TECHNICAL COMMENTARY

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Dissociation

Introduction

Dissociation is described as disruption or discontinuity in the normal integration of consciousness, memory, identity, emotion, perception, body representation, motor control, or behaviour. Common dissociative experiences include mild forms of absorption, such as daydreaming. Less common and more severe dissociative experiences include amnesia, derealisation, depersonalisation, and fragmentation of identity. Dissociative features may play a role in the pathology of schizophrenia.

Method

We have included only systematic reviews with detailed literature search, methodology, and inclusion/exclusion criteria that were published in full text, in English, from the year 2000. Reviews were identified by searching the databases MEDLINE, EMBASE, and PsycINFO. Reviews with pooled data are prioritized for inclusion. Reviews reporting fewer than 50% of items on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA[1]) checklist have been excluded from the library. The evidence was graded guided by the Grading of Recommendations Assessment, Development and Evaluation (GRADE) Working Group approach[2]. The resulting table represents an objective summary of the available evidence, although the conclusions are solely the opinion of staff of NeuRA (Neuroscience Research Australia).

Results

We found four systematic reviews that met our inclusion criteria[3-6].

- Moderate to high quality evidence finds more dissociation in people with schizophrenia than in controls.
- Moderate quality evidence finds a medium-sized association between childhood adversity and dissociation.
- Moderate to low quality evidence finds less dissociation in people with schizophrenia than people with dissociative disorders, post-traumatic stress disorder, borderline personality disorder, or conversion disorder.
- Moderate to high quality evidence finds a medium to strong association between increased dissociation and increased psychotic symptoms.

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Longden E, Branitsky A, Moskowitz A, Berry K, Bucci S, Varese F

The relationship between dissociation and symptoms of psychosis: A meta-analysis

Schizophrenia Bulletin 2020; 46: 1104-13

View review abstract online

Comparison	**Association between psychotic symptoms and dissociation symptoms.** **Some studies included nonclinical samples.**
Summary of evidence	**Moderate to high quality evidence (large sample, inconsistent, precise, direct) finds a medium to strong association between increased dissociation and increased psychotic symptoms.**
Dissociation **Measured on the Dissociative Experiences Scale (DES)**	
A medium to strong association between increased dissociation and increased psychotic symptoms; 93 studies, N = 20,436, r = 0.44, 95%CI 0.39 to 0.49, $p < 0.05$, I^2 = 97% Subgroup analysis indicated a stronger association in nonclinical than clinical samples (r = 0.47 vs. r = 0.39). The associations were slightly stronger for hallucinations (r = 0.46), paranoia (r = 0.45), and delusions (r = 0.42) than for disorganisation symptoms (r = 0.35). The association was slightly stronger for absorption (r = 0.46) than for depersonalisation/derealisation (r = 0.40) or amnesia (r = 0.36).	
Consistency in results‡	Inconsistent
Precision in results§	Precise
Directness of results‖	Direct

Lyssenko L, Schmahl C, Bockhacker L, Vonderlin R, Bohus M, Kleindienst N

Dissociation in Psychiatric Disorders: A Meta-Analysis of Studies Using the Dissociative Experiences Scale

American Journal of Psychiatry 2018; 175: 37-46

View review abstract online

Comparison	**Dissociation scores in people with schizophrenia vs. people with other disorders.**
Summary of evidence	**Moderate to low quality evidence (inconsistent, unable to assess precision, direct, medium to large sample) suggests less dissociation in people with schizophrenia than people with dissociative disorders, posttraumatic stress disorder, borderline personality disorder, or conversion disorder. Similar dissociation scores were found in people with schizophrenia and people with somatic symptom disorder, substance-related and addictive disorders, eating disorders, and affective disorders.**
Dissociation **Measured on the Dissociative Experiences Scale (DES)**	
Mean DES scores in people with schizophrenia; 17 studies, N = 594, DES = 17.8, 95%CI 15.6 to 20.2, I^2 = 80% Authors report that the largest dissociation scores were found in dissociative disorders (mean scores ~0.35), followed by posttraumatic stress disorder, borderline personality disorder, and conversion disorder (mean scores ~0.25). Somatic symptom disorder, substance-related and addictive disorders, eating disorders, and affective disorders showed similar mean dissociation scores to schizophrenia (~0.15).	
Consistency in results	Inconsistent
Precision in results	Unable to assess; not a standardised mean
Directness of results	Direct

