Review

Biogenetic explanations and stigma: A meta-analytic review of associations among laypeople

Erlend P. Kvaale [a,*], William H. Gottdiener [b], Nick Haslam [a]

[a] Melbourne School of Psychological Sciences, University of Melbourne, Parkville, Australia
[b] Department of Psychology, John Jay College of Criminal Justice of the City University of New York, New York, USA

A B S T R A C T

The stigma and social rejection faced by people with a mental disorder constitute a major barrier to their well-being and recovery. Medicalization has been welcomed as a strategy to reduce blame and stigma, although critics have cautioned that attributing mental disorders to biogenetic causes may have unintended side effects that could exacerbate prejudice and rejection. The present study presents a quantitative synthesis of the literature on relationships between biogenetic explanations for mental disorders and three key elements of stigma, namely blame, perceptions of dangerousness, and social distance. A comprehensive search yielded 25 studies meeting the inclusion criteria. Separate meta-analyses ($Ns = 4278–23,816$) were conducted for the three stigma types, and assessed the consistency of effects across subgroups of studies involving different types of biogenetic explanations, mental disorders, and samples. We found that people who hold biogenetic explanations for mental disorders tend to blame affected persons less for their problems ($r = -0.19$), but perceive them as more dangerous ($r = 0.09$) and desire more distance from them ($r = 0.05$). The negative association with blame was significant for schizophrenia, belief in genetic causation, and in student samples. The positive association with dangerousness was significant for all disorders, belief in general biogenetic causation, and in community samples. The positive association with social distance was significant for schizophrenia, beliefs in neurochemical and general biogenetic causation, and in community samples. Nevertheless, across all analyses, biogenetic explanations were only weakly related to stigma. We conclude that biogenetic explanations for mental disorders confer mixed blessings for stigma.

© 2013 Elsevier Ltd. All rights reserved.

Introduction

Society is undergoing a process of medicalization. Suffering and deviance are increasingly defined as disease-like entities with biological and genetic (biogenetic) causes. This process can be discerned in the growing media coverage of psychiatric neuroscience (Racine, Waldman, Rosenberg, & Illes, 2010), in the proliferation and expansion of diagnostic categories (Conrad & Potter, 2000; Scott, 1990), in the efforts to align public understanding of mental disorders with medical professionals (Jorm, 2000; Watson et al., 2004), and in the rising public acceptance of biogenetic explanations for mental disorders (Schomerus et al., 2012). From the viewpoint of reducing the stigma of mental disorders, medicalization has often been considered a positive process, prompting

anti-stigma initiatives to describe schizophrenia as an 'illness' that 'affects the normal functioning of the brain' (SANE Australia, 2012), and depression as 'a biological, medical illness' (National Alliance on Mental Illness, 2012).

Stigma can be a barrier to help-seeking (Barney, Griffiths, Jorm, & Christensen, 2006; Christiana et al., 2000; Corrigan & Rüsch, 2002; Mojtabai, 2010), makes employment and accommodation harder to find (Alisky & Iczkowski, 1990; Bordieri & Drehmer, 1986; Brohan et al., 2012; Page, 1977, 1995; Thornicroft, Brohan, Rose, Sartorius, & Leese, 2009), is associated with loss of interpersonal contacts and roles (Cechnicki, Angermeyer, & Bielanska, 2011; Schulze & Angermeyer, 2003; Thornicroft et al., 2009), and can lead to hopelessness about recovery and symptom exaggeration (Livingston & Boyd, 2010). Stigma represents a chronic challenge to emotional well-being and self-esteem (Livingston & Boyd, 2010; Richman & Leary, 2009; Wright, Gronfein, & Owens, 2000) that is perhaps as detrimental to the individual as the mental disorder itself (Corrigan & Penn, 1999). The hope that medicalization of mental disorders would alleviate stigma rests on the assumption

* Corresponding author. Melbourne School of Psychological Sciences, Redmond Barry Building, University of Melbourne, Victoria 3010, Australia. Tel.: +61 3 8344 6377; fax: +61 3 9347 6618.
E-mail address: e.kvaale@student.unimelb.edu.au (E.P. Kvaale).

that awareness of the biogenetic causes of these conditions may discourage the perception that the people experiencing them are to blame for their difficulties (Corrigan et al., 2000; Johnson, 1989; Weiner, 1995; Weiner, Perry, & Magnusson, 1988).

There is, however, little evidence that medicalization has reduced stigma. A recent review of population trends concluded that the rising popularity of biogenetic explanations has not translated into greater public acceptance of people with mental disorders (Schomerus et al., 2012). Critics have also cautioned that popularizing biogenetic explanations may have unintended side effects that could exacerbate stigma (Haslam, 2000; Phelan, 2002; Read, Haslam, Sayce, & Davies, 2006). Stigma is a multifaceted phenomenon that comprises not only blame, but also negative stereotypes, a tendency to separate 'us' from 'them', and various forms of social exclusion and discrimination (Hinshaw, 2007; Link & Phelan, 2001; Link, Yang, Phelan, & Collins, 2004). Biogenetic understandings of mental disorders may reduce the public's tendency to blame at the cost of aggravating negative stereotypes, pessimism about recovery, and desire for distance and separation (Haslam, 2011) – concerns sometimes voiced by people with mental disorders themselves (Easter, 2012; Laegsgaard, Stamp, Hall, & Mors, 2010; Schreiber & Hartrick, 2002).

