Development of the illness perception questionnaire
mental health

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Abstract
Background: It has been suggested that illness perceptions in mental health are related to treatment
outcomes.
Aims: We aimed to develop a short generic questionnaire to assess clients’ problem perceptions in
mental health, congruent with the Illness Perception Questionnaire (IPQ) for somatic health.
Methods: We adapted the IPQ-R (Moss-Morris, R., Weinman, J., Petrie, K.J., Horne, R., Cameron,
the IPQ-R’s scales that assess clients’ perceptions of what their problem actually is and what its causes
are. We administered our adapted instrument, the IPQ-MH, to large groups of mental health clients,
and subsequently performed psychometric analyses over the scores.
Results: The identity scale of the IPQ-MH differentiates different clients; the structure scale of the
IPQ-MH replicates that of the original IPQ-R; the cause scale reliably measures clients’ attributions of
causes to their mental problems.
Conclusions: We conclude that our IPQ-MH can reliably assess clients’ mental health problem
perceptions.

Keywords: Mental health, Illness perceptions, self-regulation

Introduction
Predicting the course of treatment of clients with mental health problems has so far hardly
been possible (Lambert, 2004). In somatic health there is a model that is used to get
insight into patients’ beliefs about their illness, as one of the factors that predict the course
of treatment: the self-regulation model (SRM; Leventhal et al., 1984). The SRM captures
how patients respond to their illness, both behaviourally and emotionally. The model has
been applied in many studies (e.g. Brownlee et al., 2000; Leventhal et al., 1998; Petrie
et al., 2007) and it has been shown that the patients’ perceptions of their illnesses are
predictive of the course of their treatment (Petrie et al., 2002). Our aim is to extend the
scope of the SRM to mental health care, and to develop a brief instrument to chart
the experiences of clients with psychological problems, irrespective of the precise diagnosis of these problems.

The self-regulation model assumes that people are active problem solvers and that their behaviour is determined by their perceptions of their environment. Applied to illnesses, the model distinguishes three phases in patients’ self-regulation: (1) the formation of a perception of the illness; (2) the coping reaction; (3) the appraisal process, in which the results of the coping reaction are evaluated. Thus, how patients perceive their illness plays a crucial role in how they deal with it. To enquire about these perceptions, the Illness Perception Questionnaire (IPQ) (Weinman et al., 1996; IPQ-Revised: Moss-Morris et al., 2002) was developed.

The potential relevance of insight into how clients experience their mental health problems for treatment outcome is recognised (Lobban et al., 2003; Petrie et al., 2008; Stockford et al., 2007). The self-regulation model does seem applicable to clients with psychological problems, but the IPQ-R as an instrument to elicit the clients’ perceptions, the first phase in the SRM, is not directly suitable in its original format since it was designed for somatic illnesses.

We decided to investigate the usability of the IPQ-R in the mental health domain in general, irrespective of specific diagnoses. We use the term ‘problem perception’ instead of ‘illness perception’, since labelling a psychological problem as an illness can in itself be seen as a form of coping, and with psychological complaints the distinction between healthy and ill is at least partially a subjective judgement. Indeed, people with mental health problems often do not believe themselves to be ‘ill’, even if they do recognise that they have a problem.

Problem perceptions have been studied in a few disorder-specific client groups, for example in schizophrenia (e.g. Lobban et al., 2004, 2005), depression (e.g. Fortune et al., 2004; Manber et al., 2003) and eating disorders (e.g. Stockford et al., 2007), but no generic instrument has been proposed yet.

It has been suggested that mental health problems by their very nature influence the ability to reflect upon one’s own experiences and thus to construct a problem perception (Fortune et al., 2004). On the other hand, these authors argue that even if depressed mood would co-influence the clients’ problem model, that does not necessarily mean that the model is not useful, or that it would be less likely that the problem model had an impact on behaviour such as seeking help or co-operating in treatment. Importantly, the problem perception need not reflect an accurate account of the client’s condition. It is the subjective perception of their problems that is important to focus on in therapy.

