Early Intervention IN PSYCHIATRY
First Impact Factor released in June 2010 and now listed in MEDLINE!

Early Intervention in Psychiatry 2010; **4:** 174–181 doi:10.1111/j.1751-7893.2010.00178.x

Original Article

Psychological well-being among individuals with first-episode psychosis

Sarah R. Uzenoff,[1] Katherine C. Brewer,[1] Diana O. Perkins,[2] David P. Johnson,[1] Kim T. Mueser[3] and David L. Penn[1]

Abstract

Aim: Psychological well-being is a subjective component of quality of life (QOL) that has been previously unexplored in individuals recovering from an initial psychotic episode. This study examined predictors of psychological well-being among individuals with first-episode psychosis (FEP) and compared it to a non-clinical college-aged comparison group.

Methods: The Scales of Psychological Well-Being (SPWB) Environmental Mastery and Purpose in Life subscales were administered to both clinical ($n = 41$) and control ($n = 39$) participants. Clinical participants were also assessed on symptom measures and QOL, and all participants completed a measure of perceived social support. Multiple regression analyses were carried out to determine predictors of well-being in the FEP sample.

Results: SPWB scores were significantly lower for the FEP group in comparison to the control group. Additionally, greater perceived social support and lower levels of depression were found to be significant predictors of psychological well-being in the clinical sample, whereas gender and negative symptoms were not significant predictors.

Conclusions: These results suggest that the development of a psychotic episode is associated with decreased subjective well-being, and that depression and social support may play an important role in this aspect of an individual's recovery. Additionally, the SPWB appear to be tapping into an important construct that has been relatively unexamined in first-episode research and may have potential utility in clinical practice and future treatment development.

[1]Departments of Psychology and [2]Psychiatry, University of North Carolina, Chapel Hill, North Carolina, and [3]Department of Psychiatry, Dartmouth Medical School, Concord, New Hampshire, USA

Corresponding author: Dr David L. Penn, Department of Psychology, University of North Carolina at Chapel Hill, CB#3270 Davie Hall, Chapel Hill, NC 27599-3270, USA. Email: dpenn@email.unc.edu

Received 1 May 2009; accepted 4 March 2010

Key words: psychology, psychotic disorders, quality of life.

INTRODUCTION

Despite the efficacy of antipsychotic medications in symptom reduction following an initial psychotic episode,[1,2] many individuals experience social and functional impairments which persist after psychotic symptoms remit.[3,4] Additionally, the emergence of a psychotic disorder can represent a significant life disruption, often accompanied by social exclusion, stigma and other negative subjective experiences.[5] As definitions of recovery increasingly emphasize optimism and a return to full participation in life's activities,[6,7] there is a need to evaluate personal and social facets of functioning that represent more holistic markers of recovery following an initial psychotic episode.

The construct of 'quality of life' (QOL) has frequently been used to quantify the social and functional aspects of recovery, and multiple scales have been developed to evaluate QOL in individuals with schizophrenia.[8–12] QOL is a broad construct that can be assessed by both objective and subjective indicators, the former pertaining to facts about the individual's social situation (like employment status, number of social contacts, etc.) which can be objectively assessed, and the latter comprising the individual's ratings of feelings, thoughts and views on their social situation.[13] Findings have suggested that

individuals who have recently experienced a first psychotic episode have decreased QOL in comparison to non-clinical control samples based on both subjective[14,15] and objective[16] indicators. Among individuals with first-episode psychosis (FEP), poor QOL has been found to be associated with high levels of negative symptoms,[17–19] as well as depressive symptoms[14,18,20] and unemployment.[18] Among individuals with chronic schizophrenia, women tend to report higher levels of QOL than do men,[21,22] although no clear gender differences have been noted in early psychosis.[15,17] And social support has been found to be associated with improved QOL in both chronic schizophrenia[23,24] as well as in early psychosis.[25,26]

