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The implications for the biological and sociodynamic causal explanations of attitudes toward alcohol-dependent patients

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ABSTRACT

This study tested whether sole neurobiological or sociodynamic explanations of alcohol dependence altered respondents' attitudes toward alcohol-dependent patients. We investigated the effect of information leaflets on 444 participants: one group received an information leaflet with a biological explanation of AD; the other received a leaflet with a sole sociodynamic explanation of AD. A third, control group did not receive any leaflet. Afterwards, all three groups completed a questionnaire regarding their attitudes toward ADPs and their opinions of the underlying causes of AD. We found a significant group difference with regard to participants' agreement with a neurobiological explanation of AD. Moreover, respondents in the neurobiological intervention group considered the characteristics of ADP to be significantly more positive than those in the sociodynamic group. Furthermore, they were significantly less likely to accept AD as a self-inflicted disease. Correlation analysis revealed associations between accepting the sociodynamic disease model and all of the stigmatization dimensions tested in our questionnaire. In summary, stigmatization toward ADP was closely associated with the agreement with sociodynamic origins of AD in this study.

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1. Background

Although Alcohol Dependence (AD) is a disease with both environmental and biological causal factors, public opinion varies widely regarding the origins of AD. In general, AD is widely accepted as a “controllable condition” characterized by an “instrumental rationality” (Pickard, 2011), rather than considered as a disease. Studies have consistently shown that Alcohol Dependent Patients (ADPs) provoke more social rejection and more negative emotions than those who suffer from psychiatric diseases that are distinct from AD (Schomerus et al., 2011). The origins of this strong stigmatization toward ADPs have been frequently identified with regard to the attribution of responsibility and self-infliction explanations of alcohol consumption: the so-called “attribution theory” states that an association exists between the notion that a condition is “controllable” and the attribution of responsibility for

Abbreviations: AD, alcohol dependence; ADP, alcohol-dependent patient; MD, mean difference; S.D., standard deviation; NB-G, neurobiological group; SD-G, sociodynamic group; CO-G, control group

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that condition (e.g., psychiatric diseases are the patients' faults; (Angermeyer et al., 2011; Read and Harré, 2001; Weiner, 1988)). For example, Weiner (1988) reported that physical disabilities (e.g., blindness) were perceived as uncontrollable and therefore elicited pity rather than blame. Surveys have consistently shown a high acceptance rate (up to 60 percent) regarding whether AD is a self-inflicted condition but much lower rates have been found regarding whether other psychiatric diseases such as eating disorders (34 percent agreement), depression, panic attacks or, schizophrenia (4–13 percent agreement) are self-inflicted (Crisp et al., 2005; Crisp et al., 2000).

Several studies (Crisafulli et al., 2008; Lincoln et al., 2008) have tested the central hypothesis of the attribution theory: advocating the neurobiological origins of psychiatric diseases (thereby stressing uncontrollability and guiltlessness) engenders attitudes toward psychiatric diseases in line with attitudes toward somatic diseases (Boyle et al., 2009). Although the results do not support the general reduction of stigmatization toward patients who suffer from psychiatric diseases, advocating for a biogenetic explanation model partially supports the reduction of moral censure hypothesis (by disrupting the association between self-infliction and psychiatric disease) for patients who suffer from psychiatric diseases such as schizophrenia (Lincoln et al., 2008) and anorexia nervosa (Crisafulli et al., 2008).

Our study sought to determine the degree to which the attitudes toward ADPs are affected by the support of neurobiological and sociodynamic models of AD. In particular, we tested the effects of neurobiological versus sociodynamic explanations of AD with regard to the following dimensions:

- (1) Agreement with *neurobiological origins* (supporting an intervention effect).
- (2) Agreement with *sociodynamic origins* (supporting an intervention effect).
- (3) Evaluation of ADP *characteristics*.
- (4) Agreement with AD *self-infliction*.
- (5) Agreement with ADP *heteronomy* with regard to self-treatment.
- (6) Estimation of a *poor therapeutic prognosis* with regard to AD.

2. Methods

The current investigation was conducted in accordance with the Declaration of Helsinki and approved by the Ethics Committee of the Medical School of Hannover.

2.1. Participants

A total of 444 people (312 women and 125 men) participated in this study. Participants were recruited at the Medical School of Hannover and the University of Hildesheim, Germany. Table 1 provides an overview of the study population.

The survey was completed before the beginning of classes and during a monthly staff orientation at each university. All participants were informed of the study goals of the questionnaire. They were instructed to first read the portion regarding the development of AD and then answer all of the questions spontaneously and honestly. No additional information was provided.

2.2. Questionnaire

The questionnaire, including the portion on the development of AD, was adapted from Crisafulli et al. (2008) who investigated the effect of disease models on the attitudes of nursing students toward patients with anorexia. We designed two information leaflets by adapting the structure of Crisafulli and colleagues' original leaflet. The leaflets provided background information that suggested either neurobiological or sociodynamic causes of AD. The diagnostic criteria of AD according to the ICD-10 were at the top of the survey, followed by citations of studies regarding the neurobiological (or sociodynamic) causes of AD.

