Schizophrenia stigma in mental health professionals and associated factors: a systematic review

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1. Introduction

1.1. Stigmatization in mental illness

Nowadays, the stigma burden of mental illness is such that most organizations have called for action to fight it (e.g. "WHO Mental health action plan 2013 - 2020,"). The consequences of mental illness stigma are numerous and highly damaging to individuals, their families, the health care system and society (e.g. Link et al., 1997; Wittchen et al., 2011). Stigma has been described at several levels : public stigma, comprising the cognitive, affective, and behavioral reactions of those who stigmatize; self-stigma, including both the apprehension of being exposed to stigmatization and the potential internalization of the negative beliefs and feelings associated with the stigmatized condition; stigma by association entailing social and psychological reactions to people associated with a stigmatized person (e.g., family and friends); structural stigma as the legitimatization and perpetuation of a stigmatized status by society's institutions and ideological systems (Bos et al., 2013). Research conducted on public stigma showed that, among the mental illnesses, schizophrenia is associated with the worst mental representation (e.g. incompetency, violence and dangerousness) in the general population (Angermeyer and Dietrich, 2006). Recent research conducted in the field of self-stigma showed that more than 40% of people with schizophrenia feel highly stigmatized (Brohan et al., 2010), and even experience stigma as a "second illness" (Schulze and Angermeyer, 2003). The negative consequences of perceived/experienced stigma have been described on symptoms and self-esteem (Lysaker et al., 2009, 2008), quality of life, empowerment, seeking and adhering to mental health care (Corrigan et al., 2014; Gerlinger et al., 2013) and suicidality, even after controlling for symptom levels (Sharaf et al., 2012). Stigma also adversely impacts employment, income, public views about the allocation of social benefits and healthcare costs (Sharac et al., 2010). More knowledge is needed about stigmatization and its causes in order to be able to successfully fight discrimination and promote diversity (e.g. Angermeyer and Dietrich, 2006).

Since the pioneering work of Goffman, stigma has been conceptualized in three dimensions: i) *stereotypes* are beliefs about a person according to his/her group membership (i.e. beliefs of dangerousness, incompetency/unpredictability, poor prognosis, responsibility), ii) *prejudices* are attitudes and affective components felt against a person according to his/her group membership (i.e. fear, empathy) and iii) *discrimination* is behavioral reactions against a person according to his/her group membership (i.e. avoidance, flight) (Corrigan and Penn, 1999; Fiske, 1998). In a recent review of qualitative studies, Mestdagh and Hansen (2014) reported the health care system (including mental health professionals) as a one of the major source of stigmatization identified by persons with schizophrenia. Despite its importance, stigma in mental health professionals (MHP) has received little attention in comparison with stigma in the general population.

1.2. Stigma in MHP

Since 2007, three reviews have been conducted on mental illness stigma in MHP. In 2007, the first one identified only 10 relevant surveys (Schulze, 2007). Three quarters of the studies reported that beliefs of MHP and desire for social distance did not differ from those of the general population or were even more negative. While MHP showed more positive beliefs about psychiatric treatments and civil rights, results regarding stereotyped beliefs (i.e. dangerousness, incompetency, poor prognosis, responsibility) were inconsistent: studies reported similar, more negative or more positive beliefs in comparison with the general population. The second review also concluded that results were "mixed", reflecting a mixture of positive and negative views among MHP (Wahl and Aroesty-Cohen, 2010). Among the 19 studies included, 14 reported overall positive beliefs and attitudes in MHP toward mental illness. Nevertheless, some negative beliefs and attitudes were also noted in these 14 studies. Moreover, many MHP shared public beliefs regarding the dangerousness of people with mental illness, the possibility for recovery, and the ability to marry and have children. In a more recent review, De Jacq et al, (2016) focused on mental illness stigma by nurses and examined 14 studies.

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They also concluded that nurses had mixed stigma toward mental illness that was comparable to that of the general population.

These reviews concluded that the available studies yielded an ''inconsistent picture'' of MHP stigma of mental illness. Of note, some studies focused on severe mental illnesses such as schizophrenia, whereas others considered 'mental illness' in general. This heterogeneity was shown be to a limitation in the synthesis of the results (Wahl and Aroesty-Cohen, 2010). Indeed, a growing body of evidence has shown that stigma in its different components varies significantly across psychiatric categories. In comparison with autism or bipolar disorders, schizophrenia generates the most negative beliefs, a desire for social distance and discrimination in the general population (Durand-Zaleski et al., 2012; Sadler et al., 2012). On the basis of the few comparative studies that suggest some discrepancies in MHP stigma between psychiatric disorders, Wahl et al (2010) underscored the need for specific research to obtain a deeper understanding of the stigma toward such disorders.

1.3. Aims

The aim of the present study was to conduct the first systematic review of schizophrenia stigma in MHP. In particular, we sought to identify the characteristics of schizophrenia stigma in comparison with other psychiatric disorders, the specificities of MHP in comparison with other social groups, and associated factors.

2. Methods

2.1. Search strategy and study selection

The search strategy and reporting of this systematic review used the Preferred Reporting Items for Systematic Reviews and Meta-Analyses statements (PRISMA guidelines) (Moher, 2009). Studies were identified by searching the following electronic databases: PsychINFO (EBSCO), PsychARTICLES (EBSCO), and Psychology and Behavioral Sciences Collection (EBSCO), given their ability to cover the field of stigma research. The search was conducted using the following terms in the title or abstract of studies: ("schizophrenia" OR "psychosis") AND ("structural stigma" OR "institutional stigma" OR "stigma" OR "attitude" OR "stereotype" OR "belief" OR "discrimination" OR "acceptance" OR "social distance") AND ("professional" OR "mental health professional" OR OR "nurse" OR "psychologist" OR "psychiatrist"). Related references of papers already selected for the review were also examined. The search focused on research conducted in the 21 years prior to 01/01/2020.

Studies were included if they met the following criteria:

(i)   Original data published in English in peer-reviewed journals;

(ii)   Reporting quantitative data with statistical analysis;

(iii)   Assessing stigma in a broad sense: beliefs, prejudices and behaviors about schizophrenia or persons with schizophrenia or schizophrenia care (treatment, therapy);

(iv)   Including samples composed only of MHP (and not groups in which MHP were mixed with non-MHP, such as students or primary care nurses and general practitioners).

Given the limited number of studies conducted on the topic, there was no additional exclusion criterion about study design. The first author (KMV) performed the eligibility assessment in a standardized manner, previously defined with the second author (AP). Studies were first selected by title, second by abstract and finally with the full body text.