However, the QOL construct is problematic for use with a FEP population for several reasons. First, the variable extent to which each existing QOL measure relies on objective or subjective indicators poses challenges for interpreting results across studies, given findings that objective QOL is best predicted by negative symptoms, whereas subjective QOL is best predicted by depressive symptoms.[26,27] Additionally, failure to differentiate between objective and subjective indicators of QOL may obscure clinical phenomenology specific to FEP. For instance, Priebe *et al.*[20] report that although a sample of first-admitted schizophrenia patients had favorable objective indicators of QOL in comparison to patients with chronic schizophrenia, the first-admitted patients endorsed lower subjective QOL than the more chronic patients. The authors suggest that these findings may reflect the recency of illness onset for individuals with FEP who have not yet had time to adapt to distressing symptoms and changes in life circumstances. Second, the reported associations between QOL and negative symptoms highlight the original role of QOL measures in assessing the deficit syndrome in schizophrenia,[12,28,29] which has been observed less frequently in first-episode populations than in more chronic samples.[30] Finally, measures of QOL that use objective indicators fail to adequately capture the subjective experiences of satisfaction, fulfilment and well-being that are integral to the process of recovery from early psychosis. QOL scales that focus on physical and emotional symptoms are reflective of the medical model of mental illness, wherein psychopathology is emphasized and positive aspects of psychological functioning are likely to be minimized or neglected.[31] Indeed, whereas care providers may tend to focus on an individual's ability to overcome difficulties and disability, the individual recovering from a psychotic illness may be equally or more concerned with their adaptation and ability to live post-illness onset.[32] Accordingly, measures of objective benchmarks of recovery may be less meaningful than expected.

The construct of psychological well-being includes aspects of positive mental health and wellness that are not adequately assessed via symptom inventories or measures that emphasize self-reported problems. The multidimensional concept of psychological well-being emphasizes the importance of realizing one's potential, along with the values of accomplishment, agency, employment and deep personal relations.[33–36] A theoretical model of well-being put forth by Ryff *et al.*[33] suggests that these positive aspects of mental health do not represent merely the absence of an illness state, but rather the presence of assets that may play an important restorative and protective role in one's mental and physical health.[37] Consequently, low well-being may leave otherwise healthy individuals at risk or vulnerable for future mental illness, whereas high well-being may distinguish those who stay unwell from others who are resilient and move more easily towards health. Accordingly, it is essential to measure such subjective, strength-based constructs in addition to symptom levels and objective functioning in order to fully characterize 'recovery' from mental illness.

The Scales of Psychological Well-Being (SPWB)[38] assess subjective experiences of well-being while overcoming several of the limitations of QOL measurements for FEP populations. The SPWB were created to measure positive health and well-being and include the following six subscales; Autonomy, Environmental Mastery, Personal Growth, Positive Relations with Others, Purpose in Life and Self-acceptance. Unlike QOL measurements, the SPWB do not consider objective functioning (such as employment or living situation), thereby making them more representative of subjective psychological states, as well as more sensitive to differences between individuals. Furthermore, well-being ratings have shown relationships to biological health markers distinct from those associated with depression,[39] as well as differential sensitivity following treatment for affective disorders as compared to measures of depression.[40] Because the SPWB are a generic measurement of QOL (i.e. focused on the extent to which an individual meets his or her internal standards[41]), they can be used to generate normative data for inter-group comparisons. The SPWB have already been utilized within populations of individuals diagnosed with anxiety[42] and depressive[43] disorders, with chronic medical conditions[44,45] and within non-clinical populations.[31] Such a measure that captures subjective experiences of

well-being central to recovery has the potential to enrich and inform clinical intervention strategies targeted at the first episode.

The primary aim of this study was to examine well-being in FEP. For this purpose, we selected the Environmental Mastery and Purpose in Life subscales of the SPWB due to their face validity and relevance to individuals with FEP. We hypothesized that non-clinical controls would report higher subjective ratings of well-being than would individuals with FEP. In addition, we hypothesized that higher well-being among individuals with FEP would be predicted by female gender, less depressive and negative symptoms and greater social support.

METHODS

Participants

Clinical participants were 41 individuals enrolled in a randomized controlled trial of the Graduated Recovery Intervention Program (GRIP), a cognitive–behavioural therapy program designed to facilitate functional recovery for individuals who have experienced an initial episode of psychosis.[46] Participants were individuals 18 years of age or older who met DSM-IV diagnostic criteria for schizophrenia, schizoaffective disorder or schizophreniform disorders and who had received treatment for no more than 3 years. Exclusion criteria included intelligence quotient (IQ) < 70, organic brain disorder and substance-induced psychosis. All individuals were clinically stable and receiving treatment on an outpatient basis at the time of enrolment. Data from this sample were taken from screening and baseline assessments completed upon enrolment in the randomized trial but before the active intervention phase.

The comparison group included 39 undergraduate college students who received course credit for their participation. Exclusion criteria for this group included lifetime diagnosis of a psychotic disorder or having a first-degree relative with history of a psychotic disorder. See Table 1 for information regarding the demographic characteristics of the two groups.

