Master's thesis

Clinical Psychology
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The relationship between personality traits, insight and internalized stigma in psychotic disorders

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Neuroticism and Extraversion have been shown to increase the levels of internal stigma people experience. These personality traits play large roles in the experience and interpretation of symptoms but their role in psychotic patients is unclear. In this study the effects of neuroticism and extraversion on the levels of self-stigma is examined in moderation with illness insight. In this study a sample of 32 psychotic patients were examined troughs several questionnaires. Results showed that neuroticism increases the scores on self-stigma and extraversion buffers for the effects of neuroticism. In conclusion the results of the study show consistent findings conform the hypotheses. Higher levels of neuroticism lead to higher levels of self-stigma, whereas extraversion mainly buffers for the negative effect of neuroticism. Higher levels of illness insight do not affect levels of self-stigma in psychotic patients.

Neuroticism, Extraversion, Illness Insight, Self-Stigma, Psychotic Patients

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Introduction

Schizophrenia spectrum and other psychotic disorders are complex psychiatric disorders, which involve positive symptoms (e.g., hallucinations) and negative symptoms (e.g., loss of motivation), cognitive impairment and poor social functioning (Jääskeläinen et al., 2012; Lysaker, Wilt, Plascak-Hallberg, Brenner, & Clements, 2003). The DSM-5 (American Psychiatric Association, 2015) states that psychotic disorders are characterized by abnormalities in the following five features: content of cognition (delusions), form of cognition (disorganized thinking and speech), perception (hallucinations), behaviour (grossly disorganized or abnormal motor behaviour, including catatonia) and volition (negative symptoms).

Despite on-going research on risk factors and treatment, there is still a lot unknown about the course of psychotic disorders and how this course is affected. The course of the disorder is often chronic, during which different forms of psychotic episodes, in other words, short-during episodes or long-lasting episodes can occur (Jääskeläinen et al., 2012; Laursen, Nordentoft, & Mortensen, 2014; Roe & Ben-Yishai, 1999). Traumatic experiences, increased levels of stress, and sleep deprivation are found to be of influence on the onset and maintenance of psychotic disorders (Lysaker & Taylor, 2007; Roe & Chopra, 2003). Furthermore, individual differences in how people perceive, interpret and respond to their symptoms and experiences of their mental disorder can affect the course of psychotic disorders (Roe & Ben-Yishai, 1999). One such factor is self-stigma or internalized stigma, which can influence the perception of what it means to have a psychotic disorder, in a way that leads to devaluation, shame, withdrawal, and secrecy (Pyle et al., 2015). Link, Yang, Phelan and Collins (2004) define self-stigma as “becoming aware of the label and identifying with the stereotypes”.

Psychotic disorders are the mental illness with the most stigmatization, as people identify psychotic patients as aggressive and dangerous (Boyd, Adler, Otilingam, & Peters, 2014). The effects of internalized stigma are various; it can lead to hopelessness, lowered self-esteem, poorer insight, demoralization, decreased social life and support, and even medication non-adherence (Pyle et al., 2015; Vrbova et al., 2016; Wright, Jorm & Machinnon, 2011). The process of internalization of stigma can occur when individuals start noticing behavioural changes in their social environment (friends, family etc.), as a result of changing beliefs and attitudes towards them. Consequently, they start to believe these attitudes toward mentally ill individuals themselves, and adopt these views as the truth. This could lead to the appliance of

prejudices against the mentally ill to themselves, which results in changes in their self-image (Moriarty, Jolley, Callanan, & Garety, 2012; Thompson et al., 2002; Watson & River, 2005).

To date, not much is known yet about which factors influence the attitudes and perception towards mental illness, which in turn leads to internal stigmatization (self-stigma). It has been found that personality traits like neuroticism and extraversion influence the patient's cognition and social functioning, as well as their psychotic symptoms (Kurs, Farkas & Ritsner, 2005; Ohi et al., 2016). Research into personality traits has become a prevalent approach to explore the influence of individual differences on the level of self-stigma (Ingram, Paul, Lichtenberger, & Clarke, 2016; Miller, 2009). Although limited research is available examining the impact of personality traits on the formation of stigmatic beliefs.