2.2. Risk of Bias

Potential methodological biases were particularly investigated (see Tables 1 to 5): i) the response rate of the surveys allowed a sampling bias to be estimated; ii) respect of participants' anonymity, limiting social desirability in participants' answers (Joinson, 1999); iii) comparability of data collection conditions in comparison groups; iv) randomization or counterbalancing in measures used to avoid measurement effect (see Dholakia, 2010 for review).

3. Results

3.1. Results of literature search

Figure 1 details the flow chart of the eligibility process for this review. Finally, 38 studies were included. Among them, 8 compared the schizophrenia stigma in MHP with other pathology stigmas (Table 1), 20 compared schizophrenia stigma in MHP to schizophrenia stigma in other health professionals (Table 2), and 18 reported factors associated with schizophrenia stigma in MHP (Table 3 to 5).
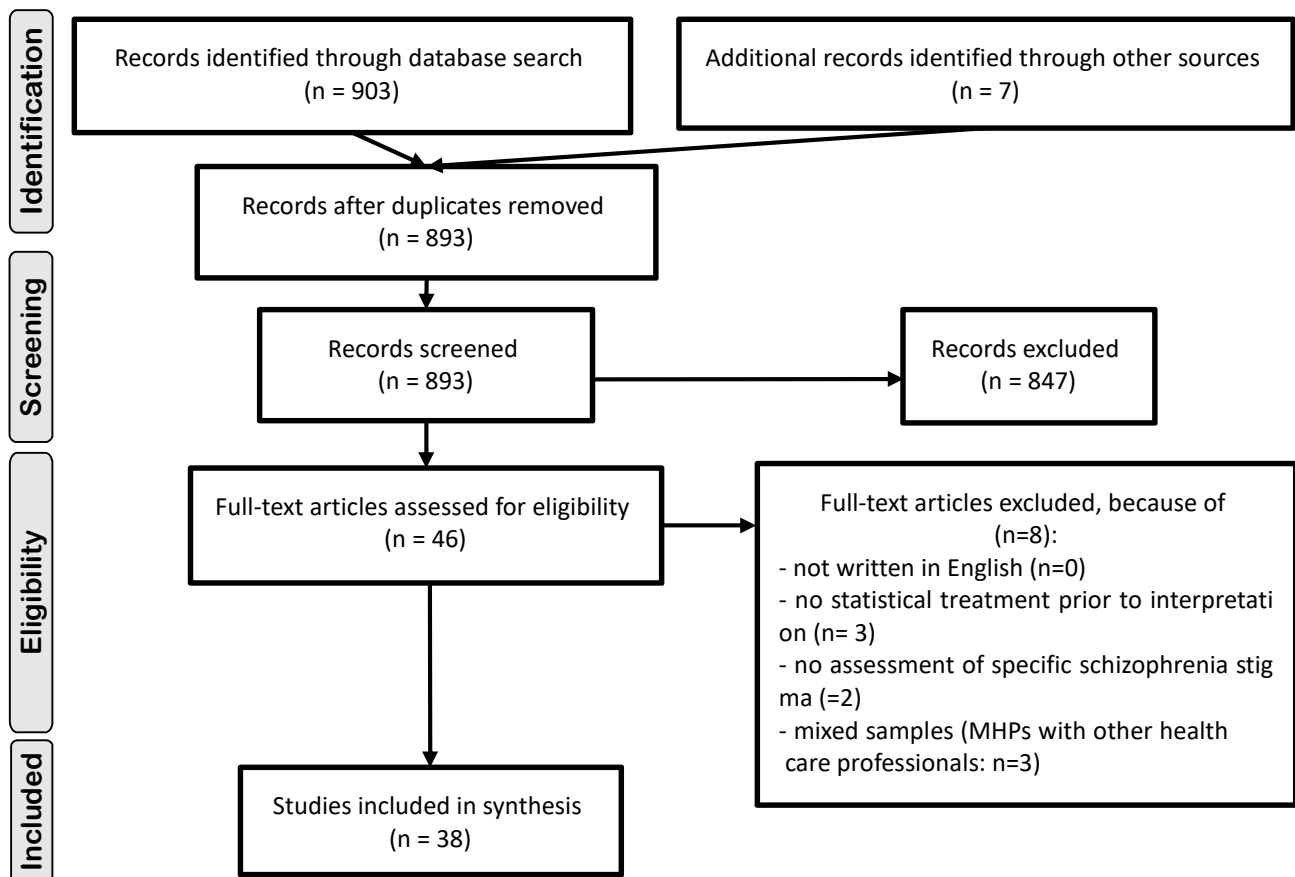
3.2. Study characteristics

The included studies involved 10926 MHP participants: 4526 psychiatrists, 2620 psychologists and 3705 mental health nurses. However, we cannot rule out the possibility that the same samples were used in several studies. Only 18 studies reported the response rate of their sample (mean = 50.23%). Although the studies aimed to assess schizophrenia stigma, no consensual measure emerged across the 38 studies. Among these measures, the Social Stigma Scale (SDS) was used the most (11 studies). However, several versions of the scale were used, as well as different methods of data collection (online surveys, phone surveys, interviews). Years of publications ranged between 1999 and 2019. Of note, there was no clear tendency toward an increase in the number of publications in this research field since the previous review of Wahl et al in 2010.

3.3. Specificity of schizophrenia stigma in MHP: schizophrenia vs other mental illnesses

INSERT Table 1 here

The first aim of this review was to characterize the schizophrenia stigma of MHP in comparison with other pathologies. Eight studies were included on this topic (see Table 1). Among them, 5 compared schizophrenia with depression. MHP held more negative beliefs and attitudes toward schizophrenia (Hsiao et al., 2015; Servais and Saunders, 2007), declared more desire for social distance (Nordt et al., 2006; Servais and Saunders, 2007), and were less optimistic about the prognosis (Hugo, 2001). One study specifically assessed psychiatrists' etiological beliefs about schizophrenia and depression and reported that they held a more biological vision of schizophrenia etiology in comparison with depression. Furthermore, psychiatrists showed more variability in etiological beliefs of depression than in etiological beliefs of schizophrenia (Baillie et al., 2009).

Two studies compared schizophrenia with borderline personality disorder. The first reported that nurses indicated more desire for social distance, more dangerousness beliefs, and less pessimism in prognosis for borderline personality disorder compared to schizophrenia (Markham, 2003). The second reported that psychologists believed that persons with schizophrenia were more ineffective, more incomprehensible, less dangerous, more worthy, more desirable to be with in comparison with persons with borderline features (Servais and Saunders, 2007).

