The Relationship between Biogenetic Causal Explanations and Social Distance toward People with Mental Disorders: Results from a Population Survey in Germany

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ABSTRACT

Aims: Several studies have found an inverse relationship between people’s readiness to endorse biogenetic causal explanations of mental disorder and their desire for social distance from people with mental disorders. The aim of this study is to examine why this may be the case.

Method: In the spring of 2001, a population survey was carried out among German citizens aged 18 years and older, living in private households. A total of 5025 interviews were conducted, reflecting a response rate of 65.1%. At the beginning of the personal, fully structured interview, respondents were presented with a vignette containing a diagnostically unlabelled psychiatric case history, either depicting a case of schizophrenia or major depressive disorder. Using five-point Likert scales, causal attributions as well as perceived dangerousness, fear and the desire for social distance were assessed.

Results: The more respondents endorse a brain disease as a cause, the more dangerous they believe the person with schizophrenia or major depression to be. Respondents who perceive the individual in the vignette as being dangerous express a higher degree of fear and a greater preference for social distance from these individuals. As compared with brain disease, the relationships between heredity and perceived dangerousness are less pronounced for both disorders.

Conclusions: Our analysis showed that endorsing biogenetic explanations decreases the likelihood of social acceptance of people with schizophrenia and major depression. Rejecting behavioural responses in the form of social distance desired from people with schizophrenia and major depression result from cognitive emotional processes in which biogenetic causal attributions are linked to lack of self-control, unpredictability and dangerousness, which, in turn, are associated with fear of these people.

INTRODUCTION

Numerous programmes have been initiated around the world to de-stigmatise people with mental disorders. Apart from promulgating the ‘mental illness is an illness like any other’
concept, emphasis has been put on presenting a disease of the central nervous system as the cause of mental disorders. The National Alliance for the Mentally Ill (NAMI), for instance, states that ‘schizophrenia is a disorder of the brain, caused by problems with brain chemistry and brain structure’; the World Psychiatric Association anti-stigma initiative ‘Open the Doors’ defines schizophrenia as ‘a brain disorder that affects the chemistry, structure and function of the brain’. Theoretical backup for positive outcomes of promulgating biogenetic causes is provided by attribution theory (Corrigan et al., 2000): If the causes are attributed to factors outside the control of individuals, people’s reactions will be less negative. Consequently, attributing the development of schizophrenia to biogenetic causes will be negatively related to people’s tendency to reject people with schizophrenia. Furthermore, anti-stigma initiatives say that biogenetic explanations will not only help to reduce stigmatization by the public, but will also help reduce also self-stigmatisation and courtesy stigma (stigma perceived and experienced by those caring for people with mental illness) (Angermeyer et al., 2003). By promulgating biogenetic causal explanations, the blame for the disorder is not only taken away from the patients (i.e. the disorder is not because of their character flaws) but also from the parents and families (i.e. the disorder is not caused by bad parenting). This way, some of the stigma connected with the disorder is reduced. Moreover, it is argued that blame and anger are decreased, while pity, sympathy and willingness to help will increase.

Several studies, however, have given empirical evidence for negative effects of biogenetic causal explanations. Phelan et al. (2002) point out that such explanations decrease hopefulness that the problem can be corrected with appropriate help, and increase the belief that other family members will be affected by the same problem. The studies of Read and Law (1999) and Read and Harré (2001) show that biogenetic causal beliefs are related to negative attitudes, including perceptions that ‘mental patients’ are dangerous, antisocial and unpredictable. They maintain that if people think that the disorder is caused by faulty brain functioning, the person with mental health problems will be perceived as not being responsible for his/her actions and as someone who cannot control his/her actions (i.e. lacking in self-control), making this person unpredictable. As a consequence, fear and the need to severely, even harshly, control this unpredictability are increased. Walker and Read (2002), who evaluated the differential effects of biogenetic and psychosocial explanations, found that the former significantly increased perceptions of dangerousness and unpredictability.

