

## **Concept, Development and Application of a New Mixed Method Assessment of Cultural Variations in Illness Perceptions : Barts Explanatory Model Inventory**

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# Concept, Development and Application of a New Mixed Method Assessment of Cultural Variations in Illness Perceptions

## Barts Explanatory Model Inventory

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### Abstract

In urban inner city areas, health professionals meet many individuals from diverse cultural groups that they need to understand, assess and treat effectively. This article describes the concept, development and application of a new assessment tool (the Barts Explanatory Model Inventory) that aims to help health professionals determine illness perceptions and treatment preferences of distress. The article describes the tool's background in theories of illness perception, gives a brief review of currently available instruments and describes the systematic development of this new instrument. Results from the first application are discussed to determine benefits and weaknesses of the new tool.

### Keywords

- *cross-cultural*
- *culture*
- *explanatory model*
- *illness representation*
- *perception*

## Introduction

THE PHENOMENAL pace in migration across the world has created a new challenge for health professionals to care for people of varied cultural and ethnic background. When health professionals can conduct physical investigations that demonstrate pathophysiological origins of a disease, appropriate health interventions can often be justified and rationalized to patients independently of their cultural background. For patients presenting with mental distress, pathophysiological changes can rarely be demonstrated, placing the emphasis on evaluating and understanding patients' communications of distress. Understanding these complex messages and interpreting cultural idioms of distress is rarely easy, even if literal linguistic differences are overcome through interpreters. A comprehensive assessment of illness perceptions that identifies a range of cultural practices and beliefs is therefore warranted. This article examines the concept of cross-cultural assessment of illness perceptions and relates the development of a new assessment tool. The research process is presented in the following order: (1) a review of illness perception theories and assessments; (2) development of the tool; and (3) the findings of a first application of this tool.

## Theory and instruments

Two theories have dominated illness perception research: (a) Explanatory Models (EM) (Kleinman, 1980); and (b) Illness Representations (IR) as a part of the self-regulatory theory (Leventhal, 1970). Explanatory models are linked with mental illness owing to the efforts of the cross-cultural psychiatrist and anthropologist, Arthur Kleinman. His Explanatory Model framework emerged from anthropological fieldwork in China and Taiwan that identified differences in the conceptualization of mental illness between these and western cultures. Kleinman recognized that professional and lay understanding of illness were rarely matched and argued that health professionals need to explore how their patients make sense of their illness for them to be effective at providing care (Kleinman, Eisenberg, & Good, 1978). Clinicians could gain much insight into lay perceptions of pathophysiology, time and mode of onset of symptoms, the course of the sickness, its aetiology and treatment by exploring their clients' 'explanatory model' (Kleinman, 1980). His work inspired researchers to develop tools for the

assessment of explanatory models (Explanatory Model Interview Catalogue *EMIC* (Weiss, 1997); Short Explanatory Model Interview *SEMI* (Lloyd et al., 1998); the Mental Distress Explanatory Model Questionnaire (Eisenbruch, 1990); and of late the McGill Illness Narrative Interview—MINI (Groleau, Young, & Kirmayer, 2006).

Illness representation research on the other hand is derived from psychological theory that explains individuals' behavioural response to physical threats as guided by two partially parallel processing systems (Diefenbach & Leventhal, 1996; Leventhal, 1971). Leventhal argued that individuals hold a cognitive and an emotional representation of illness and that through a continual appraisal of their behaviour and their bodily response, representations change leading to a self-regulated coping response. The illness representation approach assumes that the cognitive representation of illness is based on similar building blocks to the EM approach: identity, timeline, consequences, cause and control/cure of illness (Lau & Hartman, 1983; Leventhal et al., 1997). Leventhal's work has also inspired the development of a standardised assessment tool (Illness Perception Questionnaire *IPQ* [Weinman, Petrie, Moss-Morris, & Horne, 1996]), *IPQ-Revised IPQ-R* (Moss-Morris, 2002) and Brief *IPQ BIPQ* (Broadbent, Petrie, Main, & Weinman, 2006).

