Article

Mental Illness Stigma: The Role of Cognitive Closure and Direct Experience

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ABSTRACT

Background. Although a relationship between the Need for Cognitive Closure (NCC) and general prejudice has been established in the literature, evidence on the role of cognitive closure in mental health-related prejudice is lacking. *Objective*. In the current study, factors such as (1) firsthand encounters with mental health issues, (2) being diagnosed with a mental disorder, and (3) engaging directly with individuals experiencing mental health conditions, were identified as variables for group comparison. Instruments and *Procedure*. This empirical study was conducted on a sample from the general population 455 participants (131

males, 316 females, and 8 non-binary; M_{age} = 33.42; SD = 13.22), who completed the Balanced Inventory of Desirable Responding-Italian version (BIDR-6), the Prejudice Towards People with Mental Illness (PPMI) scale, and the Need for Cognitive Closure (NCC) scale. *Results*. The results indicate a notable association between the inclination for cognitive closure and increased levels of bias against individuals with mental health conditions. Furthermore, heightened prejudice aligns with a stronger inclination towards social desirability. Through the examination utilizing Directed Acyclic Graphs (DAG) and the group contrasts, it was evident that personal encounters with mental illness, having obtained a psychiatric diagnosis, and having acquaintances with mental health issues are linked to markedly reduced levels of prejudice and social desirability. *Conclusions*. This study can contribute to the understanding of the motivations underlying prejudice towards patients with mental illness and represents a starting point from which to develop and prepare psycho-social interventions to reduce stigma.

KEYWORDS: stigma; mental health; mental illness; cognitive closure

ABBREVIATIONS

MI, mental illness; MH, mental health; PPMI, Prejudice towards People with mental illness; SDO, Social Dominance Orientation; RWA, Right-wing Authoritarianism; DAG, Directed Acyclic Graphs; NCC, Need for Cognitive Closure.

INTRODUCTION

Stigma against individuals with mental disorders is a widespread and complex phenomenon, manifesting through stereotypes, prejudices, negative attitudes and discriminatory behaviors toward this group [1].

Stereotypes refer to oversimplified, generalized, and often inaccurate beliefs about individuals with mental illness such as the assumption that people with depression are inherently weak or poorly motivated.

Prejudice instead represents one of the most recurrent expressions of "labeling" of individuals with terms such as "crazy", "dangerous" or "less intelligent" [2]. It involves a component of resistance to changing these etiquettes, even in the presence of new, contradictory information.

When stereotypes and prejudice are embedded in societal practices and behaviors, they generate stigma—a social process that results in the exclusion, discrimination, and marginalization of individuals with mental disorders. This distorted portrayal negatively impacts public opinion, perpetuating stigma and inhibiting support and acceptance for those affected [3].

Social stigma of mental illness has serious and adverse effects, including self-stigma, a related but distinct phenomenon wherein the concerned individuals internalize negative societal beliefs, leading to

decreased self-esteem, loss of self-confidence, and self-worth [4]. Link and Phelan [1] emphasize that self-stigma can lead individuals to feel guilty and ashamed and influence their choice to seek professional help.

Moreover, social stigma plays a large role in causing social isolation and marginalization, thereby compounding the phenomenon of loneliness and potentially aggravating symptoms of mental health conditions [3,5]. This marginalization is observed through the occurrence of social exclusion or overt discrimination. Furthermore, stigma frequently inhibits the utilization of mental health care services due to individuals' fears of being judged and further stigmatized, which causes delayed treatment and decreased effectiveness of recovery interventions [6,7]. Employment discrimination is not unusual, as discriminatory treatment or biases in recruitment processes may cause reduced opportunities or loss of employment for those concerned.

Research has consistently demonstrated that contact and familiarity factors have been found successful in reducing stigma [1]. Ilic et al. [8] examined attitudes to mental illness in individuals aged 16 years and over with the CAMI scale, with specific interest in bias, social rejection, tolerance, and support for community care. Findings showed overall favorable perceptions regarding prejudice and exclusion but not toward tolerance and support. Women had considerably less prejudiced and more tolerant attitudes than men. There were age-based differences: those between 35–64 years showed less prejudice, and those 65 and older showed most prejudices. Tolerance and support were lowest in younger participants (16–34) and were consistent in older participants (35 and older).

Sheppard et al. [9] examined prejudice against individuals with borderline personality disorder (BPD) in participants' personality traits. Researchers used a modified PPMI scale (PPBPD) together with the 28-item PPMI scale, a 10-item Level of Contact Report, Quality of contact items, the 7-item Empathic Concern and the Big-Five personality traits questionnaire, administered to psychology students, medical and clinical psychology students, and the general public. The results revealed statistically significant relationships between fear/avoidance, malevolence, authoritarianism, and factors such as social dominance orientation (SDO) and right-wing authoritarianism (RWA), as previously established by Kandler et al. [10]. Additionally, empathy, prior contact, and BPD knowledge were found to have negative relationships with prejudice facets. Qualitative analyses corroborated that students of psychology, medical, and clinical psychology are less prejudiced than the general population, emphasizing the robust effect of direct contact and familiarity in decreasing stigma and mental illness-related stigma [11,12].

The Role of NCC

The NCC is a key construct in social psychology that describes an individual’s desire for clear, unambiguous answers and a preference for

order and predictability. People with a high NCC tend to feel discomfort or anxiety in situations of uncertainty and are motivated to reach quick, firm conclusions, sometimes at the expense of considering alternative explanations or new information. NCC is typically characterized by a preference for decisiveness, intolerance of ambiguity, and a tendency to avoid confusion or open-ended situations [13]. This need can influence social attitudes and decision-making processes, including how individuals form judgments about others.

Conceptually, the NCC aligns with other well-established psychological constructs associated with stigma, such as cognitive rigidity and RWA. Cognitive rigidity, characterized by inflexible thinking and reluctance to accept new perspectives, reinforces prejudice by perpetuating stereotypical beliefs and negative attitudes [13]. RWA—defined by strong adherence to conventional norms, submission to authority, and hostility toward perceived out-groups—has consistently been linked to greater prejudice toward various stigmatized populations, including those with mental illness.

Given these conceptual overlaps, it is plausible to hypothesize that NCC, through its association with a preference for certainty and reduced tolerance for ambiguity, similarly predicts increased stigma toward mental illness.

From the literature review on the relationship between prejudice towards mental illness and the NCC, very limited research is currently available. Although NCC has been discussed broadly in theoretical contexts or related to racial stereotypes [14], but have not specifically examined how NCC relates to prejudices against mental illness. Furthermore, while other studies have addressed the nature of mental health-related prejudices, they have not incorporated the cognitive dimension associated with NCC. To date, there are no known studies explicitly exploring the connection between NCC and mental illness-related prejudice from a psychosocial perspective. Thus, the current study hypothesizes that higher NCC is correlated with greater prejudice towards individuals with MI, particularly in the absence of direct, experiential contact.