Two studies compared schizophrenia with substance abuse disorder. Both studies reported that psychiatrists and nurses had more negative beliefs toward persons with substance abuse disorder (Avery et al., 2013; Hsiao et al., 2015). Interestingly, Avery et al. (2013) found that psychiatrists had more negative beliefs about individuals with a dual diagnosis of schizophrenia and poly-substance dependence compared to persons with a single diagnosis (i.e. schizophrenia or poly-substance dependence).

Only one study compared schizophrenia with a "non-mental disease" (Dabby et al., 2015) and reported that schizophrenia led to a greater desire for social distance than diabetes mellitus. Of note, this study was the only one to include an implicit measure of stigma, with which it failed to find any difference between the targeted diseases.

3.4. Specificity of schizophrenia stigma in MHP: MHP vs other populations

INSERT Table 2 here

The second aim of the study was to identify the specificities of stigma in MHP in comparison with other social groups. On this topic, 20 articles were included (see Table 2). Nine studies compared the MHP to the general population. Among the five studies assessing social distance, two reported that MHP indicated less desire for social distance than the general population (Grausgruber et al., 2007; Loch et al., 2013b), whereas the three others reported no difference (Lauber et al., 2005; Nordt et al., 2006; Van Dorn et al., 2005). All three studies that assessed stereotype of dangerousness in schizophrenia reported than MHP perceived less dangerousness than the general population (Grausgruber et al., 2007; Stuber et al., 2014; Van Dorn et al., 2005). However, in the four studies that assessed beliefs about prognosis and schizophrenia outcomes, two reported that MHP were more pessimistic than the general population (Caldwell and Jorm, 2001; Hugo, 2001), one reported no difference (Magliano et al., 2004b) and the last reported that the general population was more pessimistic (Grausgruber et al., 2007). In addition, MHP indicated more positive beliefs for pharmacological treatment (Lauber et al., 2005; Stuber et al., 2014). Finally, all studies assessing causal beliefs regarding schizophrenia reported that MHP held a more biological view (Magliano et al., 2004b; Van Dorn et al., 2005) or a more multi-causal conception (Grausgruber et al., 2007) than the general population.

Seven studies compared MHP to other health professionals such as general practitioners and health care nurses. Most studies showed that MHP held less negative beliefs and attitudes than the other professionals. Four studies reported that psychologists and mental health nurses held less negative beliefs compared to general practitioners

(Björkman et al., 2008; Caldwell and Jorm, 2001; Hori et al., 2011; Jorm et al., 1999; Smith et al., 2017). However, the four studies conducted on psychiatrists' stigma yielded inconsistent results: two reported no difference with general practitioners (Caldwell and Jorm, 2001; Smith et al., 2017), 1 reported that psychiatrists' view of schizophrenia outcomes was more negative than that of primary health practitioners (Kua et al., 2000), and one reported that psychiatrists held less negative beliefs and attitudes than general practitioners (Hori et al., 2011). Finally, Carr et al. (2004) reported that MHP and general practitioners did not differ on perceived helpfulness of MHP or medication, but MHP considered psychological treatment to be more helpful than did general practitioners.

Five studies compared MHP to persons with schizophrenia. Van Dorn et al. (2005) reported that, in comparison with persons with schizophrenia themselves, MHP perceived less dangerousness, had a more multi-causal view of illness - even if they endorsed a more biological vision, but there was no difference in desire for social distance. Three studies compared MHP and persons with schizophrenia regarding beliefs about medication: two reported that MHP held more confidence in medication than persons with schizophrenia (Jaeger and Rossler, 2010; Rettenbacher et al., 2004) and the other reported no difference (Carr et al., 2004). Carr et al. also reported that MHP perceived psychiatrists, psychologists, mental health nurses and psychotherapy as being more helpful that did persons with schizophrenia. Finally, Foldemo et al. (2004) reported that MHP saw more needs in persons with schizophrenia than did persons with schizophrenia themselves.

Three studies compared MHP to relatives of persons with schizophrenia. All reported less negative beliefs in MHP. MHP perceived less dangerousness in persons with schizophrenia (Grausgruber et al., 2007; Van Dorn et al., 2005), indicated more optimism on social functioning and gave more consideration for civil rights (Magliano et al., 2004b, 2004a). However, no difference was found in desire for social distance or in beliefs regarding treatment (Van Dorn et al., 2005). Finally, two studies reported that MHP held more multi-causal and more biological causal beliefs (Magliano et al., 2004a, 2004b; Van Dorn et al., 2005).

Two studies compared MHP to mental health students. Both reported no difference in desire for social distance or beliefs (Dabby et al., 2015; Linden and Kavanagh, 2012).

3.5. Factors associated with MHP Stigma of schizophrenia
Sociodemographic characteristics

INSERT Table 3 here

Ten studies explored the links between stigma and sociodemographic characteristics. Among the 10 studies treating MHP age or length of practice, half reported a correlation with stigma (Caldwell and Jorm, 2001; Dabby et al., 2015; Hsiao et al., 2015; Loch et al., 2013a; Stuber et al., 2014). However, there was no consensus on the direction of correlations. Two recent studies specified a nonlinear evolution of stigma with age (Linden and Kavanagh, 2012; Loch et al., 2013b), with the highest stigma between 30-40 years old or with 10-14 years of practice. The eight studies interested in gender all reported no significant effect on stigma in MHP (Caldwell and Jorm, 2001; Dabby et al., 2015; Grausgruber et al., 2007; Heibach et al., 2014; Hori et al., 2011; Hsiao et al., 2015; Pavon and Vaes, 2017; Stuber et al., 2014). Regarding the link between education level and stigma, three studies showed a positive correlation (Caldwell and Jorm, 2001; Grausgruber et al., 2007; Stuber et al., 2014), one reported no correlation (Hori et al., 2011) and the other reported a negative correlation (Pavon and Vaes, 2017).

