Assessing cognitive representations of mental health problems. I. The illness perception questionnaire for schizophrenia

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**Objective.** To design a questionnaire to assess cognitive representations of mental health problems held by people diagnosed with schizophrenia.

**Background.** Personal beliefs about health problems have been reliably associated with emotional and behavioural responses to those health problems and health outcomes. This area has been extensively explored in relation to physical health, but somewhat neglected in mental health. In this study, a questionnaire designed to assess key beliefs about physical illness (the Illness Perception Questionnaire – Revised) was modified for use in exploring beliefs about schizophrenia. The new measure was termed the Illness Perception Questionnaire for Schizophrenia (IPQS).

**Method.** Participants were 124 people with a diagnosis of schizophrenia who completed the IPQS and additional measures to assess symptom severity, emotional state, and attitudes towards medication. The psychometric properties of the IPQS were analysed, including internal consistency, test–retest reliability, and discriminant and concurrent validity.

**Results.** The IPQS subscales were shown to be internally reliable, and reliable over time. Correlations with measures of symptom severity, emotional state, and attitudes towards adherence to medication showed that the subscales were measuring the constructs that they were designed to measure.

**Conclusions.** The IPQS is a reliable and valid measure of cognitive representations of mental health problems held by people with a diagnosis of schizophrenia.

Estimates of the prevalence of schizophrenia range from 0.2% to 2%, are roughly equal for men and woman, and are similar throughout the world (Jablensky & Sartorious, 1975). The costs of schizophrenia to the individual, their families, the health service,
and to wider society are high (Knapp, 2000). However, effective interventions are available including antipsychotic medication (Stahl, 1999; Stephenson & Pilowski, 1999), cognitive-behaviour therapy, and family interventions (Pilling et al., 2002). Despite these interventions, outcomes for people with a diagnosis of schizophrenia are varied (Giompi, 1980, 1984). The reasons for this variation in course of, and response to, treatment are not fully understood, and are likely to include biological factors or variations in symptom severity. However, there is also considerable variation in behaviours, such as adherence to prescribed medication (Kane, 1985), which are negatively associated with outcome. Variations in emotional responses to schizophrenia, such as depression, which are also associated with outcome (Drake, Gates, & Cotton, 1986), are not fully accounted for by variation in psychotic symptoms (Siris, 1995). Understanding the factors that lie behind these variations in response to mental health problems is very important in order to improve outcomes for individuals and their families.

In the physical health literature, the importance of understanding variation in emotional and behavioural responses to illness has been well recognized. Here, the focus has been on investigating links between beliefs about illness and individuals' responses. Considerable progress has been made using a wide range of social cognition models, in a wide range of physical disorders (Connor & Norman, 1995). Progress has been greatly helped by the existence of a questionnaire measure to assess key beliefs that people have about their physical health problems; the Illness Perception Questionnaire (IPQ; Weinman, Petrie, Moss-Morris, & Horne, 1996). The IPQ was originally designed to assess the key beliefs highlighted by one model in particular, the self-regulation model (SRM; Leventhal, Nerenz, & Steele, 1984). This model was devised from in-depth, semi-structured interviews with patients with hypertension, cancer, or who had experienced cardiac bypass surgery. From these interviews, Leventhal et al. proposed four key beliefs. These are the perceived identity of the illness (including a label and signs/symptoms), the perceived consequences of the illness (physical, social and behavioural), the likely causes of the illness, and a likely timeline, or sense of how long the illness will last. A fifth belief identified by Lau and Hartman (1983) about potential for control or cure of the illness has also been added to the model. These five dimensions are all assessed in the IPQ. The model suggests that the beliefs that an individual holds along these dimensions will guide their attempts at coping. This coping is then appraised, and information is fed back to refine the beliefs. In addition to this cognitive representation of illness, the SRM includes an emotional representation, which exists in parallel. The emotional representation arm of the model provides a framework for exploring emotional responses to illness that are not mediated by cognitive appraisal, though there has been little exploration of this arm to date.

The original IPQ has been used without modification with people who have psychosis in two previous studies. With a sample of 38 psychotic patients, Clifford (1998) showed acceptable levels of internal reliability (α = .60–.92) for the IPQ subscales. Non-adherence to medication was associated with perceptions of fewer and less severe symptoms, a shorter duration of illness, external attribution of cause, and more severe negative consequences of having schizophrenia. Talley (1999) also used the IPQ with people with a diagnosis of schizophrenia. She found that only the subscales measuring consequences and symptoms were internally reliable. The consequences subscale also showed some concurrent validity in correlating with other measures of illness impact.
On the basis of feedback from researchers using the IPQ with physical health problems, the measure has recently been revised to include additional belief subscales. The Illness Perception Questionnaire–Revised (IPQ-R; Moss-Morris et al., 2002) includes a new subscale measuring illness coherence (a sense of having a comprehensive understanding of the illness). The dimensions of control/cure and timeline have also been subdivided to differentiate between personal and treatment control, and acute/chronic, and episodic timeline. In addition to the belief subscales, the IPQ-R also includes a subscale to assess emotional response to symptoms.