Differences in personality traits have been examined within other studies and that these traits seem constant after the onset of psychotic disorders. This indicates that stable personality traits are measured and not manifestations of the psychotic disorder (Kirihara et al., 2012; Lysaker et al., 2003). Studies investigating personality traits generally apply the Five-Factor Model (FFM) (Boyette, Nederlof, Meijer, de Boer, & de Haan, 2015; Ohi et al., 2016). The FFM consists of five personality traits which best symbolize the most primary aspects of personality; Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness. The most investigated personality traits in relation to psychotic disorders are neuroticism and extraversion. Neuroticism is the tendency to emotional instability, and extraversion in the tendency towards sociability, assertiveness and social interaction (American Psychiatric Association, 2015; Ohi et al., 2016). Several studies showed a consistently higher score of neuroticism and a lower score on extraversion in psychotic patients compared to healthy controls (Akdag et al., 2003; Boyette et al., 2013; Gurerra, McCarley, & Salisbury, 2014; Suslow, Lindner, Kugel, Egloff, & Schmukle, 2014). Higher neuroticism scores were linked to an increased risk of developing psychoses, as neuroticism is related to negative self-esteem, negative emotions, and negative thinking in general (Lysaker et al., 2007; Suslow et al., 2014; van Os & Jones, 2001). Low extraversion can make psychotic patients vulnerable to develop self-stigma. For example the tendency to retire from social activities may lead to either loneliness or negative social reactions or feelings of social discomfort (Suslow et al., 2014; van Os & Jones, 2001, Lysaker, Bell, Kaplan, & Bryson, 1998). The combination of low extraversion and high neuroticism is therefore hypothesized to make individuals particularly vulnerable to the development of psychotic symptoms, but also to the development of negative self-stigma. To sum up, individual differences in terms of personality factors extraversion and neuroticism may determine the degree to which psychotic

patients develop negative self-stigma. The extent, to which extraversion and neuroticism are related to self-stigma, independently and in combination with each other, will be examined in the current study within psychotic patients.

There is one more important individual factor that may determine the development of self-stigma. The perception, interpretation and experience of psychotic symptoms are recognized as an import feature of stigmatization. It has been acknowledged that without the recognition that one is suffering from a mental illness (i.e., having illness insight), stigmatization cannot be experienced, and as such, does not influence the course of symptoms (Nair, Palmer, Aleman & David, 2014). From the beginning theories of the German psychiatrist Kreapelin (1919) until now, studies have consistently demonstrated that lack of insight is a common feature of psychotic disorders (e.g., Beck, Baruch, Balter, Steer, & Warman, 2004; Nair, Palmer, Aleman & David, 2014). The most frequently used definition of insight is where insight is divided in several components: "the awareness of the illness, treatment compliance and, the attribution of symptoms to the disease" from David (1990). Lowered or impaired insight could lead to higher relapse rates, lower self-esteem, poor treatment outcome and even impaired psychosocial functioning (van der Meer et al., 2013). The study of Lysaker et al. (2007) showed that patients with psychotic disorders who scored high on insight in their illness in combination with an high score on self-stigmatisation, had less self-esteem, more feelings of hopelessness and greater levels of depression than those with a combination of low scores on self-insight and self-stigma (Lysaker, Roe, & Yanos, 2006; Mashiach-Eizenberg, Hasson-Ohayon, Yanos, Lysaker, & Roe, 2013; Norman, Windell, Lynch, & Manchanda, 2011). The current study focuses on the relationships between personality factors (neuroticism and extraversion), level of insight on the one hand and self-stigma on the other hand. Based on Ingram et al. (2016) suggestion, on how and to what extent personality traits independently and in interaction with insight, are related to the level of (internalized) self-stigma. The relationship between personality traits and internalized stigma has been investigated before; however, the relationship between illness insight and self-stigma, and in particular the potential interaction effect between traits and insight on self-stigma has never been examined before and is therefore an innovative aspect of this study.

The following hypotheses were formulated:

Hypothesis 1: Neuroticism and extraversion are, both independently and in interaction with each other, significantly related to self-stigma. The level of neuroticism is positively related to the level of self-stigma, whereas the level of extraversion is negatively related to the level of self-stigma. The interaction between neuroticism and extraversion is significantly related to

the level of self-stigma: it is expected that the combination of high neuroticism and low extraversion be more strongly related to self-stigma than other combinations of scores.
Hypothesis 2: The level of insight is positively and significantly related to the level of self-stigma, i.e., the more illness insight, the higher the level of self-stigma.
Hypothesis 3: The three-way interaction between neuroticism, extraversion, and insight is significantly related to the level of self-stigma: it is expected that the relationship between insight and self-stigma is dependent on the levels of neuroticism and extraversion, i.e., that the relationship between insight and self-stigma is strongest in individuals scoring high on neuroticism and low on extraversion.

