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## **THE BELIEFS OF NON-PSYCHIATRIC DOCTORS ABOUT THE CAUSES, TREATMENTS AND PROGNOSIS OF SCHIZOPHRENIA.**

Lorenza Magliano, Giulia Citarelli, and John Read

### **INTRODUCTION**

A biological approach to understanding people diagnosed with 'schizophrenia' has, for decades, dominated not only clinical services but also the way people with this diagnosis are viewed by medical professionals (Deacon, 2013; Larkings & Brown, 2018; Lebowitz & Ahn, 2014; Read, Haslam & Magliano, 2013a) and portrayed by the media (Magliano & Marassi, 2018; Robinson, Turk, Jilka & Cella, 2019). Nevertheless, surveys in more than 20 countries, including Italy (Read, Magliano & Beavan, 2013b; Magliano, Fiorillo, De Rosa, Malangone, & Maj, 2004), find that the public (including people with a diagnosis of 'schizophrenia' and their families) endorse psycho-social causes far more than bio-genetic ones (Read, Haslam, Sayce, & Davies, 2006; Schomerus et al., 2012). Read et al. (2013b) reviewed studies on beliefs about the causes of schizophrenia in 84 samples of people from 25 countries. Findings from this review revealed that 61 out of the 84 examined samples (73%) believed more strongly in psychosocial than biogenetic causes, 6 samples (7%) gave equal emphasis and 17 (20%) favoured biogenetic causes. For instance, the most frequently cited causes of schizophrenia was "problems in interpersonal relationships" (65%) in Japan, "psychosocial stress" (83%) in South Africa, "problems from childhood such as being badly treated or abused, losing parents when young, or coming from a broking home" (91%) in Australia, and "stress" (72%) in Italy. After entering mental health services, however, the biomedical perspective of many professionals may influence the way people view their own difficulties (Ahn, Proctor & Flanagan, 2009; Carter, Read, Pyle, & Morrison, 2017; Magliano et al., 2009; Rusch, Todd, Bodenhausen, & Corrigan, 2010), as well as the treatments they prefer and their perceived chances of recovery (Larkings & Brown, 2018). Presenting schizophrenia as "a disease like any other", i.e., equating the experience of psychosis with that of having a physical disease, was intended to improve social acceptance of "schizophrenics" by reducing blame for this condition. In fact, explaining schizophrenia as caused by genetic factors, chemical imbalances and brain anomalies causes prognostic pessimism, perceptions of dangerousness and unpredictability, and desire for social distance from these people (Angermeyer & Matschinger, 2005; Haslam, 2011; Kvaale, Haslam, & Gottdiener, 2013; Read et al., 2013a).

In contrast with the large number of studies that have documented the influence of causal beliefs on public attitudes toward people diagnosed with schizophrenia (Gausgruber, Meise, Katsching, Schöny, & Fleischhacker, 2007; Jorm & Griffiths, 2008; Pattin, Verhaeghe, Sercu, & Bracke, 2013; Phelan., 2005; Schomerus, Matschinger, & Angermeyer, 2014; Wiesjhan, Jung, Kremser, Rief, & Lincoln, 2016), relatively few studies have specifically investigated the potential impact of doctors' causal explanations on clinical practice (Ahn et al., 2009; Corrigan et al., 2014; Lebowitz & Ahn, 2014).

Available data suggest that health professionals might be significantly influenced in their therapeutic choices and clinical approach to people experiencing psychosis by the etiological model they adhere to. Lebowitz & Ahn, (2014) found that psychiatrists showed less empathy towards people diagnosed with schizophrenia (and other diagnoses) and placed less emphasis on psychotherapy when they explained symptoms in terms of biological rather than psychosocial factors. Similarly, Ahn et al (2009) found that mental health staff who adhere to a biogenetic model attributed greater usefulness to drugs, while staff who believed more in psychosocial placed greater value on psychotherapies. Carter et al., (2017) reported that mental health clinicians with psychosocial beliefs of psychosis were more likely to rate CBT as effective, whereas those with biological models were more likely to endorse medication.