The aim of this study was to validate a modified version of the recent IPQ-R for people with a diagnosis of schizophrenia. Modifications were needed to the IPQ-R to make it more directly applicable to this population. This paper reports the modifications that were made, and the psychometric properties of the new measure. The modifications were made on the basis of qualitative interviews with people diagnosed with schizophrenia. The validity of the measure was tested by examining associations between beliefs about schizophrenia and symptom severity, emotional state, and attitudes to medication adherence. The ultimate aim of such a measure is to encourage further investigation of the influence of beliefs about mental health problems on outcome for people with schizophrenia. This may highlight important opportunities for developing cognitive models of schizophrenia upon which effective interventions can be based.

We have called the new questionnaire the Illness Perception Questionnaire for Schizophrenia (IPQS).

**Method**

**Design**

A cross-sectional and longitudinal correlational survey was used to assess the psychometric properties of the IPQS.

**Participants**

Participants were recruited via National Health Service Community Mental Health Teams (NHS CMHTs). Criteria for inclusion were a clinical diagnosis of schizophrenia or schizoaffective disorder, and being aged between 18 and 65 years. People with a primary diagnosis of a learning disability or substance abuse were excluded. A total of 175 people were identified as eligible. Of these, 124 people (84 male, 40 female) agreed to take part in the study at Time 1, and 102 (82%) were followed up 6 months later. Two weeks after the first interview, 20 people were asked to complete the IPQS by post, and 16 completed measures were returned. Diagnosis was taken from a systematic chart review using a checklist of diagnostic criteria based on DSM-IV (American Psychiatric Association, 1994). Information about prescribed medication, length of contact with services, and recent history of symptom fluctuations was taken from hospital notes and is described in the results.

**Measures**

The positive and negative symptom scale (PANSS; Kay, Fiszbein, & Opler, 1987) was used to assess current psychotic symptomatology. This widely used interview measure assesses positive and negative symptoms, and general psychopathology. The measure
has good reliability and validity (Kay, Opler, & Lindenmayer, 1988). Only the positive and negative subscales were used in this study. These subscales each have seven items that are each rated from 1 (symptom is absent) to 7 (symptom is extreme). Reliability of the interviewers in this study was assessed by comparing their ratings of 10 interviews with those of an experienced consultant psychiatrist (intra-class correlation; positive subscale = .83–.95; negative subscale = .87–.93, all \( p < .001 \)).

The Hospital Anxiety and Depression Scale (HADS: Zigmond & Snaith, 1983) was used to assess anxiety and depression.

The Drugs Attitude Inventory (Hogan, Awad, & Eastwood, 1983) assesses attitudes to towards prescribed medication and correlates highly with adherence.

The illness perception questionnaire for schizophrenia (IPQS)

This is a modified version of the IPQ-R. All modifications were based on qualitative interviews described in more detail in Lobban and Barrowclough (in press), in which 19 participants with a diagnosis of schizophrenia were asked an open-ended question, ‘What do you understand by the term schizophrenia?’ More structured questions were then asked specifically about each of the dimensions of the IPQ-R. The responses were used to generate the specific items described in each subscale below. General modifications were also made throughout the questionnaire.

General modifications

Firstly, the IPQ-R uses the terms ‘illness’ and ‘symptoms’ throughout. The use of these terms immediately implies a medical view of health problems. Many people who experience symptoms associated with a diagnosis of schizophrenia do not see themselves as having an illness. Therefore, the term ‘illness’ was replaced by ‘mental health problem’, and ‘symptom’ was replaced by ‘experience’. It is recognized that some people may not consider any of their experiences to be related to a mental health problem. However, in our experience, most people with a diagnosis of schizophrenia/schizo-affective disorder, and who are in voluntary contact with mental health services, report some kind of mental health problem, although often this is depression or anxiety.

Secondly, the timeframe for the responses was clarified. In the IPQ-R, the identity scale clearly asks people to indicate whether or not they have experienced any of the symptoms listed since their illness began. This was maintained in the modified questionnaire to assess identity beliefs of people who were currently well. However, it remained unclear whether the other subscales were asking about current views, or views since the onset of the mental health problems. In the open-ended interviews, many people commented on how much their views had changed over time. Therefore, an explicit instruction was included to orient people towards their current views.

Subscale modifications

The subscales from the IPQ-R are listed below with a description of any modifications made to each subscale. The items for all subscales (apart from identity) are shown in the Appendix.

1. **Identity (58 items)**: The symptoms list used in the IPQ-R is designed to assess symptoms associated with common physical health problems. The authors of the IPQ-R encourage the modification of this list to make it applicable to the particular health
problem being investigated. In this study, this was done by using a list of all the symptoms that had been mentioned by patients in previous qualitative interviews (Lobban & Barrowclough, in press). A check was made that these included all diagnostic symptoms of schizophrenia/schizo-affective disorder listed in DSM-IV.