Method

Participants and procedure

All participants (*N*=32) enrolled in this study were part of a broader study, called UP's, which is in reference to the up's and down's people experience. The UP's study, initiated by the Erasmus Medical Centre, aims to investigate which factors lead to a better recovery in psychosis patients. The UP's study is a 10-year observational cohort study, which started in September 2017. The data used in this study comes from the baseline measurement. Different health organisations nationwide participate in the UP's study. Participants are recruited within different teams of several health organisations, by the student or through their caregivers. In advance the participants had to sign an informed consent before starting with the interviews. Patients were considered for the study when they were between 18 and 65 years old and diagnosed with a psychotic disorder. Participants were 32 clients (62,5% male). The average age of participants was *M*= 43,5 years old (*SD*=11,5) with a minimum age of 24 and a maximum age of 65.

The data obtained from the participants was based on self-report questionnaires and demographic data. The demographic data obtained during the interviews were compared with the data from their electronic patient files or their clinician, to double check whether the information given in the interviews was correct. The UP's study set of questionnaires consists of 32 qualitative and quantitative measurements, which all had to be completed by the participants. Several trained students at different organisations have done the data collection. All questionnaires were completed in meetings of 50 to 60 minutes, which an average of 4 to 5 meetings per participant. The measurements took place in the mental health base or at the participant's home this differed per client.

Measures

Personality

The NEO-Five Factor Inventory (NEO-FFI; Costa & McCrae, 1989, Hoekstra, Ormel & de Fruyt, 1996); was used to determine the personality traits. The NEO-FFI is a self-report questionnaire based on the 5-factor model of personality, which are neuroticism, extraversion, openness, agreeableness and conscientiousness. The NEO-FFI is derived from the original version of the NEO-PI with 240-items, and consist of 60-items based on a 5-point likert scale, strongly disagree to strongly agree. The NEO-FFI shows a good construct validity and internal reliability (Costa & McCrae, 1989, McCrae and John, 1992).

Cognitive insight

The Beck Cognitive Insight Scale (BCIS; Beck, Baruch, Balter, Steer & Warman, 2004, van der Gaag, 2004) was used to determine the level of illness insight. The BCIS is a self-report questionnaire including 15 items, 9 items accommodating self-reflectiveness and 6-items measuring confidence, or self-certainty (Beck, Baruch, Balter, Steer & Warman, 2004; Warman & Martin, 2006). Examples of items are "Some of the ideas I was certain were true turned out to be false" or "I can trust my own judgment at all times".

Internalized stigma

The Internalized Stigma of Mental Illness 10 (ISMI-10; Boyd, Otilingam, DeForge, 2014; Van Weeghel, Pijnenborg, Van't Veer & Keinhorst, 2016) scale aims to determine the level of self-stigma of schizophrenic patients. The ISMI-10 is a self-report questionnaire including 10-items, derived from the original ISMI, which contains 29 items (Boyd, Adler, Otilingam & Peters, 2014). Items are scored on a 4 point Likert scale, with 1 =strongly disagree to 4 =strongly agree. The ISMI-10 has the same descriptive statistics to the ISMI-29 and retained the essential properties. The ISMI-10 has an internal consistency reliability of $\alpha = 0.75$. For the entire ISMI, there is good to very good internal consistency, test-retest reliability, competitive validity and divergent validity (Boyd, Otilingam, DeForge, 2014)
Example items are "Mentally ill people tend to be violent" and "I don't socialize as much as I used to because my mental illness might make me look or behave 'weird'."

Data analyses and design

The design of this study is a cross-sectional design with self-report data at one measurement moment. Statistical analyses were performed using Statistical Package for the Social Sciences

(SPSS) version 23.0. First explorative analyses were used to find missing data. A total of 41 participants started the research. The missing data analysis established nine participants with incomplete data. Within these nine participants, four participants had only gender and age data. Participants with more than 10% missing values on a questionnaire were excluded from the analyses for that particular questionnaire. Five other participants had no data, or too many (>10%) missing values on two or more questionnaires, which automatically excluded them from all analyses. The dataset for analysis consisted after excluding missing data participants included 32 participants (75.6%). No imputation was used, because in all cases missing values were above a percentage of 10%.