Common criticisms of illness perceptions and explanatory model interviews include the difficulty to use them in clinical settings and general population research, due to the time needed to administer them (two hours average—Groleau et al., 2006; Jadhav, Weiss, & Littlewood, 2001); and to code and interpret the data. Not only do detailed enquiries put a large demand of knowledge and training in qualitative methods on the researcher; they also require that the participant has two hours to spend which reduces the likelihood of participation of people with limited time (e.g. single parents, carers). Illness perception questionnaires on the other hand can be quicker to administer, but often also attract some critical reviews from cultural researchers. Illness perception questionnaires assess agreement with statements that were developed from a universal (etic) approach so that one might not detect cultural variations. Etic questionnaires may miss out on beliefs that were not part of the culture where it had been developed, that is, indigenous (emic) beliefs of a particular culture. The validity of etic assessments has been continually debated in particular in transcultural mental health

care as it remains unclear how valuable it is to use diagnostic classifications across culturally diverse patient populations (Hughes, 1998; Kirmayer, 1998; Kleinman, 1997).

The lack of brief assessment instruments that are also able to pick up culturally variable beliefs makes it difficult for clinicians and researchers to understand and recognize the effects of cultural influences on perceptions. The objective of this research was to develop a new brief, comprehensive and adaptable assessment tool that ascertains perceptions of distress from varied cultural backgrounds.

### **Development of the Barts Explanatory Model Inventory (BEMI)**

A literature search was conducted to identify anthropological, psychiatric, psychological and sociological accounts of distress. The literature search strategies were developed with the help and support of the medical librarian from Barts and the Royal London Medical School and other librarians from the University of London library (Senate House). First, bibliographic literature searches were conducted using the following databases: Anthropology Index Online, Anthropological Literature, BIDS (ingenta), Embase, International Bibliography of the Social Sciences, Medline/PubMed available on Ovid, PsychINFO available on Ovid and Web of Science. Further formal searches were conducted on other Internet based search engines e.g. BioMednet, BMJ, JPET, Social Science and Medicine abstracts, *American Journal of Psychiatry*, American Psychological Association and other publishing engines. Articles published up to 2005 were included and search terms included EXPLANATORY MODEL (S), ILLNESS REPRESENTATION (S), DISTRESS, DEPRESSION, ANXIETY, COMORBIDITY, PSYCHIATR\*, MOOD, PSYCHOL\*, MENTAL HEALTH, BELIEF(S), UNDERSTANDING, PERCEPTION (S), TREATMENT, HEALING, IDENTITY, CAUSE, CULTURE, RACE, ETHNICITY.

The abstracts of these references were assessed against inclusion and exclusion criteria. The two inclusion criteria were: (a) they must contain a detailed *emic* description of at least one individual's perceptions of mental distress; (b) they must contain enough detail to be analogous to an actual account. The criteria to exclude articles were: (a) group analyses in which the experiences of individual

cases could not be discerned; (b) quantitative cross-cultural comparisons; (c) articles featuring so called psychotic illnesses (although the distinction between psychotic and neurotic disorders is somewhat blurred—it was decided to exclude psychotic accounts to eliminate the likelihood of including delusional beliefs and hallucinations); (d) articles that focused on selective aspects of distress, such as stigma or somatization, were inspected only to get background knowledge of the field, but were excluded as material for the analysis.

We also searched the following journals by hand to include material published between 1980–2005: *Social Science and Medicine*; *Transcultural Psychiatry*; *Journal of Cross-Cultural Psychology*; *Culture, Medicine and Psychiatry*; *Medical Anthropology*; *Medical Anthropology Quarterly*; *Anthropology & Medicine*; and the *Journal of Mental Health*. Scanning reference lists of already obtained articles has also helped us to identify additional articles. This process has been repeated several times and a reference database of over 1500 articles on research on illness representations, explanatory models and other descriptions of distress (e.g. case reports) emerged, from which 53 article (containing 98 accounts) met the inclusion criteria.