Present Study Aim

In light of the examined literature and theoretical premises, the present study seeks to investigate whether a greater NCC is associated with increased levels of prejudice towards individuals with mental disorders. Furthermore, it explores whether direct personal experience with mental health problems, as well as personal contact with individuals affected by mental disorders, may be linked to lower levels of prejudice. By examining these relationships, the study aims to contribute to a more detailed understanding of the psychological and experiential factors involved in mental health stigma.

In line with recent theoretical perspectives and empirical findings, this study proposes the following hypotheses.

First, it is hypothesized that a higher NCC is associated with increased levels of prejudice towards individuals with mental disorders. This relationship is expected to reflect the broader association of cognitive closure with psychological constructs such as authoritarianism, intolerance of ambiguity, and cognitive rigidity, all of which have been linked to stigmatizing attitudes in previous research.

Second, the study hypothesizes that individuals who have personally experienced a mental health condition will report lower levels of prejudice towards people with mental disorders. This may be attributable to greater empathy and understanding, resulting from firsthand experience of judgment, labeling, or marginalization.

Finally, it is expected that those who have had direct contact with individuals living with mental disorders, independent of their own personal experience, will show more reduced prejudice. The contact hypothesis suggests that meaningful interpersonal interactions can help to decrease social distance and promote more inclusive and accepting attitudes.

MATERIALS AND METHODS

Procedure

We selected and organized the tests according to conventionally accepted ethical standards, presenting informed consent and preliminary information related to the research. Participation was voluntary. We administered the tests using Google forms from February to June 2023. Participant anonymity was protected. Participants were also asked to indicate their age, gender (including perceived gender), their occupation (work, study, etc.), whether they had ever received a psychiatric diagnosis, if they knew someone with a mental disorder diagnosis, and if they were interested in psychology and mental health issues, specifying how they encountered the information. The research followed the Ethical Guidelines of the Helsinki Declaration, the Ethical Guidelines for Internet Research (NESH), and was approved by the Ethical Committee of Polish Society of Disaster Medicine (protocol n. 16.01.2023.IRB).

In this study, we adopted a methodical approach to investigate the role of cognitive rigidity and other related variables in prejudice against individuals with MI. The central hypothesis of our work is that cognitive rigidity could be a significant factor in shaping negative attitudes towards this population. To test this hypothesis, we selected specific measurement tools that allowed us to systematically and quantifiably analyse the variables of interest. We utilized the NCC Scale to measure the degree of cognitive rigidity, which is the individual's preference for order, predictability, and a clear structure in their cognitive activities. This scale

enabled us to assess how strongly an individual desires to reach a definite conclusion in ambiguous situations, thus avoiding uncertainty.

Additionally, we employed the PPMI scale, a tool that quantifies positive and negative perceptions associated with mental illness. This scale is crucial for discerning specific attitudes that may be linked to the cognitive rigidity measured by the NCC. Lastly, we included a social desirability scale to control for potential response bias, ensuring that the data reflected participants' true opinions rather than socially acceptable or perceived responses. The selection of these tools was not only based on their validity and dependability in measuring relevant constructs but also on their ability to form a strong basis for statistical analysis. This approach enables the quantification of prejudicial attitude and cognitive rigidity, providing a logical basis for future studies. Employing such a stringent methodology ensures that each variable will contribute towards a full and thorough grasp of the phenomenon under investigation, at the same time supporting the postulation that cognitive rigidity, in addition to other factors, could form an important constituent in the prejudice towards mentally ill persons. This careful analysis forms a basis for future studies that can explore additional confounding factors, in a move towards a deeper grasp of prejudice and its cognitive basis.

Participants

The final sample included 455 participants out of 500 who accessed the survey, yielding a 91% response rate. The study involved 131 males, 316 females and 8 non-binary individuals, with ages ranging from 18 to 75 years (M_{age} = 33.42; SD = 13.22). Participants were recruited via posts published on the social media platforms Instagram, Twitch, and Facebook. Recruitment announcements were shared on the researchers' personal pages/profiles rather than within specific groups or communities. The post included an invitation to participate in a Google form entitled "Psychoeducation and Mental Health," specifying that participation was anonymous and voluntary, and required acceptance of informed consent before proceeding. Data collection took place over a period stretching from February 13, 2023 to June 15, 2023.

Recruitment was deliberately broad and inclusive, with no specific inclusion or exclusion criteria, in order to capture a heterogeneous sample in terms of both sociodemographic characteristics and experience with mental health. Each participant completed an online form questionnaire in which they were asked to indicate their gender identity, age, occupational status (with possible answers including student, employed, both, neither, or retired) and type of occupation, as well as their personal experience with mental health issues (for example, whether they had ever suffered from problems such as anxiety, depression, sleep disorders, or stress-related issues). Additional questions addressed whether they had ever received a psychological or psychiatric diagnosis, whether they knew anyone with a mental illness, and their interest in topics related to

psychology and mental health, including the main social media platforms through which they sought information on these subjects.

All data were self-reported using direct and explicit questions, in line with accepted practices in psychosocial research. While self-report measures may be influenced by subjective bias or underreporting, they remain essential for capturing both perceived and formally recognized aspects of mental health. The decision to distinguish between having experienced mental health difficulties and having received a formal diagnosis was methodologically motivated, as this nuance allows for a more detailed exploration of the stigma process, considering both subjective discomfort and formal clinical recognition.

Measures

For capturing the design variables the BIRD-6, The PPMI scale and NCC were used.

BIDR-6

The BIDR-6 consists of 16 items, aimed at investigating two dimensions: (1) Self-Deceptive Enhancement, i.e., the dynamics of self-deception; (2) Impression Management, i.e., the process through which individuals attempt to manipulate the impression they leave on others, related to social desirability. Participants should response on a 6-point Likert scale was prepared, ranging from 1 (strongly disagree) to 6 (strongly agree), without a neutral midpoint to force respondents to express judgments about themselves [15]. In the present study the BIDR-6 questionnaire adapted in the Italian language by Bobbio and colleagues [16] was used.

The PPMI Scale

The original PPMI scale [17] consists of 28 items, using a 9-point scale ranging from 0 (strongly disagree) to 8 (strongly agree) designed and validated the scale identifying four dimensions underlying PPMIs: (1) Fear and avoidance, investigating fear and the tendency to avoid establishing an approach or a relationship with people experiencing mental disorders; (2) Malevolence, investigating feelings of contempt and dislike towards people with mental disorders; (3) Authoritarianism, investigating the tendency to want to limit the freedom of people with mental disorders; (4) Unpredictability, investigating beliefs regarding the predictability or otherwise of the behaviours posed by people with mental disorders.