Measures

Screening

For individuals in the clinical sample, diagnosis was confirmed using the Structured Clinical Interview for DSM-IV Axis I Disorders.[47] The matrix reasoning and vocabulary subscales of the Wechsler Abbreviated Scales for Intelligence[48] were used to estimate IQ for all participants.

Symptomatology

For individuals in the clinical sample, psychotic symptoms were assessed using the Positive and Negative Syndrome Scale (PANSS).[49] Three scaled scores were generated: Positive Symptoms, Negative Symptoms and General Psychopathology. The Calgary Depression Scale for Schizophrenia (CDSS)[50] was also administered to individuals in the clinical sample. The CDSS is a nine-item scale designed specifically to measure depression in individuals diagnosed with psychotic disorders and is administered via semistructured interview. Symptoms are scored on a scale from 0 to 3, with greater scores indicating greater distress. The final score is a summation of the individual responses. The CDSS has high internal consistency ($\alpha = 0.79$ in Addington *et al.*[51] and $\alpha = 0.87$ in the current study). Raters were trained to conduct both the PANSS and the

TABLE 1. Participant demographic information

	First-episode psychosis ($n = 41$)	Non-clinical controls ($n = 39$)	Test statistic (df)	*P*
Age (years), *M (SD)*	22.3 (3.5)	18.8 (0.9)	$t(78) = 6.02$	<0.01
IQ†, *M (SD)*	102.7 (15.8)	116.1 (9.5)	$t(78) = -4.57$	<0.01
Gender, *n (%)*	–	–	$\chi^2(1) = 0.002$	0.968
Male	24 (58.5)	23 (59.0)	–	–
Female	17 (41.5)	16 (41.0)	–	–
Ethnicity‡, *n (%)*	–	–	$\chi^2(3) = 7.54$	0.056
Caucasian	26 (63.4)	29 (74.4)	–	–
African American	11 (26.8)	3 (7.7)	–	–
Asian	0 (0)	3 (7.7)	–	–
Other	4 (9.8)	4 (10.3)	–	–

†IQ as estimated by the Wechsler Abbreviated Scale of Intelligence (WASI).
‡Data were available for N = 79 participants for this measure.

CDSS to a gold standard of reliability (intra-class correlation > 0.80).

Quality of Life

QOL for the clinical sample was measured using the Quality of Life Scale (QLS).[12] This assessment is a semistructured interview comprising 21 items rated on a scale from 0 to 6. Lower scores reflect greater impairments in functioning. The QLS generates four subscales (Interpersonal Relations, Instrumental Role, Intrapsychic Foundations and Common Objects and Activities). In the current study, we did not include the last two subscales but rather focused on the Interpersonal Relations subscale (eight items) and Instrumental Role subscale (four items) (due to the emphasis of the treatment study on functional recovery). These two subscales were combined to represent a single index of QOL ($\alpha = 0.65$).

Psychological well-being

The Environmental Mastery and Purpose in Life subscales of the SPWB[38] were completed by all participants. Each subscale is composed of 14 statements divided between positively and negatively phrased items. The correlation of the 14-item scales (selected to reduce client assessment burden) with the 20-item original scales[38] was 0.98 for both scales.[52] Sample items include 'My daily life is busy, but I derive a sense of satisfaction from keeping up with everything' (in the Environmental Mastery subscale) and 'I enjoy making plans for the future and working to make them a reality' (in the Purpose in Life subscale). Participants are asked to rate their agreement with each statement using a 6-point scale (1 = strongly disagree, 6 = strongly agree). After reverse scoring half of the responses, the scores are summed to give a score for each subscale (range = 14–84). Previous research reported high internal consistency for the individual subscales ($\alpha = 0.86$ and 0.88 for Environmental Mastery and Purpose in Life, respectively)[52] and these findings were replicated in the current study ($\alpha = 0.90$ and 0.88).

Perceived social support

All participants completed the Multidimensional Scale of Perceived Social Support,[53] a 12-item measure assessing the perceived adequacy of social support received from friends, family and significant others. Items are rated on a 5-point Likert scale with higher scores indicating a greater amount of perceived social support. Internal consistency for this measure is high ($\alpha = 0.88$ in Zimet *et al.*[54] and $\alpha = 0.92$ in the current study).

Procedure

All study procedures were approved by the local Institutional Review Board. After giving informed consent, clinical participants recruited for the GRIP trial were screened for inclusion by experienced clinicians. Once a participant's diagnosis was confirmed, baseline assessments were administered by research staff previously trained to reliability on the relevant measures. Non-clinical participants were recruited from a participant pool of students enrolled in introductory psychology classes. The participants gave their informed consent and received a single assessment administered by a trained research assistant.