Our aim is to develop a concise general version of the IPQ-R to assess how clients experience their mental health problems. We believe that it would be helpful to capture, on a general level of abstraction that is disorder a-specific, those aspects of clients’ perceptions that are useful to focus on in therapy, irrespective of the precise disorder-specific treatment. We will call our adaptation the Illness Perception Questionnaire Mental Health (IPQ-MH). We report our tests of the adequacy (reliability) of the IPQ-MH.

**Method**

The IPQ-MH, just as the original IPQ-R, consists of three parts. Part 1, the identity scale, concerns the perception of the identity of the problems: How do the clients view them? Part 2, the structure scale, is concerned with the perceived structure of the problems, that is: their duration, control over them, their consequences and coherence and the associated emotions. Part 3, the cause scale, concerns the perceived causes of the problems.
The identity scale

In the original IPQ-R, the identity scale contains 14 often occurring symptoms of physical illnesses, such as headache and nausea. We had to adapt these symptoms to psychological problems. We chose to use eight items, inspired by the subscales of the SCL-90 (Arrindell & Ettema, 1986). Clients are asked ‘What are currently your most important psychological complaints or problems?’, which they indicate by marking, on a five-point Likert scale, to what extent they suffer from for example sadness or anxiety. To chart how these problems are attributed, we then ask them to indicate to what their complaints or problems are related, to be chosen from four categories: (1) circumstances or events; (2) my problem; (3) my personality; (4) the way I live my life. The first three categories are derived from the biopsychosocial model, the fourth category was added to assess whether clients might label their problems existentially. The identity scale thus consists of 12 items (see Appendix).

The structure scale

The structure of the problem perception is measured with 38 closed items that clients are asked to score on a five-point Likert scale. The structure scale has seven subscales, with items respectively addressing: (1) duration of the problem; (2) cyclic nature of the problem; (3) consequences of the problem; (4) personal control over the problem; (5) control gained in treatment; (6) coherence; (7) associated emotions. This part of the IPQ-MH is a straightforward copy of the structure items of the IPQ-R, which is available in Dutch from http://www.uib.no/ipq. The items do not need to be adapted for different problems.

The cause scale

In the IPQ-R, the cause scale consists of 18 items. We chose to use an existing instrument: The Causal Belief Questionnaire (CBQ) (Whittle, 1996) with generic psychological items and good psychometric properties. This questionnaire consists of 23 items in four subscales: psychosocial, biological, structural and stress-related. The items in the CBQ are formulated on the basis of interviews with mental health clients, which make the CBQ attractive for our purpose. Also, the items reflect the biopsychosocial model, just as the IPQ-R cause scale. With written permission from the author, we translated the questionnaire into Dutch.

Participants

We administered the structure scale to 274 clients. This group consisted of 20 clients with psychosomatic complaints in a medical psychology unit of a hospital (mean age 35.1 (SD = 12.7), 6 men), 30 depressed clients in a recovery institute (mean age 43.8 (SD = 10), 10 men), 24 out-patient adolescents with four different diagnoses (mean age 20.8 (SD = 1.6), all women; 6 anorexia nervosa, 6 psychotic disorder, 6 borderline personality disorder and 6 obsessive-compulsive disorder), 33 clients in primary care (mean age 38.9 (SD = 12.7), 17 men), 79 clients with brief psychological treatment (mean age 39.3 (SD = 14.5), 28 men) and 88 clients in out-patient units of mental health institutes (mean age 39.3 (SD = 10.2), 38 men). The adapted identity scale and the translated cause scale were administered to 133 clients (mean age 36.6 (SD = 14.6), 42 men); 109 clients with brief psychological treatment 79 of whom had also completed the structure scale, and the 24 out-patient adolescents who had also filled in the structure scale. All subscales were filled in
by the different groups of participants during their regular intakes, and the answers were analysed anonymously.