Respondents were asked to indicate which of their experiences they considered to be related to their mental health problems. In piloting the questionnaire, many people asked if this included side effects of medication. It was recognized that mental health problems and medication effects were confounded in this design. Therefore, people were asked to attribute each of their experiences as due to 'mental health problems', 'side effects of my medication', and/or 'due to other factors'. The proportion of experiences attributed to each was then calculated.

(2) Cause (26 items): The list of potential causes was modified to reflect the range of possibilities that had been suggested in the qualitative interviews. Twelve items from the IPQ-R remained the same, but four were eliminated; three were not considered to be likely options given the nature of schizophrenia (ageing, smoking, and altered immunity), and the fourth was excluded because it was a symptom of a mental health problem (my emotional state, e.g. feeling down, lonely, anxious, empty.). Items that were added were: taking illicit drugs, my family’s behaviour, lack of friends or people who care about me, chemical imbalance in the brain, a trauma, death of a loved one, money worries, someone spiked my drink, lack of sleep, thinking about things too much, my upbringing, and being bullied at school. Each item was rated as to how much the respondent agreed or disagreed that this item could have been a causal factor in the development of their mental health problems (1 = strongly disagree, 5 = strongly agree).

(3) Timeline acute/chronic (6 items): This scale (and all of those described below) consisted of a list of statements, and the respondent was asked to indicate how much they agreed or disagreed with the statements on a 5-point scale (1 = strongly disagree, 5 = strongly agree). No modifications were made to this subscale. A high score denotes a chronic timeline.

(4) Timeline cyclical (4 items): The items of this subscale were modified to reflect the nature of schizophrenia. The IPQ-R includes items such as, ‘The symptoms of my illness change a great deal from day to day’, which is likely to be too short a timeframe for mental health problems. A high score on this subscale denotes a cyclical timeline.

(5) Consequences (11 items): Four of the original six items remained the same. The other two items were replaced by seven additional items. The item ‘my illness has major consequences on my life’ and ‘my illness strongly affects the way others see me’ were replaced by items which try to specify what these consequences/changes may be. Specifically, the items ask about impact on work, important relationships, family, social life, ability to do day-to-day things, and perception of value to others. In addition, an item was included to assess perceptions of positive effects that mental health problems may have had (reverse scored). This was in response to participants commenting on positive aspects during the qualitative interviews. A high score on this subscale denotes a perception of a high level of negative consequences as a result of mental health problems.

(6) Personal control: This subscale was divided into two separate subscales that assessed perceptions of personal control (4 items), such as, 'Nothing I do will affect my mental health problems at all', and personal blame (3 items), such as, 'If I tried harder, I could control my symptoms'. This was done as these beliefs could have quite different impacts on outcome and emotional response. A high score on the personal control
subscale denotes a perception of having a high degree of personal control. A high score on the blame subscale denotes a high degree of self-blame.

(7) Treatment control (5 items): The original five items were retained from the IPQ-R. A high score on this subscale denotes a belief that treatment will be helpful in managing mental health problems.

(8) Illness coherence (5 items): Four of the original five items were retained from the IPQ-R. The item, ‘My illness is a mystery to me’ was considered slightly confusing because many areas of the aetiology of schizophrenia are poorly understood. This item was replaced with, ‘I feel that I don’t know anything about my mental health problems’. A high score on this subscale denotes a sense of not having a coherent understanding of the mental health problem.

(9) Emotional representation (9 items): All of the original IPQ-R items were included. Three items were added to assess worthlessness, frustration, and a sense of loss. These were emotional responses to the illness that were expressed in the qualitative interviews. A high score on this subscale denotes a strong negative emotional response as a result of the mental health problems.

Procedure
Participants were interviewed on two occasions, approximately 6 months apart. All interviews were conducted by the first author (FL), or a research assistant. Several measures were used at both time points, but only those relevant to the psychometrics of the measure are reported here. Further results exploring relationships between the IPQS and measures of outcome using the same sample will be reported in a subsequent paper (Lobban, Barrowclough & Jones, 2004). Participants were first assessed on the severity of their symptoms. They were then asked to complete the remaining measures with assistance from the interviewer where necessary. In order to gather data on short-term test–retest reliability of the IPQS, a subsample of 20 participants were asked if they would complete this questionnaire again 2 weeks after the first interview. This was done by post.

Results

Patient characteristics
Ninety-four percent of the sample had a diagnosis of schizophrenia (N = 105), or schizoaffective disorder (N = 11). The rest had a diagnosis of psychosis (N = 5), paranoid psychosis (N = 2), or delusional disorder (N = 1). The mean age of the sample was 38.81 years (SD = 10.44 years). The average length of contact with mental health services was 12.05 years (SD = 8.65 years). Thirty-two percent (N = 40) of the sample were receiving regular depot medication (most commonly depixol), and 78% (N = 97) were receiving oral antipsychotic medication (most commonly atypicals). All psychotic symptoms had been stable for at least 6 weeks.