Data analysis overview

Data were analysed using SPSS version 16.0 (Chicago, IL, USA). Pearson chi-square tests were used to compare the clinical and control groups on demographic variables, and differences in well-being scores were examined using a one-way analysis of variance (ANOVA). To examine predictors of well-being in the clinical sample, perceived social support, depression, gender and symptom levels were entered into a linear multiple regression analysis as independent variables.

RESULTS

As compared to the clinical sample, the control sample was significantly younger and had a significantly higher IQ. Furthermore, there was a trend level significant difference in the ethnic composition of the two samples, with the control group including fewer African American participants and more Asian American participants (see Table 1). Given these findings, age, IQ and ethnicity were used as covariates in the primary analyses.

Clinical and outcome data are provided in Table 2. Within each group, Environmental Mastery and Purpose in Life scores on the SPWB were highly correlated ($r_{control} = 0.76$, $P < 0.01$; $r_{clinical} = 0.79$, $P < 0.01$), and thus were combined into a single variable. In the clinical sample, this single index of well-being showed significant positive correlations with QOL and social support, as well as significant negative correlations with depressive and general symptoms (see Table 3). In comparison, QOL scores were significantly negatively correlated with negative, general and total symptoms scores as well as depression.

A one-way ANOVA (group: FEP vs. non-clinical controls) conducted on the combined well-being

TABLE 2. Participant outcomes

	First-episode psychosis ($n = 41$) *M* (SD)	Non-clinical controls ($n = 39$) *M* (SD)
SPWB	115.88 (24.32)	131.87 (14.58)
MSPSS	49.12 (9.07)	53.08 (8.49)
QLS (2-scale index)	44.00 (10.83)	–
CDSS	3.78 (4.26)	–
PANSS Positive subscale	13.10 (5.17)	–
PANSS Negative subscale	14.56 (5.01)	–
PANSS General subscale	28.07 (7.10)	–
PANSS Total score	55.73 (14.04)	–

CDSS, Calgary Depression Scale for Schizophrenia; MSPSS, Multidimensional Scale of Perceived Social Support; PANSS, Positive and Negative Syndrome Scale; QLS, Quality of Life Scale; SPWB, Scales of Psychological Well-Being.

TABLE 3. Correlations between outcome variables in first-episode psychosis

	SPWB	MSPSS	QLS	CDSS	PANSS Positive	PANSS Negative	PANSS General	PANSS Total
SPWB	–	0.44**	0.37*	–0.62**	–0.22	0.02	–0.32*	–0.23
MSPSS	–	–	0.48**	–0.26	–0.48**	–0.28	–0.49**	–0.52**
QLS	–	–	–	–0.33*	–0.30	–0.59**	–0.63**	–0.64**
CDSS	–	–	–	–	0.02	0.07	0.36*	0.21
PANSS Positive	–	–	–	–	–	0.16	0.65**	0.75**
PANSS Negative	–	–	–	–	–	–	0.55**	0.69**
PANSS General	–	–	–	–	–	–	–	0.94**
PANSS Total	–	–	–	–	–	–	–	–

*$P < 0.05$; **$P < 0.01$.
CDSS, Calgary Depression Scale for Schizophrenia; MSPSS, Multidimensional Scale of Perceived Social Support; PANSS, Positive and Negative Syndrome Scale; QLS, Quality of Life Scale; SPWB, Scales of Psychological Well-Being.

TABLE 4. Predictors of psychological well-being for individuals with first-episode psychosis

	B	Std. Error	Beta	*t*	*P*
PANSS Negative Subscale	0.74	0.61	0.15	1.21	0.24
CDSS	–3.05	0.72	–0.53	–4.23	0.00
MSPSS	0.90	0.36	0.34	2.53	0.02
Gender	–1.23	6.07	–0.03	–0.20	0.84

CDSS, Calgary Depression Scale for Schizophrenia; MSPSS, Multidimensional Scale of Perceived Social Support; PANSS, Positive and Negative Syndrome Scale.

scale showed that psychological well-being was significantly higher in the non-clinical control sample than in the FEP sample ($F(1,79) = 12.57$, $P \leq 0.01$). This finding remained statistically significant after controlling for age, IQ and ethnicity ($F(1,79) = 7.12$, $P < 0.01$). There was no significant main effect of gender in the total sample nor was there a significant interaction of gender and group. Finally, a multiple regression analysis indicated that lower levels of depression and higher levels of perceived social support were associated with greater psychological well-being (Table 4). Neither negative symptoms nor gender significantly predicted psychological well-being.