O'Driscoll C, Laing J, Mason O

Cognitive emotion regulation strategies, alexithymia and dissociation in schizophrenia, a review and meta-analysis

Clinical Psychology Review 2014; 34: 482-495

View review abstract online

Comparison	**Dissociation in people with schizophrenia vs. controls.**
Summary of evidence	**Moderate to high quality evidence (consistent, precise, direct, medium to large samples) suggests a large effect of more dissociation in people with schizophrenia than in controls.**

Dissociation Measured on the Dissociative Experiences Scale (DES)	
A significant, large effect of more dissociation in people with schizophrenia than controls; Dissociation: 7 studies, N = 767, *g* = -0.86, 95%CI -1.13 to -0.60, *p* < 0.00001, I^2 = 50%, *p* = 0.06 Dissociation subscales Amnesia: 4 studies, N = 545, *g* = -0.73, 95%CI -1.03 to -0.44, *p* < 0.05, I^2 = 36 Absorption: 5 studies, N = 587, *g* = -0.70, 95%CI -1.03 to -0.37, *p* < 0.05, I^2 = 54 Depersonalisation / derealisation: 4 studies, N = 545, *g* = -0.95, 95%CI -1.19 to -0.72, *p* < 0.05, I^2 = 0%	
Consistency in results	Consistent
Precision in results	Precise
Directness of results	Direct

Rafiq S, Campodonico C, Varese F

The relationship between childhood adversities and dissociation in severe mental illness: a meta-analytic review

Acta Psychiatrica Scandinavica 2018; 138: 509-25

View review abstract online

Comparison	**Dissociation in people with schizophrenia.**
Summary of evidence	**Moderate quality evidence (unclear sample size, inconsistent, precise, direct) finds a medium-sized association between increased childhood adversity scores and increased dissociation scores.**
Childhood adversities and dissociation **Measured on the Childhood Trauma Questionnaire and the Dissociative Experiences Scale**	
A significant, medium-sized association between increased childhood adversity scores and increased dissociation scores; 20 studies, N not reported, *r* = 0.39, 95%CI 0.31 to 0.46, *p* < 0.001, I^2 = 64%, *p* < 0.001 Subgroup analyses found all types of childhood adversity were associated with higher dissociation, apart from neglect, although there were few studies in that analysis.	
Consistency in results	Inconsistent

Precision in results	Precise
Directness of results	Direct

Explanation of acronyms

CI = confidence interval, *g* = Hedges g, standardised mean difference, I^2 = the percentage of the variability in effect estimates that is due to heterogeneity rather than sampling error (chance), N = number of participants, *p* = statistical probability of obtaining that result ($p < 0.05$ generally regarded as significant), *r* = correlation coefficient, vs. = versus

Explanation of technical terms

* Bias has the potential to affect reviews of both RCT and observational studies. Forms of bias include; publication bias - trials that are not formally published tend to show less effect than published trials, further if there are statistically significant differences between groups in a trial, these trial results tend to get published before those of trials without significant differences; language bias – only including English language reports; funding bias - source of funding for the primary research with selective reporting of results within primary studies; outcome variable selection bias; database bias - including reports from some databases and not others; citation bias - preferential citation of authors. Trials can also be subject to bias when evaluators are not blind to treatment condition and selection bias of participants if trial samples are small[7].

† Different effect measures are reported by different reviews.

