

ETIOLOGY OF PSYCHIATRIC DISORDERS: LAY BELIEFS AND THE ROLE OF GENDER, FIELD OF STUDY AND PERSONALITY TRAITS

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Abstract

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In the present study, we recruited a large sample (N = 595) of highly educated participants to assess which causal variables they considered as more important in the etiology of two diagnostically unlabeled cases of psychiatric disorders. The first clinical case described a patient with early schizophrenia whereas the second clinical case described a patient with conversion disorder. We aimed at ascertaining if participants' gender, field of study (scientific vs. humanistic), and personality traits influenced their causal beliefs. Based on the scores assigned to both the clinical cases, participants believed that current life stressors were the most important etiological variable and that adverse early experiences were not an important causal factor in anyone of the two clinical cases. Regardless of their field of study, women perceived the loss of a loved one as a relevant variable in the etiology of conversion disorder. Participants' beliefs about the etiology of early schizophrenia varied with their field of study. Compared to participants studying humanities, those studying scientific disciplines attributed more importance to organic causes and less importance to unconscious conflict and early traumatic experiences. Overall, the role of personality traits in influencing causal beliefs was negligible. Public education about the causes of psychopathology is necessary to optimize actual usage of mental health services and treatment choice for psychiatric disorders.

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Introduction

Compared to other fields of clinical medicine, current knowledge on the etiology of psychiatric disorders is somewhat limited. Nevertheless, the last two decades have seen a remarkable expansion of knowledge punctuated by intriguing findings that challenge previously held assumptions about the causes of mental illness. Molecular genetics studies have shown that thousands of common and rare genetic variants contribute to mental illness. Epidemiological studies have identified dozens of environmental exposures that are associated with psychopathology. Most known genetic and environmental factors are shared across multiple mental disorders and multi-factorial gene-environment interactions are likely to be a common etiological mechanism involved in the majority of cases of mental illness (Uher & Zwickler, 2017).

It is uncommon for the lay public to endorse beliefs on the etiology of medical conditions that are largely independent from, or even in contrast with, professional knowledge based on scientific research. In this regard, psychiatric disorders are an exception. Lay beliefs

have been studied among the general public and in clinical populations. There is evidence that, among the general public, etiology beliefs influence the propensity to increase social distance from the mentally ill and to reinforce the stigma against sufferers (Schlier et al., 2014; Larkings & Brown, 2018). In clinical populations, lay beliefs and attitudes concerning the nature and causes of psychiatric disorders influence the likelihood of seeking treatment, the acceptance of treatment and the satisfaction with treatment (Khalsa et al., 2011; Carter et al., 2018; Murphy & Hankerson, 2018).

In the present study, we recruited a large sample of highly educated participants to assess which causal variables they considered as more important in the etiology of two clinical cases of psychiatric disorders. We aimed at ascertaining if participants' gender, field of study (scientific vs. humanistic), and personality traits influenced their causal beliefs. To the best of our knowledge, this is the first study that analyzes the impact of cultural background and personality traits on lay beliefs about the etiology of psychiatric disorders. This was an exploratory study and no specific hypotheses were formulated.

Materials and Methods

Participants

Data collection was made by implementing an anonymous online survey based on a customized JotForm questionnaire. Participants identified themselves by providing an alphanumeric code or a nickname. The unique ID widget was used to prevent multiple compilation of the online questionnaire. Participants were recruited through virtual snowball sampling. A small pool of initial informants nominated, through their real or virtual social networks, other participants who met the eligibility criterion (i.e. ongoing or completed tertiary education) and could potentially contribute to the study. To access the online questionnaire, participants were requested to sign an informed consent that explained the procedure of data collection and the aims of the study.

The sample included 595 participants (mean age \pm SD: 25.88 \pm 4.62 years; mean education \pm SD: 14.09 \pm 2.07 years); 68.2% of the participants were women. Participants were requested to specify if their field of study was scientific or humanistic. 77.10% had an educational background in scientific disciplines.