Most arguments against promulgating biogenetic causal explanations are centred around controllability and unpredictability and are based on findings taken from surveys among students. Our aim is to test – based on a population sample and based on Corrigan and Watson’s stigma model (2002) – the specific hypothesis that endorsing biogenetic causes increases the likelihood that people with schizophrenia and major depression will be considered as lacking in self-control, thus being unpredictable and dangerous, and, as a result, will experience social distance. To test this hypothesis, we will examine the following relationships in more detail:

Endorsing biogenetic causes is positively associated with the idea of lack of self-control, unpredictability and dangerousness.

These, in turn, are positively associated with fear.

Fear is positively associated with the desire for social distance.
METHOD

In the spring of 2001, a population survey was carried out among German citizens aged 18 years and older, living in private households. A total of 5025 interviews were conducted, reflecting a response rate of 65.1%. The survey was carried out by USUMA, an institute that specialises in market, opinion and social research.

Sample
The sample was drawn using a three-stage random sampling procedure, with electoral wards at the first stage, households at the second and individuals in the target households at the third stage. Target households within the sample points were determined using the random route procedure (Hoffmeyer-Zlotnik, 1997) – i.e. a household was selected randomly as a starting point from where the interviewers followed a set route through the area. Target persons were selected according to random digits. With regard to the major sociodemographic characteristics, the sample was comparable to the whole of the German population aged 18 years and older in 2000 (Table 1).

Interview
A personal, fully structured interview was used. No pre-testing of the interview was necessary because it had already been used in previous surveys (Angermeyer & Matschinger, 1997). Prior to the interviewing process, the respondents gave verbal consent to complete the interview. The respondents were told that the interview enquires about problems people can have and about recommendations as to how these problems might be solved. At the beginning of the interview, respondents were presented with a vignette containing a diagnostically unlabelled psychiatric case history, depicting either a case of schizophrenia or major depressive disorder. The symptoms described in the vignettes fulfilled the criteria of DSM-III-R for the respective disorder. Before the vignettes were used in the surveys, five psychiatrists or psychologists, all experts on psychopathology, did blind diagnostic allocations, with the result that all experts provided the correct diagnoses for the case histories.

Causal attributions
Respondents’ attributions of the causes of the disorders depicted in the vignettes were assessed by responses to eight items, with two items each reflecting either ‘psychosocial stress’ (acute: life event, chronic: stress at work), ‘biogenetic causes’ (brain disease, heredity), ‘conditions of socialisation’ (broken home, lack of parental affection) or ‘causes the individuals can influence themselves’ (lack of willpower, immoral lifestyle). Using a five-point Likert scale ranging from ‘definitely no cause’ (response category 1) to ‘definitely a cause’ (category 5), respondents should indicate how relevant they considered each potential cause to be. Of these four main etiological categories, only biogenetic causes will be the subject of this article.

Perceived dangerousness
Drawing on previous findings of stigma research (Angermeyer & Siara, 1994), a list of nine personal attributes was generated. Respondents were asked to indicate, with the help of a five-point Likert scale ranging from ‘definitely true’ (code 1) to ‘definitely not true’ (code 5),
to what extent these attributes apply to the person depicted in the vignette. Principal component factor analysis with varimax rotation yielded two dimensions:

- Perceived dangerousness (eigenvalue 4.1; explained variance 45.8%), comprising the three following attributes which are of interest for our study: dangerous (factor loading 0.83), lack of self-control (0.81), and unpredictable (0.77). In addition, this factor includes the attributes aggressive (0.82), frightening (0.77) and strange (0.63).

- Perceived dependency (eigenvalue 1.4; explained variance 15.5%), comprising the attributes dependent on others (factor loading 0.76), helpless (0.71) and needy (0.67).

In this study, only the perceived dangerousness scale was used. Scoring was reversed to facilitate interpretation. Hence, high scores represent the endorsement of dangerousness. The internal consistency of the measure was very good (Cronbach’s alpha = 0.88).