In order to avoid a dominance of particular cultures, which were more often reported in the literature than others, it was decided that no more than five accounts would be considered from one cultural group. The five different accounts were chosen by considering the quality and content of the description. Literature accounts that only contained very limited amount of information, and its information was intermingled with professional conceptions were not included if there were more detailed accounts available that were more suitable. Similarly if two accounts described causal perceptions such as possession and/or Ayurvedic qualities of food, but a further added a completely new and not reported perception such as the conflict of living in a new culture and traditional family values, the 'new' account was included. We wanted to ensure that information was not replicated and also capture perception diversity within different cultural groups.

### **Methodology of thematic analyses**

A thematic analysis approach was used to identify as the appropriate technique to guide the assessment process. Thematic analysis has been identified as a useful qualitative technique when one has a theoretical preconception of the structure (in our case the five

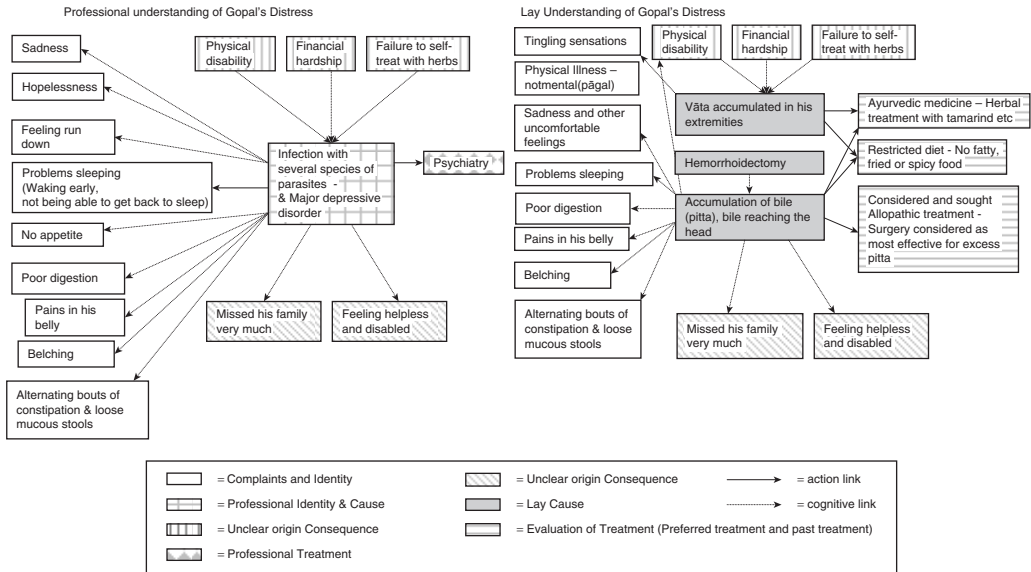


Figure 1 Schematization of Account described Weiss MG, Desai A, Jadhav S, Gupta L, Channabasavanna SM, Doongaji DR et al. Humoral concepts of mental illness in India. *Soc.Sci.Med.* 1988;27:471-7

domains) and wants to identify patterns across the data (Braun & Clarke, 2006). We first identified perceptions by highlighting the associated narrative in the text and identifying separate items. We then noted different perception items and examined the text for connections, which were noted by developing diagrams or schematizations (Young, 1982) of the accounts. Young described explanatory models in schematizations to understand underlying assumptions better and we adopted his approach to: (a) differentiate the lay from the professional/author's perspective; and (b) enable easier comparison of accounts across cultures. The identification of perceptions to be categorized as consequences or symptoms of distress was made by examining the contextual links in which they were described. The schematizations were produced in pen and paper. Each perception was circled and the colour of the circle determined whether it was classified as a perception of identity, cause, consequence, course or control/treatment. In addition, two colours were used to indicate the link between perceptions with each other to contextualize and identify associations. A distinction was made between assumed cognitive links (e.g. I am suffering from distress because ...) and behaviour or action connections (e.g. because my distress is due to eating 'hot' foods, I will eat different foods instead).