3.5.1. Professions

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Nine studies compared schizophrenia stigma between different mental health professions such as psychiatrists, psychologists and mental health nurses. Regarding stereotyped beliefs, all studies reported differences between MHP (Caldwell and Jorm, 2001; Hori et al., 2011; Magliano et al., 2004a; Reavley et al., 2014), except one (Smith et al., 2017). However, there were contradictory results regarding these differences. Furthermore, two studies indicated that psychiatrists endorsed more desire for social distance than psychologists and nurses (Reavley et al., 2014; Smith et al., 2017), and one reported no difference between them (Nordt et al., 2006). In support of these results, Lebowitz and Ahn (2014) recently showed that medical doctors reported less empathy and more personal distress when faced with a schizophrenia vignette compared to other MHP. All studies measuring beliefs about therapies reported that psychiatrists held less confidence in psychotherapy than other MHP (Heibach et al., 2014; Lebowitz and Ahn, 2014). Of note, MHP trained in Cognitive Behavioral Therapy in psychosis (CBTp) attributed more importance to CBTp than MHP who were not trained in it. However, Lebowitz and Ahn (2014) observed no difference in beliefs about medication efficacy. Moreover, heterogeneity was reported in a sample of psychiatrists, as three clusters were identified differing in the degree of stigmatized beliefs (Loch et al., 2013a). Finally, two studies reported the importance of mental health care setting or context: nurses working in community setting, with outpatients, reported less negative stigma than those working with inpatients or in an acute psychiatric setting (Hsiao et al., 2015; Linden and Kavanagh, 2012)

3.5.2. Etiological beliefs

INSERT Table 5 here

Two studies considering etiological beliefs about schizophrenia (i.e. biological, psycho-environmental) showed that biological beliefs led to more negative attitudes such as exhibiting less empathy and more dehumanization (Lebowitz and Ahn, 2014; Pavon and Vaes, 2017). Three of four studies that focused on the link between etiological beliefs and beliefs about treatment efficacy reported no significant relation (Heibach et al., 2014; Lebowitz and Ahn, 2014; Serafini et al., 2011).

3.5.3. Other factors

Many other factors are potentially relevant but still lack replicative studies. Hengartner et al. (2012) reported a strong association between cultural factors and social distance, when they compared MHP from Switzerland with those from Brazil (although they were not in the same data collection condition). Heibach et al. (2014) reported that the more MHP endorsed continuum beliefs, the more they gave priority to CBTp. In a sample of psychiatrists, Dabby et al. (2015) reported a small positive correlation between contact with patients (number of contact hours in a week) and implicit stigma, but no correlation with any explicit measure of stigma. Stuber et al. (2014) found that providers having had a mental illness reported more positive beliefs about competency in schizophrenia and less desire for social distance.

4. Discussion

This study is the first review aimed at identifying the characteristics of schizophrenia stigma in MHP in comparison with other psychiatric disorders, the specificities of MHP in comparison with other social groups and the factors associated with this stigma. The review included 38 studies.

Studies showed that schizophrenia is one of the most stigmatized mental illnesses (i.e. beliefs of dangerousness, incompetency, poor prognosis, and desire for social distance), even if most of them compared schizophrenia with depression. This finding provides support for the conclusions of previous reviews that highlighted differences in stigma toward mental illnesses and demonstrated schizophrenia to be one of the most stigmatized conditions (de Jacq et al., 2016; Wahl and Aroesty-Cohen, 2010). However, some recent studies not included in previous reviews suggest that other psychiatric illnesses may be more stigmatized. Borderline personality disorder and, more recently, substance abuse disorder were associated with more negative beliefs (e.g. dangerousness, desire for social distance) than schizophrenia among MHP.

In comparison with other social groups (general population, relatives, other professionals and persons with schizophrenia themselves), MHP consistently reported less dangerousness beliefs toward schizophrenia and more positive beliefs regarding pharmacological treatment. Nevertheless, results were less consistent regarding prognosis and desire for social distance, as reported in previous reviews (de Jacq et al., 2016; Schulze, 2007; Wahl and Aroesty-Cohen, 2010). Of note, most studies compared MHP with general population. Regarding schizophrenia specifically, MHP showed less stigmatizing beliefs than general population. This finding challenges the conclusions of de Jacq et al., 2016 about the comparability of MHP stigma with general population and the expected positive effect of professional expertise. These findings underline the importance of studies focusing on one specific mental illness to clarify the stereotype content in MHP compared to other social groups, thus going beyond the "inconsistent picture" of previous reviews (Schulze, 2007; Wahl and Aroesty-Cohen, 2010).

Although this point was only superficially mentioned in previous reviews, our results clearly show that many factors may influence schizophrenia stigma in MHP. Age, education level, type of mental health profession, and length of practice are associated factors that showed inconsistent relations to stigma, so firm conclusions regarding the nature of their influence cannot be drawn. Interestingly, the work setting or context seems to be a more clearly associated factor (e.g. community setting with outpatients vs acute psychiatric services with inpatients). In addition, biological etiological beliefs about schizophrenia led to more negative attitudes towards it in MHP. This finding is even more important given that schizophrenia is seen as the most biological psychiatric pathology in American clinicians (Ahn et al., 2009). Some isolated studies identified other potentially associated factors: country, frequency of contact with persons with schizophrenia, continuum beliefs (i.e. seeing schizophrenia as a constellation of symptoms distributed continuously in the general population rather than as a discrete social category), or having yourself a mental illness. Further studies should focus on intra-individual characteristics as well as work contexts in order to clarify these issues.

Only a few of the studies included referred to a theoretical concept or model to explain their results regarding schizophrenia stigma in MHP. In 1984, Cohen and Cohen coined the term 'Clinical Illusion', i.e. a bias defined as "the attribution of the characteristics and course of those patients who are currently ill to the entire population contracting the illness" (p1180). This bias may explain the pessimism of the prognoses of MHP, who are used to working with persons presenting the severest forms of schizophrenia. More recently, Thornicroft et al. (2010) referred to the 'Physician Bias' regarding the same phenomenon. Moreover, psychiatric hospitals are organizations where MHP reported more associative stigma in comparison with community centers or rehabilitation centers (Verhaeghe and Bracke, 2012). Associative stigma, as stigma that MHP experience because they are associated with persons who belong to a stigmatized category in society, namely, people with mental health problems, is related to more depersonalization, more emotional exhaustion, and less job satisfaction among mental health professionals (Verhaeghe and Bracke, 2012). Drawn from social psychology, 'Infrahumanization' (Leyens et al., 2000) and 'Dehumanization', which are globally defined as seeing others as less than fully human, may also shed light on stigma specificities in MHP. When interacting with stereotyped persons such as those with mental illness, people may dehumanize them by denying

