-R.

Post hoc analysis consisted of a repetition of the model with the 16 patients with a DD versus a matched control sample of 16 patients with no DD. This sensitivity analysis was performed to determine if the larger subgroup of non-DD patients in the total sample distorted the results. The initial matching used the variables age (mean age/median age/SD was 34.3/34/11.1 years for DD patients vs 33.9/33.5/11.0 years for non-DD patients) and sex (female-to-male ratio was 3:1 in both DD patients and non-DD patients). This matching resulted in several plausible matching non-DD patients for most of the DD patients. The best match for each DD patient was subsequently based on the

remaining categorical variables. In the final sample, the DD patients and non-DD patients matched perfectly also with respect to race and participation in spiritual practice; and matched closely with respect to level of education, relationship status and religious affiliation. The primary psychiatric diagnoses of the 16 non-DD patients were as follows: mood disorder ($n = 13$), psychotic disorder ($n = 2$) and cognitive disorder ($n = 1$).

Ethical considerations

Ethical approval was granted by the Research Ethics Committee of the Faculty of Health Sciences, University of Pretoria, including adherence to the national legal requirements (Protocol 121/2012). Written informed consent was obtained from all participants after adequately explaining the study's procedures to them. Questionnaire data were collected anonymously to protect participants' identities.

Results

Table 1 shows the descriptive statistics of FRS and GSI scores in DD patients vs non-DD patients in the complete sample. The statistics for the matched sample were similar. Figures 1 and 2 illustrate the differences in FRS and GSI scores of patients with DD versus patients with other psychiatric disorders. These differences were similar for the complete sample and the matched sample.

In the logistic regression model, frequency of FRS significantly predicted a DD ($p = .0002$), when controlling for GSI. GSI scores were moderately associated with FRS ($r = 0.56$). FRS more than doubled the odds of a DD diagnosis ($p = .0002$; odds = 2.089; 95% CI = 1.409–3.098; correct classification rate 87.1%; sensitivity 37.5%; specificity 95.0%; positive predictive value 54.6%; negative predictive value 90.5%).

The sensitivity analysis, repeating the model with the 16 patients with a DD versus a matched control sample of 16 patients without a DD, yielded similar results ($p = .0002$; odds = 2.195; 95% CI = 1.42–24.53; correct classification rate 75%; sensitivity 81.3%; specificity 68.8%; positive predictive value 72.2%; negative predictive value 78.6%). As anticipated, the confidence interval is narrower in the larger sample and the estimate of the population parameter

Table 1. Descriptive statistics of DD patients ($n = 16$) vs non-DD patients ($n = 100$).

		Mean	SD	Quartile 1	Median	Quartile 3
FRS	Non-DD patients	2.5	2.2	0.4	2.2	4.2
	DD patients	5.6	1.9	4.1	5.7	7.3
GSI	Non-DD patients	65.5	9.1	57.3	66.5	73.0
	DD patients	70.3	6.0	66.8	71.5	75.5

FRS = Schneiderian first rank symptom score.
GSI = Global Severity Index (GSI) score of the Symptom Checklist 90 - Revised (SCL-90-R).

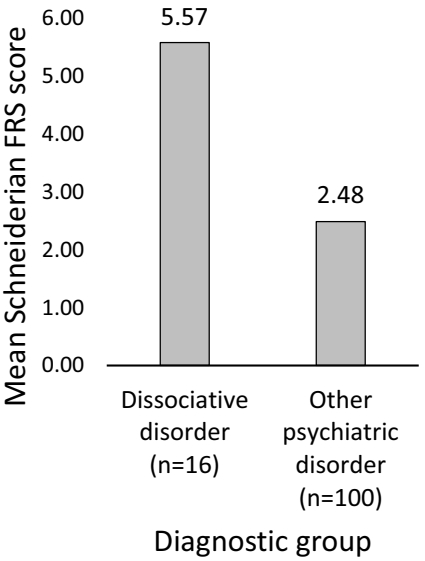

Figure 1. Mean Schneiderian first rank symptom (FRS) score by diagnostic group ($n = 116$).