Measures

After preliminary questions on the participants' socio-demographic characteristics (i.e. age, gender, educational level, field of study), the online questionnaire began with the presentation of two clinical vignettes containing diagnostically unlabeled case histories. The order of presentation of the two clinical vignettes was randomized. Presentation of the two clinical vignettes was preceded by the question: "There are many theories, and lots of debate, about what causes psychiatric disorders. Please indicate the extent to which you agree or disagree that the following factors are possible causes of the clinical case you are going to read." Respondents then obtained a list of seven possible causes for each of the clinical cases described by the vignettes. Using a 7-point Likert scale (ranging from 1 to 7), they were asked to rate the perceived relevance for each potential cause. To build the list of the seven possible causes, we integrated the list reported by Read et al. (2015) with data from the research literature. The list presented to participants is reported in **table 1**.

The clinical case #1 was taken from the article by Jorm et al. (2005) and described a case of early schizophrenia: "John is 24 and lives at home with

his parents. He has had a few temporary jobs since finishing school but is now unemployed. Over the last six months he has stopped seeing his friends and has begun locking himself in his bedroom and refusing to eat with the family or to have a bath. His parents also hear him walking about his bedroom at night while they are in bed. Even though they know he is alone, they have heard him shouting and arguing as if someone else is there. When they try to encourage him to do more things, he whispers that he won't leave home because he is being spied upon by the neighbor. They realize he is not taking drugs because he never sees anyone or goes anywhere."

The clinical case #2 was a simplified version of the real case of conversion disorder reported in the article by Roffman & Stern (2005): "Mary, a 35-year-old divorced woman with a history of severe childhood asthma, presented to the emergency room with a week-long complaint of jerking movements which began in her left shoulder and then spread down her left arm and both legs. She maintained full awareness during and after these episodes, which lasted for a minute or 2, but stated that she had developed difficulty walking because of them. The episodes were often immediately followed by 10 to 15 seconds of gagging and apnea. Although members of her family (who accompanied her to the emergency room) were very concerned that these new problems could signal a serious medical illness, Mary appeared neither alarmed nor anxious. She denied any significant psychiatric history but did recall receiving some counseling around the time of the death (5 years ago that month) of her 3-year-old daughter from a progressive neurological disease. When her jerking movements emerged, Mary moved in with her parents. Her neurologic and general physical examinations, as well as her laboratory assessment (including head imaging and an electroencephalogram) were unremarkable."

Personality traits were assessed by using The Ten Item Personality Inventory (TIPI) (Gosling et al., 2003). The TIPI is a short scale developed to measure personality traits according to the big five model (also known as the OCEAN model: Openness to experience, Conscientiousness, Extraversion, Agreeableness, Neuroticism) in working or clinical settings in which assessment time is limited. The TIPI was developed using descriptors from other well-established big five instruments. Each of the ten items is rated on a 7-point scale ranging from 1 (strongly disagree) to 7 (strongly agree). The version used in this study was the revised Italian version (I-TIPI-R) which showed adequate factor structure, test-retest reliability, self-observer agreement

Table 1. List of possible causes presented to participants

Etiology	Abbreviation throughout the text
Organic causes (genes, heredity, chemical or hormonal unbalance, brain lesions)	ORG
Unconscious conflict	UNC
Childhood traumatic experiences (physical or sexual abuse, parental neglect, other unhappy or distressing experiences)	TRA
Current life stressors (work stress, conflict in family, unemployment, financial problems, loneliness, migration)	STRESS
Lifestyle (alcohol abuse, drug use, smoking, unhealthy diet, no rest, sedentariness)	LIFE
Loss of loved one (death of loved one, separation from relatives or friends)	LOSS
Relationship problems (romantic breakup, sexual frustration, fights with partner)	REL

and convergent and discriminative validity with the Big Five Inventory (BFI) (Chiorri et al., 2015). In the I-TIPI-R, the scale measuring neuroticism is inverted and named emotional stability (i.e. people scoring low on emotional stability have high levels of neuroticism).