them mental states like intentions, goals and emotions. Some studies conducted in the general population suggest that dehumanization is used as a strategy to avoid emotional costs and empathy when faced with a stigmatized person. The motivation to avoid emotional exhaustion may thus lead to more stigma, and a lesser degree of empathy (Cameron et al., 2016). Accordingly, recent evidence showed that infrahumanization and dehumanization are used in MHP as defensive strategies "to avoid getting too emotionally involved with patients' suffering" and to " reduce the risk of emotional exhaustion and burnout" (Pavon and Vaes, 2017, p2). These processes could explain why MHP may endorse negative beliefs about schizophrenia and demonstrate less empathy. A bio-genetic vision of schizophrenia also fosters infrahumanization (Pavon and Vaes, 2017). Our findings showed that biological etiological beliefs about schizophrenia lead to more negative attitudes in MHP. The role of the bio-genetic ideology is well known as a main predictor of mental illness stigma in general population and persons with mental illness (for a review, see Larkings and Brown, 2018; Read et al., 2013; Rüsch et al., 2010; Schomerus et al., 2014). Despite this, many anti-stigma programs use bio-genetic arguments, as "mental illness is an illness like any other" approach, increasing perceptions of dangerousness and unpredictability, fear and desire for social distance (for a review, see Read et al, 2006): "When the disease model is applied to the brain, the assumption is that the person is incapable of judgments, reason, autonomy – that their personhood is negated" (p 311, Read et al, 2006).. The Haslam and Kvaale Mixed Blessings Model (2015) accounts for the link between bio-genetic arguments and stigma in the general population through the concept of essentialism. Through the innate tendency to create social categories, essential categories are thought to be biologically based and have well-defined boundaries (Ryazanov and Christenfeld, 2018). Essentialism may thus be prompted by biological causal beliefs in MHP, thus leading to more stigmatizing beliefs, attitudes and discrimination. Interestingly, the phenomenon may also be intersubjective: "That crucial relationship [between MHP and persons with mental illness] may be eroded from both sides, because just as biogenetically oriented clinicians may be less empathic toward their clients, people may also be inclined to perceive them as lacking warmth" (Haslam and Kvaale, 2015, p402).

This review has several limitations. First, the quality of the studies varied, with many methodological biases or lack of information about bias control. Second, the review compared studies from different countries, though culture is a well-recognized factor of variation in stigma. Third, measures varied greatly across the studies (e.g. different forms of social distance scales, varying number of items), with an over-representation of stereotype measures (beliefs) and few measures of attitudes (emotions) and discrimination (behaviors). Moreover, most of the studies did not refer to a theoretical model to define the stigma component and the corresponding measure. For this reason, there was considerable confusion between belief and attitude, and between stereotype and prejudice, yet these are known to be different components of stigma (Corrigan and Penn, 1999; Fiske, 1998). Also, this review resume results from measures that greatly varied through included studies regarding the influence of social desirability (e.g. implicit measure versus explicit measure, direct or indirect measures, clear or hidden instructions etc.). This major limitation also prevented us from conducting a meta-analysis on the topic. Caution is therefore required when extrapolating on the results. Nevertheless, they offer perspectives for future research aimed at characterizing MHP stigma. Of note, no study has yet explored behavioral stigma in MHP, and only a few used implicit stigma measures. These are two aspects of schizophrenia stigma for which there is a dearth of data. Finally, note that unpublished data were not included in this review, as they were not peer-reviewed. Similarly, we did not include papers published in another language than English, as they are not readable by the entire research community.

Overall, these findings underline the need to conduct specific research about schizophrenia stigma in MHP. While the review shows that the individual characteristics of MHP as well as their work settings may be important factors, further research is needed to unravel their potential influence. Other factors may directly reflect the mechanisms by which stigmatization occurs in MHP. Among them, causal beliefs about schizophrenia etiology, dehumanization and

continuum beliefs are promising targets to develop strategies to combat the emergence and persistence of stigmatization in MHP. Further research is also needed to develop evidence-based destigmatization programs (avoiding illness messages and focusing on increasing contact and psycho-social perspectives) (e.g. Knaak and Patten, 2016). Indeed, the training of MHP with biological beliefs only (e.g. ''mental illness is an illness like any other' model) has been suggested to make stigma and prejudice worse (Read et al., 2006). Altogether, our results and other research (Magliano et al., 2017) rather underscore the need to training MHP about the links between bio-beliefs and stigma/empathy, about essentialism, and about the social causes of psychosis (Murray, 2017; Varese et al., 2012). That might provide evidence-based solutions for fighting stigma in professional practice. Moreover, every effort must be made to achieve a profound change in MHP practices. In this regard, recovered-oriented practices appear as a relevant perspective, by fostering cooperation with persons with mental illness, continuum vision or psycho-social perspectives against bio-genetic fatalism (Bird et al., 2014).

5. Acknowledgment

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Table 1

Studies comparing stigma in Mental Health Professionals regarding schizophrenia versus other pathologies

Study and country	Participants	Measures of schizophrenia stigma	Key finding (effect size)	Response rate and bias
Dabby et al, 2015; Canada	68 psychiatrists	**Social Distance Scale** (Link et al, 1999) **IAT** (schizophrenia vs diabetes x negative vs positive)	Psychiatrists indicated more desire for social distance with schizophrenia compared to diabetes mellitus (L). However, they no harbored negative implicit associations to schizophrenia, compared with diabetes mellitus.	4.6%, **a**
Hsiao et al, 2015; Taiwan	180 mental health nurses	Attitudes of Mental Illness Questionnaire (AMIQ; Luty et al. 2006)	Mental health nurses held more negative attitudes for substance abuse vignette compared to schizophrenia vignette (M), and more for schizophrenia vignette compared to depression vignette (M).	87%, **e**
Avery et al, 2013; U.S.A.	84 psychiatrists (54 addiction psychiatrists, 30 community psychiatrists)	**Medical Condition Regard Scale** (MCRS; Christison, Haviland, & Riggs, 2002)	Psychiatrists had more negative attitudes for individuals with the dual diagnoses of schizophrenia and poly-substance dependence, compared to individuals with single diagnosis of schizophrenia or poly-substance dependence (L)	12%
Baillie et al, 2009; U.K.	154 psychiatrists	Questionnaire on etiology of depression and schizophrenia adapted from Angermeyer et al, 1998	Psychiatrists held more biological vision and less psycho-social vision of schizophrenia etiology compared to depression etiology (NC). Etiological factors were thought to vary more in depression than in schizophrenia (NC)	47%, a, e
Servais et al, 2007; U.S.A.	306 clinician psychologists	A scale of effective–ineffective, understandable–incomprehensible, safe – dangerous, worthy– unworthy, desirable to be with– undesirable to be with, and similar to me–dissimilar to me	For psychologists, persons with schizophrenia were considerably more ineffective and incomprehensible than those with borderline personality disorder (S) or depression (L), whereas persons with borderline features were perceived as the most dangerous (S)	34%, **e**
Nordt et al, 2006; Switzerland	201 psychiatrists, 66 psychologists, 676 psychiatric nurses	Social distance scale (Link et al, 1987)	MHP reported more desire for social distance toward persons with schizophrenia compared to those with depression (NC).	34%, **a, e**
Markham, 2003; U.K.	50 mental health nurses	**Social distance scale** (Ingamells et al., 1996) Beliefs about dangerousness (Link et al, 1987); Staff optimism (Dagnan et al., 1998)	Borderline personality disorder was more stigmatized than schizophrenia by mental health nurses, in all assessments (L)	?%, **e, a**
Hugo, 2001; Australia	266 MHP	Questions about diagnosis, a prognosis	All professions were more optimistic about prognosis for depression vignette than schizophrenia vignette (L).	?%, **e**