Results

The identity scale

The criteria by which we assessed the adequacy of our adaptation of the identity scale are: (1) there is sufficient variance in the answers; (2) not all items are inter-correlated; (3) different diagnostic groups and clients in different settings score differently on the items, indicating that the items are neither synonymous nor redundant and that they measure different identities. Since this scale is intended to differentiate between clients’ perceptions of their disorders as much as possible, the items – irrespective of which ones – should be inter-correlated or co-occur as little as possible, and calculating Cronbach’s $\alpha$ would not make sense.

The means and standard deviations are presented in Table I. Variance ranged from 1.26 to 1.97. Clients generally score relatively high on the items ‘cognitive complaints’ and ‘circumstances and events’. On the items ‘social and/or relational problems’ and ‘anger or aggression’ clients generally score relatively low.

We then calculated the correlations between the items (see Table II). They range from −0.01 to 0.58. Not all items are inter-correlated, although many correlations are significant.

To test differentiation between diagnostic groups, we used a sub-group of 24 clients whose diagnosis was known (6 anorexia nervosa, 6 borderline personality disorders, 6 psychotic and 6 obsessive-compulsive clients). These samples are very small, and our test whether the sub-groups scored differently on the items of the identity scale should be taken as giving indications only. We did see differences on a number of items: ‘somatic complaints’, ‘anger or aggression’ and ‘my personality’. Obsessive-compulsive clients scored higher on somatic complaints than psychotic clients ($F=3.9$, $p=0.023$), and clients with borderline personality disorder scored higher on ‘anger or aggression’ than the other clients ($F=4.4$, $p=0.016$). Psychotic clients scored significantly lower on ‘my personality’ than clients with borderline personality disorder ($F=3.7$, $p=0.029$).

Table I. Means and standard deviations (SD) of the identity subscale of the IPQ-MH (minimum = 1, maximum = 5).

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety or fear</td>
<td>2.78</td>
<td>1.30</td>
</tr>
<tr>
<td>Sadness or depression</td>
<td>2.95</td>
<td>1.18</td>
</tr>
<tr>
<td>Somatic complaints</td>
<td>2.73</td>
<td>1.16</td>
</tr>
<tr>
<td>Social-relational problems</td>
<td>2.37</td>
<td>1.22</td>
</tr>
<tr>
<td>Anger or aggression</td>
<td>2.38</td>
<td>1.29</td>
</tr>
<tr>
<td>Cognitive complaints</td>
<td>3.45</td>
<td>1.19</td>
</tr>
<tr>
<td>Behavioural problems</td>
<td>2.58</td>
<td>1.27</td>
</tr>
<tr>
<td>Sleeping problems</td>
<td>2.74</td>
<td>1.35</td>
</tr>
<tr>
<td>Circumstances or events</td>
<td>3.78</td>
<td>1.14</td>
</tr>
<tr>
<td>My problem</td>
<td>2.46</td>
<td>1.40</td>
</tr>
<tr>
<td>My personality</td>
<td>2.57</td>
<td>1.12</td>
</tr>
<tr>
<td>The way I live my life</td>
<td>2.69</td>
<td>1.20</td>
</tr>
<tr>
<td>Item</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>1. Anxiety or fear</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2. Sadness or depression</td>
<td>0.16</td>
<td>1</td>
</tr>
<tr>
<td>3. Somatic complaints</td>
<td>0.13</td>
<td>0.21*</td>
</tr>
<tr>
<td>4. Social-relational problems</td>
<td>0.13</td>
<td>0.35**</td>
</tr>
<tr>
<td>5. Anger or aggression</td>
<td>0.22</td>
<td>0.39**</td>
</tr>
<tr>
<td>6. Cognitive complaints</td>
<td>0.00</td>
<td>0.38**</td>
</tr>
<tr>
<td>7. Behavioural problems</td>
<td>0.03</td>
<td>0.35**</td>
</tr>
<tr>
<td>8. Circumstances or events</td>
<td>0.50</td>
<td>0.25**</td>
</tr>
<tr>
<td>9. My problem</td>
<td>0.02</td>
<td>0.18*</td>
</tr>
<tr>
<td>10. My personality</td>
<td>0.16</td>
<td>0.23**</td>
</tr>
<tr>
<td>11. The way I live my life</td>
<td>0.12</td>
<td>0.33**</td>
</tr>
</tbody>
</table>