### Table 1

<table>
<thead>
<tr>
<th>Sociodemographic characteristics of the population samples</th>
<th>Survey 2001 unweighted data</th>
<th>Survey 2001 weighted data</th>
<th>German population 2000</th>
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<td></td>
<td>N</td>
<td>(%)</td>
<td>N</td>
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<td>Gender</td>
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<td>2411</td>
</tr>
<tr>
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<td>2826</td>
<td>(56.2)</td>
<td>2614</td>
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<td>(10.5)</td>
<td>484</td>
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<tr>
<td>25–34</td>
<td>869</td>
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<td>870</td>
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<td>1048</td>
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</table>

### Educational attainment

- Pupil                                                   | 13   | (0.3)  | 12   | (0.3)  | 120,000      |
- No school completed                                     | 183  | (3.8)  | 179  | (3.8)  | 1,267,000    |
- Hauptschule (9 years of school completed)               | 2149 | (45.2) | 2205 | (46.2) | 30,043,000   |
- Realschule/POS (10 years of school completed)           | 1547 | (32.5) | 1539 | (32.3) | 16,801,000   |
- Fachhochschulreife/Abitur (technical college of higher education/A-levels) | 862  | (18.1) | 833  | (17.5) | 12,863,000   |

### Marital status

- Married                                                 | 2766 | (55.2) | 2757 | (55.0) |
- Divorced                                                | 448  | (8.9)  | 427  | (8.7)  |
- Widowed                                                 | 551  | (11.0) | 580  | (11.6) |
- Single                                                  | 1244 | (24.8) | 1235 | (24.7) |

- 37,865,414                                              | 17,978,778 | (9.2) |
- 5,014,180                                               | (56.5) | (26.8) |
- 6,200,518                                               | (7.5)  |
Fear
According to previous research (Angermeyer & Matschinger, 1997; Corrigan, 2000), three types of emotional reactions to people with mental disorder can be distinguished: fear, pity and anger. A list of 12 five-point Likert-scaled items (1 = definitely the case, 5 = definitely not the case), representing these three ways to respond to individuals with mental disorder, was used to assess respondents’ emotional reactions to the person described in the vignette. Principal component factor analysis with varimax rotation yielded the following three dimensions, which correspond closely to the theoretically derived types of reaction. They are virtually identical to the dimensions identified in a previous study (Angermeyer and Matschinger, 1997):

- **fear** (eigenvalue 3.9; explained variance 32.5%) – uneasiness (factor loading 0.85), feelings of insecurity (0.77), embarrassment (0.52);
- **pity** (eigenvalue 1.9; explained variance 16.1%) – desire to help (factor loading 0.79), empathy (0.78), pity (0.66);
- **anger** (eigenvalue 1.3; explained variance 10.6%) – ridicule (factor loading 0.77), anger (0.74), irritation (0.74), lack of understanding (0.63).

In this study, only the scale measuring fear was used. Scoring was reversed to facilitate interpretation. Hence, high scores represent the tendency to react with fear. The internal consistency of the scale was found to be satisfactory (Cronbach’s alpha = 0.79).

Social distance
Respondents’ desire for social distance was assessed using a scale developed by Link (Link et al., 1987), a modified version of the Bogardus Social Distance Scale (Bogardus, 1925). The scale includes seven items representing the following social relationships to the respondent: landlord, co-worker, neighbour, member of the same social circle, personal job broker, in-law, and childcare provider. Using a five-point Likert scale ranging from ‘in any case’ (1) to ‘in no case at all’ (5), the respondents could indicate to what extent they would, in the situation presented, accept the person described in the vignette. These seven items were subjected to a non-linear principal component analysis (Gifi, 1990) which provides so-called optimal scores for both the item categories and for each observation. Optimal scores for the categories are computed in such a way as to maximise the internal consistency of the instrument, thereby maximising the correlation of each item with the vector of the object scores. The first factor derived from the principal component analysis has an eigenvalue of 3.99. All other factors have eigenvalues below 0.40, indicating the uni-dimensionality of the scale. The object score of the first axis is used as an indicator for social distance. High scores indicate a desire for greater social distance. The reliability of the scale, assessed by means of Cronbach’s alpha, is 0.90.

Statistical analysis
In order to examine the relationship between the two causal attributions and the three attitudinal components (perceived dangerousness, fear, social distance), path models were computed as saturated linear regression models with manifest variables, fully recursive and without any restrictions. The models were determined separately for individuals responding
to the schizophrenia ($n = 2359$) and the major depression ($n = 2416$) vignette, controlling for the effect of gender, age and educational attainment.