Based on factor analysis and item analysis, Kenny et al. [16] created a balanced scale of 28 items. The PPMI scale ($\alpha = 0.93$) and four subscales, measuring fear/avoidance ($\alpha = 0.91$), malevolence ($\alpha = 0.80$), authoritarianism ($\alpha = 0.79$), and unpredictability ($\alpha = 0.82$). The scale demonstrated a readability score (Flesch Reading Ease) of 60, suggesting its applicability to the general population. In the present study, the back translation procedure was used. Two of the authors translated the scale

from English to Italian and provided this translation to an English language expert, who then translated it from Italian to English, without having access to the original version. The comparison showed a 95.74% match. Finally, the translated scale was administered to 20 university students to verify its comprehension. The psychometric properties of the PPMI-IT Italian version were explored in a dedicated study [18]. Factor loadings indicated that each dimension was well represented, supporting the construct validity of the scale. Model fit indices, including chi-square (χ^2 = 782.54, df = 296.00, χ^2/df = 2.64), RMSEA (0.06, 90% CI: 0.060–0.07), CFI (0.93), TLI (0.91), and SRMR (0.06), suggest an excellent model fit for the Italian version.

NCC

The NCC by Kruglanski [19] refers to the concern to seek and obtain a definitive answer to a problem or event. It represents an aversion towards confusion, uncertainty, and ambiguity. It consists of 42 items, is a 7-point scale from 1 (completely disagree) to 7 (completely agree) that investigates the level of rigidity and mental closure of the subjects. Five dimensions were identified: (1) Decisiveness, related to the dynamics underlying the decision-making process; (2) Need for Order, related to the tendency to keep the environment and setting in order; (3) Intolerance for Ambiguity, related to the ability to tolerate situations of ambiguity/ambivalence; (4) Mental Closure, related to the possible deficient cognitive flexibility; (5) Need for Predictability, related to the need for control and prediction of situations.

Kruglanski [20] proposes a model of NCC conceptualized in response to the epistemic problem concerning the “individual’s desire for a definite and certain answer to a question and the aversion to ambiguity”. The NCC is proposed by Kruglanski not in terms of presence/absence but along a continuum between two polarizations, one extreme characterized by impatience, impulsivity, thought rigidity, and aversion to considering dissenting opinions (high NCC) and the other characterized by suspension of judgment, uncertainty, unwillingness to take a definitive opinion, frequently proposing alternative solutions (low NCC).

To calibrate and adapt the scale in the Italian version Pierro et al. [21] adopted the same theoretical framework but introduced the confirmatory factor analysis models. Table 1 shows the Cronbach's Alpha values for each variable, obtained in the current study.

Table 1. Cronbach's alpha value for each variable in the present study.

Scale	Number of Items	Cronbach's Alpha
Self-Deceptive Enhancement (BIDR-6)	8	0.772
Impression Management (BIDR-6)	8	0.690
Fear/Avoidance (PPMI)	8	0.892
Malevolence (PPMI)	8	0.802
Authoritarianism (PPMI)	6	0.850
Unpredictability (PPMI)	6	0.852
Decisiveness (NCC)	7	0.828
Need for Order (NCC)	9	0.837
Avoidance of Ambiguity (NCC)	7	0.738
Closed-mindedness (NCC)	7	0.598
Need for Predictability (NCC)	7	0.835

RESULTS

Statistical Analysis

The data were entered into an Excel spreadsheet for recording, according to the scoring instructions contained in the manual of each test. Subsequently, they were analysed with the help of IBM® SPSS® software (Chicago, Illinois) version 27.0. The correlation analysis was carried out by applying Pearson's correlation coefficient. The analysis of the distribution revealed skewness and kurtosis values within the range of ±1. Therefore, a comparison of means was carried out using the Student's *t*-test with respect to the following conditions: (1) firsthand encounters with mental health issues, (2) being diagnosed with a mental disorder, and (3) engaging directly with individuals experiencing mental health conditions.

The nodes (all psychometric domains) and edges (links between nodes) of the network were estimated through a mixed graphical model after a 5-fold cross-validation as indicated by Haslbeck & Waldorp [22], after dividing the sample according to (i) whether the participant either received a diagnosis for a mental disorder or not; (ii) firsthand knowledge, encounter of a mental illness patient. The potential difference between the two networks was estimated by Network Comparison Test [23], after bootstrapping (N = 5.000).

Table 2 shows survey results on demographics, lifestyle, and mental health perspectives among participants. Predominantly female (69.5%), the respondents engage in various activities, with significant numbers working (40.3%) or studying (32.3%). A notable 58.2% have suffered from a mental disorder, yet only 31.2% have received a diagnosis, indicating a gap in mental health recognition or treatment. Awareness and interest in mental health are high, with 76.7% knowing someone with a mental illness and 77.8% expressing interest in psychology and mental health issues. Despite this interest, a majority (59.6%) are hesitant to attend an informative meeting with a psychologist, suggesting potential barriers to actively seeking professional psychological support.

Table 2. Descriptive statistics of the sample.

Question	Category	Frequency	Percent
Gender	Female	316	69.5%
	Male	132	29%
	Non-binary	7	1.5%
What do you for a living?	Work	183	40.3%
	NEET (Not in Education, Employment, or Training)	31	6.8%
	Retired	11	2.4%
	Study	147	32.3%
	Study and work	83	18.2%
Have you ever suffered from a mental disorder?	Yes	265	58.2%
	No	123	27.1%
	I don't know	67	14.7%
Have you ever received a psychological or psychiatric diagnosis?	Yes	142	31.2%
	No	313	68.8%
Do you know someone with a mental illness?	Yes	349	76.7%
	No	106	23.3%
Are you interested in psychology and/or mental health issues?	Yes	354	77.8%
	No	101	22.2%
Would you be willing to attend an informative meeting with a psychologist?	Yes	184	40.4%
	No	271	59.6%

The Relationship between Prejudice towards Mental Illness and the NCC

The Pearson correlation analysis uncovers intricate relationships among psychological factors (Table 3). Self-deception correlates with various traits like impression management, fear/avoidance, and authoritarianism, among others, across different significance levels ($p < 0.01$ and $p < 0.05$). Impression management interestingly shows both positive correlations with self-deception and negative ones with traits such as fear/avoidance and authoritarianism. Fear/avoidance, malevolence, and authoritarianism each show significant correlations with a range of factors including self-deception, unpredictability, and need for order, indicating complex interactions between personal insecurity, control needs, and social perception strategies. Decisiveness and need for order correlate with traits like self-deception and authoritarianism, suggesting a link between decision-making confidence, the desire for structure, and authoritarian attitudes. Intolerance for ambiguity and mental closure are significantly related to fears, authoritarian tendencies, and the need for predictability, reflecting a resistance to uncertainty and complexity.