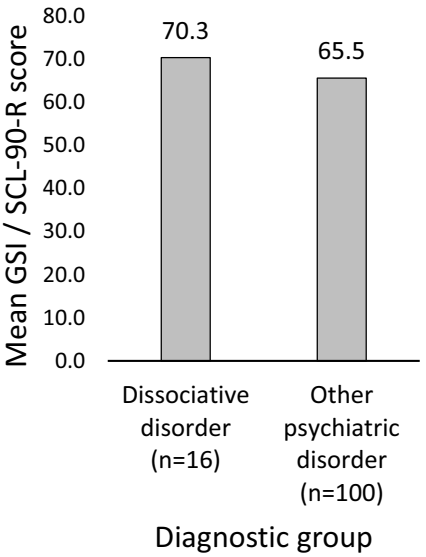

Figure 2. Mean Global Severity Index (GSI) of the Symptom Checklist 90 - Revised (SCL-90-R) score by diagnostic group ($n = 116$).

more precise, whereas the confidence interval is wider in the smaller sample because there is more uncertainty in the estimate.

The sensitivity analysis of the smaller matched sample supports the profile in Table 1 and the results of the second logistic regression agree with that of

the total sample, hence confirming the robustness of our model and our confidence in it.

Discussion

To our knowledge, this is the first study to use logistic regression models to assess the predictive relationship between FRS and a DD diagnosis. This study provides convincing evidence that the eight FRS included in the MID are closely related to DDs. The frequency of FRS statistically significantly predicts the presence of a DD, and more than doubles the odds of a DD diagnosis in psychiatric in-patients in this study. These results make an important original contribution to the relative dearth of studies at the interface of psychosis and DDs (Renard et al., 2017).

We advanced the empirical study of the relationship between FRS and DDs by increasing the rigor of the methodology in several ways. First, we increased the precision of the measurement of FRS by using the MID's eight FRS. We also used a mixed psychiatric sample – the benefits of which have been emphasized by Şar and Öztürk (2019). We also followed rigorous diagnostic procedures to identify patients with DDs. The diagnostic group was then used as an outcome variable, to evaluate the ability of the predictor variable in correctly classifying the outcome, DD.

The downside of the mixed sample approach was that the patients with DDs comprised only 13.8% of the sample. This proportion was similar to international studies (Brand et al., 2016; Dorahy et al., 2014) and confirmed that DDs are not rare. Notably, DDs were more frequent than psychotic disorders or substance-related disorders were in the 100 non-DD patients. However, the fact that the combined heterogeneous comparison cohort was much larger resulted in sparse data for predictive analyses. Although the sparseness in this study constrained statistical analyses and resulted in low statistical power, multivariate analyses still yielded highly significant results and the sensitivity analysis that supported the primary analysis can be trusted. However, the heterogeneity of the comparison cohort and its large proportion of patients diagnosed with mood disorders add to the uncertain generalizability of this study. Replication will be needed with a larger sample of DD-diagnosed patients.

Controlling for the potential confounding effect of global psychiatric symptom severity may have been of limited value, as it does not add anything about the specific relationship of FRS with a DD diagnosis. We also acknowledge the potential confounding of the results by the fact that the MID is both a screening instrument and it was the measure of FRS in this study, which may have contributed inadvertently to subject selection. However, in this

study the screening was done primarily by using the DES; the MID served as the measure of FRS; and FRS scores were not used in the screening decision to do the SCID-D.

It is a limitation that we could not perform similar tests to analyze whether FRS also predict a diagnostic classification of patients as having schizophrenia or other functional psychotic disorders. Given that the participants were all psychiatric in-patients, and there were many patients diagnosed with schizophrenia in both hospitals at the time of data collection, we anticipated that the sample would include more patients with schizophrenia. The low number of schizophrenia patients ($n = 3$) might be explained by our strict inclusion criteria. Patients had to be mentally stable enough to sign written informed consent and to complete self-report scales. Unfortunately, most of the patients with schizophrenia were too impaired to be able to give written informed consent to participate in the study. When we broadened the net in the post-hoc analysis to include all the patients with functional psychotic disorders, we could only identify six patients with functional psychotic disorder in the sample (three with schizophrenia, one with schizoaffective disorder, one with schizophreniform disorder, and one with delusional disorder). Because the odds of belonging to the functional psychotic disorder subgroup was so small, it was unfortunately not possible to use inferential statistics to test for the important possibilities that the frequency of FRS might also statistically predict the presence or not of schizophrenia or related functional psychotic disorders, or that FRS might be a better predictor of DDs than of functional psychotic disorders, or that FRS might distinguish patients with DDs from those with functional psychotic disorders.

