Neuropsychiatric Correlates of Delusional Misidentification Syndromes: A Meta-Analysis

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Introduction

Delusional misidentification is a **complex, rare delusion** in which patients believe that the identity of a person, object, or location has been **duplicated, altered or replaced**[1].

Several misidentification syndromes have been described based on the **subject of the delusion** and the **degree of perceived familiarity. Capgras syndrome** is the most widely recognised of these, in which a patient believes that an individual(s) who is well-known to them has been replaced by an imposter.

Previous research has identified **neuropsychiatric correlates** of specific misidentification syndromes[2], as well variation in clinical presentation based on the aetiology of the syndrome[3]. However, no study has sought to examine all types of misidentifications and their underlying pathoaetiology collectively.

Aim

The investigate the **clinical, neuropsychological, and neuroanatomical** features of delusional misidentification syndromes in patients with a primary and secondary psychosis.

References

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Methodology

A **systematic review** and **patient-level meta-analysis** of published cases of delusional misidentification syndromes was conducted. PubMed, PsychINFO, Medline, Embase, and Global Health were searched.

Demographic characteristics, diagnosis, neuropsychiatric features, cognitive ability, neuroimaging, and treatment information were extracted. Cases were classified based on the **aetiology of psychosis** (either primary psychiatric disorder or secondary to an underlying medical cause such as neurodegeneration or traumatic brain injury).

Chi-square tests were used to compare the frequency of each feature and delusion type across the two aetiologies, and **odds ratios (OR)** were calculated.

Results

A total of **422 cases** were identified (214 females, 50.7%; median age 44 years), comprising Capgras Delusion (n=258), Fregoli Syndrome (n=93), Reduplicative Paramnesia (n=45), Intermetamorphosis (n=12), Mirror-Self Delusion (n=10), and the Delusion of Subjective Doubles (n=4). Delusions were attributed to a secondary psychosis in 190 cases (45%) (Figure 1A).

Patients with secondary psychosis were significantly less likely to experience misidentification delusions involving people but were **significantly more likely to misidentify places** than those with primary psychosis (OR=0.79, p<.001).

Cognitive impairment was significantly more frequent in secondary psychosis (OR=2.99, p<.001), most frequently affecting **memory** and **executive functioning** (Figure 2A). Conversely, they were less likely to report additional neuropsychiatric symptoms, including **hallucinations** and **affective change** (p<.001) (Figure 2B).

Neuroimaging abnormalities were overall **significantly more frequent** in those with secondary psychosis (83.4%, p<.001), although **bilateral involvement** was more common in those with primary psychosis (65.0%, p=.04) (Figure 2C).

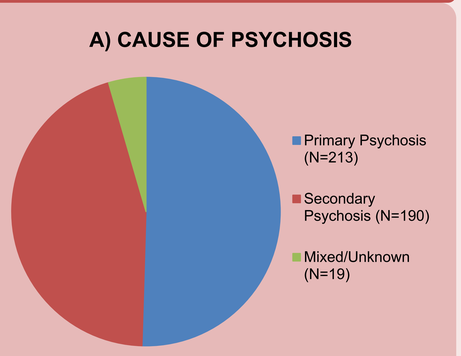

Figure 1. Frequencies of the underlying cause of psychosis leading to delusional misidentification. A) Aetiology of published cases of delusional misidentification, B) Proportion of misidentification syndromes across aetiologies

Clinical Features of Misidentification

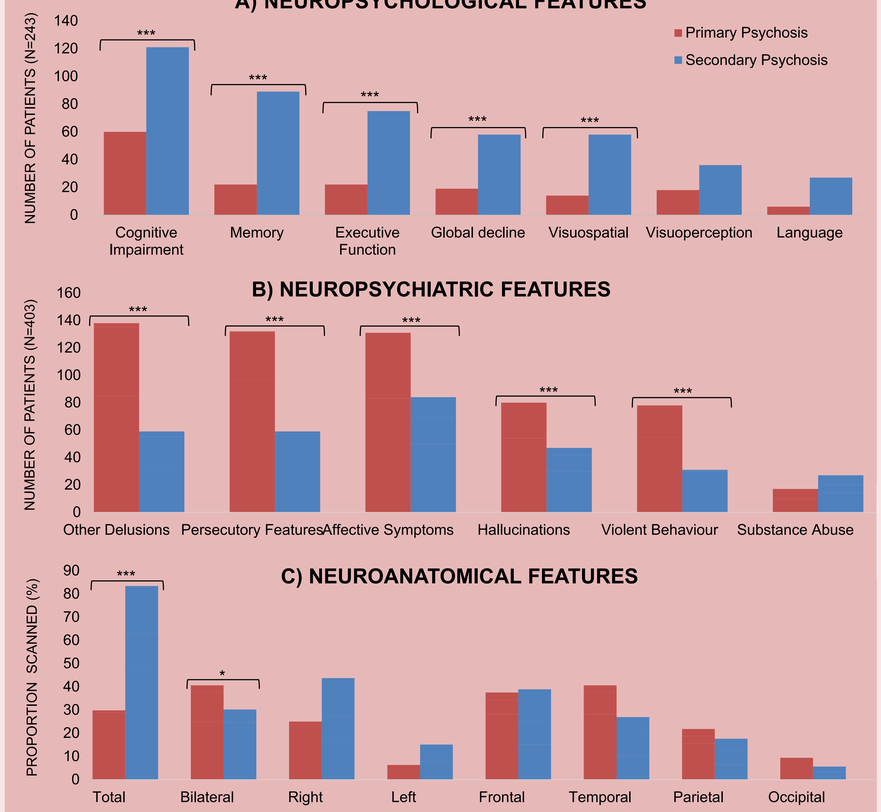

Figure 2. Number of patients presenting with clinical features in each aetiological group. A) Frequency of cognitive impairment in each domain reported in those with underwent neuropsychological testing, B) Frequency of additional psychiatric symptoms, C) Proportion of patients who underwent neuroimaging in each group presenting with neuroimaging abnormalities

** p < 0.05, ** p < 0.01, *** p < 0.001*

Conclusions

In the largest study investigating delusional misidentification syndromes to date, differences in neuropsychiatric presentation were observed based on aetiology. Findings further our understating of the clinical profile of delusional misidentification syndromes secondary to an underlying medical cause which may ultimately lead to advances in earlier detection and treatment.

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