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QUALITY OF LIFE IN PATIENTS WITH PSYCHOTIC DISORDERS: IMPACT OF SYMPTOMS, PERSONALITY AND ATTACHMENT

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ABSTRACT

Background

The aims of this study were to assess the relative contribution of symptoms and specific psychosocial factors to different domains of quality of life (QoL) in patients with psychotic disorders.

Methods

Positive, negative and depressive symptoms, Five-Factor model personality traits and attachment dimensions were assessed in 110 patients with non-affective psychotic disorders. Hierarchical and stepwise regression analyses were conducted.

Results

Psychosocial factors were able to predict all domains of QoL, when symptom severity was controlled for. Furthermore, the physical QoL domain was best predicted by attachment, personality and gender (R^2 = 43.1%); the psychological QoL domain by personality and depressive symptoms (R^2 = 60.5%); the social domain by personality and positive symptoms (R^2 = 30.3%) and the environmental domain by personality and negative symptoms (R^2 = 27.9%).

Conclusion

Our findings highlight the role that specific individual characteristics play in different aspects of QoL in patients with psychotic disorders.

1. INTRODUCTION

During the last decades outcome in psychiatry has expanded from clinicians' evaluation of health status to patients own perspectives on their quality of life (QoL). The World Health Organization (WHO) defined QoL as: "*individuals' perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept, incorporating in a complex way individuals' physical health, psychological state, level of independence, social relationships, personal beliefs and their relationships to salient features of the environment*" (WHO, 1995). In patients with psychotic disorders, QoL is generally found to be (inversely) associated with symptom severity, particularly with depressive and negative symptoms (Lambert and Naber, 2004; Eklund et al., 2003).

However, symptoms only partly explain the variance in QoL in patients with psychotic disorders. Many authors have stressed the importance of so called psychosocial factors, such self esteem, self-efficacy, coping style, temperament, personality, attachment style and perceived social support (Ritsner et al., 2002; Ritsner et al., 2003a; Eklund et al., 2003; Bechdolf et al., 2003; Hansson, 2006; Ritsner et al., 2003b; Ritsner et al., 2003c; Zissi et al., 1998; Caron et al., 2005; Couture et al., 2007; Kentros et al., 1997b; Lysaker and Davis, 2004). There is some evidence that psychosocial factors in patients with psychotic disorders are stronger predictors of changes in QoL than symptoms and that the long term course of QoL is best predicted by models combining symptoms and psychosocial factors (Ritsner et al., 2012; Ruggeri et al., 2005; Ruggeri et al., 2005). Nevertheless, the number of studies that include both symptoms and psychosocial factors are limited (Lambert and Naber, 2004).

Also, the wide range of psychosocial factors used in studies makes interpretation less straightforward. For the current study, we focused on the personality traits Neuroticism, Extraversion and Agreeableness from the Five-Factor Model (FFM) of personality (Digman, 1990; McCrae, 1992) and the anxious and avoidant dimensions from the attachment theory (Brennan et al., 1998; Bowlby, 1973; Bartholomew and Horowitz, 1991). We chose these factors because of their strong theoretical base and our belief that they incorporate the key features of the wide range of psychosocial factors described in earlier research. Common denominators for most of the aforementioned psychosocial factors seem to be tendencies towards positive and negative emotionality and the ability to cope with stress. These are concepts that closely resemble the FFM traits Neuroticism and Extraversion (Costa and McCrae, 1992). Additionally, self esteem

and perceived social support correspond to anxious and avoidant attachment according to Bartholomew and Horowitz's original model of adult attachment (Bartholomew and Horowitz, 1991). This model defines an individuals' attachment style dependent on positive or negative appraisal of self (i.e. regarding oneself as worthy of affection and support or not) and positive and negative appraisal of others (seeing other people as trustworthy and available vs. unreliable and rejecting). In short, anxious attachment is reflected in having a negative appraisal of self and a positive appraisal of others. Avoidant attachment on the other hand is reflected in a positive appraisal of self and negative appraisal of others (Bartholomew and Horowitz, 1991). The subjective appraisal of others is similarly reflected in the FFM trait Agreeableness: high Agreeableness indicates a tendency towards being comfortable and trusting in social relationships (Costa and McCrae, 1992).