The impact of causal explanations on non-psychiatric medical staff, however, remains largely unexplored. Because of the high prevalence of physical health problems in people diagnosed with schizophrenia (Vancampfort et al., 2015) and the suboptimal medical care they often receive (Shefer, Henderson, Howard, Murray, & Thornicroft, 2014; Thornicroft, Rose & Kassam, 2007), research in non-psychiatric health contexts is needed. Recently, two related studies on views about schizophrenia among non-psychiatric medical doctors have been carried out in Italy. The first study, carried out in 2014, examined the influence of the diagnostic label "schizophrenia" on the causal beliefs of 387 GPs after reading a clinical, ICD-10 description of a person with this disorder (Magliano et al., 2017). Those who used the diagnostic label 'schizophrenia' (either actively assigning it themselves to an undiagnosed version of the vignette or being given the diagnosis in the vignette) were more likely to endorse biogenetic causal explanations, were more pessimistic about recovery, and expressed more restrictive beliefs about how people with this disorder should be treated in non-psychiatric hospital wards. The diagnostic label 'schizophrenia' was also related to a perception of dangerousness and the belief that other people desired social distance. The second study, carried out in 2017, was a partial extension of the GPs study. This study investigated views of schizophrenia and depression among non-psychiatric medical specialists working in community centres of the same geographical area of the GPs in the first study (BLINDED). The 211 participants were randomly assigned to read either the same clinical

description of schizophrenia adopted in the GPs study or a clinical description of depression. The study found that specialists had a more discriminatory approach toward people with schizophrenia than toward those with depression. Moreover, medical specialists were more skeptical regarding the capacities of people with schizophrenia to care for their own health, and perceived people with this disorder as kept at greater distance by others.

The current article examines the impact of causal explanations of schizophrenia on views about treatments and prognosis among combined subsets of participants from each of the two studies. Specifically, the sample of the current study includes the 192 GPs and the 114 non-psychiatric medical specialists who completed the revised 'Opinions on mental disorders Questionnaire' (OQ; Magliano et al., 2017) after reading the same, undiagnosed clinical description of schizophrenia.

In particular, this study aimed to investigate whether the causes indicated by this combination of two sets of non-psychiatric doctors as the most important in the development of schizophrenia would be related to their views about treatments and prognosis. In particular, we tested the following six hypotheses.

Doctors who believe that the most important cause of schizophrenia is a bio-genetic factor would, compared to those who believed that a psychosocial factor is the most important cause:

1. more strongly endorse medication
2. less strongly endorse psychological therapies
3. be surer of the need for life-long pharmacological treatments
4. more frequently recommend a psychiatrist
5. less frequently recommend a psychologist
6. be more pessimistic about the probability of recovery.

## **METHODS**

### **Study design and procedure**

The study was approved by the Research Ethical Board of the Department of Psychology (University of ..., Italy) and authorized by the .... Local Health Authority. The survey was carried out among GPs and registered non-psychiatric medical specialists (medical, surgical and diagnostic/laboratory clinicians) working in the outpatient community centers of the Primary Care Units of the .... Central Health Authority. This metropolitan area (population approximately 1 million) was chosen pragmatically because of its proximity to the Department of Psychology in order to facilitate the face-to-face data collection. Data was collected from June 2013 to March 2014 (GPs study), and from January to December 2017 (non-psychiatric medical

specialists study). No relevant change in the organization of the health care services or in the availability of health professional resources occurred in this time frame at local or regional level.

In both the studies, potential participants were contacted personally by a researcher and invited to join a study on their views about mental disorders. In the GPs study, 50% of participants completed the OQ after reading a clinical description of schizophrenia (Appendix A) and were included in the current study's sample. The remaining 50% of participating GPs were excluded because they completed the questionnaire in relation to the diagnostic label 'schizophrenia' given in the questionnaire (i.e., no clinical description of the disorder was provided). Details of the study design are reported in Magliano et al., 2017. In the medical specialists' study (BLINDED), 50% of participants completed the OQ after reading a clinical description of schizophrenia (Appendix A) and were included in this study sample. The remaining 50% of participating doctors were excluded because they completed the OQ after reading a clinical, undiagnosed description of depression. In both the studies, the questionnaire was self-administered either in the presence of the researcher at the physician's office or by themselves, according to their preference. Information on participants' demographic variables and professional background was collected.