Second, several assumptions like normality distributions, linearity, heterogeneity, multicollinearity and independency of errors were checked using explorative analysis. The assumption of normal distribution of data was checked for all variables by inspecting skewness, kurtosis values and the normality check by Shapiro-Wilk, which showed all values fell within the acceptable range of -1 and +1. There were no outliers (tested by boxplots). Regarding the regression analyses, there was no multicollinearity on the basis of a VIF score under 2, the residuals were normally distributed and no heteroscedasticity was found. These assumptions were checked and no assumptions were violated within the data set. All assumptions were tested at a .05 alpha.

In order to examine whether Neuroticism and extraversion are independently and in interaction with each other significantly related to self-stigma, and more specifically, whether the combination of high neuroticism (N) and low extraversion (E) is more strongly related to self-stigma than other combinations of scores, hierarchical regression analyses were carried out with N, E, in the first step and the interaction term between N * E as independent variables in the second step in one model. If the interaction term between N*E was not significant, it was removed from the model and the main effects of N and E were interpreted.

In order to examine the extent to which the level of insight was positively and significantly related to the level of self-stigma, a regression analysis was performed with insight as independent variable and self-stigma as dependent variable.

In order to examine whether the relationship between insight and self-stigma would be strongest in individuals scoring high on neuroticism and low on extraversion, the three-way interaction between neuroticism, extraversion, and insight was examined by carrying out a hierarchical regression analysis including the main effects of insight, N and E in the first step; including all two-way interactions between insight, N and E in the second step; and including the three-way interaction term of insight*N*E in the third step in the model. When

the three-way interaction was not significant, it was removed from the model. When the two-way interactions were not significant, they were removed from the model, and finally the main effects were interpreted.

Results

General findings

Descriptive statistics, reliability coefficients and correlations of all scales are given in Table 1. Reliability in terms of consistency was low for all variables. The correlations are all non-significant and low of strength, accept for the positive correlation between age and neuroticism (indicating a higher degree of neuroticism with increasing age), and the negative correlation between age and gender (indicating that age is higher in females than males), which were significant and moderate. This means that relationships between the variables of interest are not significantly nor present in the current sample. The lack of significance of some correlations (r > .20) may be due to low power, as a consequence of a small sample.

Table 1. Means, Standard Deviations and Pearson Correlations for all Variables

Variables	α	M	SD	1	2	3	4	5	6
1. Self-stigma (ISMI-10)	.58	2.28	.44	(-)					
2. Neuroticism (NEO-FFI)	.24	36.00	4.46	.20	(-)				
3. Extraversion (NEO-FFI)	.42	37.19	4.46	.16	-.02	(-)			
4. Illness Insight (BCIS)	.51	22.94	5.16	.28	.06	.03	(-)		
5. Age	-	43.53	11.45	.12	.36*	-.24	-.31	(-)	
6. Gender	-	0.63	0.49	-.03	.00	-.07	.30	-.39*	(-)

Note. N = 32. Gender was coded as 1 = male and 0 = female. Age in years.
** p < .05, ** p < .01 (two-tailed). ISMI-10:* Internalized Stigma of Mental Illness 10, *NEO-FFI:* NEO-Five Factor Inventory, *BCIS:* Beck Cognitive Insight Scale.

Main analyses

Regarding the first hypothesis on the extent to which neuroticism and extraversion are, independently and in interaction with each other, significantly related to self-stigma, findings were as follows: The interaction between neuroticism (N) and extraversion (E) on self-stigma

was not significant, β = .34 *p* = .10. The main effects without the interaction term in the model were also not significant (see Table 2). The final models are displayed in Table 2, Model 1. Results with or without covariates age and gender were similar; therefore results without covariates in the model were reported.

As for the second hypothesis on the relationship between insight and stigma, results showed no significant association with or without covariates age and gender, see Model 2 in Table 2 (results reported without covariates).