Note: (S): small effect size; (M): medium effect size; (L): large effect size; (NC): no calculable effect size

?%: response rate not specified and not calculable *a posteriori*

A: no anonymity of participants; **a**: anonymity of participants not specified; **C**: comparison groups were not in same conditions of data collection; **c**: not specified if comparison groups were in same conditions of data collection; **E**: measures not randomized or counterbalanced; **e**: not specified if measures were randomized or counterbalanced

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Table 2

Studies comparing stigma in schizophrenia regarding Mental Health Professionals versus other groups

Study and country	Participants	Measure of schizophrenia stigma	Key findings (effect size)	Response rate and bias
Arbanas et al, 2019; Croatia	270 nurses (primary care and mental health nurses)	15-item Likert scale	No differences in stigmatizing attitudes between nurses working in psychiatric units and those working in other units.	45.2%
Smith et al, 2017; Mittal et al, 2014; U.S.A.	67 mental health nurses, 62 psychiatrists, 76 psychologists, 91 primary care nurses, and 55 primary care physicians	**Characteristic Scale** (Olmsted & al, 1976) **Attribute Questionnaire** AQ–9 (Corrigan et al., 2002) **Social Distance Scale** (The National Data Program for the Sciences, 2013). **Social Distance Scale** (Link et al, 1999)	Psychologists and mental health nurses endorsed the least stigmatizing beliefs (L) and desire for social distance (L) toward persons with schizophrenia. No differences were found with AQ-9 score.	50%, **e**
Dabby et al, 2015; Canada	35 psychiatry residents 68 psychiatrists	**Opening Minds Scale for Health Care Providers** (Kassam et al, 2012) **IAT** (schizophrenia vs diabetes x negative vs positive)	No difference in explicit or implicit attitudes between psychiatrists and psychiatry residents	4.6%, **a**
Loch et al, 2013, 2; Brasilia	1414 psychiatrists 1015 general population members	Likert scale on negative stereotypes, positive stereotype, belief about restrictions, perceived prejudice and social distance	Psychiatrists reported more negative beliefs than general population (NC), but less desire for social distance (NC).	?% general pop. 62.5% MHP, **C, e**
Linden et al, 2012; Ireland	121 mental health nurses, 66 student mental health nurses	**The CAMI scale** (CAMI, Taylor & Dear 1981) **The social interaction scale** (SIS, Kelly et al. 1987)	No difference in beliefs and social distance between mental health nurses and student nurses.	63% students 66 % MHP
Hori et al, 2011; Japan	100 MHP (other than psychiatrists, 83 Nurses); 36 psychiatrists, 112 physicians 197 general population members	18 items inspired by Uçok et al. (2006)	Psychiatrists demonstrated the least negative attitudes toward schizophrenia, which were followed by the psychiatric staff (other than psychiatrists) compared to general population and physicians (NC).	?%
Jäger et al, 2010; Switzerland	83 persons with schizophrenic disorder, 81 psychiatrists, 91 relatives	Items inspired by DAI-10 Drug Attitude Inventory (Hogan et al., 1983)	Persons with schizophrenia were more negative toward depot injections than psychiatrists and relatives (NC).	18% psychiatrists 34% persons with schizophrenia,?% relatives, **c**
Bjorkman et al, 2008; Sweden	51 psychiatric cares (21 Nurses, 30 assistant nurses), 69 somatic care nurses	Swedish version of Attitudes to Persons with Mental Illness questionnaire (Crisp et al, 2000)	Psychiatric nurses held less negative beliefs in dangerousness (S), unpredictability (M) and "hard to talk" (M) compared to primary care nurses. No differences were found in the belief on recovery and blame.	80% **e, a**

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Grausgruber et al, 2007; Austria	480 no-medical MHP, 1042 general population members, 137 relatives	Items about schizophrenia etiology, belief in the treatment efficacy, dangerousness, and social distance	Compared to general population, MHP indicated more multi-causal beliefs on schizophrenia causes, less desire for social distance, more optimistic view about schizophrenia treatment and MHP perceived less dangerousness. (NC)	31% MHP 36% relatives ?% general pop. C, a, e
Nordt et al, 2006; Switzerland	201 psychiatrists, 66 psychologists, 676 psychiatric nurses, 116 other therapists, 253 general population members	Social distance scale (Link et al, 1987)	Compared to general population, MHP did not differ in their desire for social distance.	34% MHP 63% general pop. a, e, c

Note: (S): small effect size; (M): medium effect size; (L): large effect size; (NC): no calculable effect size

?%: the response rate was not specified and not calculable *a posteriori*

A: no anonymity of participants; **a**: anonymity of participants not specified; **C**: comparison groups were not in the same conditions of data collection; **c**: it was not specified if comparison groups were in the same conditions of data collection; **E**: measures were not randomized or counterbalanced; **e**: it was not specified if measures were randomized or counterbalanced

Table 2 (Continued)