Up to date, few studies have examined the relations between FFM personality traits and/or attachment on the one hand and QoL on the other hand in patients with psychotic disorders. The studies that included symptom severity found mixed results. Kentros et al. (1997b) found that global QoL was negatively associated with Neuroticism and positively associated with Extraversion and Agreeableness in 21 patients diagnosed with schizophrenia or schizoaffective disorder. They found no significant associations between QoL and symptoms, assessed with the Symptom Checklist-90 (SCL-90) (Derogatis et al., 1973). Lysaker and Davis (2004) found that two social dimensions of QoL were positively associated with Agreeableness and inversely associated with negative symptoms in 65 patients diagnosed with schizophrenia or schizoaffective disorder (no other dimensions of QoL were examined). Caron et al. (2005) examined attachment, here defined as a component of social support, in relation to QoL and found attachment to be a significant predictor of QoL over time. In regard to symptomatology, they found inverse associations between QoL and positive and depressive symptoms. Couture et al. (2007) were the first to study the impact of both FFM traits and attachment on global QoL in patients with psychotic disorders. Their sample consisted of 96 patients with first episode psychoses. They found that both Neuroticism and adult attachment contributed to QoL. They found no significant contribution of symptom severity. However, lack of information on symptom scores and type of analysis make interpretation difficult. Also, mutual comparison of the studies is hindered by different definitions and operationalizations of QoL, symptoms and attachment.

In the present study, we aim to examine the relative contribution of symptoms, personality and attachment to specific domains of QoL in patients with psychotic disorders, using reliable and valid measures. Based on the findings of the majority of earlier research on QoL in patients with psychotic disorders, we expect that psychotic and depressive symptoms explain part of the variance in QoL. Based on the findings of Ritsner et al. (2012) and Ruggeri et al. (2005) we expect that the explained variance in QoL will increase significantly when psychosocial factors are added to the model. Also, we hypothesize that the relative contribution of symptoms and psychosocial factors vary between different domains of QoL. The four domains of QoL according to WHO definition (1995) are 1) the physical domain: individuals' perception of their physical state, 2) the psychological domain: individuals' perception of their cognitive and affective state, 3) the social domain: individuals' perception of the interpersonal relationships and social roles in their life and 4) the environmental domain: individuals' perception of salient features of the environment. We hypothesize that the physical and environmental QoL domains are best predicted by symptoms. For the psychological domain of QoL, we hypothesize that personality traits and depressive symptoms are the strongest predictors. Finally, we hypothesize that attachment dimensions as well as personality traits are the strongest predictors of the social QoL domain.

2. METHODS

2.1 Participants and procedures

GROUP (Genetic Risk and Outcome of Psychosis) is an ongoing Dutch longitudinal multicenter cohort study that was designed to study vulnerability and resilience factors for variation in expression and course of non-affective psychotic disorders. Details of the GROUP study have been described elsewhere (Korver et al., 2012). A subsample of the patients (Amsterdam region) participated in the current study. Eligible patients fulfilled the following criteria: (1) age between 18 and 50 (extremes included), (2) meeting DSM-IV criteria (American Psychiatric Association, 2000) for a non-affective psychotic disorder: schizophrenia, schizophreniform disorder, schizoaffective disorder, delusional disorder or psychotic disorder NOS, (3) maximum duration of illness of 10 years, (4) fluent in Dutch, (5) participating in personality and attachment assessment.

2.2 Instruments

DSM diagnoses were based on the Comprehensive Assessment of Symptoms and History (CASH) (Andreasen et al., 1992). The CASH is a widely-used semi-structured interview designed for research in the major psychoses.

Positive symptoms and negative symptoms in patients with psychotic disorders were assessed with the Positive and Negative Syndrome Scale (PANSS) (Kay et al., 1987). The PANSS is a widely-used interview to assess the symptoms of schizophrenia. The five factor model by Van der Gaag et al. (2006a) was used for analyses. This model has good validity compared to earlier models (van der Gaag et al., 2006b).