Correlation coefficients (eg, r) indicate the strength of association or relationship between variables. They are an indication of prediction, but do not confirm causality due to possible and often unforseen confounding variables. An r of 0.10 represents a weak association, 0.25 a medium association and 0.40 and over represents a strong association. Unstandardised (*b*) regression coefficients indicate the average change in the dependent variable associated with a 1 unit change in the independent variable, statistically controlling for the other independent variables. Standardised regression coefficients represent the change being in units of standard deviations to allow comparison across different scales.

Weighted mean difference scores refer to mean differences between treatment and comparison groups after treatment (or occasionally pre to post treatment) and in a randomised trial there is an assumption that both groups are comparable on this measure prior to treatment. Standardised mean differences are divided by the pooled standard deviation (or the standard deviation of one group when groups are homogenous) that allows results from different scales to be combined and compared. Each study's mean difference is then given a weighting depending on the size of the sample and the variability in the data. 0.2 represents a small effect, 0.5 a medium effect, and 0.8 and over represents a large effect[7].

Odds ratio (OR) or relative risk (RR) refers to the probability of a reduction (< 1) or an increase (> 1) in a particular outcome in a treatment group, or a group exposed to a risk factor, relative to the comparison group. For example, a RR of 0.75 translates to a reduction in risk of an outcome of 25% relative to those not receiving the treatment or not exposed to the risk factor. Conversely, a RR of 1.25 translates to an increased risk of 25% relative to those not receiving treatment or not having been exposed to a risk factor. A RR or OR of 1.00 means there is no difference between groups. A medium effect is considered if RR > 2 or < 0.5 and a large effect if RR > 5 or < 0.2[8]. lnOR stands for logarithmic OR where a lnOR of 0 shows no difference between groups. Hazard ratios measure the effect of an explanatory variable on the hazard or risk of an event.

Prevalence refers to how many existing cases there are at a particular point in time. Incidence refers to how many new cases there are per population in a specified time period. Incidence is usually reported as the number of new cases per 100,000 people per year. Alternatively some studies present the number of new cases that have accumulated over several years against a person-years denominator. This denominator is the sum of individual units of time that the persons in the

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population are at risk of becoming a case. It takes into account the size of the underlying population sample and its age structure over the duration of observation.

Reliability and validity refers to how accurate the instrument is. Sensitivity is the proportion of actual positives that are correctly identified (100% sensitivity = correct identification of all actual positives) and specificity is the proportion of negatives that are correctly identified (100% specificity = not identifying anyone as positive if they are truly not).

‡ Inconsistency refers to differing estimates of effect across studies (i.e. heterogeneity or variability in results) that is not explained by subgroup analyses and therefore reduces confidence in the effect estimate. I^2 is the percentage of the variability in effect estimates that is due to heterogeneity rather than sampling error (chance) - 0% to 40%: heterogeneity might not be important, 30% to 60%: may represent moderate heterogeneity, 50% to 90%: may be considerable heterogeneity and over this is considerable heterogeneity. I^2 can be calculated from Q (chi-square) for the test of heterogeneity with the following formula[7];

$$I^2 = \left(\frac{Q - df}{Q}\right) \times 100\%$$

§ Imprecision refers to wide confidence intervals indicating a lack of confidence in the effect estimate. Based on GRADE recommendations, a result for continuous data (standardised mean differences, not weighted mean differences) is considered imprecise if the upper or lower confidence limit crosses an effect size of 0.5 in either direction, and for binary and correlation data, an effect size of 0.25. GRADE also recommends downgrading the evidence when sample size is smaller than 300 (for binary data) and 400 (for continuous data), although for some topics, these criteria should be relaxed[9].

‖ Indirectness of comparison occurs when a comparison of intervention A versus B is not available but A was compared with C and B was compared with C that allows indirect comparisons of the magnitude of effect of A versus B. Indirectness of population, comparator and/or outcome can also occur when the available evidence regarding a particular population, intervention, comparator, or outcome is not available and is therefore inferred from available evidence. These inferred treatment effect sizes are of lower quality than those gained from head-to-head comparisons of A and B

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