For each literature account a schematization (Young, 1982) of the individual's *distress was drawn* (see Fig. 1 for an illustration). There was no predefined structure and sketches of individual perceptions were produced to ensure that the all five domains were taken into consideration. The process of classifying specific expressions of distress or beliefs into specific categories was dependent on the narrative, and the relations that the text suggested between items or phenomena. For example in the text 'Gopal explained that he had a physical illness caused by accumulation of bile'. 'Physical illness' was therefore first identified as an item for 'identity' and accumulation of bile as a 'cause'. In a second step, these items were categorized in conceptual clusters or categories. Extracted categories were described in lay language without adopting pre-existing distinctions and connected in a comprehensive framework of perceptions of distress. The process ended when saturation was reached, and no further categories were found to be necessary.

**Results of thematic analysis**

Results of the thematic analysis are displayed in Table 1. The first column lists observed perception items and the second the newly established conceptual themes. Twenty-three perception themes were identified.

Table 1. Specific Perceptions of Mental Distress (Items) and Overarching Conceptual Themes

1) Identity, Perceived 'symptoms', Complaints	Themes
Cry, <b>Sleep disturbance</b> , Leukorrhoea / Semen Loss, Palpitation/ indigestion	
Visual deficiency	Somatic
<b>Pain</b> – Back pain, Heart pain, Chest pain, Headache & other aches/ soreness, Fatigue / Feel tired, Nerves / agitation, Crawling sensation, Heat or heaviness in head/stomach/chest, Bodily weakness, Nausea	
<b>Dysphoria</b> (feel down), Increased Irritability, Feel nervous/ anxious, Fright	Mental
Lack of concentration, Loss of interest, <b>Worrying thoughts</b> / torment, Suicidal thoughts, Guilt towards others, Shame of self, Auditory & visual hallucinations	
Withdrawal from social life	
Change in role – task fulfilment	
Be Violent (towards others), Stop talking	Behavioural
Screaming, Swearing, Substance (ab-)use, Change in eating patterns,	
Be violent (towards things), Obsessive cleaning etc, Neglect of personal hygiene, Irrelevant talk, Suicide attempts	
2) Cause/Aetiology	Themes
Stress/ overburdening mental capacities	
Self–Vulnerable due to...Gender, Age, Culture, Religion, Race, Worry, Guilt Shame	Psycho-social
Emotions/Sensations (Excessive discharge of)	
Work / Family / Marital problem (s)	
Isolation, Loss/Bereavement, Racism – Prejudice/ Stereotype Trauma/Shock (e.g. Car crash, war) 'Destiny' – Fate (deliberate), Bad luck (random), Ancestors' spirits, Weakened spirit/ soul loss, Test of faith	Supernatural
Black magic/evil eye, Possession,	
Punishment (God) – Taboo Breach	
Sorcery (Others)	
Diet/Ingestion – Imbalance hot/cold	Behavioural
Substance abuse, Lack of or no sex	
Wind/ weather, Climate, Astrology	Natural
<b>Illness and/or Disability</b> , Semen loss, leukorrhoea, <b>excess bile</b> etc – Humoral imbalance,	Physical
Bad blood, hot blood, etc	
Poison, Virus/germ	
Heredity	
Financial	Economic
3) Timeline/ Course	Themes
Insufficiently described	Acute/ Curable Chronic/ Non curable Episodic/ Relapsing, remitting
4) Consequences	Themes
Increased attention to somatic symptoms/ illness, Go crazy/ Disruptive thoughts/ Interference, <b>Aversive Feelings</b> , Lack of self esteem, Fear for oneself	Self
Sick role - role change, Exclusion from activities, Rejection, <b>isolation</b> , stigma not only for oneself but for whole family, loss of status (individ / family), Violence, Beatings, Incarceration	Social
Job Loss, <b>Loss of financial security</b>	Economic
Pain, Weight loss, weight gain, <b>Disability</b>	Physical
Substance abuse, Stop Sport and other social, religious activities	Behavioural
5) Healing, management, treatment	Themes
<b>Change diet/ Fast</b> , Healer	Self
Keep busy, spend time on a hobby, dance	
Think, Substance (ab-) use	Self/Behavioural

(Continued)

Table 1. (Continued)