*p < .05; **p < .01.
We also tested whether clients in different setting scored differently on the identity items. We compared 24 clients in part-time treatment with 109 clients starting short out-patient treatment. These two groups differed on a number of items. Part-time clients scored higher on ‘anxiety’ \((F = 5.62, p = 0.02)\), lower on ‘anger or aggression’ \((F = 4.69, p = 0.03)\) and higher on ‘sleeping problems’ \((F = 4.31, p = 0.04)\).

The structure scale

To test whether we find the same factor structure as Moss-Morris et al. (2002), we performed a confirmatory factor analysis using Lisrel. The adequacy of a CFA-model is expressed in \(\chi^2\), the \(p\)-value, the comparative fit index (CFI) and the root mean square error of approximation (RMSEA). CFI-values above 0.90 would indicate an acceptable fit, and values above 0.95 an excellent fit. RMSEA-values below 0.08 are indicative for an acceptable fit, and values below 0.05 for a good fit.

The number of parameters to be estimated was very large in relation to the sample size (135 parameters with a sample size of 272 means a parameter-respondent ratio of 1:2, but a minimum of 1:10 and better 1:15 or 1:20 is required). We decided to examine the factor structure for each scale separately. The CFA-results are presented in Table III. Four items were removed due to low factor loadings \(<0.35\). One item from the consequences subscale (‘my problems have serious financial consequences’), two items of the subscale treatment control (‘there is very little that can be done to improve my problems’, ‘there is nothing which can help my condition’) and one of the subscale coherence (‘the symptoms of my condition are puzzling to me’). From Table III it can be seen that the CFI-values were above 0.95 and most RMSEA-values below 0.08, indicating an acceptable to good fit. The scale with three items (treatment control) was a saturated model which means that the fit is always perfect. We also tested the overall model over 34 items despite the low parameter-respondent ratio. The fit of this model was acceptable to good with CFI \(>0.90\) and RMSEA \(<0.05\). The loadings of the items of the overall model are presented next to the items in Appendix. The loadings are (with one exception) above 0.40, indicating that the factors are well represented by their indicators (items). The internal consistencies in term of Cronbach’s \(\alpha\) were good \((>0.80)\) for four scales and for the remaining three (almost) acceptable \((>0.70)\) (see Table III).

The inter-subscale correlations are given in Table IV. We found significant correlations between the subscales, but they were never high enough (all below 0.67) to suggests that they measure the same underlying construct (cf. Lobban et al., 2005). For five of the seven

<table>
<thead>
<tr>
<th>Subscale</th>
<th>(\chi^2)</th>
<th>df</th>
<th>(p)</th>
<th>CFI</th>
<th>RMSEA</th>
<th>(n_{\text{items}})</th>
<th>(\alpha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Timeline chronic</td>
<td>20.85</td>
<td>8</td>
<td>0.008</td>
<td>0.971</td>
<td>0.077</td>
<td>6</td>
<td>0.85</td>
</tr>
<tr>
<td>2. Timeline cyclical</td>
<td>1.98</td>
<td>2</td>
<td>0.371</td>
<td>1.000</td>
<td>0.000</td>
<td>4</td>
<td>0.82</td>
</tr>
<tr>
<td>3. Consequences</td>
<td>11.53</td>
<td>4</td>
<td>0.021</td>
<td>0.959</td>
<td>0.083</td>
<td>5</td>
<td>0.71</td>
</tr>
<tr>
<td>4. Personal control</td>
<td>15.32</td>
<td>8</td>
<td>0.053</td>
<td>0.956</td>
<td>0.058</td>
<td>6</td>
<td>0.72</td>
</tr>
<tr>
<td>5. Treatment control *</td>
<td>0</td>
<td>0</td>
<td>1.000</td>
<td>0.000</td>
<td>3</td>
<td>0.69</td>
<td></td>
</tr>
<tr>
<td>6. Coherence</td>
<td>2.39</td>
<td>2</td>
<td>0.302</td>
<td>0.999</td>
<td>0.027</td>
<td>4</td>
<td>0.83</td>
</tr>
<tr>
<td>7. Emotional representation</td>
<td>2.76</td>
<td>7</td>
<td>0.906</td>
<td>1.000</td>
<td>0.000</td>
<td>6</td>
<td>0.88</td>
</tr>
<tr>
<td>Overall model</td>
<td>743.72</td>
<td>501</td>
<td>0.000</td>
<td>0.934</td>
<td>0.042</td>
<td>34</td>
<td></td>
</tr>
</tbody>
</table>