Table 3. Correlations between social desirability, prejudice towards mental illness, and NCC.

		BIDR—SDE—Self Deceptive Enhancement	BIDR—IM—Impression Management	PPMI—Fear/Avoidance	PPMI—Malevolence	PPMI—Authoritarism	PPMI—Impredictability	NCC—Decisiveness	NCC—Need for Order	NCC—Avoidance of Ambiguity	NCC—Closed Mindedness	NCC—Need for Predictability
BIDR—SDE—Self Deceptive Enhancement	*r*	1	-	-	-	-	-	-	-	-	-	-
BIDR—IM—Impression Management	*r*	0.132	1	-	-	-	-	-	-	-	-	-
	p	0.005	-	-	-	-	-	-	-	-	-	-
PPMI—Fear/Avoidance	*r*	0.258	−0.115	1	-	-	-	-	-	-	-	-
	p	0.000	0.014	-	-	-	-	-	-	-	-	-
PPMI—Malevolence	*r*	0.307	−0.102	0.554	1	-	-	-	-	-	-	-
	p	0.000	0.030	0.000	-	-	-	-	-	-	-	-
PPMI—Authoritarism	*r*	0.306	−0.120	0.678	0.506	1	-	-	-	-	-	-
	p	0.000	0.011	0.000	0.000	-	-	-	-	-	-	-
PPMI—Impredictability	*r*	0.268	−0.143	0.610	0.426	0.630	1	-	-	-	-	-
	p	0.000	0.002	0.000	0.000	0.000	-	-	-	-	-	-
NCC—Decisiveness	*r*	0.431	0.270	0.075	0.096	0.132	0.074	1	-	-	-	-
	p	0.000	0.000	0.108	0.042	0.005	0.115	-	-	-	-	-
NCC—Need for order	*r*	0.298	0.088	0.294	0.185	0.298	0.312	0.116	1	-	-	-
	p	0.000	0.060	0.000	0.000	0.000	0.000	0.013	-	-	-	-
NCC—Avoidance of ambiguity	*r*	0.130	−0.165	0.286	0.096	0.263	0.251	−0.155	0.512	1	-	-
	p	0.006	0.000	0.000	0.041	0.000	0.000	0.001	0.000	-	-	-
NCC—Closed mindedness	*r*	0.114	−0.218	0.414	0.398	0.354	0.328	−0.078	0.310	0.330	1	-
	p	0.015	0.000	0.000	0.000	0.000	0.000	0.098	0.000	0.000	-	-
NCC—Need for predictability	*r*	0.090	−0.052	0.268	0.084	0.230	0.228	−0.067	0.640	0.583	0.446	1
	p	0.056	0.271	0.000	0.073	0.000	0.000	0.153	0.000	0.000	0.000	-

Differences in Prejudice Levels between Subjects with and Without Direct Experience of Mental Health Issues

We compared the scores obtained by the groups, between people who had personally experienced mental discomfort (58.2% firsthand encounters with mental health issues, and 68.8% being diagnosed with a mental disorder as reported in Figure 1) and people who had not experienced it, finding significant differences. People who have personally experienced psychological and/or psychiatric difficulties showed lower levels of self-deception, markedly lower levels of fear/avoidance and malevolence, and lower levels of authoritarianism and unpredictability towards people with mental illness. Therefore, prejudice is lower compared to those who have not personally experienced a mental discomfort in all the subscales of the PPMI. Supplementary Material Tables S1 and S2 show the detailed results of the comparison (difference between means) conducted with the student's *t*-test for independent samples. The values indicating statistically significant differences ($p < 0.001$) are in bold.

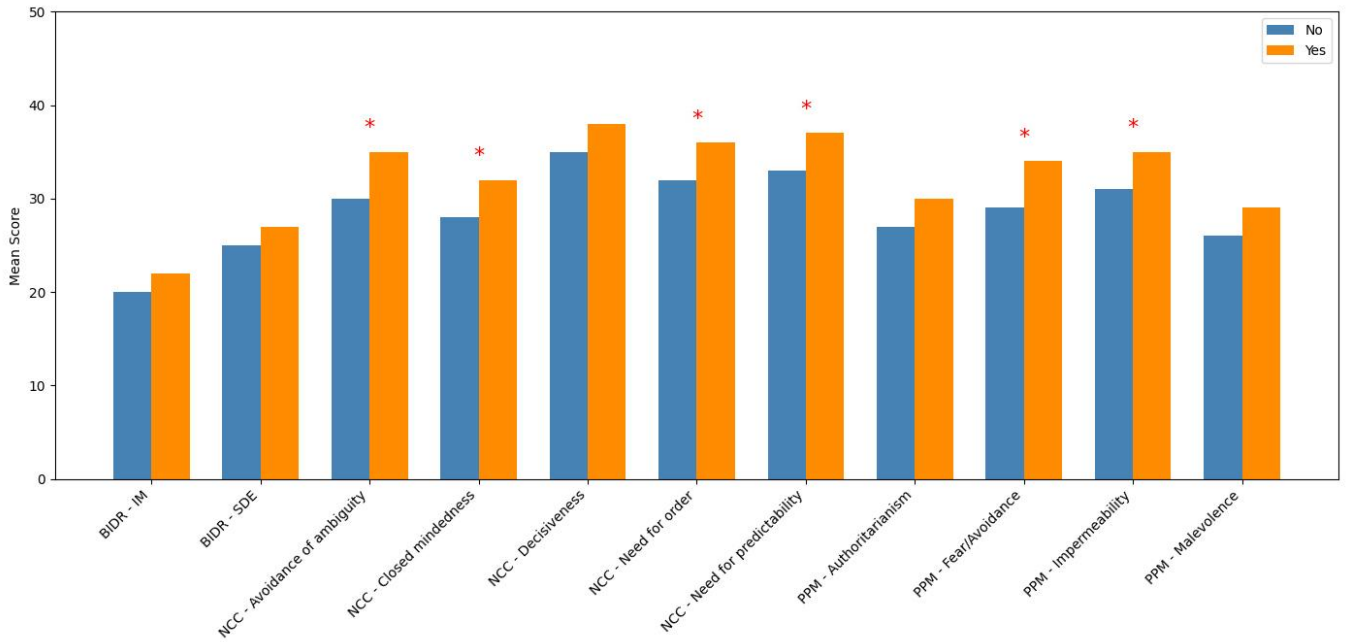

Figure 1. Significance of mean differences for subjects with and without direct experience of mental health issues; red asterisks indicate significant differences.