### **Sample characteristics**

Of the 430 GPs approached (50% of GPs working in the selected catchment area), 387 gave informed consent to participate (90%). Of these 387, 192 completed the questionnaire after reading the clinical description of schizophrenia and were included in this study. Of the 255 medical specialists approached (90% of all medical specialists working in the community in that catchment area), 211 (82.7%) agreed to participate. Of these 211, 114 completed the questionnaire after reading the description of schizophrenia and were included in this study. One questionnaire was subsequently excluded due to missing data. Therefore, the final sample for this study was 305 doctors (192 GPs and 113 medical specialists). Participants' socio-demographic and professional background characteristics are reported in Table 1. The 305 participants were mainly male (77%), with a mean age of 57.8 years. Nearly all participants had achieved their MD degree more than 20 years previously and most reported having treated at least one client diagnosed with 'schizophrenia'. GPs and medical specialists were comparable in socio-demographic variables and professional background characteristics, except gender (male: GPs 82.3% vs. medical specialists 68.1%;  $\chi^2=8.05$ ,  $df$  1,  $p<0.005$ ).

### **Assessment instrument**

The revised version of the OQ (Magliano et al., 2017) is a self-report tool including: a) 16 yes/no items on beliefs of bio-psycho-social factors involved in the development of the disorder in question; b) two open questions about what is the 'most important' and the 'most frequent' cause of the clinical description; c) 4 yes/no items on beliefs about which professionals should be involved in the treatment of People With a given Disorder (PWD); d) 23 items, grouped into 10 subscales, addressing beliefs about: 1-3) usefulness of drugs and psychological therapies and need of life-term pharmacological treatments; 4) probability of recovery; 5) insight of PWD about their own mental health problems; 6) capacity of PWD to report their health conditions to medical doctors; 7) perception of others' need for social distance from PWD; 8) dangerousness; 9) discriminatory approach to PWD in non-psychiatric hospital wards; 10) difficulties of PWD in having romantic relationships. Section d items are rated on a 3-point scales (1= "not true", 2 = "partially true", 3 = "completely true"). The psychometric properties of OQ's section d were previously tested on a sample of 387 GPs and found to be satisfactory (Confirmatory Factor Analysis: model  $\chi^2 = 320.35$ , df 188, N = 387,  $p < 0.05$ ; non normed fit index [NNFI] = 0.95; comparative fit index [CFI] = 0.97; root mean square error of approximation [RMSEA] = 0.04 (0.03; 0.05); standardized root mean square residual [SRMR] = 0.04; all factor loadings significant for  $p < .001$ ; Cronbach's  $\alpha$  values of the factors ranging from 0.65 to 0.83). The revised OQ was developed in Italian and only the Italian version has been validated. The questionnaire is available from the corresponding author upon request. An English translation of all items' contents is reported in Magliano et al., 2017.

In this study sample, Cronbach's  $\alpha$  values of OQ section d subscales ranged from 0.66 to 0.84. For the purpose of this article, only items from the OQ sections a to c, and from the subscale 1 to 4 of section d were analyzed.

### Statistical analysis

The OQ section a) items were dichotomised as *biogenetic causes* (heredity, chemical imbalance, illness during the pregnancy, physical illness, use of alcohol and street drugs) and *psychosocial causes* (stress, work difficulties, family conflicts, poor childhood/abandonment, traumatic events, sexual abuse, physical violence, psychological violence, disillusionment in love, bereavement). Respondents' causal models were defined as *biogenetic*, if he/she had listed only biogenetic causal explanations; as *psychosocial*, if he/she had only listed psychosocial causal explanations; and, as *biopsychosocial*, if the respondent had listed both biogenetic and psychosocial causes. Responses to the section b open item, "in your opinion, what is the most important cause of this disorder?", were dichotomized as *biogenetic* and *psychosocial* by applying the above-mentioned classification. Chi square ( $\chi^2$ ) with Cramer's V was used to investigate the association of the type of most

important cause (biogenetic vs. psychosocial) with the recommendations of types of professionals (psychiatrists, psychologists, neurologists, GPs). Multivariate Analysis of Variance (MANOVA) was performed to explore the association of most important cause (biogenetic vs. psychosocial - independent variable) on respondents' beliefs about usefulness of drugs and psychological therapies, need of long term pharmacological treatments and probability of recovery (mean scores of OQ section d 1-4 subscales, dependent variables). Statistical significance level was set at  $p < 0.05$ . Statistical analyses were performed using SPSS, version 21 (IBM, 2012).