Coining		
Talk, Seek social support (SoS), Socialise	Family/friends/ Community	Family/friends/ community
Medicine, diagnosis, <b>medication &amp; Surgery</b>	GP, <b>Hospital</b>	Medical Bodily
Pharmaceuticals/ medication	Psychiatrist	
Medication + psychotherapy		
Herbal therapy	Homeopath	Alternative
Acupuncture	Acupuncturist	Bodily
Relaxation/ massage		
<b>Traditional herbal mixtures</b>	Traditional healer	
Talk therapy (incl. Psychoanalysis)	Psychologist/ Psychotherapist	Psychological
Cognitive Behavioural Therapy		
Behavioural Therapy		
Spiritual object (e.g. taveez) Exorcism	Faith healer	Spiritual
Praying	Faith Healer/Priest	
Chanting	Priest	
Ceremonial Dancing	Traditional Healer	
Lay hands	(Medicine Man)	

**Bold** text refers to Gopal’s case study - see Figure 1.

*Identity/perceived*

*'symptoms'/complaints/labels*

In the identity domain, variations were observed with respect to all the complaints/perceived symptoms which individuals display or associate with distress. When individuals talk to health professionals about distress, their language ranges from strictly mental expressions such as 'I am depressed' to more somatic terminology such as 'I feel pain' (Baarnhielm & Ekblad, 2000). The terminology was aimed to provide semantic categories to intra-cultural and cross-cultural differences.

Beliefs surrounding the identity of distress also manifested themselves often in a behavioural format. This was particularly so among individuals of cultures where self-actualization or individualism were seen as inappropriate, and who communicated more meaningfully by doing something rather than talking about it (Yeung & Chang, 2002).

Perceptions regarding the identity of distress were often interwoven with perceptions of cause. In our illustration of the professional model of Gopal (see Fig. 1), the infection and the major depressive disorder were the identity as well as the cause of his symptomatology and therefore difficult to differentiate. During analyses separate categories were only established when individuals' perceptions were clearly distinguishable. Three main themes were identified for the identity of distress: (a) mental; (b) somatic; and (c) behavioural.

*Cause/aetiology*

The most diverse perceptions were found in the causal domain. It was found that traumatic events and/or other blows to individuals' identity and social world (via interpersonal conflicts, loss or abuse) were most commonly described as causes of distress (Bilu & Witztum, 1993). Other explanations included an imbalance of humours, being exposed to poison, viruses or black magic (Etsuko, 1991; Weiss et al., 1988). Natural causes for distress featured changes to the climate, astrological conditions or the wind (Yilmaz & Weiss, 2000). However, lay people also often explained their illness as something that is at least partly due to themselves. Stress, worry or shame, illness or disability were often mentioned as causes for mental distress (Oquendo & Graver, 1997). Furthermore, substance abuse, lack of spirit or faith and breaching of moral taboos raise issues of personal culpability and individuals can therefore be reluctant to volunteer these sorts of explanation (Dein & Sembhi, 2001). Other causal attributions deal with a sense of vulnerability to distress based on some individual characteristic such as age, gender, religion, culture, social status or genetic make-up (Migliore, 1994; Rasmussen, 1992; Storck, Csordas, & Strauss, 2000). It appeared that distress was often ascribed to what might be characterized as imbalances, some of which seemed to be intrinsic to the individual (i.e. perceptual, emotional), while some were externally motivated



factors (i.e. supernatural, natural, physical and social). Furthermore, it appeared that there were sentiments of feeling powerless or not having the resources or means to deal with issues that bring on distress, regardless of whether they were immunological, genetic, economical, situational or the spiritual power to combat sorcery or ill will. Six main themes emerged: (a) psycho-social; (b) supernatural; (c) behavioural; (d) natural; (e) physical; and (f) economic dimension.

**Timeline/course** Even though temporally anticipated end and course of an illness could be one of the most important motivators to seek help from services (Brown & Segal, 1996), these were so sparingly documented in the selected accounts that it was not possible to identify themes. Therefore we adopted three common sense themes: (a) acute/curable; (b) chronic/not curable; and (c) cyclical/episodic, that is, relapsing/remitting.