Depressive symptoms were assessed with the Calgary Depression Scale (CDS) (Addington et al., 1993). The CDS is a structured interview designed to assess depression in patients with psychotic disorders. The CDS has shown to be better in differentiating depressive symptoms from negative and extrapyramidal symptoms compared to other widely used measures (Schennach et al., 2012).

Subjective evaluation of QoL was rated with the self-report questionnaire World Health Organization Quality of Life-Bref (WHOQOL-BREF) (The WHOQOL Group, 1998). The WHOQOL-BREF has shown to have good to excellent psychometric properties of reliability and performs well in tests of validity, as reflected by its four domains: the physical, psychological, social and environmental domain (Skevington et al., 2004). The WHOQOL-BREF has shown to be sensitive to changes in psychopathology and social functioning in patients with chronic schizophrenia over an 18 month period (Van de Willige et al., 2005).

The Dutch version of the NEO-FFI (Costa and McCrae, 1992) was used to rate self-reports of three of the FFM personality traits: Neuroticism, Extraversion and Agreeableness. The NEO-FFI has demonstrated satisfactory to excellent construct validity and moderate to good internal reliability in general population samples (Hoekstra et al., 1996; Costa and McCrae, 1992). There is some evidence that FFM personality traits are stable in patients with psychotic disorders, regardless of fluctuations of positive symptoms (Kentros et al., 1997a; Beauchamp et al., 2006).

The Psychosis Attachment Measure (PAM) (Berry et al., 2006) was used to assess two insecure adult attachment dimensions: anxious and avoidant attachment. Previous research has shown the PAM to have good reliability and validity in clinical and nonclinical samples (Berry et al., 2008; Berry et al., 2006).

2.3 Data analyses

SPSS 19 was used for all analyses. Cases were excluded if they missed ≥ 30% of the NEO-FFI or the PAM. Patients were only included when diagnoses fulfilled criteria for a non-affective psychotic disorder. Normality of the PANSS, CDS, WHOQOL-BREF, NEO-FFI and PAM scales was checked visually (histograms and boxplots) and confirmed by Shapiro-Wilk tests. In order to select variables for multiple regression analyses, correlations were performed between symptoms, attachment dimensions and FFM traits on the one hand and the four QoL domains on the other hand; nonparametric correlations were used for variables that were not normally distributed. Statistically significant results (p < 0.01) were entered in regression analyses. For all regression analyses, preliminary analyses were conducted to ensure no violation of linearity, multicollinearity and homoscedasticity. In order to examine whether psychosocial factors could predict QoL when symptoms are controlled for, hierarchical multiple regression analyses were performed with the four QoL domains as dependent variables. First, symptoms and sociodemographic variables (age, gender) that were univariatly associated with the particular QoL domain were entered at Step 1 and the FFM traits were entered at Step 2. Second, the hierarchical regression analyses were repeated with the attachment dimensions replacing the FFM traits at Step 2. Finally, in order to assess the strongest predictors of the QoL domains, stepwise regression analyses were conducted, entering univariatly associated symptoms, FFM traits and attachment dimensions simultaneously.

3. RESULTS

3.1. Normality

The WHOQOL-BREF dimensions, PAM Avoidance and NEO-FFI Neuroticism, Extraversion and Agreeableness were normally distributed. PAM Anxiety, PANSS Positive symptoms, PANSS Negative symptoms and CDS Total score showed positive skew in their distribution: most scores were clustered at the low values.