## RESULTS

The factors most frequently reported as involved in the development of schizophrenia were heredity (65.2%) and use of street drugs (54.1%), followed by psychological violence (45.9%) and traumatic events (44.6%; Table 2). The majority of physicians (75.1%) endorsed at least one biological and one psychosocial cause, 16.4% reported only biological factors, and 8.5% endorsed only psychosocial causes.

Of the 305 participating doctors, 264 (86.5%) expressed their opinion about the most important cause of schizophrenia (see Table 3) while 41 (13.4%) either did not reply (29) or stated that the most important cause was a combination of biological and psychosocial causes (12). Of the 264 valid responses, 53.8% indicated a biogenetic cause (most frequently heredity - 60.6%) and 46.2% a psychosocial cause (most frequently stress - 18.8%). (When considering these overall percentages for the two general types of causes it must be noted that there were 10 psychosocial causes offered and only six biogenetic ones).

Eighty-seven percent of doctors recommended a psychiatrist, 47.9% recommended a psychologist, 23.8% a GP and 18.5% a neurologist. Both a psychiatrist and a psychologist were recommended by 42.2%. Fifty-two percent believed that it was completely true that "drugs are useful for the disorder". Moreover, 33.9% believed that it was completely true that "PWD must take drugs all their life", and 15% thought that it was completely true that "if stop taking drugs, PWD become dangerous". Fifty-six percent of physicians thought it completely true that "psychological interventions are useful for the disorder" Only 29.1% believed it was completely true that "people with this disorder can recover" (see Table 4).

Participants stating that the most important cause was biogenetic more frequently recommended a psychiatrist (96.5% vs. 77.9%;  $\chi^2 = 21.4$ ,  $df$  1,  $p < 0.0001$ , Cramer's  $V = .28$ ,  $p < 0.0001$ ) and less frequently a psychologist (42.2% vs. 56.6%;  $\chi^2 = 5.37$ ,  $df$  1,  $p < 0.02$ , Cramer's  $V = .14$ ,  $p < 0.02$ ). Multivariate analyses of variance revealed a significant effect of biogenetic vs. psychosocial most important causes on three subscales (see Table 5). In particular, compared to doctors who indicated a psychosocial cause, those who indicated a

biogenetic cause were more pessimistic about recovery (biogenetic mean  $\pm$  SD:  $2.09 \pm 0.56$  vs. psychosocial  $2.35 \pm 0.55$ ,  $F(1, 265) = 13.96$ ,  $p < 0.0001$ ), more confident about the usefulness of drugs ( $2.62 \pm 0.51$  vs.  $2.38 \pm 0.54$ ,  $F(1, 265) = 13.04$ ,  $p < 0.0001$ ) and more convinced of the need of life-long pharmacological treatment ( $2.11 \pm 0.53$  vs.  $1.89 \pm 0.55$ ,  $F(1, 265) = 12.04$ ,  $p < 0.001$ ; Wilks'  $\lambda = 0.89$ ,  $F(4, 259) = 7.80$ ,  $p < 0.0001$ ).

## DISCUSSION

### Interpretation of the results

The findings of this study highlight that most non-psychiatric doctors view schizophrenia as a disorder caused by a combination of biogenetic and psychosocial factors, but that most place more emphasis on biological factors, particularly genetics (65.2%). As hypothesized, and perhaps unsurprisingly, the results of this study confirm previous findings that viewing schizophrenia as mainly due to a biological cause is associated with greater confidence in drugs, higher conviction of the need of life-long pharmacological treatments, and prognostic pessimism (Ahn et al., 2009; Carter et al., 2017; Kvaale et al., 2013; Larkings and Brown, 2018). Moreover, adherence to a biologically-oriented model of schizophrenia may lead to an underestimation of the value of psychologists (Deacon, 2013; Magliano, Read, Sagliocchi, Patalano, & Oliviero, 2013). Strong belief in the efficacy and safety of antipsychotic medication has been brought into question by recent studies and reviews (Bola, Lehtinen, Cullberg, & Ciompi, 2009; Bola, Kalo & Soydan, 2011; Hutton, Weinmann, Bola, & Read, 2013; Jung et al., 2016; Read & Williams, 2019).