Study and country	Participants	Measure of schizophrenia stigma	Key finding (effect size)	Response rate and bias
Lauber et al, 2005; Switzerland	94 psychiatrists and psychologists, 289 nurses, social workers etc., 98 general population members	Questionnaire on treatment recommendations	Compared to general population, MHP mostly recommended antipsychotics, psychiatric hospitals and MHP in a case of schizophrenia, but less psychologists (NC).	?% general pop., ?% MHP, **a, e**
VanDorn, 2005; U.S.A.	104 persons with schizophrenia, 83 family members of those with schizophrenia or other severe mental illness, 85 mental health clinicians, 59 members of the general population.	Question about dangerousness and causes of mental illness **Social Distance Scale** (Link et al, 2001)	MHP held less beliefs about likelihood of violence than families (S), general population (S) and persons with schizophrenia (M). MHP did not differ in desire for social distance compared to family, general population and persons with schizophrenia. MHP held more biological vision of schizophrenia causes compared to families, general population, and persons with schizophrenia.	85% MHP, ? % others sample, a, C, e
Foldemo et al, 2004 Sweden	32 persons with schizophrenia, their parents and their MHP (N=31)	The Camberwell Assessment of Need (Phelan et al, 1995)	MHP rated more needs than persons with schizophrenia did themselves (NC).	?% all samples, A, C, e
Magliano et al, 2004a; Magliano et al, 2004b; Italy	465 MHP (190 nurses, 110 psychiatrists), 709 relatives, 714 general population	**Opinions about Mental Illness** (QO) (on schizophrenia) (Magliano et al,1999)	Compared to the general population and relatives, MHP held more biological and less psycho-social beliefs in schizophrenia causes (NC). However, they did not differ from general population on prognosis, beliefs in social functioning and beliefs about civil rights. But relatives indicated less optimism on prognosis (M), and less support for civil right (S-M).	95% MHP, 95% relatives, ? % general pop., a, C
Lauber et al, 2004; Switzerland	90 psychiatrists, 235 general population	Social Distance Scale (Link et al, 1987)	Compared to general population, MHP did not differ in their desire for social distance.	?% general pop., ?% MHP, **a, e**
Rettenbacher et al, 2004, Austria	24 outpatients with schizophrenia, 20 psychiatrists, 26 nurses and 42 other MHP	Semi-structured compliance interview	Compared to persons with schizophrenia, MHP were more confident about medication, especially psychiatrists (NC).	?% all samples, a, E
Carr et al, 2004; Australia	192 general practitioners, 50 MHP (27 mental health nurses, etc), 129 persons with schizophrenia or schizo-affective disorder	Attitudes and Needs questionnaire	Compared to persons with schizophrenia, general practitioners and MHP perceived more helpfulness in MHP, medication and psychological treatment (NC).	88% general pop., 67% MHP,?% persons with schizophrenia, a, c
Hugo et al, 2001	81 mental health nurses, 34 medical staff members, 31 allied health care, 982	Question about diagnosis, and prognosis	Compared to general population, MHP were less optimistic about prognosis (NC).	?% all sample C, A

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	general population members			
Caldwell et al, 2001, Caldwell et al, 2000 Jorm et al, 1999; Australia	652 mental health nurses, 1099 psychiatrists, 439 clinical psychologists, 858 general practitioners, 1934 general population members	Questionnaire on prognosis and long-term outcomes about a vignette case	MHP held less optimistic prognosis for schizophrenia than general population (NC)	70% MHP, 61 general pop., A,C, E
Kua et al, 2000	69 psychiatrists, 331 primary health practitioners	Questionnaire about outcome of schizophrenia (Jorm et al, 1997)	Psychiatrists view' were the most negative about schizophrenia outcomes compared to primary health cares (NC).	70% psychiatrists, 38% practitioners, c, e

Note: (S): small effect size; (M): medium effect size; (L): large effect size; (NC): no calculable effect size

?%: the response rate was not specified and not calculable *a posteriori*

A: no anonymity of participants; **a**: anonymity of participants not specified; **C**: comparison groups not in same conditions of data collection; **c**: not specified if comparison groups were in same conditions of data collection; **E**: measures not randomized or counterbalanced; **e**: not specified if measures were randomized or counterbalanced

Table 3:

Studies about stigma from mental health professionals and associated sociodemographic characteristics

Study and country	Sample	Measure of schizophrenia stigma	Key finding (effect size)	Response rate and bias
Pavon, et al, 2017, Study 2 Italy	94 MHP (13 psychiatrists or psychotherapists, 37 nurses, 17 educators, 14 technicians of psychiatric rehabilitation, 13 healthcare assistants)	(De)humanization measure (ordering emotions) Ordering causes or risk factors Rate etiological causes of schizophrenia symptoms Rate 4 solutions to problematic clinical situations	On all assessments, there was no difference according to gender and age. Higher educational level was associated with a greater perception of genetic causes of symptoms (S) and greater dehumanization (M).	?%, **e**
Dabby et al, 2015; Canada	35 psychiatry residents 68 psychiatrists	**Social Distance Scale** (Link et al, 1999) **Opening Minds Scale for Health Care Providers** (Kassam et al, 2012) **IAT** (schizophrenia vs diabetes x negative vs positive)	Among psychiatrists, no correlation was found with explicit measure. IAT showed correlation with age (S) and contact (S).	4.6%, **a**
Hsiao et al, 2015; Taiwan	180 mental health nurses	Attitudes of Mental Illness Questionnaire (AMIQ; Luty et al. 2006)	Head nurses or supervisors held more positive attitudes than staff nurses (L). Nurses working in acute ward held more negative attitudes than those working in outpatient clinics (L). Older nurses were more positive (L), like those with longer practice (M). No correlation with gender was found.	87%, **e**
Heibach et al 2014; Germany	157 psychologists 38 psychiatrists	CBTp importance (Likert scale)	CBTp has greater importance for MHP trained in CBTp compared to those who were not trained (M); for psychologists more than psychiatrists (S). They reported no correlation with gender, age, workplace setting and causal model.	?%, **a, e**
Stuber et al, 2014 U.S.A.	731 MHP (44 psychiatric nurses, 197 therapists and psychologists, 22 psychiatrists...)	**Social distance scale** (no ref) Items on perceived dangerousness and competence	Older MHP saw more competence than younger ones (S), but no age difference was found in dangerousness beliefs or desire for social distance. MHP with higher level of education were more positive with competence and desired less social distance (NC) (no difference in dangerousness beliefs). No correlation with length of practice was found.	49%, **a, e**
Loch et al, 2013,1 Loch et al, 2013,2 Brazil	1414 psychiatrists	Likert scale on negative stereotypes, positive stereotypes, beliefs about restriction, perceived prejudice and social distance	Psychiatrists were not homogeneous groups. Three degrees of stigma were found.	63%, **a, e**
Linden et al, 2012, Ireland	121 mental health nurses, 66 student mental health nurses	**The CAMI scale** (CAMI, Taylor & Dear 1981) **The social interaction scale** (SIS, Kelly et al. 1987)	Mental health nurses working in an inpatient setting held more socially restrictive attitudes than those working in a community setting (S), and more desire for social distance	66 %

				(M)
Hori et al, 2011; Japan	100 MHP (other than psychiatrists, 83 nurses); 36 psychiatrists, 112 physicians	18 items inspired by Uçok et al. (2006)	No link was found between stigma measure and age, gender and education level.	?%
Grausgruber et al, 2007; Austria	480 no-medical MHP, 1042 general population members, 137 relatives	Items about schizophrenia etiology, belief in treatment efficacy, dangerousness, and social distance	MHP with higher level of education reported less desire for social distance (NC). No link was found with gender and age.	31% **a, e**
Caldwell et al, 2001, Caldwell et al, 2000 Australia	652 mental health nurses, 1099 psychiatrists, 439 clinical psychologists, 858 general practitioners, 1934 general public	Questionnaire on prognosis and long-term outcomes about a vignette case	Younger mental health nurses were found to be more negative than older nurses (NC). No link was found with gender, education level and work setting.	75%, **e**