DISCUSSION

The purpose of this study was to investigate psychological well-being among individuals with FEP using

the SPWB. Individuals with FEP reported lower well-being than a non-clinical control sample. Our findings also indicated that less depression and greater social support predicted higher psychological well-being within a first-episode sample, whereas gender and negative symptoms were not associated with psychological well-being. Finally, well-being was significantly associated with QOL ratings, suggesting that well-being and QOL are related but distinct constructs. These findings partially support previous research and have implications for further work in this area.

This study is the first to use the SPWB to assess subjective well-being among individuals with FEP. As these scales were found to be reliable, to differentiate between FEP and a non-clinical comparison group, and appear to be relatively distinct from QOL (i.e. only 14% of the variance was shared by both constructs), they may be tapping into an important construct that has been relatively unexamined in first-episode research. Additionally, because administration of the SPWB does not require a trained interviewer, these scales may have excellent utility in clinical settings.

The hypotheses that lower depression and greater social support would predict greater psychological well-being among individuals with FEP were supported. These results are consistent with findings that social support has been associated with higher ratings of psychological well-being among a group of individuals diagnosed with breast cancer[55] as well as caregivers of individuals with severe mental illness.[56] Our findings are also consistent with previous research indicating that depression is associated with the subjective domains of QOL in psychotic illnesses[20,26,27] and is moderately correlated with lower SPWB ratings in non-clinical populations.[38,52,57] It should be noted that in previous investigations, the Environmental Mastery subscale has shown the highest correlations with measures of depression among the six subscales of the SPWB.[58] It is likely that the other four subscales of the SPWB not used in this study would demonstrate weaker relationships with depression, as they have in previous investigations.[57,58] Although depression and well-being may share a moderate amount of variance, it seems clear that the constructs are not identical. Future studies need to further explicate the relationships between these constructs, particularly the extent to which depression and well-being have shared or unique underlying cognitive or affective processes.[13]

Our results did not support the hypotheses that gender and negative symptom severity would be predictive of psychological well-being. These findings may reflect the distinction between objective and subjective measures of QOL. Specifically, the significant correlations observed in this study between QOL scores (which relied primarily on objective indicators) and indices of psychopathology, including negative symptoms, are in keeping with previous findings[17,26] and highlight the potential overlap of these constructs. Additionally, there is some evidence to suggest that negative symptoms become more prominent with increasing age and illness chronicity.[30,59,60] Due to the relatively low presentation of negative symptoms in the present study, it is possible that this variable was not sufficiently sensitive to be predictive of psychological well-being.

Furthermore, the lack of gender differences in well-being may highlight well-being as a construct distinct both from objective QOL as well as from other indices of subjective QOL, such as life satisfaction. Gender differences in objective social and vocational functioning are associated with biological and behavioural correlates and are present early in the illness course.[61] Additionally, Roder-Wanner and Priebe[15] have reported gender differences in satisfaction with specific domains of QOL in a first-episode sample, and Roder-Wanner *et al.*[62] have suggested that there may be gender-specific processes involved in the valuation of subjective QOL that operate independently of objective life situations. Although these findings need to be replicated in successive studies, the lack of gender differences in well-being ratings may reflect the extent to which this construct is unique from those represented in other outcome measures.

This study had several methodological limitations. First, our sample was relatively small and included individuals with generally low symptom levels in comparison to first-episode samples used in similar studies (e.g. Browne *et al.*[17] and Sim *et al.*[18]). Accordingly, the construct of well-being in FEP must be examined in a larger sample and in other settings and treatment contexts in order to further explore its correlates and predictors. Second, the non-clinical control group was composed of college students and therefore may not be representative of the general population. Lastly, the study only utilized two of the six subscales of the SPWB, as well as two of the four subscales of the QLS. Use of the other well-being subscales would have allowed a more comprehensive measure of well-being in FEP. Additionally, it is possible that the Intrapsychic Foundations subscale of the QLS (which was not used in this current study) may tap into constructs shared by the SPWB.