It needs to be emphasized that "prediction" in this study refers to statistical prediction only. The interpretation thereof is that patients with a DD are more likely than patients with other psychiatric disorders to self-report those FRS that are represented in the MID.

Importantly, the results of this study cannot be generalized to the FRS that were not included. The MID only includes these eight FRS: voices arguing, voices commenting, made/intrusive feelings, made/intrusive impulses, made/intrusive actions, influences on body, thought withdrawal, and thought insertion. The MID does not include these three under FRS: audible thoughts, thought broadcasting, and delusional perception. Whereas the first eight FRS have been found to be common in patients with DDs, the last three FRS are not common in patients with DDs (Kluft, 1987).

To the question whether these results can be interpreted as that psychosis predicts DDs, the answer is no. The three FRS of audible thoughts, thought broadcasting, and delusional perception were not assessed in this study. At least the last of these three, delusional perception, may arguably be a clearer indicator of psychosis than the other eight FRS. The eight FRS that were included are no longer considered pathognomonic of psychotic disorders

(American Psychiatric Association/APA, 2013). Also, none of the 16 patients with DDs was clinically psychotic. The results of this study do not suggest a close link, nor conflation between psychosis and DDs.

Rather, the close statistical relationship between FRS and DDs in this study supports the notion that these eight FRS are often or mainly dissociative in nature (Moskowitz & Heim, 2019; Moskowitz et al., 2017). Our study lends further support for the notion that the eight FRS as included in the MID may represent a sub-set of dissociative symptoms that are more likely to be self-reported by patients with a DD diagnosis than by patients with other psychiatric disorders.

Our results should be interpreted cautiously in the light of the shortfalls related to the categorical DSM-5 diagnoses. Using a dimensional model or network structure model might have yielded different interpretations (Renard et al., 2017). Şar and Öztürk (2019) present an alternative interaction/duality model to explain the complex comorbidity between two distinct but concurrent disorders – an intersection of psychopathological spectra. The duality model assumes that the interaction between the two psychopathologies may differ depending on whether dissociation is a defense against, or a risk factor for, or a response to a schizophrenic disorder.

We recommend that the presence of FRS should alert clinicians to consider DDs in the differential diagnosis of psychiatric in-patients. Moreover, future editions of the DSM should consider the close relationship between FRS and DDs.

In future studies, more data might be collected to increase sample size. Future research should be designed to allow statistical analysis of whether FRS may also predict a diagnostic classification of patients under schizophrenia or other functional psychotic disorders, or not. Similar analyses might explore whether FRS also predict mood or other psychiatric disorders to check if the results found in this study are indeed unique to the DDs (Humpston et al., 2020; Rosen et al., 2011). This study should also ideally be replicated using the new SCID-D interview (Steinberg, 2023).

Conclusions

This study provides convincing evidence that FRS are closely related to DDs. FRS statistically significantly predict the presence of a DD, and more than double the odds of a DD diagnosis in psychiatric in-patients. The rigorous methodology used strengthens these results. We recommend that the presence of FRS should alert clinicians to consider DDs in the differential diagnosis of psychiatric in-patients. Future editions of the DSM should consider the close relationship between FRS and DDs. Future research should be designed to allow statistical analysis of whether FRS may also predict diagnoses of

schizophrenia or other psychiatric disorders. This study should also ideally be replicated using the new SCID-D interview.

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Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Statement of contribution

The first author was responsible for formulating the problem, structuring the experimental design, collecting data, interpreting the results, and writing the paper. The second author was responsible for organizing and conducting the statistical analysis, interpreting the results, and contributing to revisions of the paper.

References

American Psychiatric Association/APA. (2013). *Diagnostic and Statistical Manual of Mental Disorders*. 5th ed. (DSM-5).