We altered the original study by Crisafulli et al. (2008) by adding a control group (CO-G) who answered the questionnaire without information regarding the origins of AD. This protocol allowed us to evaluate the effect of the two leaflets on general attitudes toward ADPs. Participants were randomly assigned to one of three groups:

- (a) Participants assigned to the NB-G received information that explained AD as a neurobiological condition based on the biological characteristics of the central nervous system.
- (b) Participants assigned to the SD-G received information that explained AD as a consequence of sociodynamic factors such as lifestyle, drinking habits within one's family and peer group, the availability of alcohol, and acquired personality traits.
- (c) Participants assigned to the CO-G did not receive prior information regarding the origins of AD.

Table 1

Participant demographics by group: graduated participants were classified as "academics". Groups were not significantly different regarding education, age and sex.

Group	Sex		Education level		Age
	♀	♂	Academics	Non-academics	Mean/S.D.
Control group	78	36	30	76	26.21/6.82
Sociodynamic group	98	27	31	93	25.78/6.46
Neurobiological group	111	52	52	105	26.41/6.59

Randomization was achieved by dividing the questionnaires (NB-G, SD-G, and CO-G) across the seating order of the participants. The study supervisor (RS) collected the surveys after 10–15 min.

2.3. Structure of the questionnaire

One of the authors (AH) translated the original set of questions into German, and a native English speaker back-translated the German version. This protocol was conducted until the back-translated German version was identical to the original English version.

The original questionnaire (Crisafulli and colleagues) was supplemented by several additional questions regarding attitudes toward ADPs and the presumed origin of AD. In particular, the supplement explored whether participants believe that ADPs are capable of consenting to treatment (i.e., whether they are self-determined with regard to therapeutic decisions and assumptions). Statements were worded unambiguously e.g., "ADPs should autonomously decide their own treatment"; "Doctors should decide the treatment regimen to be used"; and "ADPs should be forced into treatment". The final questionnaire consisted of 75 questions. All questions were answered using a six-point Likert scale.

2.4. Data analyses

Data analyses were performed using SPSS 20. Missing data were replaced by multiple imputation (via the multiple regression method). The 75 questionnaire items comprised the following seven subscales (two causality scales and five stigma scales):

Causality scales

- (1) Neurobiological causes of AD (Cronbach's $\alpha=0.879$)
- (2) Social causes of AD (Cronbach's $\alpha=0.763$)

Stigma scales

- (3) Characteristics of ADPs (Cronbach's $\alpha=0.870$)
- (4) Dangerousness of ADPs (Cronbach's $\alpha=0.784$)
- (5) Self-infliction of AD (Cronbach's $\alpha=0.733$)
- (6) Heteronomy regarding therapeutic decisions (Cronbach's $\alpha=0.800$)
- (7) Poor prognosis of AD (0.825)

The reliabilities of the extracted subscales were tested with Cronbach's α . Questions that reduced the α -level of the subscales were removed from the analysis (five questions on the characteristics scale and two questions regarding surgical approaches to AD).

A confirmatory factor analysis (i.e., a principal component analysis with Promax rotation) was applied to verify the major topics of the questionnaire. An oblique factor analysis was used because it allows correlations (which are common in the social sciences) among the factors extracted and therefore provides more consistent and replicable results. To assure the consistency of the extracted factors, we applied the principal component and maximum likelihood methods to extract factors (Costello and Osborne, 2005).

A group-to-group comparison was conducted using an analysis of covariance (ANCOVA). The seven subscales were set as dependent variables, and the three groups (SD-G, NB-G and CO-G) were the fixed factors. Age, sex and profession were considered covariates. Effect sizes were calculated using partial η^2 . Bonferroni's post hoc test was used to compare the three sub-groups. We applied a significance level of $\alpha=0.007$ due to repeated testing (i.e., a correction factor of 7).

Pearson's correlation analysis was applied in order to investigate associations between the two causality scales and the five stigma scales.

3. Results

3.1. Characteristics of the respondents and the questionnaire

A total of 444 questionnaires were included in the final analysis. Table 1 shows the characteristics of the respondents.

3.2. Group-to-group analyses

We found a significant group difference with regard to the biological origins of AD ($F=17.649$, $p < 0.001$, $\eta^2=0.054$): a significant increase in the acceptance of the neurobiological disease model was found among the NB-G compared with the CO-G ($p < 0.001$) and the SD-G ($p < 0.001$) groups.

Moreover, the NB-G respondents rated the typical characteristics of ADPs to be significantly more positive ($F=8.471$, $p < 0.001$, $\eta^2=0.054$) than the SD-G ($p < 0.001$) and the CO-G ($p < 0.001$) respondents.

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