Regarding the third hypothesis (Model 3 in Table 2), regression analysis showed that the three-way interaction between N, E, and insight was not significant and removed from the model, β = .15, *p* = .61. Two two-way interactions were significant: neuroticism * extraversion (β = .45, *p* = .04) and neuroticism * insight (β = .52, *p* = .02) and were further explored by making 2 neuroticism groups based on M+/-1 SD: high and low neuroticism, and examine the relationship between extraversion and stigma first, and second the relationship between insight and stigma in the two neuroticism groups. The relationship between extraversion and stigma was neither significant in the high neuroticism group (*N*=7), β = .53, *p* = .22, nor in the low neuroticism group (*N*= 4), β = .16, *p* = .95. These non-significant effects may be due to low power as a consequence of small subsamples. The interaction may be interpreted in terms of a medium effect size for the relationship between extraversion and stigma in the high neuroticism group, and a low effect size in the low neuroticism group. This means that the positive correlation between extraversion and stigma (thus, the higher the level of extraversion, the higher the level of experienced stigma) is stronger as the level of neuroticism is higher. This may mean that stigma is highest in individuals high on neuroticism in combination with high extraversion. The relationship between insight and neuroticism was neither significant in the high neuroticism group (*N*=7), β = .74, *p* = .60, nor in the low neuroticism group (*N*= 4), β = -.83, *p* = .17. These non-significant effects may be due to low power as a consequence of small subsamples. The interaction may be interpreted in terms of a large and positive effect size for the relationship between insight and stigma in the high neuroticism group, and a large and negative effect size for this relationship in the low neuroticism group. This means that in the high neuroticism group, the higher the level of insight, the higher the level of experienced stigma; and in the low neuroticism group, the higher the level of insight, the lower the level of experienced stigma.

To guarantee the validity of the model, the assumptions of the regression were tested and no violations were found (see *2.3 Data-analysis and design* for a brief description of the results regarding the testing of assumptions).

Table 2 Results of the final regression models in association with self-stigma (ISMI-10) as dependent variable (N = 32)

Variable	St. β	*SE*	*t*	*p*	*Adj.* R^2	*F*
Model 1: Neuroticism (N) *Extraversion (E)					.07	1.71
Neuroticism (NEO-FFI)	.07	.19	.35	.73		
Extraversion (NEO-FFI)	.08	.18	.47	.64		
N*E	.34	.24	1.72	.10		
Model 2: Insight					.05	2.46
Insight (BCIS)	.28	.18	1,57	.13		
Model 3: N * E * BCIS					.23	2.52
Neuroticism (N)	.28	.20	1.44	.16		
Extraversion (E)	.01	.17	.04	.97		
Insight (BCIS)	.14	.16	.87	.40		
N * E	.45	.25	2.20	.04		
N * BCIS	.52	.20	2.54	.02		
E * BCIS	.01	.17	.07	.95		

ISMI-10: Internalized Stigma of Mental Illness, NEO-FFI: NEO-Five Factor Inventory, BCIS: Beck Cognitive Insight Scale

Discussion

Three self-report questionnaires were used for this study, the NEO-Five Factor Inventory (NEO-FFI), the Beck Cognitive Insight Scale (BCIS) and the Internalized Stigma of Mental Illness 10 (ISMI). These questionnaires were used in order to examine if neuroticism, extraversion and illness insight were related to the level of self-stigma in a sample of 32 psychiatric patients. In order to examine the hypotheses hierarchical regression analyses were used and interaction terms were investigated.

Results showed inconsistent findings with regard to the hypotheses. Regarding the first hypothesis, findings suggest that neuroticism and extraversion independently and in interaction with each other are not related to the self-stigma of psychotic patients. However, when correcting for two other two-way interactions (in the model testing hypothesis 3, in which the non-significant 3-way interactions was removed from the model), it was significant. Exploration of the interaction showed that stigma is highest in individuals high on neuroticism in combination with high extraversion. These results are not consistent with literature, on which the hypothesis was based that the combination of high neuroticism and low extraversion would result in higher levels of self-stigma (Suslow et al., 2014; van Os & Jones, 2001, Lysaker et al., 1998). However, there is a logical explanation for this finding: low extraversion buffers the effects of high neuroticism on stigma, whereas the combination of high extraversion worsens the effects of neuroticism on stigma. Several studies showed an increased score on neuroticism in psychotic patients compared to healthy controls, compared to no equally high or low scores of extraversion in psychotic patients (van Os & Jones, 2001, Lysaker, Bell, Kaplan, & Bryson, 1998). Several studies found that the levels of neuroticism is higher within psychotic patients compared to healthy controls, whereas extraversion has not such a clear difference of level between psychotic patients and healthy control groups (Akdag et al., 2003; Boyette et al., 2013). This could lead to the significant findings within this study on the interaction terms regarding the effects with high levels of neuroticism However, results showed that levels of extraversion buffer for the effects of neuroticism. Which means that high levels of extraversion strengthen the relationship with neuroticism on levels of self-stigma (van Dijk, Schirmbeck & de Haan, 2018)