Brand, B. L., McNary, S. W., Myrick, A. C., Classen, C. C., Lanius, R., Loewenstein, R. J., Pain, C., & Putnam, F. W. (2013). A longitudinal naturalistic study of patients with dissociative disorders treated by community clinicians. *Psychological Trauma: Theory, Research, Practice, & Policy*, *5*(4), 301–308. https://doi.org/10.1037/a0027654

Brand, B. L., Sar, V., Stavropoulos, P., Krüger, C., Korzekwa, M., Martinez-Taboas, A., & Middleton, W. (2016). Separating fact from fiction: An empirical examination of six myths about dissociative identity disorder. *Harvard Review of Psychiatry*, *24*(4), 257–270. https://doi.org/10.1097/HRP.0000000000000100

Carlson, E. B., & Putnam, F. W. (1993). An update on the dissociative experiences scale. *Dissociation*, *VI*(1), 16–27.

Dell, P. F. (2006). The multidimensional inventory of dissociation (MID): A comprehensive measure of pathological dissociation. *Journal of Trauma & Dissociation*, *7*(2), 77–106. https://doi.org/10.1300/J229v07n02_06

Derogatis, L. R. (1975/1993). *SCL-90-R: Symptom checklist-90-R*. National Computer Systems, Inc.

Dorahy, M. J., Brand, B. L., Şar, V., Krüger, C., Stavropoulos, P., Martínez-Taboas, A., Lewis-Fernández, R., & Middleton, W. (2014). Dissociative identity disorder: An empirical overview. *Australian and New Zealand Journal of Psychiatry*, *48*(5), 402–417. https://doi.org/10.1177/0004867414527523

Dorahy, M. J., Nesbit, A., Palmer, R., Wiltshire, B., Cording, J. R., Hanna, D., Seager, L., & Middleton, W. (2023). A comparison between auditory hallucinations, interpretation of voices, and formal thought disorder in dissociative identity disorder and schizophrenia spectrum disorders. *Journal of Clinical Psychology*, *79*(9), 2009–2022. https://doi.org/10.1002/jclp.23522

Dorahy, M. J., Shannon, C., Seagar, L., Corr, M., Stewart, K., Hanna, D., Mulholland, C., & Middleton, W. (2009). Auditory hallucinations in dissociative identity disorder and schizophrenia with and without a childhood trauma history: Similarities and differences. *The Journal of Nervous and Mental Disease*, *197*(12), 892–898. https://doi.org/10.1097/NMD.0b013e3181c299ea

Ellason, J. W., & Ross, C. A. (1995). Positive and negative symptoms in dissociative identity disorder and schizophrenia: A comparative analysis. *The Journal of Nervous and Mental Disease*, *183*(4), 236–241. https://doi.org/10.1097/00005053-199504000-00009

Fung, H. W., Ling, H. W.-H., Ross, C. A., Tse, J. W.-L., & Liu, R. K. W. (2020). Dissociative, schneiderian and borderline personality symptoms in a non-clinical sample in Hong Kong: A preliminary report. *European Journal of Trauma & Dissociation*, *4*(1), 100076. https://doi.org/10.1016/j.ejtd.2018.07.004

Humpston, C., Harrow, M., & Rosen, C. (2020). Behind the opaque curtain: A 20-year longitudinal study of dissociative and first-rank symptoms in schizophrenia-spectrum psychoses, other psychoses and non-psychotic disorders. *Schizophrenia Research*, *223*, 319–326. https://doi.org/10.1016/j.schres.2020.07.019

Kluft, R. P. (1987). First-rank symptoms as a diagnostic clue to multiple personality disorder. *American Journal of Psychiatry*, *144*(3), 293–298.

Krüger, C., & Fletcher, L. (2017). Predicting a dissociative disorder from type of childhood maltreatment and abuser–abused relational tie. *Journal of Trauma & Dissociation*, *18*(3), 356–372. https://doi.org/10.1080/15299732.2017.1295420

Laddis, A., & Dell, P. F. (2012). Dissociation and psychosis in dissociative identity disorder and schizophrenia. *Journal of Trauma & Dissociation*, *13*(4), 397–413. https://doi.org/10.1080/15299732.2012.664967

Longden, E., Branitsky, A., Moskowitz, A., Berry, K., Bucci, S., & Varese, F. (2020). The relationship between dissociation and symptoms of psychosis: A meta-analysis. *Schizophrenia Bulletin*, *46*(5), 1104–1113. https://doi.org/10.1093/schbul/sbaa037

Middleton, W., Dorahy, M. J., & Moskowitz, A. (2019). Historical conceptions of dissociative and psychotic disorders: From Mesmer to the twentieth century. In A. Moskowitz, M. J. Dorahy, & I. Schäfer (Eds.), *Psychosis, trauma and dissociation: Evolving perspectives on severe psychopathology* (2nd ed., pp. 31–42). Wiley Blackwell.