The mean score on the PANSS positive subscale was 15.12 (SD = 5.07), and on the negative subscale it was 13.12 (SD = 4.82). Forty-four percent of the sample (N = 55) had moderate to severe hallucinations, and 65% (N = 81) had moderate to severe delusional beliefs (a rating of 4 or above on the relevant PANSS item).

At 6-month follow-up, 102 people were interviewed (retention rate of 82%). They did not differ significantly (p < .05) on any of the variables measured at Time 1 from those
who dropped out. Some participants did not complete all items on all of the measures. Therefore the exact N is given in the tables for each analysis.

**IPQS Subscales: Descriptive statistics (Table 1)**

Table 1 shows the mean item score (total divided by the number of items) and standard deviation for each subscale. Mean inter-item correlations and Cronbach’s alpha coefficients for each subscale of the IPQS are also shown, where appropriate.

**Table 1. Mean scores, median scores, inter-item correlations and Cronbach’s alphas for each subscale of the IPQS**

<table>
<thead>
<tr>
<th>IPQS Subscale</th>
<th>Number of items</th>
<th>Mean score (SD)</th>
<th>Median score (range)</th>
<th>Mean inter-item correlation</th>
<th>Alpha (α)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identity (113)</td>
<td>58</td>
<td>35.1 (11.7)</td>
<td>37.00 (57.00)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental health problems (113)</td>
<td>22.0 (13.5)</td>
<td>20 (56)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Side effects of medication (113)</td>
<td>4.9 (5.1)</td>
<td>3 (21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other factors (113)</td>
<td>10.9 (8.9)</td>
<td>7 (38)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Timeline acute/chronic (109)</td>
<td>6</td>
<td>3.53 (0.76)</td>
<td>3.66 (3.50)</td>
<td>.53</td>
<td>.87</td>
</tr>
<tr>
<td>Timeline cyclical (111)</td>
<td>4</td>
<td>3.70 (0.65)</td>
<td>4.00 (3.75)</td>
<td>.45</td>
<td>.76</td>
</tr>
<tr>
<td>Consequences (111)</td>
<td>11</td>
<td>3.43 (0.58)</td>
<td>3.45 (2.82)</td>
<td>.24</td>
<td>.77</td>
</tr>
<tr>
<td>Personal control (109)</td>
<td>4</td>
<td>3.48 (0.70)</td>
<td>3.50 (3.25)</td>
<td>.35</td>
<td>.68</td>
</tr>
<tr>
<td>Personal blame (109)</td>
<td>3</td>
<td>–</td>
<td>–</td>
<td>.23</td>
<td>.47</td>
</tr>
<tr>
<td>Treatment control (111)</td>
<td>5</td>
<td>3.53 (0.64)</td>
<td>3.60 (3.80)</td>
<td>.34</td>
<td>.71</td>
</tr>
<tr>
<td>Illness coherence (112)</td>
<td>5</td>
<td>2.70 (0.69)</td>
<td>2.60 (3.60)</td>
<td>.34</td>
<td>.72</td>
</tr>
<tr>
<td>Emotional</td>
<td>9</td>
<td>3.40 (0.69)</td>
<td>3.55 (3.22)</td>
<td>.37</td>
<td>.84</td>
</tr>
</tbody>
</table>

For the identity subscale, the mean total score reflecting the number of experiences reported is shown (potential range from 0 to 58). Each experience can then be attributed to a mental health problem, and/or medication side effects, and/or other factors. Therefore, each of these subscales also has a potential range from 0 to 58.

Individual items on the cause subscale were ranked in terms of strength of belief. Each item had a possible belief rating from 1 to 5.

The timeline and treatment control subscales were negatively skewed and so non-parametric statistics were used for all further analysis.

**IPQS Median scores (Table 1)**

The distribution of scores on the identity subscale suggests that the majority of participants identified with more than half of the experiences listed. The most frequently endorsed items were low mood (78%, \(N = 97\)), loss of motivation (79%, \(N = 96\)), and worrying (82%, \(N = 101\)). The least frequently endorsed item was hyperactivity (25%, \(N = 31\)). Most of the experiences were attributed to a mental health problem, with considerably fewer being attributed to medication side effects or to other factors.

The most strongly held beliefs about the causes of mental health problems (median = 4) were that mental health problems had been caused by stress or worry, a trauma, chemical imbalance, mental attitude, or thinking about things too much. The beliefs least likely to be endorsed (median = 2) were that mental health problems were
due to pollution in the environment, a germ or virus, taking illicit drugs, or having a drink spiked with illicit drugs (mean = 2.4).

All the other subscales are scored on a scale of 1–5, with 3 representing a ‘neither agree nor disagree’ midpoint. Overall, the sample viewed their mental health problems as being chronic and cyclical in nature, and perceived a high degree of negative consequences as a result of having mental health problems. There was a general perception of having some personal control over the problems, and a belief in the effectiveness of treatment. Patients generally felt that they had a coherent model of illness (low score on the subscale). Finally, there was an overall negative emotional response to having mental health problems.