In total, 75.1% of respondents endorsed at least one biological and one psychological cause in schizophrenia, mostly psychological violence and traumatic events. This is a positive finding suggesting that most non-psychiatric doctors have a balanced biopsychosocial interpretation of this disorder. However, the fact that 53.8% affirmed that the most important cause is biological - mainly heredity - suggests that many respondents may consider psychosocial causes as mere trigger factors rather than "true" causal factors of psychosis (Magliano et al., 2013; Read, Bental & Fosse, 2009). Numerous reviews and critiques have demonstrated that the role of genetics in the development of psychosis has been greatly exaggerated and the methodological failings of many of the studies and concepts underestimated (Joseph, 2006; Joseph, 2013).

The relatively lower importance given to psychosocial factors by most non-psychiatric doctors may in part explain why only 47.9% of respondents recommended a psychologist and the fact that 42.8% were somewhat or very doubtful about the usefulness of psychological therapies (see Table 4). The relatively low percentage of respondents recommending a psychologist may be partly explained by the low availability of psychological interventions for people with severe mental disorders in routine settings (Huddock et al., 2014; Magliano et al.,

2002; Prytys, Garety, Jolley, Onwumere, & Craig, 2011), and partly by the low exposure to evidence-based biopsychosocial approaches in the curricula of university medical training courses and continuous medical education programmes (Sartorius et al., 2010). There is good evidence that psychological therapies, including but not limited to Cognitive-Behavioural Therapy, are at least as effective than medication, and far safer (Morrison, 2013; Morrison et al., 2014).

Seventy-five of the sample, believed – partially or completely – that people with the disorder must take psychotropic drugs for the rest of their lives and that 63.9% believed – partially or completely – that these people become dangerous if they stop drugs. These results are in line with previous findings on the association of biogenetic explanations and pharmacological treatments with a focus on behavioural control and containment (Ahn et al., 2009; Carter et al., 2017). These findings that may have implications for physical health care of service users directly, or on the multidisciplinary approaches to physical health in schizophrenia more generally. In particular, these results may have an impact on non-psychiatric medical doctors' clinical decisions regarding people diagnosed with schizophrenia (with 82.2% of participants reporting that they have treated such people). For instance, if doctors believed that people with the disorder need to take psychotropic drugs all their life to control the symptoms of this disorder, they might not recommend drug withdrawal in case of severe side effects. Moreover, doctors' beliefs about treatments may influence recommendations these physicians may suggest to their clients regarding treatments and professionals to be involved in the care.

A percentage of 29.1% of respondents completely believe that people diagnosed with schizophrenia can recover, although 61.1% partially believe this. Since no specific definition of "recovery" was provided in the questionnaire, it is likely that respondents interpreted "recovery" in different ways (Ng, Pearson, Chen & Law, 2011). Some respondents may have interpreted recovery as implying being symptom-free and without need of further treatments, as occurs in some acute physical diseases. Others may have viewed recovery as living a meaningful life with some symptoms and with occasional need for professional support (Bellack, 2006). However it is interpreted, prognostic pessimism may negatively influence clinical decisions (Adewuya & Oguntade, 2007; Corrigan et al., 2014; Vistorte et al., 2018), the information clinicians provide to their clients (Gumus, 2008), and, perhaps most importantly, clients' own beliefs about their chances of recovery (Carter et al., 2017; Larkings & Brown, 2018). Our findings suggest the need to provide some non-psychiatric doctors with training on the multiple and varied interacting causes of the symptoms that elicit a diagnosis of 'schizophrenia', including the psycho-social factors (Read & Dillon, 2013), and on the efficacy and safety of the broad range of available evidence-based treatments (Bentall, 2013; Morrison, 2013; Read & Dillon, 2013). Educational initiatives for non-psychiatric doctors should also include information on actual rates of recovery



(Tibaldi & Govers, 2011; Varese et al., 2012; Warner, 2009) and the actual risks of dangerous behaviours in schizophrenia. These findings also indicate the need to sensitize non-psychiatric doctors on the effects of stigma (defined by Goffman as “an attribute that links a person to an undesirable stereotype, leading other people to reduce the bearer from a whole and usual person to a tainted, discounted one”, reported in Stuber, Meyer & Link, 2008) and its toxic effects on health practices (Sartorius et al., 2010), especially the view of the “schizophrenic” as a dangerous person affected by an incurable illness requiring life-long pharmacological treatments (Read et al., 2009).