3.2 Sample characteristics

The sample consisted of 110 patients with psychotic disorders. Most patients were diagnosed with schizophrenia (74.5%); other diagnoses were schizoaffective disorder (14.5%), psychosis NOS (9.1%), schizophreniform disorder (0.9%) and delusional disorder

Table 1. WHOQOL-BREF, PANSS, CDS, PAM and NEO-FFI scores (*N* = 110)*

	Scale	Mean	SD	Median	Range
WHOQOL-BREF	Physical	3.74	0.65	3.86	2.29 - 4.86
	Psychological	3.56	0.57	3.67	1.83 - 4.67
	Social	3.36	0.76	3.33	1.67 - 5.00
	Environmental	3.82	0.52	3.71	2.14 - 5.00
PANSS	Positive symptoms	10.70	4.89	9.00	4 - 28
	Negative symptoms	12.63	5.92	10.00	6 - 38
CDS	Total score	1.98	2.92	1.00	0 - 11
PAM	Anxiety	0.66	0.54	0.56	0 - 2.50
	Avoidance	1.33	0.45	1.25	0.25 - 2.63
NEO-FFI	Neuroticism	33.98	8.69	34.00	16 - 57
	Extraversion	37.53	6.46	38.00	20 - 55
	Agreeableness	43.15	5.19	43.50	31 - 56

* Higher scores indicate better QoL in the WHOQOL-BREF, more severe symptoms in the PANSS and CDS, higher levels of insecure attachment in the PAM and higher levels of the FFM personality traits in the NEO-FFI.

(0.9%). The mean age was 32.5 years (*SD* = 8.48). Most patients were male (83.6%). On average, males scored lower on Agreeableness than females (*t* = -2.02, *p* = 0.045). Furthermore, males scored higher on the physical domain of QoL (*t* = 2.03, *p* = 0.045). There were no statistically significant differences in gender regarding the other scales. Age was not associated with any scale score. Scores (mean, median, range) on the WHOQOL-BREF dimensions, PANSS, CDS, PAM and NEO-FFI are provided in **Table 1**.

3.3 Associations between QoL and symptoms, personality and attachment

Correlations between the four QoL domains on the one hand and symptoms, attachment dimensions and FFM traits on the other hand are presented in **Table 2**.

3.4. Hierarchical and stepwise regression analyses predicting QoL domains

3.4.1 Physical domain of QoL

Gender and positive, negative and depressive symptoms were entered at Step 1, explaining 25.4% of the variance (*F* = 7.17. *p* < 0.001). FFM traits explained an additional 14.9% of variance to symptoms and gender (*F change* = 6.76, *p* < 0.001), which was mainly accounted for by Neuroticism (*beta* = -0.30, *p* = 0.011).

Table 2. Symptoms, FFM traits and attachment dimensions correlated with QoL (*N* = 110)

		WHOQOL-BREF			
		Physical	*Psychological*	*Social*	*Environmental*
PANSS	Positive ymptoms	-0.27**	-0.27**	-0.35**	-0.15
	Negative symptoms	-0.33**	-0.32**	-0.30**	-0.40**
CDS	Total score	-0.38**	-0.60**	-0.43**	-0.18
PAM	Anxiety	-0.58**	-0.59**	-0.43**	-0.38**
	Avoidance	-0.11	-0.16	-0.27**	-0.28**
NEO-FFI	Neuroticism	-0.53**	-0.67**	-0.45**	-0.33**
	Extraversion	0.46**	0.63**	0.43**	0.40**
	Agreeableness	0.34**	0.34**	0.24*	0.39**

*p<.005, **p < 0.01

Attachment explained an additional 15.2% of variance to symptoms and gender (*F change* = 21.25, *p* < 0.001), which was all accounted for by anxious attachment (*beta* = -0.47, *p* < 0.001).

The total variance explained by the final model was 43.1% (*F* = 21.49, *p* < 0.001). Anxious attachment (*beta* = -0.44, *p* < 0.001), Extraversion (*beta* = 0.33, *p* < 0.001) and gender (*beta* = -0.18, *p* = 0.028) provided unique contribution to the model.

3.4.2 Psychological domain of QoL

Positive, negative and depressive symptoms were entered at Step 1, explaining 43.3% of the variance (*F* = 21.61, *p* < 0.001). FFM traits explained an additional 18.5% of variance, (*F change* = 13.23, *p* < 0.001) which was mainly accounted for by Neuroticism (*beta* = -0.35, *p* < 0.001) and Extraversion (*beta* = 0.28, *p* = 0.002).