**IPQS Internal consistency (Table 1)**

Cronbach’s alphas were calculated for the subscales that were designed to assess coherent dimensions. All of the alphas were in the desired range (.7 – .9; Streiner & Norman 1995), except for the subscales measuring personal control and personal blame. The personal control subscale was acceptable at \( \alpha = .68 \), given that it contains only four items, which is likely to reduce the alpha obtained. The dimension assessing personal blame was clearly unreliable (\( \alpha = .47 \)).

**IPQS: Inter-item correlations (Table 1)**

Mean inter-item correlations ranged from .23 to .53. Briggs and Cheek (1986) recommend a range of .2 – .4 to ensure that items are measuring the same construct, but are not synonymous or redundant. Only the timeline subscales fell outside this range, suggesting that some of the items in these subscales may be redundant.

**IPQS: Inter-subscale correlations (Table 2)**

Table 2 shows Spearman’s correlations between the subscales.

Significant relationships were found between the subscales, but none of the correlations were high enough to suggest that the subscales are measuring the same underlying construct (correlations were all below .7).

**Table 2. Inter-subscale Spearman’s correlations for the IPQS (N = 109–113)**

<table>
<thead>
<tr>
<th></th>
<th>Timeline acute</th>
<th>Timeline chronic</th>
<th>Negative consequences control</th>
<th>Personal control</th>
<th>Personal blame</th>
<th>Treatment control</th>
<th>Coherence</th>
<th>Emotional representation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timeline acute</td>
<td>.09</td>
<td>.23</td>
<td>.36**</td>
<td>.09</td>
<td>.04</td>
<td>.11</td>
<td>-.08</td>
<td>.45***</td>
</tr>
<tr>
<td>Timeline chronic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.32***</td>
</tr>
<tr>
<td>Negative consequences</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.28**</td>
</tr>
<tr>
<td>Personal control</td>
<td>.09</td>
<td>.23</td>
<td>.23</td>
<td>-.23</td>
<td>.04</td>
<td>.06</td>
<td>.12</td>
<td>.66**</td>
</tr>
<tr>
<td>Personal blame</td>
<td></td>
<td></td>
<td>.33**</td>
<td>-.20</td>
<td></td>
<td></td>
<td></td>
<td>-.08</td>
</tr>
<tr>
<td>Treatment control</td>
<td>.10</td>
<td>.05</td>
<td>.17</td>
<td>-.20</td>
<td>.04</td>
<td></td>
<td>.41**</td>
<td></td>
</tr>
<tr>
<td>Coherence</td>
<td>.14</td>
<td>.02</td>
<td>-.17</td>
<td>.23</td>
<td>-.33**</td>
<td>-.08</td>
<td>-.23</td>
<td>.34**</td>
</tr>
<tr>
<td>Emotional representation</td>
<td>.45***</td>
<td>.32**</td>
<td>.28**</td>
<td>.66**</td>
<td>-.14</td>
<td>.01</td>
<td>-.15</td>
<td>.34**</td>
</tr>
</tbody>
</table>

**p < .01.**
A high level of negative emotion was associated with a greater number of perceived symptoms, a chronic and cyclical timeline, a sense of having no coherent understanding of the problems, and most strongly with a perception of greater negative consequences. Having a sense of not understanding the illness was negatively associated with feeling able to control the problems personally. Belief in personal control and treatment control were positively associated. Finally, greater perceived negative consequences were associated with identification of more symptoms, and a more chronic and cyclical timeline.

**IPQS: Test–retest reliability (Table 3)**

The stability of IPQS subscales were assessed over 2-week, and 6-month periods. Spearman’s correlations were used to assess degrees of association, and Wilcoxon tests were used to test for differences between the scores at each time point. The results are summarized in Table 3.

All the subscales (apart from the personal blame subscale) showed high positive correlations over the 2 week test–retest period (range \( r_s = .57 \) to \( r_s = .95 \)). The subscales measuring treatment control and illness coherence did show a slight increase in scores over the 2 week time period \((p = .041 \text{ and } p = .046, \text{ respectively})\). All the subscales (apart from the personal blame subscale) also showed significant positive correlations over the 6 month test–retest period (range \( r_s = .31 \) to \( r_s = .73 \)), and no significant differences were found between the scores at each time point \((p < .01)\).

The personal blame subscale was unreliable over 2 weeks and 6 months. This subscale was therefore dropped from further analyses.

**IPQS: Concurrent and discriminant validity (Table 4)**

Correlations between IPQS scores, and scores on the PANSS, HADS, and DAI are shown in Table 4.