It is interesting to note that subjects who reported never having experienced mental discomfort report significantly higher levels of social desirability, particularly in the component of self-deception. As for prejudices towards people with mental disorders, those who declare they have never had mental health issues have significantly higher levels of fear avoidance, malevolence, authoritarianism, unpredictability. They also report significantly higher averages in the area of NCC and specifically in decisiveness, need for order, and mental closure.

Differences in Prejudice Levels between Those Who Do or Do not Personally Know Someone Affected by Mental Disorders

Findings shows that people who do not have direct knowledge of someone with a mental illness display a higher level of self-deception and, therefore, tend to lie (and this should also be considered in the interpretation of the responses given); moreover, the level of fear/avoidance towards people with MI is significantly higher (40.48 compared to 29.54 obtained by those who know someone with mental illness). Malevolence, authoritarianism, and unpredictability are also higher (see Supplementary Material Tables). This could indicate that the lack of knowledge about the condition—not having direct contact with someone experiencing a mental disorder—may be a decisive factor in the establishment of PPMI. Finally, there is also a higher need for order, intolerance for ambiguity, and mental closure. It could be stated, therefore, that—in this context—PPMIs is the result of a multifactoriality of variables.

The second comparison involved individuals who had or had not engaging directly with individuals experiencing mental health conditions

(Figure 2). Out of these, 349 participants, constituting around 76.70%, reported direct familiarity with an individual with a mental disorder.

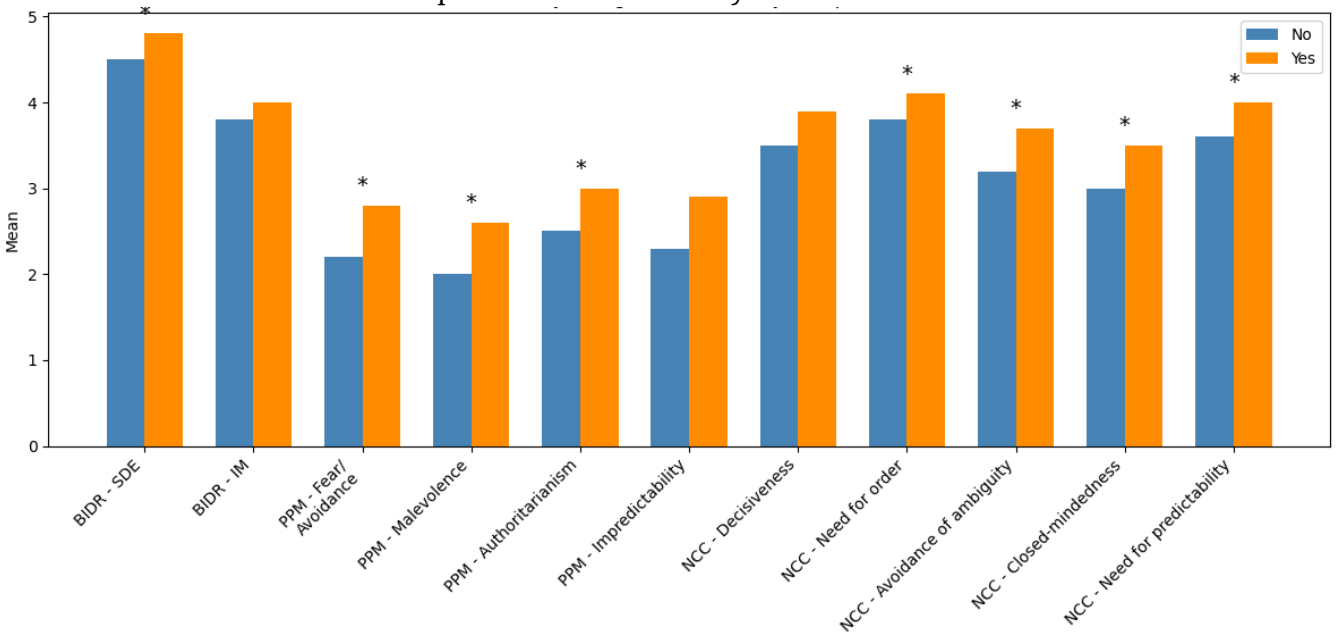

Figure 2. Mean differences between groups based on direct familiarity with mental disorders; black asterisks indicate significant differences.

Supplementary Material Tables S1 and S2 show the mean differences and highlights in bold how, for subjects who had not engaging directly with individuals experiencing mental health conditions, the social desirability in its self-deception component is significantly higher. Moreover, these subjects exhibit higher levels of stereotypes and PPMI. Specifically, they have higher levels of fear avoidance, malevolence, authoritarianism, and unpredictability ($p < 0.001$), as shown in the significance table number. When individuals that ever received a diagnosis for a mental disorder were compared to those that did not, no significant difference at the network level was observed ($p > 0.05$, $n = 5000$ bootstrap). By contrast, a significant difference was found between individuals knowing at least one person that ever received a diagnosis for a mental disorder and those who did not ($p > 0.046$, $n = 5000$ bootstrap). Those engaged directly with someone affected by a mental disorder exhibited a lower influence by nodes of BIDR on NCC or PPMI. Specifically, the edges between self-deceptive enhancement and unpredictability, impression management and closed mindedness, were significant only in the group of individuals without first-hand exposure to individuals affected by a mental disorder. Similarly, the edge between need for order and unpredictability was not significant in individuals knowing someone with a mental disorder. Moreover, a direct link between decisiveness and need for order did not exist for the first group, while it did for the second one. Closed mindedness was related to fear/avoidance in the first group, and malevolence in the second. In turn, malevolence was also linked with self-deceptive enhancement, but only in the second group. Please see Figure 3 for a graphical representation of results. In this study, Network

Comparison Analysis was employed to compare the structure of relationships among psychological constructs across different subgroups—specifically, participants with and without direct experience or contact with individuals with mental disorders. This approach made it possible to assess whether, and in what ways, the connections between key variables changed as a function of personal experience or direct acquaintance.