Statistical analysis

Statistical analysis was performed on a personal computer using SPSS for Windows, version 25.0 (SPSS, Inc., Chicago, Ill.). Kendall’s correlation (tau) was used to check if the rank orders of etiological variables in the two clinical cases were in agreement. Two-way analysis of covariance (ANCOVA) was used to assess the influence of participants’ gender and field of study on their causal beliefs. The correlations between the I-TIPI-R scores and the scores of the etiological variables were calculated by using the Pearson correlation coefficient (r).

Results

Table 2 reports the mean scores for each etiological variable. Mean scores were transformed into ordinal data to obtain rank order profiles. **Figure 1** shows the rank order given by participants to each etiological variable in the two clinical cases. The correlation between the two rank order profiles was weak and non-significant (Kendall’s tau = 0.33, p = 0.29), indicating that the participants judged the two clinical cases as different in terms of possible causes. Participants gave the most discordant ranks to the etiological variable LOSS that ranked 7th in the clinical case #1 and 1st in the clinical case #2. However, in both the clinical cases, participants gave highest scores to the etiological variable STRESS that ranked 1st in the clinical case #1 and 2nd in the

clinical case #2. Thus, regardless of the clinical picture, participants believed that current stressful events played a major role in causing psychiatric symptoms. Interestingly, the etiological variable TRA ranked very low in both the clinical cases (6th in clinical case #1 and 7th in clinical case #2).

To analyze the role of gender and field of study in influencing participants’ etiological beliefs, we conducted a series of ANCOVAs with gender and field of study as independent factors, age and educational level as covariates, and scores given to each etiological variable as dependent variables. In total, we conducted 14 ANCOVAs (seven etiological variables for each of the two clinical cases).

We found a significant gender effect for the etiological variable LOSS in the clinical case #2 (F = 5.00, df = 1,5, p < 0.03). Compared to male participants, women gave a higher score to LOSS as a possible cause of the psychiatric condition described in the clinical case #2. The interaction effect (gender x field of study) was not significant.

Compared to gender, the field of study emerged as a more important individual variable in influencing participants’ beliefs on the etiology of the clinical case #1. We found significant effects of field of study for the etiological variables ORG (F = 13.26, df = 1,5, p < 0.0001), UNC (F = 6.36, df = 1,5, p < 0.02), and TRA (F = 3.84, df = 1,5, p = 0.05). Compared to participants studying humanities, those studying scientific disciplines attributed more importance to organic causes and less importance to unconscious conflict and traumatic experiences when asked to assess the possible etiology of the clinical case #1. Interaction effects (gender x field of study) were not significant (**figure 2**).

To assess the relationships between personality traits and etiological beliefs, we calculated bivariate correlation coefficients between the scores on the five

Figure 1. Ranks given by participants to each etiological variable in the two clinical cases. Case #1, dotted line; Case #2, solid line