A stronger illness identity (assessed by number of symptoms reported) was associated with higher levels of positive symptoms assessed by the PANSS, although the correlation coefficient was not very high \((r_s = .238)\), and there was no association between reported symptoms on the identity subscale, and the PANSS negative symptoms scale. There are two possible reasons for this. One is that there are insufficient items on the IPQS to assess negative symptoms. The other is that some of the negative symptoms that were rated as present by interviewers using the PANSS were not recognized as present by respondents. Many of the items on the negative symptoms scale are based on observation, such as blunted affect, difficulty in abstract thinking, poor rapport, lack of spontaneity and flow of conversation, and stereotyped thinking. It may be that these experiences are less likely to be recognized by the individual experiencing them. To test which of these hypotheses was most likely to be true, scores on eight of the 58 IPQS identity items that clearly assess negative symptoms (loss of motivation, being withdrawn, sleeping a lot, not doing much, lack of energy, loss of interest in personal care, not helping around the house, difficulty doing everyday tasks) were totalled and correlated with the PANSS negative subscale. The Spearman’s correlation was \( r_s = .166 \ (p = .080) \), suggesting a non-significant relationship. This suggests that participants who were being rated as experiencing negative symptoms by the interviewer were not reporting these experiences themselves to the same degree.

Participants who endorsed more of the identity items were also more anxious and more depressed. Those who attributed more of the symptoms that they did experience
to mental health problems, and made fewer attributions to other factors, reported more positive attitudes towards medication use. Having a perception of mental health problems lasting for a long time (chronic timeline) was associated with more positive symptoms, and greater anxiety and depression. However, perceiving a cyclical pattern was associated with anxiety but not depression.

The negative consequences subscale was correlated with having more symptoms, and feeling more anxious and depressed. Having a stronger belief in the ability of treatment to control mental health problems was associated with less depression, and strongly associated with more positive attitudes towards taking medication. Having less belief in personal control was associated with more severe negative symptoms. The perception of having no coherent understanding of mental health problems was associated with increased depression. The emotional representation subscale correlated highly with both the depression and anxiety subscales of the HADS. There was also a positive association between emotional representation, and levels of positive and negative symptoms on the PANSS.

Table 3. Test–retest Spearman’s correlations and Wilcoxon’s test

<table>
<thead>
<tr>
<th>IPQS Subscale (N at Time 1)</th>
<th>2 week test–retest correlations (p) (N = 16)</th>
<th>Wilcoxon z score (p) (N = 16)</th>
<th>6 month test–retest correlations (p)</th>
<th>6 month test–retest Wilcoxon z score (p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identity (113)</td>
<td>.85 (&lt;.001)</td>
<td>.67 (&lt;.001) (N = 86)</td>
<td>−.67 (.500)</td>
<td></td>
</tr>
<tr>
<td>Mental health problems (113)</td>
<td>.66 (.005)</td>
<td>−.83 (.409)</td>
<td>.61 (&lt;.001) (N = 86)</td>
<td>−.42 (.675)</td>
</tr>
<tr>
<td>Side effects of medication (113)</td>
<td>.67 (.005)</td>
<td>−.48 (.632)</td>
<td>.31 (.005) (N = 86)</td>
<td>−1.14 (.255)</td>
</tr>
<tr>
<td>Other factors (113)</td>
<td>.57 (.022)</td>
<td>−.57 (.571)</td>
<td>.55 (&lt;.001) (N = 86)</td>
<td>−.21 (.834)</td>
</tr>
<tr>
<td>Timeline acute/chronic (109)</td>
<td>.60 (.014)</td>
<td>−1.38 (.168)</td>
<td>.62 (&lt;.001) (N = 88)</td>
<td>−1.16 (.248)</td>
</tr>
<tr>
<td>Timeline cyclical (111)</td>
<td>.95 (.001)</td>
<td>−.09 (.931)</td>
<td>.52 (&lt;.001) (N = 89)</td>
<td>−.90 (.369)</td>
</tr>
<tr>
<td>Consequences (111)</td>
<td>.80 (&lt;.001)</td>
<td>−1.20 (.231)</td>
<td>.73 (&lt;.001) (N = 88)</td>
<td>−.21 (.835)</td>
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<tr>
<td>Personal control (109)</td>
<td>.57 (.022)</td>
<td>−.13 (.893)</td>
<td>.34 (.002) (N = 88)</td>
<td>−.32 (.748)</td>
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<tr>
<td>Personal blame (109)</td>
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<td>−1.42 (.156)</td>
<td>.39 (&lt;.001) (N = 89)</td>
<td>−.00 (&lt;.001)</td>
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<tr>
<td>Treatment control (111)</td>
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<td>−2.04 (.041)</td>
<td>.48 (&lt;.001) (N = 89)</td>
<td>−.35 (.726)</td>
</tr>
<tr>
<td>Illness coherence (112)</td>
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<td>−2.00 (.046)</td>
<td>.52 (&lt;.001) (N = 88)</td>
<td>−.03 (.978)</td>
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<tr>
<td>Emotional representation (109)</td>
<td>.81 (&lt;.001)</td>
<td>−1.39 (.165)</td>
<td>.66 (&lt;.001) (N = 89)</td>
<td>−.46 (.647)</td>
</tr>
<tr>
<td></td>
<td>PANSS Positive symptom scale</td>
<td>PANSS Negative symptom scale</td>
<td>HADS Anxiety</td>
<td>HADS Depression</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>------------------------------</td>
<td>------------------------------</td>
<td>--------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Identity (total number of symptoms)</td>
<td>.24** (N = 113)</td>
<td>.05 (N = 113)</td>
<td>.32** (N = 113)</td>
<td>.29** (N = 113)</td>
</tr>
<tr>
<td>attributed to mental health problems</td>
<td>-.01 (N = 113)</td>
<td>.06 (N = 113)</td>
<td>.21* (N = 113)</td>
<td>.14 (N = 113)</td>
</tr>
<tr>
<td>attributed to side effect</td>
<td>-.02 (N = 113)</td>
<td>-.04 (N = 113)</td>
<td>-.10 (N = 113)</td>
<td>-.19* (N = 113)</td>
</tr>
<tr>
<td>attributed to other factors</td>
<td>.05 (N = 113)</td>
<td>-.25** (N = 113)</td>
<td>-.19* (N = 113)</td>
<td>-.13 (N = 113)</td>
</tr>
<tr>
<td>Timeline; acute/chronic</td>
<td>.31*** (N = 109)</td>
<td>.24* (N = 109)</td>
<td>.28** (N = 109)</td>
<td>.30** (N = 109)</td>
</tr>
<tr>
<td>Negative consequences</td>
<td>.32** (N = 111)</td>
<td>.26** (N = 111)</td>
<td>.46** (N = 111)</td>
<td>.57** (N = 111)</td>
</tr>
<tr>
<td>Personal control</td>
<td>-.17 (N = 109)</td>
<td>-.25** (N = 109)</td>
<td>-.17 (N = 109)</td>
<td>-.13 (N = 109)</td>
</tr>
<tr>
<td>Treatment control</td>
<td>-.08 (N = 111)</td>
<td>-.21* (N = 111)</td>
<td>-.23* (N = 111)</td>
<td>-.26** (N = 111)</td>
</tr>
<tr>
<td>Coherence</td>
<td>.09 (N = 112)</td>
<td>.21* (N = 112)</td>
<td>.17 (N = 112)</td>
<td>.24** (N = 112)</td>
</tr>
<tr>
<td>Emotional representation</td>
<td>.32** (N = 109)</td>
<td>.34** (N = 109)</td>
<td>.60** (N = 109)</td>
<td>.59** (N = 109)</td>
</tr>
</tbody>
</table>