Note: (S): small effect size; (M): medium effect size; (L): large effect size; (NC): no calculable effect size

?%: the response rate was not specified and not calculable *a posteriori*

A: no anonymity of participants; **a**: anonymity of participants not specified; **C**: comparison groups not in same conditions of data collection; **c**: not specified if comparison groups were in same conditions of data collection; **E**: measures not randomized or counterbalanced; **e**: not specified if measures were randomized or counterbalanced

Table 4

Studies about stigma from different mental health professions

Study and country	Participants	Measure of schizophrenia stigma	Key finding	Response rate and bias
Smith et al, 2017; Mittal et al, 2014; U.S.A.	351 health care providers (67 mental health nurses, 62 psychiatrists, 76 psychologists, 91 primary care nurses, and 55 primary care physicians)	**Characteristic Scale** (Olmsted & al, 1976) **Attributil Questionnaire** AQ–9 (Corrigan et al., 2002) **Social Distance Scale** (The National Data Program for the Sciences, 2013).	No difference in beliefs between psychiatrists, psychologists and nurses. However, psychiatrists reported more desire for social distance than psychologists and nurses (L).	50%, **e**
Lebowitz et al, 2014; U.S.A. Study 1	132 MHP	Empathy: adjective rating Personal distress: adjective rating Questions about therapy or medication efficacy	Medical doctor MHP had more negative attitudes about schizophrenia than non-medical doctor MHP (S).	?%, **a, e**
Heibach et al 2014; Germany	157 psychologists 38 psychiatrists	Importance of therapy: Likert scale	Psychiatrists accorded less importance to CBTp than clinician psychologists (S)	?%, **a, e**
Reavley et al, 2014, Australia	506 psychiatrists and 498 psychologists	Personal and perceived stigma (Griffiths et al, 2004) -Personal weakness – dangerous/unpredictability items **Social distance scale** (Link et al, 1999)	Psychiatrists endorsed significantly more desire for social distance than psychologists (S): they also indicated more beliefs in danger (S), but less in personal weakness (S).	26.5%, **a, e**
Loch et al, 2013,1 Loch et al, 2013,2 Loch et al, 2011 Brasilia	1414 psychiatrists	Likert scale on negative stereotypes, positive stereotypes, beliefs about restrictions, perceived prejudice and social distance	Psychiatrists were not homogeneous groups. Three degrees of stigma were found.	62.5%, **e**
Hori et al, 2011; Japan	100 MHP (other than psychiatrists, 83 Nurses); 36 psychiatrists.	18 items inspired by Uçok et al. (2006)	Psychiatrists demonstrated less negative attitudes toward schizophrenia than psychiatric staff (other than psychiatrists) (NC).	?%
Nordt et al, 2006; Switzerland	201 psychiatrists, 66 psychologists, 676 psychiatric nurses, 116 other therapists	Social distance scale (Link et al 1987)	No difference between nurses, psychiatrists and psychologists on their desire for social distance.	34% **a, e**
Magliano et al, 2004 1	190 nurses, 110 psychiatrists,	**Opinions about Mental Illness** (QO) (on schizophrenia) (Magliano et al,1999)	Nurses were more positive about social functioning than psychiatrists (M), and about civil rights (M).	95%, **a**
Caldwell et al, 2001, Caldwell et al, 2000 Jorm et al, 1999; Australia	652 mental health nurses, 1099 psychiatrists, 439 clinical psychologists,	Questionnaire on prognosis and long-term outcomes about a vignette case	Mental health nurses were more optimistic about schizophrenia prognosis than psychologists and psychologists more than psychiatrists (NC)	75%, **e**

Table 5

Studies about stigma from mental health professionals and associated causal beliefs

Study and country	Participants	Measure of schizophrenia stigma	Key finding	Response rate and bias
Carter et al, 2017; U.K.	219 MHP (88 community psychiatric nurses, 21 psychiatrists, 12 psychologists, 23 social workers, 10 occupational therapists)	Reduced **questionnaire of causal beliefs** (Lobban et al, 2005), Questions about treatment efficacy	Clinicians who endorsed psychosocial factors were more likely to believe CBT would be helpful (S), whereas clinicians with a more biomedical model believed medication would be more helpful (S-M).	?%, **a, e**
Pavon, et al, 2017; Italy Study 2,	94 MHP (13 psychiatrists or psychotherapists, 37 nurses, 17 educators, 14 technicians of psychiatric rehabilitation, 13 healthcare assistants)	(De)humanization measure (ordering emotions) Ordering causes or risk factors Rate etiological causes of schizophrenia symptoms **Link Burnout Questionnaire** (LBQ, Santinello, 2007) Rate 4 solutions to problematic clinical situations	Tendency of healthcare professionals to dehumanize their patients more when they endorsed a bio-genetic rather than a psycho-environmental conceptualization of schizophrenia. There is a link between genetic etiologic beliefs and more positive attitudes towards restraint methods. (NC)	?%, **e**
Lebowitz et al, 2014; U.S.A. Study 1	132 MHP	Empathy: adjective rating Personal distress: adjective rating Questions about therapy or medication efficacy Importance of therapy: Likert scale	Biological explanations yielded more negative attitudes on schizophrenia than psycho-social explanations (NC). No impact on therapy or medication efficacy.	?%, **a, e**
Heibach et al 2014; Germany	157 psychologists 38 psychiatrists	**Continuum Beliefs Questionnaire** (CBQ; Wiesjahn, Brabban, Jung, Gebauer, & Lincoln, 2012) **Causal beliefs about schizophrenia questionnaire** (Lincoln, Arens, Berger, and Rief, 2008)	No difference in CBTp importance according to causal model.	?%, **a, e**
Serafini et al, 2011; Italy	50 nurses	**Standardized Stigmatization Questionnaire** SSQ (Haghighat 2005) Perceived social stigmatizing attitudes	Participants who believed that cause of schizophrenia was genetic were likely to show higher level of perceived stigmatizing attitudes (NC). No link with therapy or medication efficacy.	?%, **e**

Note: (S): small effect size; (M): medium effect size; (L): large effect size; (NC): no calculable effect size

?%: the response rate was not specified and not calculable *a posteriori*

A: no anonymity of participants; **a**: anonymity of participants not specified; **C**: comparison groups not in same conditions of data collection; **c**: not specified if comparison groups were in same conditions of data collection; **E**: measures not randomized or counterbalanced; **e**: not specified if measures were randomized or counterbalanced