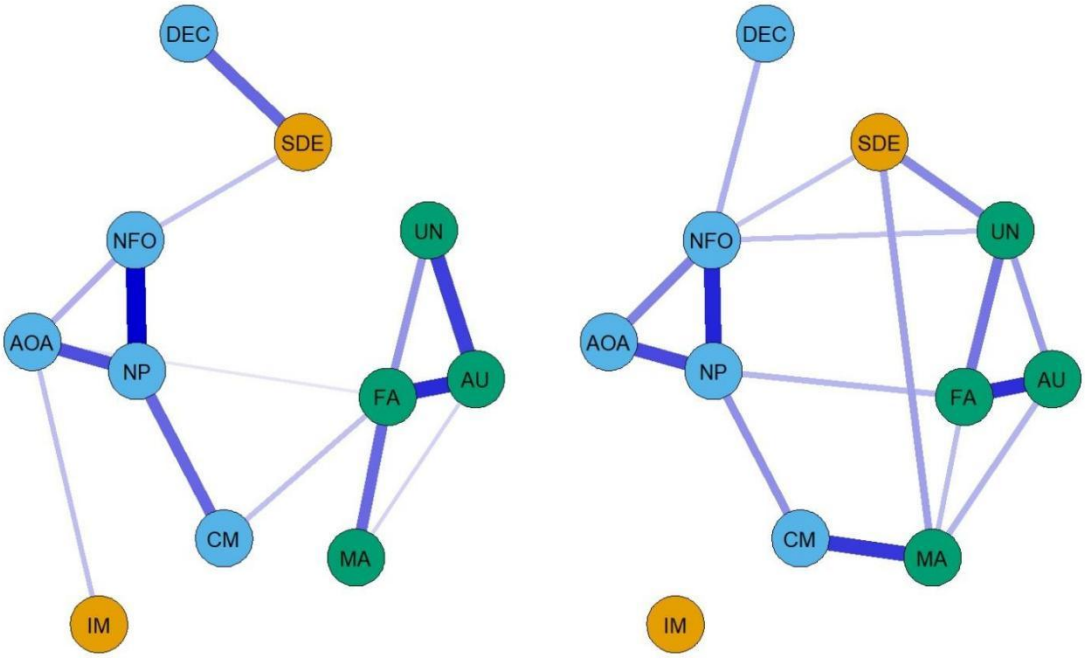

Figure 3. Network analysis. On the left side, individuals knowing at least one person affected by a mental disorder. On the right side, those who did not. In blue, NCC questionnaire, in yellow BIDR, in green PPMI.

DISCUSSION

The present study focused on exploring the correlations between the NCC and levels of prejudice towards people with mental disorders. Several hypotheses were formulated regarding these correlations and to analyse any differences based on firsthand exposure or acquaintance with individuals affected by mental health conditions.

The Relationship between Prejudice towards Mental Illness and the NCC

A first significant finding was the correlation between a high NCC and increased prejudice towards people with mental disorders.

The Pearson correlation analysis conducted in the study revealed several significant correlations between the variables considered. Significant relationships emerged between self-deception and impression management, fear/avoidance, malevolence, authoritarianism, unpredictability, decisiveness, the need for order, intolerance for

ambiguity, and closed-mindedness. Some variables, like impression management, showed a negative correlation with self-deception.

Furthermore, a positive correlation was observed between impression management and self-deception, indicating that those who tend to manage impressions may also exhibit greater self-deception. At the same time, impression management showed negative correlations with fear/avoidance, malevolence, authoritarianism, unpredictability, decisiveness, intolerance for ambiguity, and closed-mindedness.

Other significant correlations were observed between fear/avoidance and many of the variables considered, such as self-deception, malevolence, authoritarianism, unpredictability, the need for order, intolerance for ambiguity, closed-mindedness, and the need for predictability. However, fear/avoidance showed a negative correlation with impression management.

Overall, these correlations provide a picture of the relationships between the variables in the context of the study. The findings suggest the importance of considering self-deception, impression management, and fear/avoidance in understanding phenomena like prejudice and intolerance towards people with mental disorders.

Kenny and colleagues [17] found significantly lower levels of fear/avoidance in people who showed a good disposition towards new experiences but no statistically significant correlation with malevolence. On the other hand, a statistically significant correlation emerged between contempt for people with a specific mental illness and fear/avoidance, and the same variable also correlates with malevolence.

Differences in Prejudice Levels between Subjects with and without Firsthand Exposure to Mental Health (MH) Issues

In comparing prejudice levels among individuals with and without direct experiences related to mental health issues, a notable disparity in prejudice levels surfaced between those who have encountered a mental health problem firsthand and those who have not.

It is interesting to note that, according to the results obtained, there is a lower level of social desirability in the group of people with psychiatric diagnoses compared to the group of people without psychiatric diagnoses, who reported higher levels of social desirability. This indicates not only a greater sensitivity towards the theme of prevention in the field of mental health but also a higher propensity to provide responses consistent with their real experiences, thoughts, emotions, and feelings. It would be interesting to see if, by adapting the PPMI scale for each specific mental illness, the results would lead to different outcomes.

In the present study, the hypothesis that prejudice is the result not only of a lack of knowledge about mental illness but also of intolerance of ambiguity and mental rigidity due to a high NCC is investigated for the first time. Moreover, qualitative variables not only concerning age, gender, level of education, and occupation but also the presence or absence of a

psychiatric diagnosis, having personally experienced mental discomfort, and direct contact with a person with Mental Illness were examined, contributing to providing a complex and comprehensive picture of the variables [24,25]. Here, for the first time, the crucial role of the NCC regarding beliefs about health and mental illness is highlighted. This can be considered a significant breakthrough because—unlike existing studies in the literature that investigate the relationship between prejudice on Mental Illness and personality traits—it is possible to intervene on NCC, as demonstrated by the study of Rosman and colleagues [26]. In this study, the effects of the NCC on the efficacy of epistemic belief teaching were examined. It was assumed, fundamentally, that individual differences in NCC interfered with the mechanisms postulated in the epistemic change process model by Bendixen [27] and therefore prevented the efficacy of the intervention. Consequently, a short-term epistemic belief intervention was developed that drew both on the presentation of divergent information (i.e., controversial and ambiguous) and on constructivist teaching approaches (i.e., moderated discussion).

Thus, if on one hand—as far as previous studies on PPMIs are concerned—it is practically difficult to intervene due to the complex and individualistic nature of the variable (personality traits, on which one can effectively intervene with individual therapy), on the other hand, it would be feasible and fruitful to intervene on the NCC. The present study clearly shows that prejudice towards mental illness is not supported by malevolence or hostile attitude—and this is certainly reassuring and (pro)positive data—but rather by a sense of inadequacy that has as its matrix a lack of literacy on the topic: “it would be difficult to interact with someone who has a mental illness,” “people who suffer from a mental illness are unpredictable,” and it is precisely from this core that fear and avoidance are triggered. Given the interest in the topic and the predominant sensitivity manifested by the participants, the heart of the matter can be discerned: the desire to know and the need to know [28–31].