Education and contact with people diagnosed with schizophrenia are both stated to have some impact in reducing public stigma and prejudice against people with serious mental health problems (Corrigan et al., 2012) and in health contexts (Henderson et al., 2014; Uçok et al., 2011). In Italy, educational initiatives for future health, based on participation of people with experience of the psychiatric system and who have been given a schizophrenia diagnosis (Magliano et al., 2014; Magliano et al., 2016), resulted in increased endorsement of psychosocial causes, more frequent recommendation of psychologists, greater prognostic optimism and increased conviction of the usefulness of both pharmacological and psychological treatments. We are currently seeking to initiate similar educational initiatives for non-mental health professionals. At the same time of education, efforts to promote integrative approaches to psychosis should be made at the level of mental health care policies, academic medical curriculum and mental health staff training.

### **Strengths and limitations of the study**

This is the first study carried out in Italy that has specifically investigated causal beliefs of schizophrenia among non-psychiatric doctors and whether differential belief in biogenetic vs. psychosocial causes would influence medical sample of non-psychiatric doctors. Strengths include the face-to-face collection of the data and the high participation rate (87%). The use of a validated self-reported instruments is a further strength, which may facilitate the replication of the survey in other healthcare contexts.

This study also has a number of limitations, indicating the need for some caution in the interpretation of its results. In particular, the rather high mean age of the sample (58 years) might make the results unrepresentative of younger, more junior, doctors. However, the finding that age was unrelated to causal beliefs (type of causes:  $F=0.18$ ,  $df\ 2, 283$ ,  $p=0.83$ ; most important cause:  $F=0.73$ ,  $df\ 1, 243$ ;  $p=0.39$ ) or to opinions about treatments (usefulness of drugs: Pearson's  $r = 0.09$ ,  $p < 0.14$ ; usefulness of psychological therapies:  $r = -0.06$ ,  $p < 0.27$ ; needs of life-term pharmacological therapies:  $r=0.02$ ,  $p=0.69$ ) and recovery ( $r=0.01$ ,  $p=0.87$ ) suggests that this may not be a serious limitation. Similarly, the limitation that 77% of the

sample was male - a condition which would not be a fair gender representation - is somewhat mitigated by the finding that gender was not significantly related to causal beliefs (type of causes:  $\chi^2=2.8$ ,  $df$  2,  $p=0.25$ ; most important cause:  $\chi^2=1.18$ ,  $df$  1,  $p=0.28$ ) or to opinions about treatments and possibility of recovery (MANOVA Wilks' $\lambda=0.02$ ,  $F(4,300)=1.28$ ,  $p=0.28$ ).

The fact that the study was conducted with doctors working in primary care unit of only one local health authority located in Southern Italy - a geographical area where mental and non-mental healthcare resources are poorer than in Central and Northern Italy (Magliano et al., 2002; Ministero della Salute - Agenzia Nazionale per i Servizi Sanitari Regionali, 2017) - is a limitation which might have influenced respondents' beliefs about treatments and prognosis. However, the lack of other Italian studies on non-mental health professionals' beliefs about people with schizophrenia and the care of this disorder means we do not know whether our findings are generalizable to other areas of Italy (or beyond). We are planning to extend the study to other geographical areas of Italy – possibly using an online data collection procedure.

It must also be noted that the data collected are from a cross-sectional study. Therefore, we cannot be certain that the relationships we found between causal beliefs and other variables are necessarily causal, or, if causal, that they are in the direction we hypothesised. It is conceivable, for example, that belief in the efficacy of medications has led to, or strengthened, bio-genetic causal beliefs. Alternatively, such beliefs might be reciprocally reinforcing. The revised OQ has been developed and validated only in Italian. The process of translation and adaptation of the tool to other health and cultural contexts might have delayed the replication of the survey in other countries.

The survey investigated only beliefs, while no data has been collected on whether respondents' beliefs about causes and treatments of schizophrenia influence clinical practices (for instance, the prescription of drugs for physical health problems requiring discontinuation of psychiatric drugs). Finally, although 82.2% of participants reporting that they have treated at least one client with this disorder, no information was collected on the intensity and the quality of such professional relationships. Therefore, it is conceivable that respondents' opinions were somehow influenced by degree of experience. Some of these limitations will be addressed in further studies.