*Saturated model.
subscales (all except the control scales), the correlations were quite comparable to those reported by Moss-Morris et al. (2002; Table IV, p. 9).

The cause scale

To test whether we find the same four subscales as Whittle (1996), we performed a confirmatory factor analysis on the data of the cause scale for each of the scales separately because \( N = 133 \). We had to remove two items with very small loadings. The two items concerned psychosocial aspects: ‘difficulty in coping with daily demands’ and ‘relationship difficulties at work/college’. The resulting, quite acceptable fit indices are shown in Table V. Because \( N \) is very small, causing unstable factor analysis results, we accepted loadings of \( \geq 0.35 \) and did not perform an overall test on the remaining 21 items. The fit of the models was good, with CFI \( \geq 0.95 \) and RMSEA \( \leq 0.05 \). The factor loadings are reported next to the items in Appendix. The internal consistencies in term of Cronbach’s \( \alpha \) were \( \geq 0.75 \) for the four scales (see Table V).

Conclusion and discussion

In somatic health care, it has been shown that influencing negative illness perceptions was conducive to recovery and effective coping with the illness. Studies with psychological complaints have suggested that problem perceptions could play a similar role in mental health care. To see whether they can, the IPQ-R had first to be adapted into the IPQ-MH and its psychometric properties tested with clients. We have shown in this article how we, successfully, did this. The IPQ-MH can reliably assess clients’ problem perceptions in mental health. We present our IPQ-MH in Appendix.

We identified a number of weaknesses in the IPQ-MH as we administered it. First, the fact that the items of a subscale were presented together. Some items are so much alike (for example ‘the symptoms of my condition are puzzling to me’ and ‘I don’t understand my
problems’) that it is quite plausible that when these are presented one after the other, as they are, clients give identical answers. Also, clients may think that mirrored items contain a mistake in their formulation, and consequently give mirrored answers; or they may have difficulties with negatively formulated items. The subscale treatment control shows that that may be so: In this subscale, the items ‘there is very little that can be done to improve my problems’ and ‘there is nothing which can help my condition’ had to be removed on the basis of results of the CFA. These weaknesses can easily be remedied.

The next step in our research is to investigate whether in mental health care, problem perceptions are predictive of clients’ course of treatment. We will follow clients whose problem perceptions we have assessed and we will include more clients, and analyse the relation between their perceptions and the outcome of their treatment.

**Acknowledgement**

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**References**


Appendix

Items in the IPQ-MH, before randomisation of order of presentation

Identity
(all to be scored on a five-point Likert scale, with $1 = \text{not at all}$ to $5 = \text{very much}$)

What are currently your most important psychological complaints or problems?