Moskowitz, A., & Heim, G. (2019). The role of dissociation in the historical concept of schizophrenia. In A. Moskowitz, M. J. Dorahy, & I. Schäfer (Eds.), *Psychosis, trauma and dissociation: Evolving perspectives on severe psychopathology* (2nd ed., pp. 55–67). Wiley Blackwell.

Moskowitz, A., Heinimaa, M., & Van der Hart, O. (2019). Defining psychosis, trauma, and dissociation: Historical and contemporary conceptions. In A. Moskowitz, M. J. Dorahy, & I. Schäfer (Eds.), *Psychosis, trauma and dissociation: Evolving perspectives on severe psychopathology* (2nd ed., pp. 9–29). Wiley Blackwell.

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. https://doi.org/10.1016/j.ejtd.2017.01.003

Nesbit, A., Dorahy, M. J., Palmer, R., Middleton, W., Seager, L., & Hanna, D. (2022). Dissociation as a mediator between childhood abuse and hallucinations: An exploratory investigation using dissociative identity disorder and schizophrenia spectrum disorders. *Journal of Trauma & Dissociation*, *23*(5), 521–538. https://doi.org/10.1080/15299732.2022.2064579

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. https://doi.org/10.1093/schbul/sbw063

Rosen, C., Grossman, L. S., Harrow, M., Bonner-Jackson, A., & Faull, R. (2011). Diagnostic and prognostic significance of Schneiderian first-rank symptoms: A 20-year longitudinal study of schizophrenia and bipolar disorder. *Comprehensive Psychiatry*, *52*(2), 126–131. https://doi.org/10.1016/j.comppsych.2010.06.005

Ross, C. A., Anderson, G., & Clark, P. (1994). Childhood abuse and the positive symptoms of schizophrenia. *Hospital and Community Psychiatry*, *45*(5), 489–491. https://doi.org/10.1176/ps.45.5.489

Ross, C. A., Miller, S. D., Reagor, P., Bjornson, L., Fraser, G. A., & Anderson, G. (1990a). Schneiderian symptoms in multiple personality disorder and schizophrenia. *Comprehensive Psychiatry*, *31*(2), 111–118. https://doi.org/10.1016/0010-440X(90)90014-J

Ross, C. A., Miller, S. D., Reagor, P., Bjornson, L., Fraser, G. A., & Anderson, G. (1990b). Structured interview data on 102 cases of multiple personality disorder from four centers. *The American Journal of Psychiatry*, *147*(5), 596–601.

Şar, V., & Öztürk, E. (2019). Psychotic symptoms in dissociative disorders. In A. Moskowitz, M. J. Dorahy, & I. Schafer (Eds.), *Psychosis, trauma and dissociation: Evolving perspectives on severe psychopathology* (2nd ed., pp. 195–206). Wiley Blackwell.

Şar, V., Yargic, L. I., & Tutkun, H. (1996). Structured interview data on 35 cases of dissociative identity disorder in Turkey. *The American Journal of Psychiatry*, *153*(10), 1329–1333.

Schneider, K. (1950/1959). *Clinical psychopathology* (5th ed.). Grune and Stratton.

Shinn, A. K., Wolff, J. D., Hwang, M., Lebois, L. A. M., Robinson, M. A., Winternitz, S. R., Öngür, D., Ressler, K. J., & Kaufman, M. L. (2020). Assessing voice hearing in trauma spectrum disorders: A comparison of two measures and a review of the literature. *Frontiers in Psychiatry*, *10*, 1011. https://doi.org/10.3389/fpsyt.2019.01011

Steinberg, M. (1994). *Structured clinical interview for DSM-IV dissociative disorders – revised (SCID-D-R)*. American Psychiatric Press.

Steinberg, M. (2023). *The SCID-D interview: Dissociation assessment in therapy, forensics and research*. American Psychiatric Press.

Yargiç, L. I., Şar, V., Tutkun, H., & Alyanak, B. (1998). Comparison of dissociative identity disorder with other diagnostic groups using a structured interview in Turkey. *Comprehensive Psychiatry*, *39*(6), 345–351. https://doi.org/10.1016/S0010-440X(98)90046-3