Anxious attachment entered at Step 2 explained an additional 5.6% of variance (*F change* = 9.18, *p* = 0.003; *beta* = -0.28, *p* = 0.003), after symptoms were entered at Step 1.

The total variance explained by the final model was 60.5% (*F* = 43.38, *p* < 0.001). Neuroticism (*beta* = -0.36, *p* < 0.001, Extraversion (*beta* = 0.32, *p* < 0.001) and depressive symptoms (*beta* = -.25, *p* = 0.006) provided unique contribution.

3.4.3 Social domain of QoL

Positive, negative and depressive symptoms were entered at Step 1, explaining 22.8% of the variance (*F* = 8.38, *p* < 0.001). Neuroticism and Extraversion entered at Step 2

explained an additional 8.5% (*F change* = 5.12, *p* = 0.008), which was mainly accounted for by Neuroticism (*beta* = -0.26, *p* = 0.036).

Anxious and avoidant attachment entered at Step 2 explained an additional 7.1% (*F change* = 4.20, *p* = 0.018), which was mainly accounted for by anxious attachment (*beta* = -0.23, *p* = 0.040).

The total variance explained by the final model was 30.3% (*F* = 12.32, *p* < 0.001). Neuroticism (*beta* -0.27, *p* = 0.012, Extraversion (*beta* = 0.24, *p* = 0.026) and positive symptoms (*beta* = -0.22, *p* = 0.024) provided unique contribution.

3.4.4 Environmental domain of QoL

Negative symptoms were entered at Step 1, explaining 12.9% of the variance (*F* = 13.27, *p* < 0.001). The FFM traits at Step 2 explained an additional 16.4% of variance (*F change* = 6.74, *p* < 0.001), which was mostly accounted for by Agreeableness (*beta* = 0.25, *p* = 0.013).

Anxious and avoidant attachment explained an additional 10.4% of variance over negative symptoms (*F change* = 5.96, *p* = 0.004) and both anxious attachment (*beta* = -0.23, p = 0.018) and avoidant attachment (*beta* = -0.20, *p* = 0.034) provided unique contribution.

The total variance explained by the final model was 27.9% (*F* = 11.35, *p* < 0.001). Agreeableness (*beta* = 0.27, *p* = 0.007), Extraversion (*beta* = 0.24, *p* = 0.021) and negative symptoms (*beta* = -0.22, *p* = 0.025) provided unique contribution.

4. DISCUSSION

Our findings show that psychosocial factors, being it FFM personality traits or adult attachment dimensions, are able to predict all domains of QoL, when symptom severity is controlled for (additional explained variance ranging from 5.6% to 18.5%). Many studies have stressed the importance of psychosocial factors when assessing QoL in patients with psychotic disorders, and our findings support this conclusion.

However, earlier studies that focused specifically on the impact of symptoms, FFM personality traits and/or attachment on QoL in patients with psychotic disorders found seemingly conflicting results. Some studies found no impact of symptoms on QoL (Kentros et al., 1997b; Couture et al., 2007), while others did (Lysaker and Davis, 2004; Caron et al., 2005). Methodological differences (such as different definitions of QoL and attachment) and shortcomings (such as a small sample size, lack of information on

type of analyses or the use of a measure atypical for assessing symptoms in patients with psychotic disorders) make comparison between studies difficult. Our findings show that depressive and negative symptoms are (inversely) associated with QoL in patients with psychotic disorders, which is in line with the majority of earlier research on QoL in patients with psychotic disorders (Lambert and Naber, 2004; Eklund et al., 2003). Earlier studies found inconclusive results in regard to positive symptoms (Lambert and Naber, 2004). Our findings indicate that especially the social domain of QoL is affected by positive symptoms.

Our initial hypotheses regarding the relative contribution of symptoms, personality traits and attachment on the different domains of QoL as defined by the WHO (1995) were partly confirmed:

For the physical QoL domain, we hypothesized that symptoms would be the strongest predictors. Our findings did not support this hypothesis: physical QoL was best predicted by anxious attachment, Extraversion and gender (higher anxious attachment, lower Extraversion and female gender predicting lower physical QoL).