**PRACTITIONER POINTS**

- Viewing schizophrenia as mainly due to a biological cause is associated with greater confidence in the usefulness of drugs, higher belief in the need for life-term pharmacological treatments, and greater prognostic pessimism
- Belief in a biologically-oriented model of schizophrenia may lead doctors to underestimate the value of psychologists
- Prognostic pessimism amongst doctors may negatively influence clinical decisions, the information doctors provide to their clients, and clients' own beliefs about their chances of recovery
- Belief in the need for life-long pharmacological treatments in schizophrenia may lead doctors to resist drug withdrawal in case of severe side effects

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## **APPENDIX A**

Some people sometimes seem unable to distinguish between things that really happen and are experienced by other people, and things that happen only in their mind. Sometimes, these people believe or say things that seem bizarre or absurd to other people, or hear voices, smell things, or see images that other people do not. Sometimes, these people may have difficulty expressing their feelings or behaving appropriately (for instance, they may cry in response to a positive event, or may appear happy following an unpleasant one), or they may remain shut up in their house for a long time, or talk very little or not at all. They behave as if they lived in a world of their own, apparently without interest in anything or anybody. Sometimes they may have muddled thoughts, may invent odd or incomprehensible words, may lose the thread of the speech, or they may jump from one issue to another with no apparent reason.

**TABLE 1. DOCTORS' SOCIO-DEMOGRAPHIC VARIABLES AND PROFESSIONAL BACKGROUND CHARACTERISTICS (N=305).**

| <b>Variables</b>  |             |                 |
|---|-------------|-----------------|
| Sex, N (%)  | Male        | 235 (77.0)      |
|   | Female      | 70 (23.0)       |
| Age (mean $\pm$ sd)   |             | 57.8 $\pm$ 5.57 |
| Years from the achievement<br>of MD Degree, N (%)             | 1-10 years  | 0               |
|   | 11-20       | 10 (3.3)        |
|   | >20         | 293 (96.7)      |
| Type of doctors, N (%)  | GPs         | 192 (63.0)      |
|   | Specialists | 113 (37.0)      |
| Doctors with at least one client<br>with schizophrenia, N (%) | Yes         | 245 (82.2)      |
|   | No          | 53 (17.8)       |

**TABLE 2. DOCTORS' BELIEFS ABOUT CAUSAL FACTORS OF SCHIZOPHRENIA (N=305).**

| <b>Causes</b>                  | <b>N</b> | <b>%</b> |
|--------------------------------|----------|----------|
| Heredity                       | 199      | 65.2     |
| Use of street drugs            | 165      | 54.1     |
| Psychological violence         | 140      | 45.9     |
| Traumatic events               | 136      | 44.6     |
| Use of alcohol                 | 129      | 42.3     |
| Stress                         | 127      | 41.6     |
| Chemical imbalance             | 113      | 37.0     |
| Family conflicts               | 104      | 34.1     |
| Bereavements                   | 93       | 30.5     |
| Sexual abuses                  | 87       | 28.5     |
| Physical violence              | 82       | 26.9     |
| Poor parenthood/abandonment    | 77       | 25.2     |
| Work difficulties              | 76       | 24.9     |
| Disillusionment in love        | 70       | 23.0     |
| Physical illness               | 60       | 19.7     |
| Illness in pregnancy           | 40       | 13.1     |
| Others*                        | 3        | 1.0      |
| <b>Type of endorsed causes</b> |          |          |
| Only biogenetic                | 50       | 16.4     |
| Biological and psychosocial    | 229      | 75.1     |
| Only psychosocial              | 26       | 8.5      |

\* endogenous causes, a combination of more causes, geriatric causes

TABLE 3. DOCTORS' BELIEFS ABOUT THE MOST IMPORTANT CAUSE OF SCHIZOPHRENIA (N=264).