There is a substantial, growing body of research on the associations between biogenetic explanations and components of stigma, which has generated mixed findings and led previous qualitative reviews to reach diverging conclusions. One review defined stigma broadly as negative attitudes and concluded that biogenetic explanations were positively related to stigma (Read et al., 2006). A second review defined stigma as social distance and highlighted the heterogeneity in findings, suggesting that different types of biogenetic explanations relate differently to stigma (Jorm & Oh, 2009). A third review defined stigma as social distance and concluded that biogenetic explanations were positively associated with stigma toward people with schizophrenia, but not necessarily other disorders (Angermeyer, Holzinger, Carta, & Schomerus, 2011). A fourth review focused on perceptions of dangerousness and suggested that biogenetic explanations increase this component of stigma (Jorm, Reavley, & Ross, 2012). Together, these reviews suggest that (1) stigma is a multifaceted construct that must be analyzed in its specific components, (2) biogenetic explanations form a heterogeneous albeit related group of explanation types comprising hereditary mechanisms, neurochemical mechanisms and other forms of biological mechanisms, which may relate differently to the various facets of stigma, and (3) biogenetic explanations may influence stigmatizing attitudes differently depending on the type of mental disorder they are provided for.

Qualitative reviews are liable to bias in the synthesis of heterogeneous findings and cannot estimate the strength of uncovered relationships – a crucial step for interpreting the implications of a body of research (Rosenthal & DiMatteo, 2001). Thus, there is a pressing need for a quantitative review to synthesize our knowledge on how biogenetic explanations relate to different elements of stigma. The present study is the first meta-analytic investigation of this question. It aims to elucidate the relationships between biogenetic causal beliefs and three core aspects of stigma (blame, perceiving people with mental disorders as dangerous/unpredictable, and desire for social distance). Although these aspects of stigma are interrelated (e.g., Corrigan, Green, Lundin, Kubiak, & Penn, 2001) they are typically distinguished in the literature and may have distinctive associations with different explanation types. This study also aims to evaluate potential reasons for the heterogeneous findings in the literature, including studies focusing on different types of biogenetic causal beliefs, different types of mental disorders, and drawing participants from different populations.

Method

Search strategy

A comprehensive search for relevant articles was conducted via PsycINFO, Medline and PubMed searches with the subject terms 'stigma' or 'social distance', coupled with 'biogenetic', 'biological', or 'genetic' (see Fig. 1). The searches covered the period from inception of databases until 1st of October 2011. Additional articles were obtained by manual inspection of reference lists and reversed citation searches for previous qualitative reviews. All articles were screened for relevance by the first author who read their abstracts. Articles identified as potentially relevant were carefully examined for eligibility by the first and third author. The inclusion criteria were as follows: Articles had to (1) be published in a peer-reviewed journal, (2) be written in English or German, (3) report correlational relationship(s) between endorsement of biogenetic explanations and stigma in the context of mental illness, (4) use one or more of the three relevant stigma definitions ('social distance'; 'blame/responsibility/anger'; 'perceived dangerousness/unpredictability/fear'), (5) include enough information to calculate or estimate effect sizes, and (6) include a predominantly lay sample (i.e., not professionals, patients, or family members). Studies using professional, patient, and family participants were excluded to increase the homogeneity of the research to be reviewed. Studies that looked at correlations between stigma and other types of causal explanations (psychological, social, spiritual) were included as long as they also reported associations between biogenetic explanations and stigma, whilst studies that only measured a belief that mental disorders are medical conditions were excluded, as this belief does not pertain directly to causality.

Data extraction and coding

The studies often reported findings from more than one sample. Therefore, the initial coding was conducted on the level of each sample from which associations between biogenetic explanations and stigma were reported. The coding was conducted by the first and third author. Disagreements between the two authors were resolved by consensus until 100% agreement was reached.

Each sample was coded according to a pre-defined protocol that specified sample-level and effect-size level coding categories, as suggested by Lipsey and Wilson (2001). The samples were coded for: year published and source of sample (community or student population). Within each sample, all correlations (or statistics enabling calculation or estimation of correlations) between biogenetic explanations and stigma were extracted. These effect sizes were coded for type of biogenetic explanation ('genes/heredity', 'brain disorder/chemical imbalance', 'general biogenetic explanation'), type of mental disorder ('schizophrenia', 'depression', 'other mental illness') and type of stigma measure ('social distance', 'blame/anger/responsibility', 'perceived dangerousness/fear/unpredictability').

The coding categories were developed a priori. The sample-level coding categories were designed to test whether the relationships between biogenetic causal beliefs and stigma are consistent across student and general population samples. The effect-size level codes were based on propositions that types of disorders (Angermeyer et al., 2011) and types of biogenetic explanations (Jorm & Oh, 2009) moderate the relationship between biogenetic causal beliefs and stigma.

Dar-Nimrod and Heine (2011a) suggested that genetic explanations may have different effects on attitudes than neurochemical ones, prompting us to distinguish between genetic and neurochemical types of explanations. The 'general biogenetic explanation'