The SPWB are part of a larger positive health movement emphasizing attainment of personal

goals and the subjective experience of being engaged in a life well-lived.[63] Therapies specifically targeting positive emotions and psychological well-being are currently being developed and show initial promise. Seligman and colleagues' positive psychotherapy,[64] which emphasizes building positive emotion and meaning in life, has been associated with superior outcomes in the treatment of mildly to moderately depressed young adults as well as young adults diagnosed with major depression in comparison to treatment as usual conditions. Fava and Ruini have also developed well-being therapy,[65] a brief individual psychotherapy theoretically founded in Ryff's cognitive model of psychological well-being. In controlled pilot trials, well-being therapy has been associated with reduced levels of residual affective symptoms in comparison to a cognitive–behavioural therapy,[43] and in conjunction with cognitive–behavioural package, has been associated with improved outcomes in major depressive[66] and generalized anxiety disorders.[42] Although still in the early phases of development, well-being therapy may be beneficial for individuals with FEP. Such a treatment may be a useful adjunct to traditional therapies that focus on symptom reduction and management, and would be consistent with the growing emphasis in treatment research on facilitating recovery from severe mental illness.

ACKNOWLEDGEMENTS

The authors would like to thank the participants for their willingness to take part in this research study. We also acknowledge the assistance of Robert Hamer, PhD and Abby Scheer for providing data management services, Jennifer Nieri, LCSW and Piper Meyer, PhD for conducting GRIP study assessments, and Bebe Smith, LCSW and Sylvia Saade, PhD for their administrative support. Support for the GRIP randomized trial has been provided by NIMH grant 5R34MH071252-03 awarded to DLP.

REFERENCES

1. Shaw M, Singh S. Management of early onset psychosis. *Curr Opin Psychiatry* 2004; **14**: 249–54.
2. Robinson D, Woerner M, Alvir J *et al*. Predictors of treatment response from a first episode of schizophrenia or schizoaffective disorder. *Am J Psychiatry* 1999; **156**: 544–9.
3. Robinson DG, Woerner MG, McMeniman M, Mendelowitz A, Bilder RM. Symptomatic and functional recovery from a first episode of schizophrenia or schizoaffective disorder. *Am J Psychiatry* 2004; **161**: 473–9.
4. Tohen M, Strakowski S, Zarate C *et al*. The McLean-Harvard first episode project: 6-month symptomatic and functional outcome in affective and nonaffective psychosis. *Biol Psychiatry* 2000; **48**: 467–76.
5. Tarrier N, Khan S, Cater J, Picken A. The subjective consequences of suffering a first episode psychosis: trauma and suicide behaviour. *Soc Psychiatry Psychiatr Epidemiol* 2007; **42** (1): 29–35.
6. Andresen R, Oades L, Caputi P. The experience of recovery from schizophrenia: towards an empirically validated stage model. *Aust N Z J Psychiatry* 2003; **37**: 586–94.
7. Bertolote J, McGorry P. Early intervention and recovery for young people with early psychosis: consensus statement. *Br J Psychiatry* 2005; **187** (Suppl. 48): s116–s119.
8. Bigelow D, Brodsky G, Stewart L, Olson M. The concept and measurement of quality of life as a dependent variable in evaluation of mental health services. In: Stahler G, Tash W, eds. *Innovative Approaches to Mental Health Evaluation*. New York: Academic Press, 1982; 345–66.
9. Lehman A, Ward N, Linn L. Chronic mental patients: quality of life issue. *Am J Psychiatry* 1982; **139**: 1271–6.
10. Oliver J. The social care directive: development of a quality of life profile for use in community services for the mentally ill. *Soc Work Soc Sci Rev* 1991; **3**: 5–45.
11. WHOQOL Group. Development of the World Health Organization WHOQOL-BREF quality of life assessment. *Psychol Med* 1998; **28**: 551–8.
12. Heinrichs D, Hanlon T, Carpenter W. The quality of life scale: an instrument for rating the schizophrenic deficit syndrome. *Schizophr Bull* 1984; **10**: 388–98.
13. Priebe S. Social outcomes in schizophrenia. *Br J Psychiatry* 2007; **191** (Suppl. 50): s15–s20.
14. Law CW, Chen EYH, Cheung EFC *et al*. Impact of untreated psychosis on quality of life in patients with first-episode schizophrenia. *Qual Life Res* 2005; **14**: 1803–11.
15. Roder-Wanner U, Priebe S. Objective and subjective quality of life of first-admitted women and men with schizophrenia. *Eur Arch Psychiatry Clin Neurosci* 1998; **248**: 250–8.
16. Addington J, Young J, Addington D. Social outcome in early psychosis. *Psychol Med* 2003; **33**: 1119–24.
17. Browne S, Clarke M, Gervin M, Waddington JL, Larkin C, O'Callaghan E. Determinants of quality of life at first presentation with schizophrenia. *Br J Psychiatry* 2000; **176**: 173–6.
18. Sim K, Mahendran R, Siris S, Heckers S, Chong S. Subjective quality of life in first episode schizophrenia spectrum disorders with comorbid depression. *Psychiatry Res* 2004; **129**: 141–7.
19. Ho B, Nopoulus P, Flaum M, Ardnt S, Andreasen N. Two year outcome in first-episode schizophrenia: predictive value of symptoms for quality of life. *Am J Psychiatry* 1998; **2**: 131–7.
20. Priebe S, Roeder-Wanner U-U, Kaiser W. Quality of life in first-admitted schizophrenia patients: a follow-up study. *Psychol Med* 2000; **30**: 225–30.
21. Katschnig H. Schizophrenia and quality of life. *Acta Psychiatr Scand* 2003; **102**: 33–7.
22. Shtasel D, Gur R, Gallacher F, Heimburg C, Gur R. Gender difference in the clinical expression of schizophrenia. *Schizophr Res* 1992; **7**: 225–31.
23. Eack S, Newhill C, Anderson C, Rotondi A. Quality of life for persons living with schizophrenia: more than just symptoms. *Psychiatr Rehabil J* 2007; **30**: 219–22.
24. Kemmler G, Holzner B, Neudorfer C, Meise U, Hinterhuber H. General life satisfaction and domain-specific quality of life in chronic schizophrenic patients. *Qual Life Res* 1997; **6**: 265–73.
25. Erickson D, Beiser M, Iacono W, Fleming J, Lin T. The role of social relationships in the course of first-episode schizophrenia and affective psychosis. *Am J Psychiatry* 1989; **146**: 1456–61.
26. Gorna K, Jaracz K, Rybakowski F, Rybakowski J. Determinants of objective and subjective quality of life in first-time-