The Effect of Personal Acquaintance on Prejudice Levels towards Individuals with Mental Disorders

A third aspect analysed in the study concerns the differences in prejudice levels between those who had or had not engaging directly with individuals experiencing mental health conditions. Here too, a significant difference in prejudice levels emerged between those who have personal experience with mental disorder in one’s social circle.

In fact, the group presenting this variable scored significantly lower on the PPMI scale compared to the group of participants who did not present this variable. The study by Kenny and colleagues [17] supports this thesis, as the PPMI scale was negatively correlated in a statistically significant manner with the Contact variable, which indicates closeness to a person with a mental illness.

It is also evident from the data obtained that prejudice has not a matrix in hostile attribution (Malevolence) but rather the fear (Fear/Avoidance) of what is unknown, what is unfamiliar.

Research Limitations and Future Perspectives

In this study, prejudice—related to the NCC—towards people with MI in a broad sense was measured. For this reason, it is limiting to speculate about potential different findings if the PPMI scale were adapted for each specific disorder. The scale's items investigate prejudice towards people with a generic mental illness; thus, participants responded by imagining the person with, for example, an anxiety disorder or schizophrenia. Another limitation might be the presence in the sample of participants who are already—fundamentally—sensitive to the topic of mental health illness: 58.2% of the sample, in fact, declares having personally experienced mental discomfort, and 68.8% report having received a psychological/psychiatric diagnosis. However, this aspect highlights the statistically significant differences—which have been presented here in the section on qualitative analysis—between those who report having experienced psychological discomfort and those who declare they have never experienced it. It would be interesting if future studies investigated how the NCC correlates with prejudice for each specific psychopathology, to broaden the literature and possess a more varied spectrum of resources useful for designing "anti-stigma" psycho-social intervention programs [32–34]. Future studies could explore the correlations examined in this study, integrating a comparison before and after an intervention on the NCC and on correct literacy about mental illness.

Another key limitation of this study lies in the use of self-reported data, particularly concerning past experience with mental illness and attitudes toward it. Self-reports are vulnerable to social desirability bias, which may lead participants to underreport stigma-related attitudes [35]. Additionally, distinctions such as "suffering from a mental illness" versus "having received a psychiatric diagnosis" may reflect subjective interpretations rather than clinical verification, raising concerns about validity [36]. Although anonymity may have reduced response bias, future research should consider complementary methods, such as clinician-confirmed data or implicit measures [37].

CONCLUSIONS

The present research sought to investigate the relevance of stigma directed towards individuals with mental disorders on an empirically and theoretically informed background. The study aimed to enhance existing literature on stigma and prejudice by offering a psychometric analysis of the measures employed and determining the intercorrelations of psychological variables pertinent to the field. The results suggest a relationship with ignorance about and lack of understanding of mental illness and bias that can further evolve into fear and avoidance instead of

openly aggressive attitudes towards individuals with mental illness. Although these findings provide initial observations, they need careful interpretation.

The current study is the first to enhance knowledge of the underlying psychosocial determinants of stigma, and to indicate the possible ways in which future interventions may enhance awareness and promote social inclusion. The results that we present are not, however, an excuse for deriving final conclusions regarding the effectiveness of certain interventions, or for making inferences that can be generalized to all types of mental illness stigma. It is acknowledged that the enhancement of welfare and quality of life for individuals with mental disorders needs ongoing, multilateral efforts and additional research.

One of the significant limitations of this research is the absence of specificity of mental disorder categories in the questionnaires that were distributed. The participants were requested to think about "people with mental disorders" in general terms without making reference to particular diagnostic categories. This choice, while consistent with the overall goal of developing a universal scale, might have resulted in responses influenced more by broad societal representations or stereotypes than by personal experience. Also, use of such broad and vague categories risks unintentionally reinforcing certain linkages between mental disorders and negative attributes, such as tendencies for violence or criminal behavior.

Future research needs to attempt to differentiate between various mental health disorders so that we can better observe the numerous forms and degrees that stigma can take.

In sum, although our research highlights several key psychological and experiential factors that contribute to prejudice, additional research is necessary to elucidate causal pathways and determine effective methods of stigma reduction across various contexts.

ETHICAL STATEMENT

Ethics Approval

The research was approved by the Ethical Committee of the Polish Society of Disaster Medicine (protocol n. 16.01.2023.IRB) and informed consent was obtained from all subjects involved in the study.

Declaration of Helsinki STROBE Reporting Guideline

This study adhered to the Helsinki Declaration. The Strengthening the Reporting of Observational studies in Epidemiology (STROBE) reporting guideline was followed.

SUPPLEMENTARY MATERIALS

The following supplementary materials are available online, Table S1: Statistics of the comparison between subjects with and without direct

experience of mental health (MH) issues [*Have you ever suffered from a mental discomfort*? (*e.g., anxiety, depression, sleep disorders, stress disorders*)], Table S2: Mean differences between groups based on direct acquaintance with someone with Mental Illness [*Do you know someone with a mental illness*?].

DATA AVAILABILITY

Data will be made available on reasonable request from the corresponding author due to privacy.

AUTHOR CONTRIBUTIONS

Conceptualization, FB and AR (Amelia Rizzo); Methodology, AR (Amelia Rizzo), FB, LT; Software, LT, AR (Amelia Rizzo); Validation, HK, MY, KB, AR (Anna Re); Formal Analysis, AR (Amelia Rizzo), FB, LT; Investigation, FB; Resources, LA, DDB; Data Curation, LT, AR (Amelia Rizzo), FB; Writing—Original Draft Preparation, LT, FB, AR (Amelia Rizzo); Writing—Review & Editing, LA, KB, MY; Visualization, DDB, FC, AR (Anna Re); Supervision, DDB, FC, HK.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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REFERENCES

1. Link BG, Phelan JC. Conceptualizing stigma. Ann Rev Sociol. 2001;27:363-85.
2. Corrigan PW, Watson AC. Understanding the impact of stigma on people with mental illness. World Psychiatry. 2002;1(1):16-20.
3. Link BG, Phelan JC, Hatzenbuehler ML. Stigma and social inequality. In: Handbook of the Social Psychology of Inequality. Dordrecht (Netherlands): Springer. 2014. p. 49-64.
4. Wahl OF. Mental health consumers' experience of stigma. Schizophr Bull. 1999;25(3):467-78.
5. Özaslan A, Yildirim M, Guney E, İlhan MN, Vostanis P. Mental health problems and help-seeking behaviours of syrian refugee adolescents: Mediating role of self-stigma. Psychol Med. 2023;54(4):732-41.
6. World Health Organization. The World Health Report 2001: Mental Health: New Understanding, New Hope. Geneva (Switzerland): World Health Organization; 2001.
7. Engel GL. The need for a new medical model: A challenge for biomedicine. Science. 1977;196(4286):129-36.
8. Ilic N, Henderson C, Henderson C, Evans-Lacko S, Thornicroft G. Attitudes towards mental illness. Health Survey for England. 2014;1:1-15.