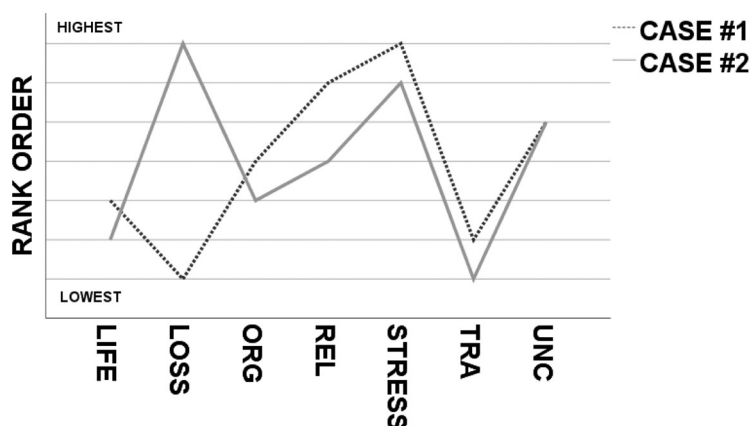
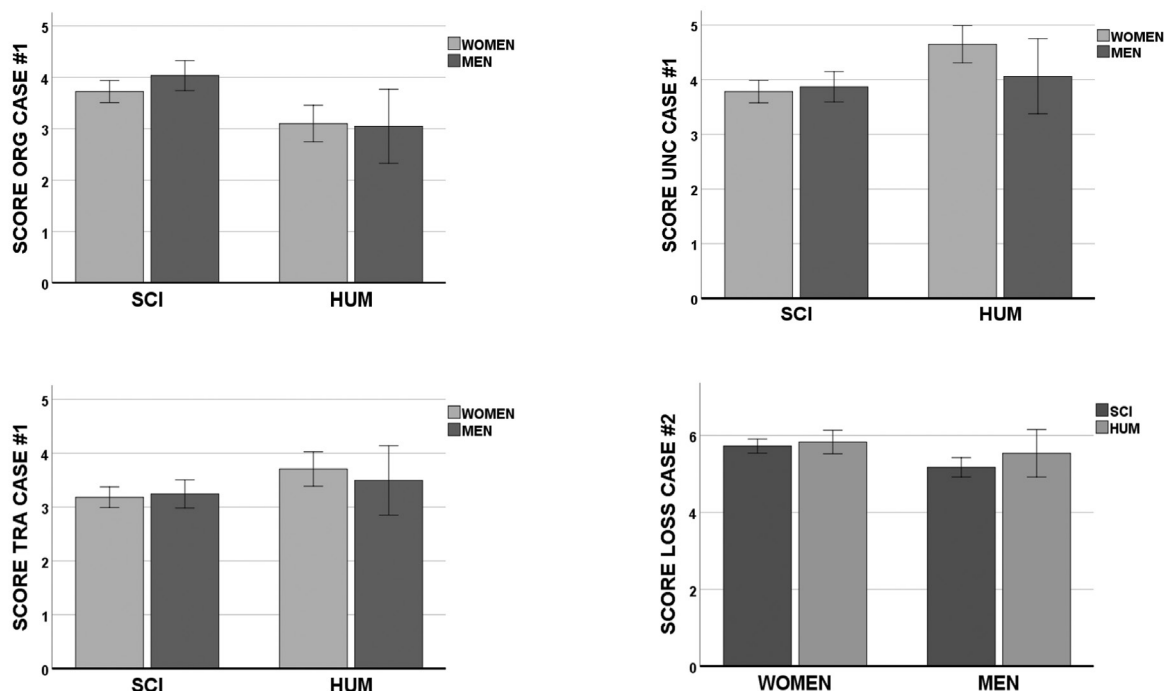


Table 2. Mean scores and ranks (in brackets) for the etiological variables

Etiology	Case #1	Case #2
STRESS	5.09 (1st)	4.68 (2nd)
REL	4.20 (2nd)	3.72 (4th)
UNC	3.98 (3rd)	4.08 (3rd)
ORG	3.66 (4th)	3.37 (5th)
LIFE	3.51 (5th)	3.17 (6th)
TRA	3.31 (6th)	2.62 (7th)
LOSS	3.10 (7th)	5.58 (1st)

Figure 2. Scores (estimated marginal means \pm 2 SEM) for the etiological variables that differed significantly according to the participants' field of study (graphs on the left and top right) or gender (graph on bottom right)



TIPI scales and the scores given by participants to each etiological variable in the two clinical cases. Overall, the role of personality traits was negligible. We found positive and significant correlations between TIPI Conscientiousness and the etiological variable ORG in clinical case #1 ($p < 0.03$) and the etiological variables LIFE ($p < 0.01$) and REL ($p < 0.01$) in clinical case #2. However, in spite of the statistical significance due to the large sample, the correlations were very weak, as indicated by the correlation coefficients ranging from 0.09 to 0.11.

Discussion

The findings of this study enrich our understanding of two different aspects of lay beliefs about the etiology of psychiatric disorders. The first aspect relates to the relative importance given to distinct etiological categories. The second aspect relates to the influence on beliefs of gender, field of study, and personality traits.

