Psychological Interventions for

Functional Neurological Disorders (FND):

Meta-Analyses & Future Directions

# Introduction

* **Functional Dissociative Seizures (FDS):** can be conceptualised as an involuntary response to internal or external triggers associated with dysfunctional emotion regulation. These are also at times referred to as non-epileptic seizures or non-epileptic attacks.
* **Treatment:** Psychological interventions, such as Cognitive Behavioural Therapy (CBT), Psychodynamic psychotherapy and Acceptance and Commitment Therapy (ACT), are the most commonly recommended treatments for adults presenting with FDS.
* Although a range of trials have been published in this area, there is still uncertainty regarding:

1. How effective psychological treatments are for FDS
2. What treatment conditions are most conducive to treatment effectiveness (i.e., group vs individual therapy, the use of different therapeutic modalities)
3. Who is more likely to benefit from therapy
4. How durable clinical improvements are following treatment completion
5. Which outcome measures are most sensitive to treatment-related change (i.e., seizure-related outcomes vs non-seizure related outcomes).

We set out to address these questions via a systematic review of the evidence and a series of meta-analytic analyses.

# Methods

* Our reviews (Gaskell et al., 2023; Gaskell et al., 2024) followed PRISMA guidelines for systematic reviews and meta-analyses.
* A systematic search of four electronic databases (CINAHL, PsychINFO, Medline, and Cochrane Reviews) to identify relevant articles in February 2022, with a repeat search in 2023 to allow for additional analyses.
* Studies must have included adults with FDS receiving any form of psychological therapy and where self-reported outcome measures were administered to measure treatment effectiveness.
* Risk of Bias (RoB) was assessed using the Cochrane Collaboration tool for assessing risk of bias (ROB-2).
* The quality of evidence was further assessed using the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) approach.
* All analyses were conducted in R using the metafor [@metafor] package.

# Results

* Data from up to 1300 individuals with FDS across 44 studies were analysed.
* Data points for 171 non-seizure related and 135 seizure-related outcomes were analysed.
* Seizure frequency was the commonest outcome measure; however, there is great variation in how this is measured.
* Most studies were catergorised as “high” or “medium” risk of bias.
* Meta-analyses were judged to be “low” quality based on GRADE criteria.
* None of the included moderators were significant for seizure frequency; for non-seizure related outcomes, the focus of the measure (e.g., measure of functioning vs HRQoL; Fig 1) and type of treatment significantly moderated the outcome.
* Treatments with a behavioural focus were associated with greater outcomes, although the number of trials were limited. Age, gender, RoB or interventions characteristics (delivery format, delivery setting or treatment length) were not significant moderators.
* Psychological interventions appear to be most effective for the reduction, as opposed to cessation, of seizure frequency.
* On the group level, treatment was associated with an improvement of 6.5 seizures per month.

# Implications

* A reduction rather than cessation of FDS frequency is more likely following psychological therapy; these seem important goals to differentiate when counselling patients about the expected response to treatment.
* The heterogeneity of outcomes and reporting detail limits the type of analyses we were able to perform.
* Research is required to identify how best to standardise methods, in particular the examination and reporting of seizure measurements.

# Conclusions

* This body of work represents the most comprehensive review of the data collected investigating psychological interventions for FDS.
* Findings suggest psychological treatments are associated with improvements in seizure-related and non-seizure-related outcomes.
* While several moderator analyses could be performed, these findings should be interpreted with caution recognising the limited amount of data that could be included and the observational nature of analyses.
* While there is a considerable number of trials, the variability in research methodologies and the reporting of findings hindered some attempts at collating the results.
* Further research on the most appropriate measure to capture treatment-related change in people with FDS is needed.