1. Anxiety or fear (including avoidance of frightening situations)
2. Sadness or depression
3. Somatic complaints
4. Social and/or relational problems
5. Anger or aggression
6. Cognitive complaints (e.g. lack of concentration, forgetfulness, worrying)
7. Behavioural problems (e.g. over-controlling, repetitions)
8. Sleeping problems

I see my complaints or problems as

9. A reaction to circumstances or events
10. A symptom of my disorder
11. An expression of my personality
12. A result of the way I live my life

Structure (items followed by their factor loadings)
(all to be scored on a five-point Likert scale, with $\text{strongly disagree} = 1$, $\text{disagree} = 2$, $\text{neither agree or disagree} = 3$, $\text{agree} = 4$, $\text{strongly agree} = 5$; with $(R) = \text{reverse score}$)

What are your current views about your problems?

Timeline chronic:

1. My problems will last a short time $(R)$ (0.77)
2. My problems are likely to be permanent rather than temporary (0.63)
3. My problems will last for a long time (0.82)
4. These problems will pass quickly $(R)$ (0.80)
5. I expect to have these problems for the rest of my life (0.62)
6. My problems will become less serious over time $(R)$ (0.41)

Timeline cyclical:

7. The symptoms of my problems change a great deal from day to day (0.73)
8. My symptoms come and go in cycles (0.76)
9. My problems are very unpredictable (0.74)
10. I go through cycles in which my problems get better and worse (0.72)

Consequences:

11. My problems are serious (0.73)
12. My problems have major consequences on my life (0.79)
13. My problems do not have much effect on my life (R) (0.46)
14. My problems strongly affect the way others see me (0.43)
15. My problems cause difficulties for those who are close to me (0.45)

Personal control:

16. There is a lot which I can do to control my problems (0.38)
17. What I do can determine whether my problems get better or worse (0.64)
18. The course of my problems depends on me (0.46)
19. Nothing I do will affect my problems (0.44)
20. I have the power to influence my problems (0.69)
21. My actions will have effect on the course of my problems (0.59)

Treatment control:

22. My treatment will be effective in curing my problems (0.57)
23. The negative effects of my problems can be prevented (avoided) by my treatment (0.75)
24. My treatment can control my problems (0.63)

Coherence:

25. My problems are a mystery to me (R) (0.77)
26. I don’t understand my problems (R) (0.88)
27. My problems don’t make any sense to me (R) (0.85)
28. I have a clear picture or understanding of my condition (0.47)

Emotional representation:

29. I get depressed when I think about my problems (0.77)
30. When I think about my problems, I get upset (0.86)
31. My problems make me feel angry (0.62)
32. My problems worry me (0.82)
33. Having these problems makes me feel anxious (0.71)
34. My problems make me feel afraid (0.69)

*Causes (after Whittle, 1996) (items followed by their factor loadings)*

(all to be scored on a five-point Likert scale, with strongly disagree = 1, disagree = 2, neither agree or disagree = 3, agree = 4, strongly agree = 5)
What do you see as the causes of your problem?

Psychosocial:

1. Difficulty in forming close relationships (0.36)
2. Unpleasant events that have occurred in the past (0.80)
3. Difficulties experienced through upbringing (0.47)
4. Unresolved feelings resulting from the past (0.98)
5. Family relationship difficulties (0.47)

Biological:

6. A chemical imbalance inside my brain (0.66)
7. My body’s physical make-up (0.36)
8. Since I stopped taking medication (0.48)
9. My body’s sensitivity to certain substances (0.56)
10. Certain genes inherited within the family (0.76)
11. A chemical imbalance in my body (0.76)

Structural:

12. Unhelpful attitudes held by others because of my class (0.93)
13. The lack of supportive communities (0.69)
14. Unhelpful attitudes held by others because of my age (0.66)

Stress:

15. Stress resulting from a recent very unpleasant event (0.45)
16. Conflict with my ex-partner following separation (0.72)
17. Experience of serious marital conflict (0.62)
18. Difficulties in coping with a loss through death or separation (0.66)
19. Being physically ill has made it harder to cope with emotional demands (0.36)
20. Family difficulty in adjusting to new living arrangements, e.g. children leaving home (0.56)
21. The threat of an unpleasant event such as repossession of the house or redundancy (0.63)