We hypothesized that the psychological QoL domain would be best predicted by personality traits and depressive symptoms. This hypothesis was confirmed by our findings: Neuroticism, Extraversion and depressive symptoms were the strongest predictors of psychological QoL.

Our hypothesis that social QoL would be best predicted by attachment and personality traits was partly supported by our findings. The social domain of QoL was best predicted by Neuroticism, Extraversion and positive symptoms.

For the environmental domain, we hypothesized that symptoms would be the strongest predictors. This hypothesis was partly confirmed; the environmental domain of QoL was best predicted by Agreeableness, Extraversion and negative symptoms.

In summary, psychosocial factors were stronger predictors of more domains of QoL than anticipated. Several authors have presented models describing *how* psychosocial factors and QoL in patients with severe mental problems might be related. The 'mediational model' of QoL presumes that all psychosocial factors taken together determine the levels of aspirations, expectations and comparison standards in patients with severe mental disorders, which in turn functions as a mediator between objective conditions and perceived wellbeing (Zissi et al., 1998). There is some empirical support for this model (Eklund et al., 2003). The 'distress-protective model' presumes an interaction between clinical symptoms, adverse events and associated distress on the one hand and protective factors, such as social support and use of adequate coping

styles, on the other hand (Ritsner, 2003). There is also some empirical support for the second model (Ritsner et al., 2012). A third model posits depression as a primary mediator between psychosocial factors and QoL (Bechdolf et al., 2003).

Because of the nature of our analyses, our findings cannot provide evidence regarding the first two models. At face value, both models seem plausible. FFM personality traits and adult attachment dimensions could represent structural tendencies towards positive and/or negative emotionality and appraisal, which might function as a mediator between objective conditions and QoL, as stated in the meditational model. It is also imaginable that higher Neuroticism, lower Extraversion, lower Agreeableness and higher anxious attachment might tip the scale towards distress, as described in the distress-protective model. However, the findings of the current study are inconsistent with the third model, since the influence of psychosocial factors cannot be attributed solely to depressive symptoms.

There are several limitations of the present study. First, we conducted a cross-sectional study, therefore we cannot infer causality. Other factors may influence both QoL and psychosocial factors directly, instead of psychosocial factors affecting QoL. For instance, objective life conditions, such as involuntary single status, unemployment or hospitalization, might cause distress that temporarily affects individuals' psychosocial and QoL levels. On the other hand, there is some preliminary evidence that the FFM traits and adult attachment dimensions are stable in patients with psychotic disorders (Kentros et al., 1997a; Beauchamp et al., 2006; Berry et al., 2008). Also, subjective QoL indicators have been found to contribute more to individuals' general sense of wellbeing than objective life conditions, in both the general population and patients with severe mental illness (Lehman, 1983). Nevertheless, the lack of assessment of objective life conditions can be regarded as a limitation of the present study. Another possible limitation may be that our selection of subjects, who are able and willing to give informed consent and collaborate with study procedures, is not representative for the group of patients with psychotic disorders as a whole. Indeed, the levels of symptoms in our sample are relatively low: most positive, negative and depressive symptoms were clustered at the low values. Finally, all administered questionnaires were self report measures, which are liable to self report bias. For example, poor insight might have influenced the QoL scores for some individuals. In this regard, the relatively low levels of symptoms in our present sample may be considered an advantage, since lack of insight in schizophrenia is associated with severity of clinical symptoms (De Hert et al., 2009).

Strengths of the present study were the assessment of both psychosocial factors and symptoms together, using reliable and valid measures. Also, by focusing on specific domains of QoL, the relative impact of symptoms and psychosocial factors was demonstrated.

5. CONCLUSION

Our findings highlight the role that specific individual characteristics play in different aspects of QoL in patients with psychotic disorders, above and beyond the impact of positive, negative and depressive symptoms. We recommend that future studies that use QoL as an outcome measure in patients with psychotic disorders give attention to patients' personality and their interpersonal relationships.

6. ACKNOWLEDGEMENT

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