**Consequences** In the selected literature, relatively little space was devoted to the description of the consequences of mental distress. As with the causal perception domain, the impression emerged that lay individuals did not distinguish clearly between complaints/consequences, but rather saw them as the same. Individuals reported, for example, that their role changed and that they were losing status (Migliore, 1994) and it was difficult to be sure whether this was a consequence of being distressed or seen to be part of being distressed (i.e. identity).

Descriptions helped to explore relations between domains. Some perceptions clustered around changes in the person's characteristics/personality, while others related to changes to one's role or behaviour in relation to other people. In the case of Gopal, the account revealed that he was concerned about physical consequences and in relation to himself and others. A distinction was therefore made between self, physical and social. Furthermore, financial consequences were identified, and behavioural consequences related to items such as not being able to fulfil your roles were mentioned as a result of distress. Our final themes were: (a) Self/psychological; (b) Social; (c) Financial; (d) Physical; and (e) Behavioural.

**Control/cure/treatment** There was also a wide variety between people's expectations of treatment. Initially, it seems that many lay individuals try to help themselves by changing their lifestyle, performing rituals and/or taking up exercise (Weiss

et al., 1988). With continuing distress, individuals often seek additional help from other people. One could differentiate here between informal healers such as family and friends, or formally appointed agents such as medical practitioners, faith healers and traditional healers. General medical practitioners are often consulted to alleviate somatic components of distress by medication, but will also be seen if individuals or their families feel that they need referral to specialist services. On the other hand, faith healers are consulted for spiritual treatments, that is, reading holy scripts, being blessed or receiving rubs with sacred oil (Dein & Sembhi, 2001). Some of these individuals were reported to consult astrologers, healers and priests to exorcise evil spirits (Etsuko, 1991). What is referred to as 'traditional' healing often refers to a mix of religious and medicinal interventions including giving individuals amulets that contain religious writings, providing dietary advice and herbal mixtures. Most lay accounts did not differentiate between the therapy and the people who are responsible for administering it. It seemed important from a professional standpoint however to make this distinction, but also necessary to retain the observed lay categories. Three categories were extracted for the control/cure domain: (a) internal (self/behavioural); (b) informal external (family, friends and the community); and (c) formal external which can be subdivided into: (i) bodily medical; (ii) bodily 'alternative'; (iii) spiritual; and (iv) psychological.

### *Constructing the new assessment tool*

After identifying items and themes for our assessment tool, we examined different formats that the measure should take and decided a mixed methods approach might circumvent problems associated with previous assessments. Weinman et al. (1996) suggested a short preliminary enquiry would be useful to enhance the quality of the data elicited by the IPQ, so that it seemed advisable to begin the assessment process with our qualitative open-ended interviewing.

#### *BEMI—Interview (BEMI-I)*

In line with previous interview assessments, good and comprehensive data elicitation during an interview requires an open and relaxed atmosphere (Weiss et al., 1992). We therefore wrote a short introduction to create such an atmosphere, but other options are also possible. We then reviewed all currently available interview assessments to develop a panel of questions



Table 2. Mean Perception Scores of first BEMI Application

Themes	White British (N = 6)	Bangladeshi (N = 5)
Somatic Identity	6.5 (SD 3.4)	12.6 (SD 2.3)
Mental Identity	7.2 (SD 4.4)	6.6 (SD 3.2)
Behavioural Identity	1.7 (SD 1.4)	2.6 (SD 3.2)
Psychosocial Cause	5.7 (SD 2.9)	6.0 (SD 1.9)
Supernatural Cause	0.7 (SD 0.8)	1.2 (SD 0.8)
Behavioural Cause	1.2 (SD 1.6)	0 (SD 0.0)
Situational Cause	3.3 (SD 2.0)	2.2 (SD 1.3)
Psychological Consequences	3.0 (SD 1.7)	3.4 (SD 2.1)
Social Consequences	1.8 (SD 1.5)	4.4 (SD 1.8)
Physical Consequences	0.5 (SD 0.8)	1.4 (SD 0.9)
Financial Consequences	0.5 (SD 0.8)	0.6 (SD 0.9)
Behavioural Consequences	1.7 (SD 1.4)	1.0 (SD 1.0)
Self Treatment	3.2 (SD 1.3)	1.2 (SD 0.8)
Social Treatment	2.3 (SD 1.4)	0.4 (SD 0.6)
Medical Treatment	2.5 (SD 1.2)	1.4 (SD 1.1)
Spiritual Treatment	0.8 (SD 1.0)	1.0 (SD 0.7)
Psychological Treatment	0.7 (SD 0.8)	0.8 (SD 0.4)