admission schizophrenic patients in Poland: a longitudinal study. *Qual Life Res* 2008; **17**: 237–47.
27. Narvaez JM, Twamley EW, McKibbin CL, Heaton RK, Patterson TL. Subjective and objective quality of life in schizophrenia. *Schizophr Res* 2008; **98**: 201–8.
28. Malla A, Payne J. First-episode psychosis: psychopathology, quality of life, and functional outcome. *Schizophr Bull* 2005; **31** (3): 650–71.
29. Norman RMG, Malla AK, McLean T *et al*. The relationship of symptoms and level of functioning in schizophrenia to general wellbeing and the Quality of Life Scale. *Acta Psychiatr Scand* 2000; **102**: 303–9.
30. Mayerhoff D, Loebel A, Alvir J *et al*. The deficit state in first-episode schizophrenia. *Am J Psychiatry* 1994; **151**: 1417–22.
31. Ryff CD. Beyond Ponce de Leon and life satisfaction: new directions in quest of successful ageing. *Int J Behav Dev* 1989; **12**: 35–55.
32. Angermeyer M, Holzinger A, Kilian R, Matschinger H. Quality of life as defined by schizophrenic patients and psychiatrists. *Int J Soc Psychiatry* 2001; **47**: 34–42.
33. Ryff CD, Singer B. Psychological well-being: meaning, measurement, and implications for psychotherapy research. *Psychother Psychosom* 1996; **65**: 14–23.
34. Ryff C, Singer B. The contours of positive human health. *Psychol Inq* 1998; **9**: 1–28.
35. Ryff C, Singer B. Human health: new directions for the next millennium. *Psychol Inq* 1998; **9**: 69–85.
36. Ryff C, Singer B. Best news yet on the six-factor model of well-being. *Soc Sci Res* 2006; **35**: 1103–19.
37. Ryff CD, Singer BH. Know thyself and become what you are: a eudaimonic approach to psychological well-being. *J Happiness Studies* 2008; **9**: 13–39.
38. Ryff CD. Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *J Pers Soc Psychol* 1989; **57**: 1069–81.
39. Ryff CD, Love GD, Urry HL *et al*. Psychological well-being and ill-being: do they have distinct or mirrored biological correlates? *Psychother Psychosom* 2006; **75**: 85–95.
40. Rafanelli C, Park SK, Ruini C, Ottolini F, Cazzaro M, Fava GA. Rating well-being and distress. *Stress Med* 2000; **16**: 55–61.
41. Gladis M, Gosch E, Dishuk N, Crits-Christoph P. Quality of life: expanding the scope of clinical significance. *J Consult Clin Psychol* 1999; **67**: 320–31.
42. Fava G, Ruini C, Rafanelli C *et al*. Well-being therapy of generalized anxiety disorder. *Psychother Psychosom* 2005; **74**: 26–30.
43. Fava GA, Rafanelli C, Cazzaro M, Conti S, Grandi S. Well-being therapy: a novel psychotherapeutic approach for residual symptoms of affective disorders. *Psychol Med* 1998; **28**: 475–80.
44. Hart S, Fonareva I, Merluzzi N, Mohr D. Treatment of depression and its relationship to improvement in quality of life and psychological well-being in multiple sclerosis patients. *Qual Life Res* 2005; **14**: 695–703.
45. Costanzo ES, Ryff CD, Singer BH. Psychosocial adjustment among cancer survivors: findings from a national survey of health and well-being. *Health Psychol* 2009; **28**: 147–56.
46. Waldheter EJ, Penn DL, Perkins DO, Mueser KT, Owens LW, Cook E. The Graduated Recovery Intervention Program for first episode psychosis: treatment development and preliminary data. *Community Ment Health J* 2008; **44**: 443–55.