Results regarding the second hypothesis, that the levels of illness insight are directly related to the levels of self-stigma in psychotic patients' experience, were also not significant. These results are inconsistent with the expected outcome and inconsistent with literature of this relationship. Studies suggest that without the recognition that one is suffering from a

mental illness (i.e., having illness insight), stigmatization cannot be experienced (Nair et al., 2014). Furthermore, this finding is inconsistent with the study of Lysaker et al. (2007), which showed that patients with psychotic disorders who scored high on insight in their illness had a higher score on self-stigmatisation. So, within this study it has been hypothesized that higher levels of insight are related to higher levels of self-stigma. However, is has been stated that illness insight is a rare feature in psychotic patients, which can result in the non-significant findings in this study. The lack of illness insight (reflected in low scores together with low variation in scores) within psychotic patients could explain the non-significant relationship between illness insight and self-stigma (Beck, Baruch, Balter, Steer, & Warman, 2004).

Regarding the third hypothesis, no evidence was found for a three-way interaction of extraversion, neuroticism and insight in predicting self-stigma. This three-way interaction was explorative, and based on the several studies (Lysaker et al., 2007; Suslow et al., 2014; van Os & Jones, 2001, Lysaker et al., 1998). However, when removing the three-way interaction from the model, the two-way interaction between neuroticism and insight was significant, indicating that in the high neuroticism group, the higher the level of insight, the higher the level of experienced stigma; and in the low neuroticism group, the higher the level of insight, the lower the level of experienced stigma. When exploring the interaction, the relationships were not significant, possibly due to power issues as a result of a small sample. These findings seem consistent with literature, indicating that high neuroticism and insight worsen each other's' effects on stigma, and low neuroticism seems to buffer to the effects of insight on stigma, consistent with findings in earlier studies (Lysaker, & Roe, 2013; Norman, Windell, Lynch, & Manchanda, 2011).

The study has several limitations. The generalization of the results is limited by sample size and composition. The sample is small with only 32 participants and the consisted mostly of males. The consequences of this small sample could have resulted in the small power and no dominant significant findings. Second, the questionnaires were spread around different health institutions in the Netherlands, with several different interviewers. These differences in interviewing could lead to less reliable results due to different interview styles or different interpretations of answers among these interviewers. Third, within this cross sectional design no control groups have been used. So no comparisons could be made between healthy individuals and patients with psychotic disorders on personality traits.

Personality traits in psychiatric patients differ from healthy subjects so results can be more focused on the effects of the personality traits in general. Secondly this study consisted of a small sample, for more generalizable results or significant findings larger samples are

recommended. Further research could be directed to examine the difference between psychiatric patients and healthy controls. High scores of self-stigma or low self-esteem is a common feature in individuals with psychotic disorders. Research could be more directed to the effects of stigma on psychopathology. Despite on-going research on the pathology of mental illnesses, how the course of the disorders is affected is unsure. Studies have suggested that the individual perception, interpretation and response to mental disorders affect the course of the disorder (Roe & Ben-Yishai, 1999). Secondly, further research could be directed as possible clinical implications for treating psychotic disorders in relation to different personality traits. In the future treatment for psychotic patients could be more specific for their own personal self-image and personality traits. So interventions in treatment could pay attention to the level of self-stigma and focus on recognizing specific thoughts on self-image. On-going research into the effects of low self-esteem, like the study of E. Bloemers (2019) to evaluate the efficacy of the Competitive Memory Training (COMET) to improve self-esteem in psychotic patients. COMET is a cognitive behavioural treatment which has shown to be successful within the treatment of individuals suffering from depression or anxiety disorders, with low self-esteem. This study investigates if an improvement in self-image could lead to a decrease in psychotic symptoms. Within the current treatment of patients with psychotic disorders, most of the time personality traits or self-stigma are not included. While literature suggest that these traits can be of importance in symptom reduction or quality of life for these patients. Further research into these variables could lead to more personalised treatment and perhaps more positive treatment outcomes. For example, the effect of extraversion that buffers for the effects of neuroticism. Higher scores on neuroticism lead to higher scores on self-stigma, as found in the results. So in treatment, patients scoring higher on neuroticism could be motivated to socialize more (motivate extravert behaviour), to possibly lower the negative self-stigma they experience. For long-term treatment and improvement in daily life, treatment should, aside the antipsychotic medication be more focused on the individual characters of the patients, like personality traits of self-image.

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