Based on the scores assigned to both the clinical cases, participants believed that current life stressors were the most important etiological variable. Such a consistency was unexpected because the two clinical cases were much different. The first clinical case described a patient with early schizophrenia whereas the second clinical case described a patient with conversion disorder. Yet, the lay beliefs held by the participants of the present study are in accord with those reported by some previous studies. Nakane et al. (2005) studied public beliefs about causes and risk factors for mental disorders in Japan and Australia. They found that day-to-day problems were endorsed as one of the most probable cause across clinical vignettes describing depression or schizophrenia. In a sample of 303 Swedish depressed patients in primary care, Hansson et al. (2010) reported that work-related stress was the most commonly mentioned cause, followed by

personality and current family situation. Maggaard et al. (2017) interviewed 678 patients with primary diagnoses of depression, adjustment disorder, reaction to severe stress and anxiety disorders. Causal beliefs referring to problems at work and problems in social environment were most frequently mentioned.

However, not all studies reported a preference for current life stressors. Causal beliefs of the lay public are likely to vary with the diagnosis or, when respondents are psychiatric patients, with the treatment they are receiving. Schomerus et al. (2006) found that the lay public named brain disease as the most probable cause of schizophrenia and psychosocial stress as the most probable cause of depression. In a sample of patients taking antidepressant drugs, Read et al. (2014) reported that 85% of patients agreed with the statement that depression results from a chemical imbalance, 77% of patients agreed with depression due to heredity and 71% of patients regarded depression as a disorder of the brain.

Examining the rank order of the etiological variables, it is worth noting the low score given to childhood traumatic experiences. Participants believed that adverse early experiences were not an important causal factor in anyone of the two clinical cases. Such a lay belief is contrast with a large body of research showing the major role played by childhood traumatic experiences in the etiology of a variety of psychiatric disorders (Carr et al., 2013; Jaffee, 2017). Evidently, the most recent data from research and clinical studies have not yet been incorporated into lay knowledge.

Gender did not influence causal beliefs with one important exception. Regardless of their field of study, women perceived the loss of a loved one as a relevant variable in the etiology of conversion disorder. The clinical vignette described the emergence of pseudo-neurological symptoms in a mother who had lost her 3-year-old daughter from a progressive neurological disease five years ago that month. A possible

explanation of the gender difference is that women identified themselves better with the mother thanks to their higher empathic capacity (Christov-Moore et al., 2014). Participants' beliefs about the etiology of early schizophrenia varied with their field of study. Compared to participants studying humanities, those studying scientific disciplines attributed more importance to organic causes and less importance to unconscious conflict and early traumatic experiences. Overall, the lay beliefs of participants with a scientific background were close to professional beliefs regarding the etiology of schizophrenia (Zamanpoor, 2020), although the scarce importance given to adverse childhood experiences was a major point of disagreement (Stanton et al., 2020).

Overall, the role of personality traits in influencing causal beliefs was negligible. Such a finding is surprising considering that personality has been shown to shape individual beliefs in a variety of cultural domains. For example, Entringer et al. (2021) found that, in the most religious cultural contexts, the big five personality traits were major predictors of religiosity explaining 19.5% of the inter-individual variance. Using an extended family design, Kandler et al. (2012) found that a substantial proportion of inter-individual differences in political attitudes was accounted for by genetic variance in personality traits. As for beliefs related to medicine, Lin & Wang (2020) showed that people high in agreeableness, conscientiousness and emotional stability are more likely to regard vaccination as beneficial, whereas those high in conscientiousness are more likely to support school-based vaccine requirement. In their systematic review of the relationship between personality and the use of cancer screenings, Hajek et al. (2020) found that increased extraversion and increased conscientiousness are associated with an increased use of cancer screenings.

Limitations

The main limitation of this study is the under-representation in the sample of men and participants with a humanistic background. Another weakness is the high number of statistical comparisons that increased the risk of type I error. However, the exploratory nature of the study suggested not to apply more stringent criteria for statistical significance (e.g. the Bonferroni correction).

Conclusions

Overall, the highly educated participants of this study did not have a level of mental health literacy much better than that reported by previous studies of the general public. Nevertheless, our results suggest that a scientific cultural background reduces to some extent the gap between lay beliefs and professional knowledge regarding the etiology of psychiatric disorders. Public education about the causes of psychopathology is necessary to optimize actual usage of mental health services and treatment choice for psychiatric disorders.

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