9. Sheppard H, Bizumic B, Calear A. Prejudice toward people with borderline personality disorder: Application of the prejudice toward people with mental illness framework. Int J Soc Psychiatry. 2023;69(5):1213-22.
10. Kandler C, Bell E, Riemann R. The structure and sources of right–wing authoritarianism and social dominance orientation. Eur J Pers. 2016;30(4):406-20.
11. Rizzo A, Calandi L, Faranda M, Rosano MG, Carlotta V, Vinci E. Stigma against mental illness and mental health: The role of social media. Adv Med Psychol Public Health. 2025;2(2):125-30. doi: 10.5281/zenodo.13223184.
12. Rizzo A, Calandi L, Faranda M, Rosano MG, Vinci E. The link between stigmatization, mental health, disability, and quality of life. Adv Med Psychol Public Health. 2025;2(4):254-60. doi: 10.5281/zenodo.14188281.
13. Webster DM, Kruglanski AW. Individual differences in need for cognitive closure. J Pers Soc Psychol. 1994;67(6):1049-62.
14. Thornicroft G, Schulze B. The association between stigma and discrimination. In: Sashidharan SP, Thornicroft G, editors. Stigma and Mental Health. London (UK): Royal College of Psychiatrists; 2015. p. 89-102.
15. Krosnick JA. The causes of no-opinion responses to attitude measures in surveys: They are rarely what they appear to be. In: Groves RM, Dillman DA, Eltinge JL, Little RJA, editors. Survey Nonresponse. New York (NY, US): Wiley; 2002. p. 64-85.
16. Bobbio A, Manganelli Rattazzi AM. Measuring social desiderability responding with a short version of Pauhlus' BIDR-6. Testing, Psychometrics Methodology in Appl Psychol. 2011;18(2):117-35.
17. Kenny A, Bizumic B, Griffiths KM. The prejudice towards people with mental illness (PPMI) scale: Structure and validity. BMC Psychiatry. 2018;18:1-13.
18. Bruno F, Chirico F, Khabbache H, Rami Y, Ait Ali D, Cardella V, et al. The prejudice towards people with mental illness scale: Psychometric properties of the Italian version (PPMI-IT). Eur J Investig Health Psychol Educ. 2025;15(7):126. doi: 10.3390/ejihpe15070126.
19. Kruglanski AW, Fishman S. The need for cognitive closure. In: Leary MR, Hoyle RH, editors. Handbook of Individual Differences in Social Behavior. New York (NY, US): The Guilford Press; 2009. p. 343-53.
20. Kruglanski AW. Lay epistemic theory in social-cognitive psychology. Psychol Inquiry. 1990;1:181-97.
21. Pierro A, Mannetti L, Garsia V, Miglietta A, Converso D, Ravenna M, et al. Caratteristiche strutturali della versione italiana della Scala di Bisogno di Chiusura (di Webster & Kruglanski). TPM. Testing Psicometria Metodol. 1995;2(3-4):125-41.
22. Haslbeck J, Waldorp LJ. Structure estimation for mixed graphical models in high-dimensional data. arXiv. 2015. arXiv:1510.05677.
23. Van Borkulo CD, van Bork R, Boschloo L, Kossakowski JJ, Tio P, Schoevers RA, et al. Comparing network structures on three aspects: a permutation test. Psychol Methods. 2022;28(6):1273.

24. Muscatello MRA, Rizzo A, Celebre L, Mento C, Pandolfo G, Cedro C, et al. The wounds of childhood: Early trauma subtypes, salience and hyperarousal in a sample of adult psychiatric patients. Int J Soc Psychiatry. 2020;66(1):3-9.
25. Khabbache H, Jebbar A, Rania N, Doucet MC, Watfa AA, Candau J, et al. Empowering patients of a mental rehabilitation center in a low-resource context: A Moroccan experience as a case study. Psychol Res Behav Manag. 2017;10:103-8.
26. Rosman T, Mayer AK, Peter J, Krampen G. Need for cognitive closure may impede the effectiveness of epistemic belief instruction. Learn Individ Differ. 2016;49:406-13.
27. Bendixen LD, Rule DC. An integrative approach to personal epistemology: A guiding model. Educ Psychol. 2004;39(1):69-80.
28. Pettigrew TF, Tropp LR. How does inter-group contact reduce prejudice? Meta-analytic tests of three mediators. Eur J Soc Psychol. 2008;38:922-34. doi: 10.1002/ejsp.504.
29. Corrigan PW, Shapiro JR. Measuring the impact of programs that challenge the public stigma of mental illness. Clin Psychol Rev. 2010;30(8):907-22.
30. Khabbache H, Candau J, Bragazzi NL, Rammouze I. Quand le patient devient thérapeute. In: Doucet MC, Viviers R, editors. Métiers de la Relation Nouvelles Logiques et Nouvelles Épreuves du Travail. Mississauga (Canada): PUL; 2016. p. 175-88.
31. Corrigan PW, Watson AC. The paradox of self-stigma and mental illness. Clin Psychol Sci Pract. 2002;9(1):35-53.
32. Pescosolido BA, Martin JK, Lang A, Olafsdottir S. Rethinking theoretical approaches to stigma: A framework integrating normative influences on stigma (FINIS). Soc Sci Med. 2008;67(3):431-40.
33. Khabbache H, Ouazizi K, Ait Ali D, Cherqui A, Rizzo A, Tarchi L, et al. Cultural placebos from the wild in patients with mental disorders: The case of the Nour Association in Fez-Morocco. Iranian Rehabil J. 2024;22(1):129-38.
34. Angermeyer MC, Matschinger H, Schomerus G. Attitudes towards psychiatric treatment and people with mental illness: Changes over two decades. Br J Psychiatry. 2013;203(2):146-51.
35. Althubaiti A. Information bias in health research: Definition, pitfalls, and adjustment methods. J Multidiscip Healthcare. 2016;9:211-7. doi: 10.2147/JMDH.S104807.
36. Teachman BA, Wilson JG, Komarovskaya I. Implicit and explicit stigma of mental illness in diagnosed and healthy samples. J Soc Clin Psychol. 2006;25(1):75-95. doi: 10.1521/jscp.2006.25.1.75.
37. Van de Mortel TF. Faking it: Social desirability response bias in self-report research. Aust J Adv Nurs. 2008;25(4):40-8.

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