**RESULTS**

Figures 1 and 2 show the relationships between causal attributions, perceived dangerousness, fear and social distance for schizophrenia and major depression. As had been expected, there is a positive relationship between endorsing a brain disease as the cause of schizophrenia and the perception of dangerousness. The more respondents endorse this causal explanation, the more dangerous they believe the person to be. Furthermore, a strong relationship exists between dangerousness and fear; and fear is positively associated with social distance. Respondents who perceive the individual in the vignette as being dangerous express a higher degree of fear, which, in turn, is associated with a greater preference for social distance. Apart from this, there is a direct relationship between the perception of dangerousness and the desire for social distance. The same applies to the relationship between brain disease and fear, although this relationship is weaker. However, respondents who think that a brain disease is the cause of schizophrenia are more likely to react with fear. Finally, the direct path from brain disease to social distance is even weaker. The link between endorsing hereditary factors as a cause and the perception of dangerousness and fear is very weak. The relationship with social distance failed to reach statistical significance.

In the path model for major depression, a strong positive association is apparent between endorsing brain disease as a cause and the perception of dangerousness. The idea of increased dangerousness is linked with higher social distance in two ways: on the one hand, there is a direct relationship, on the other, it is transported via the strong increase of fear of this person. The relationship between hereditary factors and perceived dangerousness is also weaker in this path model. Finally, there is no statistically significant direct path between the two causal factors and social distance.

![Figure 1. The relationships between causal attributions and attitude towards people with schizophrenia (standardised path coefficients)](image-url)
Our findings support the hypothesis that endorsing biogenetic causes, particularly seeing a brain disease as the cause, increases the likelihood that people with schizophrenia and major depression will be considered as individuals who are lacking in self-control, and who are unpredictable and dangerous, which is positively associated with fear. This, in turn, is linked with an increased desire for social distance.

The inverse relationship between endorsing biogenetic causes and the desire for social distance is an illustration of Merton’s law of unanticipated consequences of purposeful social action (Merton, 1936). At first glance, it seems quite plausible that increasing the public’s mental health literacy by teaching them about the state of the art of psychiatric research will lead to a better understanding of and to a more accepting attitude toward the mentally ill. However, as we have shown in our study, the contrary might be the case. Our analysis showed that endorsing biogenetic explanations decreases the likelihood of social acceptance of people with schizophrenia and major depression. Rejecting behavioural responses, in the form of social distance desired from people with schizophrenia and major depression, result from cognitive emotional processes in which biogenetic causal attributions are linked with lack of self-control, unpredictability and dangerousness, which, in turn, are associated with fear of these people. Our findings raise concern that biogenetic concepts might not contribute to the desire to reduce social distance to people with mental illness. On the contrary, this might even have a counterproductive effect.

The model presented has more explanatory power for schizophrenia than for major depression. This might reflect the greater importance of biogenetic factors for the aetiology of schizophrenia. However, with both, only a relatively small amount of variance can be explained. This indicates that other mechanisms are also at work. For example, the image that emerges from the press coverage of mental illness is dominated by information suggesting a strong association between mental disorders and crime, particularly violent crime. This selective reporting affects public attitudes, further reinforcing existing stereotypes (Angermeyer & Schulze, 2001).
Among the two biogenetic causes, brain disease is more closely associated with the idea of lack of self-control than heredity. Here, the perception of uncontrollability might not be as strong as for brain disease. Programmes that are aimed at reducing the stigma associated with schizophrenia and major depression should therefore put more emphasis on therapeutic actions aimed at controlling the presumably uncontrollable. Efforts should be made to enlighten the public about the advances of modern psychiatry with respect to the treatment of mental disorders.

The limitations of this study should be mentioned. First, as in most other population surveys on public attitudes, the response rate did not exceed 65%. This raises the question of representativeness of our findings. Unfortunately, no data are available on non-responders that would allow us to assess their similarities with or differences from responders. All we can say is that with regard to the major sociodemographic characteristics, our sample is quite comparable to the overall German population of the same age range. Second, the effect of biogenetic causal explanations on social distance cannot be seen in terms of causal relationships because our study has a cross-sectional design. Third, because our study was based in Germany, the results cannot be generalised in global terms. Moreover, psychiatric traditions in Germany differ from those of other countries. It would be interesting to find out whether the results would be similar in other countries with disparate traditions of psychiatry.

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REFERENCES


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