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Review

'Jumping to conclusions' data-gathering bias in psychosis and other psychiatric disorders — Two meta-analyses of comparisons between patients and healthy individuals

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HIGHLIGHTS

- Forty six studies on jumping-to-conclusions bias were included in two meta-analyses.
- Patients with psychosis had a hastier data-gathering style than healthy controls.
- JTC is consistently evident in psychotic groups with varied symptom profiles.
- JTC was not evident in non-psychotic psychiatric disorders after removing outliers.
- No significant effect of JTC was found in depression.

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ABSTRACT

There has been an increase in attention to studying shared mechanisms underlying psychiatric disorders. The 'Jumping to conclusions' (JTC[1]) bias, a tendency to make decisions with certainty based on insufficient information, has been reported in patients with psychosis, and process-based treatment protocols targeting this bias have recently been developed. This review aimed to investigate to what extent the JTC bias, measured by various tasks, is associated with psychotic disorders and other psychiatric disorders using a meta-analytic approach.
We examined 6864 articles published between 1990 and 2015, and meta-analysed 46 studies. The first meta-analysis included 40 effect sizes comparing patients with schizophrenia spectrum or other psychotic disorders and healthy controls. There was a hastier data-gathering style in patients with psychosis than healthy individuals, with a moderate aggregated effect size. The second meta-analysis included 18 effect sizes comparing patients with non-psychotic disorders and healthy controls. There was marked heterogeneity in effect sizes and evidence for publication bias. After removal of outliers, the aggregated effect size for JTC was not statistically significant. A planned subgroup analysis showed no significant effect of JTC in depression. Other diagnostic subgroups yielded small non-significant results. Therefore, our findings do not support the suggestion that JTC is a transdiagnostic phenomenon beyond psychosis.

Contents

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[1] JTC = Jumping to conclusions.

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1. Introduction

There have been recent calls for an approach to study, conceptualise, and treat psychiatric disorders according to the similarities and differences of their underlying mechanisms (Barlow, Allen, & Choate, 2004; Mansell, Harvey, Watkins, & Shafran, 2008; Wigman et al., 2015). While a transdiagnostic approach to research and intervention has shown promise in advancing our understanding of psychopathology, researchers have emphasised the importance of empirical work that investigates (i) the extent to which a maladaptive phenomenon is specific to one disorder, one symptom within a disorder, or relevant across disorders; (ii) how the phenomenon relates to the phenotypical features of the disorders; and (iii) whether the phenomenon is a consequence or antecedent of the disorders (Eaton, Rodriguez-Seijas, Carragher, & Krueger, 2015; Goschke, 2014; McManus, Shafran, & Cooper, 2010).

Dysfunctions in decision-making are cardinal features in a range of mental disorders, including psychosis, addiction, eating disorders, depression, and anxiety disorders (Wittchen et al., 2011). Individuals with substance dependence, attention-deficit hyperactivity disorder, or other impulse-control problems have been found to be impulsive and unreflective in their judgements and decisions. Ersche et al. (2012) and Garavan and Hester (2007) proposed that these individuals tend to use a Type 1 (as opposed to a Type 2) thinking style more often. According to the dual-process theory of reasoning, the Type 1 system refers to associative, effortless, heuristic, and suboptimal processes (Evans, 1989, 2006; Sloman, 1996). These processes are assumed to be experiential and foster intuitive judgments (Epstein, 1994; Hammond, 1996). The Type 2 system refers to the rule-based, conscious, effortful, analytic, and controlled processes of reasoning (Hammond, 1996; Sloman, 1996). These processes are assumed to be rational and characterize deliberative judgments (Epstein, 1994). There remain debates about the terminology of the two systems and whether the two systems are distinct and competitive (Kruglanski & Gigerenzer, 2011).

Kahneman and Frederick (2005) and Evans (2008) suggested that the fast Type 1 reasoning processes cue default intuitive judgements, which are endorsed by the analytic Type 2 system. When the Type 2 high-effort deliberative thinking intervenes, the biased and heuristic-based response can be inhibited and replaced with reflective reasoning. Applying this theory to paranoia, Freeman, Evans, and Lister (2012) and Freeman, Lister, and Evans (2014) hypothesised that "paranoid fears may be partly driven by rapid gut feeling intuitions that are not then kept in check by the application of effortful logical reasoning" (Freeman et al., 2014, p. 454). There is preliminary evidence supporting the link between sub-clinical paranoid ideas and reduced Type 2 thinking (Freeman et al., 2012), and that some evidence may be perceived as hypersalient by patients with delusions, leading to faster and heuristic-based decisions (Speechley, Murray, McKay, Munz, & Ngan, 2010). Garety et al. (2015) argued that reasoning training for delusions may take effect by helping patients to inhibit Type 1 reasoning and to engage more in Type 2 reasoning.

The Jumping to conclusions bias (JTC) is a tendency to make decisions with certainty based on insufficient information. Reviews have suggested that JTC is particularly associated with delusions (Fine, Gardner, Craigie, & Gold, 2007; Garety & Freeman, 2013; So, Garety, Peters, & Kapur, 2010). Garety and Freeman (2013) posited that JTC, together with other processes including limited belief flexibility and anxiety, contributes to delusion formation and maintenance, as individuals