*p < .05; **p < .01.
PANSS = Positive And Negative Symptom Scale, HADS = Hospital Anxiety and Depression Scale, DAI = Drugs Attitude Inventory.
Discussion

The IPQS is a valid and reliable measure for assessing cognitive representations of mental health problems in people with a diagnosis of schizophrenia. All the subscales (except personal blame) showed acceptable levels of internal consistency and stability over time, with IPQS subscales largely independent of each other.

Mental health problems were generally perceived as being chronic and cyclical, with a high level of symptomatology. Most people believed that treatment could help, and that they had a fairly coherent understanding of their difficulties.

The beliefs about causes of the illness were interesting in light of current theories of psychosis. The most widely accepted view of psychosis is the stress vulnerability model (Zubin & Spring, 1977). This model suggests that people may have an underlying vulnerability to developing psychosis, and that this vulnerability can be triggered by varying degrees of stress. Stress was the most strongly endorsed causal item. The next most strongly endorsed causal item was a trauma. Although this is also consistent with the stress vulnerability hypothesis, Morrison (2001) has suggested that traumatic experiences may have a more specific role in the development of psychotic symptoms. He argues that certain types of traumatic experience will increase the rate of certain types of intrusions into awareness, such as intrusive thoughts. Traumas may also influence the formation of beliefs that result in such intrusions being interpreted in culturally unacceptable ways. It is perhaps surprising that one of the least endorsed causal items was use of illicit drugs, as recent studies have suggested high rates of drug use among people with a diagnosis of schizophrenia (e.g. Kendler, Gallagher, Abelson, & Kessler, 1996). However, participants in this study did not support a causal link between drugs and mental health problems.

Significant associations between IPQS subscales and measures of symptomatology, mood, and attitudes to medication adherence were found which generally supported the validity of the IPQS dimensions. People who had a strong illness identity in terms of endorsing a large number of symptoms were more likely to be anxious and depressed. Anxiety and depression were both associated with the belief that the experiences were likely to continue for a long time. Individuals who saw their symptoms as cyclical were also more likely to be anxious. This is consistent with the idea that anxiety is generally associated with situations in which an individual feels that demands outweigh their abilities to cope, and so feel that they have no control (Beck, Emery, & Greenberg, 1985). Participants who felt that they had a less coherent understanding of their mental health problems, or who had less faith in the ability of treatment to control their symptoms, were also depressed. This is consistent with cognitive models of depression that emphasize the role of hopelessness (Beck, 1987; Beck, Rush, Shaw, & Emery, 1979).