47. First MB, Spitzer RL, Gibbon M, Williams JBW. *Structured Clinical Interview for DSM-IV Axis I Disorders – Patient Edition (SCID-I/P, Version 2.0)*. New York, NY: Biometrics Research Department, 1996.
48. Wechsler D. *Wechsler Abbreviated Scale of Intelligence (WASI)*. San Antonio, TX: Harcourt Assessment, 1999.
49. Kay S, Fiszbein A, Opler L. The positive and negative syndrome scale (PANSS) for schizophrenia. *Schizophr Bull* 1987; **13**: 261–76.
50. Addington D, Addington J, Maticka-Tyndale E. Assessing depression in schizophrenia: the Calgary Depression Scale. *Br J Psychiatry* 1993; **163** (Suppl. 22): 39–44.
51. Addington D, Addington J, Maticka-Tyndale E, Joyce J. Reliability and validity of a depression rating scale for schizophrenics. *Schizophr Res* 1992; **6**: 201–8.
52. Ryff CD, Lee YH, Essex MJ, Schmutte PS. My children and me: midlife evaluations of grown children and of self. *Psychol Aging* 1994; **9**: 195–205.
53. Zimet G, Powell S, Farley G, Werkman S, Berkoff K. Psychometric characteristics of the multidimensional scale of perceived social support. *J Pers Assess* 1990; **55**: 610–7.
54. Zimet G, Dahlem N, Zimet S, Farley G. The multidimensional scale of perceived support. *J Pers Assess* 1988; **52**: 30–41.
55. Holland K, Holahan C. The relation of social support and coping to positive adaptation to breast cancer. *Psychol Health* 2003; **8**: 15–29.
56. Webb C, Pfeiffer M, Mueser KT, Mensch E, DeGirolamo J, Levenson DF. Burden and well-being of caregivers for the severely mentally ill: the role of coping style and social support. *Schizophr Res* 1998; **34**: 169–80.
57. Kitamura T, Kishida Y, Gatayama R, Mastuoka T, Miura S, Yamabe K. Ryff's psychological well-being inventory: factorial structure and life history correlates among Japanese university students. *Psychol Rep* 2004; **94**: 83–103.
58. Ryff CD, Keyes CL. The structure of psychological well-being revisited. *J Pers Soc Psychol* 1995; **69**: 719–27.
59. Harris M, Jeste D, Krull A, Montague J, Heaton R. Deficit syndrome in older schizophrenic patients. *Psychiatry Res* 1991; **39**: 285–92.
60. McGlashan TH, Fenton WS. The positive–negative distinction in schizophrenia: review of natural history validators. *Arch Gen Psychiatry* 1992; **49**: 62–72.
61. Hafner H. Gender differences in schizophrenia. *Psychoneuroendocrinology* 2003; **28**: 17–54.
62. Roder-Wanner U, Oliver J, Priebe S. Does quality of life differ in schizophrenic women and men? An empirical study. *Int J Soc Psychiatry* 1997; **43**: 129–43.
63. Resnick SG, Rosenheck RA. Recovery and positive psychology: parallel themes and potential synergies. *Psychiatr Serv* 2006; **57** (1): 120–2.
64. Seligman MEP, Rashid T, Parks AC. Positive psychotherapy. *Am Psychol* 2006; **61** (8): 774–88.
65. Fava G, Ruini C. Development and characteristics of a well-being enhancing psychotherapeutic strategy: well-being therapy. *J Behav Ther Exp Psychiatry* 2003; **34**: 45–63.
66. Fava GA, Rafanelli C, Grandi S, Conti S, Belluardo P. Prevention of recurrent depression with cognitive behavioral therapy. *Arch Gen Psychiatry* 1998; **55**: 816–20.