| Causes   | N              | %           |
|--|----------------|-------------|
| <b><i>Biogenetic</i></b>                             | <b>142/264</b> | <b>53.8</b> |
| Heredity   | 86/142         | 60.6        |
| Chemical imbalance                                   | 21/142         | 14.8        |
| Use of street drugs and/or alcohol                   | 19/142         | 13.4        |
| Physical illness                                     | 10/142         | 7.0         |
| Heredity associated with use of drugs/alcohol        | 3/142          | 2.1         |
| Illness in pregnancy                                 | 2/142          | 1.4         |
| Cerebrovascular disease                              | 1/142          | 0.7         |
| <b><i>Psychosocial</i></b>                           | <b>122/264</b> | <b>46.2</b> |
| Stress   | 23/122         | 18.8        |
| Family conflicts                                     | 22/122         | 18.0        |
| Traumatic events                                     | 22/122         | 18.0        |
| Psychological violence                               | 19/122         | 15.6        |
| Work difficulties                                    | 8/122          | 6.5         |
| Poor parenthood/abandonment                          | 7/122          | 5.7         |
| Bereavements   | 4/122          | 3.3         |
| Sexual abuses  | 3/122          | 2.4         |
| Physical violence                                    | 1/122          | 0.8         |
| Disillusionment in love                              | 1/122          | 0.8         |
| Frequenting bad companies                            | 1/122          | 0.8         |
| Difficulty in relating to reality                    | 1/122          | 0.8         |
| Violence in general                                  | 1/122          | 0.8         |
| Physical and psychological violence                  | 3/122          | 2.4         |
| Traumatic events and family conflicts                | 1/122          | 0.8         |
| Physical and psychological violence and sexual abuse | 1/122          | 0.8         |
| Physical and psychological violence and abandonment  | 1/122          | 0.8         |
| Traumatic events and psychological violence          | 1/122          | 0.8         |
| Bereavement and abandonment                          | 1/122          | 0.8         |
| Family conflicts and work difficulties               | 1/122          | 0.8         |

**TABLE 4. DOCTORS' VIEWS OF TREATMENTS AND PROGNOSIS OF SCHIZOPHRENIA (N=305).**

| OQ's items                                   | Doctors' answers |      |                  |      |                   |      |
|--|------------------|------|------------------|------|-------------------|------|
|  | "Not true"       |      | "Partially true" |      | "Completely true" |      |
|  | N                | %    | N                | %    | N                 | %    |
| † can recover                                | 28               | 9.8  | 174              | 61.1 | 83                | 29.1 |
| Drugs are useful for †                       | 5                | 1.7  | 141              | 46.5 | 157               | 51.8 |
| Psychological interventions are useful for † | 4                | 1.3  | 127              | 42.8 | 166               | 55.9 |
| † must take drugs all their life             | 72               | 25.2 | 117              | 40.9 | 97                | 33.9 |
| If stop taking drugs, † become dangerous     | 101              | 36.1 | 137              | 48.9 | 42                | 15.0 |
| If stop taking drugs, † become unwell again  | 36               | 12.5 | 163              | 56.8 | 88                | 30.7 |

† people with a disorder like that reported in the description

**TABLE 5. DOCTORS' VIEWS OF TREATMENTS AND PROGNOSIS IN SCHIZOPHRENIA: DIFFERENCES RELATED TO CAUSES ENDORSED AS THE MOST IMPORTANT ONES (BIOGENETIC VS. PSYCHOSOCIAL).**

| OQ factors                                    | Most important causes |      |              |      | MANOVA<br>F (1,265), p |
|---|-----------------------|------|--------------|------|------------------------|
|   | Biogenetic            |      | Psychosocial |      |                        |
|   | Mean                  | SD   | Mean         | SD   |                        |
| Possibility to recover                        | 2.09                  | 0.56 | 2.35         | 0.55 | 13.96**                |
| Usefulness of drugs                           | 2.62                  | 0.51 | 2.38         | 0.54 | 13.04**                |
| Usefulness of psychological therapies         | 2.53                  | 0.53 | 2.59         | 0.49 | 0.80;.37               |
| Needs of life-term pharmacological treatments | 2.11                  | 0.53 | 1.89         | 0.55 | 12.04*                 |

Multivariate Analysis of Variance (MANOVA): dependent variables = mean scores of 1-4 QO section d factors; independent variables = type of most important cause (biogenetic and psychosocial) groups; Wilks'  $\lambda = 0.89$ ,  $F(4,259) = 7.80$ ,  $p < 0.0001$ ; \* $p < 0.001$ ; \*\* $p < 0.0001$ .