The DAI assesses attitudes towards medication, and has been shown to correlate highly with actual adherence (Hogan et al., 1983). Therefore, the positive correlation between scores on this measure and the treatment control subscale suggests that medication adherence is greater in people who believe that treatment will help them. In addition, it suggests that people who attribute their experiences to mental health problems are more likely to take medication, whereas those who attribute mental health problems to factors other than mental health problems or medication effects are less likely to take medication. Because the DAI only directly assesses attitudes towards adherence, these relationships are somewhat speculative, but the correlations between the DAI and treatment control subscale do at least suggest that this measure is assessing important beliefs about treatment control. It is somewhat surprising that participants who reported
many side effects from medication in the past did not report less positive attitudes towards taking medication. This may reflect a change in the type of medication that they are taking, or may be due to the fact that people who are taking medication are, by definition, more likely to have experienced side effects than those who do not take medication.

General feedback on this measure was elicited from participants, although it was not formally evaluated. Despite some participants commenting that the questionnaire was quite long when administered with the other measures in this study, people were extremely positive about being asked about their views of their mental health problems. The fact that this is rarely done in routine clinical practice was commented on. The development of the IPQS is an important first step in measuring beliefs that individuals hold about their mental health problems. These beliefs may be associated with important individual variations in emotional and behavioural responses. If such beliefs are shown to be causal in determining emotional and behavioural responses, then this raises the possibility of interventions focused on challenging key beliefs.

References


Received 2 June 2003; revised version received 16 December 2003
Appendix

**Cause items**

<table>
<thead>
<tr>
<th>Item</th>
<th>Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stress or worry</td>
<td>Hereditary; it runs in my family</td>
</tr>
<tr>
<td>A germ or virus</td>
<td>Diet or eating habits</td>
</tr>
<tr>
<td>Chance or bad luck</td>
<td>Poor medical care in my past</td>
</tr>
<tr>
<td>Pollution in the environment</td>
<td>My own behaviour</td>
</tr>
<tr>
<td>My family's behaviour</td>
<td>Money worries</td>
</tr>
<tr>
<td>Family problems</td>
<td>Overwork</td>
</tr>
<tr>
<td>Alcohol</td>
<td>Taking illicit drugs</td>
</tr>
<tr>
<td>My personality</td>
<td>Brain damage or abnormality</td>
</tr>
<tr>
<td>Lack of friends or people who care about me</td>
<td>Chemical imbalance in the brain</td>
</tr>
<tr>
<td>Death of a loved one</td>
<td>Lack of sleep</td>
</tr>
<tr>
<td>Thinking about things too much</td>
<td>My upbringing</td>
</tr>
<tr>
<td>Being bullied at school</td>
<td></td>
</tr>
</tbody>
</table>

My mental attitude, for example, thinking about life negatively.
A trauma; something disturbing or shocking that happened in my life.
Someone spiked my drink with illicit drugs.

**Timeline acute/chronic**

My mental health problems will last a short time. (R)
My mental health problems are likely to be permanent rather than temporary.
My mental health problems will last for a long time.
My mental health problems will pass quickly. (R)
I expect to have these mental health problems for the rest of my life.
My mental health problems will improve in time. (R)

**Timeline cyclical**

Sometimes I have more symptoms than other times.
I have times when I am well and times when I am not so well.
Sometimes the symptoms of my mental health problems are worse than other times.
Some of my symptoms will be there all the time but others will come and go.

**Consequences**

My mental health problem is a serious condition.
My mental health problems do not have much effect on my life. (R)
My mental health problems have financial consequences for me.
My mental health problems make it more difficult for me to do day to day things.
My mental health problems cause difficulties for those who are close to me.
I don't get on as well with our family since their mental health problems.
My mental health problems have messed up my social life.
My mental health problems mean that I am valued less by other people.
My mental health problems make working very difficult for me.
I have lost important relationships as a result of my mental health problems.
My mental health problems have had some positive effects on my life. (R)
Personal control
There are some things that I can do to control my symptoms.
To some extent, what I do can determine whether my mental health problems get better or worse.
Nothing I do will affect my mental health problems. (R)
My actions will have no effect on the outcome of my mental health problems. (R)

Personal blame
If I tried harder I could control my symptoms.
I could do more to help myself.
If I were a stronger person, I would get better.

Treatment control
There is little treatment available that can improve my mental health problems. (R)
My treatment will be effective in managing my mental health problems.
The negative effects of my mental health problems can be prevented (avoided) by my treatment.
My treatment can control my mental health problems.
There is no treatment that can help with my condition. (R)

Illness coherence
I feel very puzzled by my mental health problems.
I don’t have any understanding of my mental health problems at all.
I feel that I don’t know anything about my mental health problems.
My mental health problems make no sense to me at all.
I have a clear picture or understanding of my mental health problems. (R)

Emotional representation
I get depressed when I think about my mental health problems.
When I think about my mental health problems I get upset.
My mental health problems make me feel angry.
My mental health problems do not worry me. (R)
My mental health problems make me feel anxious.
My mental health problems make me feel afraid.
My mental health problems make me feel worthless.
I get very frustrated by my mental health problems.
I feel a sense of loss due to my mental health problems.

(R) = item is reverse scored.