Perceptions were coded as prevalent (1) or not (0) both for the BEMI-I and BEMI-C and these were added up for each theme. Total scores were divided by the number of participants in each group to compute the means.

that would comprehensively address the range of experiences and themes uncovered in the literature review. The interview included 12 essential questions of the five core perception domains: identity; cause; timeline; consequences; and cure/control. It begins with the identity/label of distress and description of what distress is, the cause of the distress, the past and expected timeline of the distress, the experienced consequences in terms of advantages and disadvantages and finally the way the patient would like to resolve or deal with the label and how they evaluate their past help-seeking attempts.

**BEMI-Checklist (BEMI-C)** The BEMI-C includes four checklists (symptoms, causes, consequences and treatments) and answers are coded in binary format (present/not present). Items were identified from our thematic analyses. Individuals needed to decide whether they perceived the items such as particular symptoms, causes and consequences were related to their current distress episode. They were also asked whether they had or had not tried different treatment strategies to control or cure their condition and to appraise this as helpful.

The BEMI is available to all interested parties upon request. Despite methodological conflicts between qualitative and quantitative approaches to

assess perceptions of distress (Bhui & Bhugra, 2003), organizing perceptions on the basis of conceptual themes seems to be the most straightforward way to assess perceptions. This method has been shown to be reliable, and valid both from a statistical and a conceptual perspective (Bhui, Bhugra, & Goldberg, 2002; McCabe & Priebe, 2004).

### *The first application of the BEMI*

The following section describes the first application of the BEMI. Our first application was a pilot study of a cross-cultural cross-sectional mixed method survey design, approved by the East London and the City Health Authority Ethics committee (Ref # DO/SG/N/02/023). We randomly selected Bangladeshi/Bangladeshi British and White British participants from GP registers in East London, UK and invited them to come to the practice to be interviewed. We interviewed five Bangladeshi and six White British participants. The groups had an equal level of education, but only a fifth of the Bangladeshi attended primary school in Britain and none spoke English as a first language.

We analysed the BEMI by categorizing participants' interview and checklist responses according to the previously described 23 themes. Two individuals independently categorized the data into themes

and interrater reliability was established (Cohen's  $Kappa < .80$ ).

We present the results of this first application in Table 2. Bangladeshi participants reported double the amount of somatic symptoms, social consequences, but on the contrary reported only that they tried half of the self, social and medical treatment interventions in comparison to White British participants. Similarities between the two groups were also found as the reported similar levels of mental symptoms, psychosocial causes and psychological consequences as well as similar desire for psychological treatment.

Researchers have noted that in some cultures there is no equivalent language/terminology to describe mental health problems (e.g. depression, feeling blue) (Bhui, Mohamud, Warfa, Craig, & Stansfeld, 2003; Kleinman, 1980). In our first study with the BEMI, one or two Bangladeshi participants had problems relating their perception of what distress was, and would during interviews much more often refer to what the cause of the distress was instead. We found that individuals' rapport with the interviewer would affect what they communicated. There was a common use of euphemisms, that is, talk about difficulty in the family while ticking abuse on the checklist; and that participants' general level of communication skills seemed to affect the quality of the results.

Our study also revealed that the questionnaire process had minor flaws. When Bangladeshi individuals were asked about the origins of their distress, three of our participants volunteered that the cause of their distress was 'in their bones'. On our simple checklists they checked 'illness', but detailed interviewing showed that individuals tried to communicate a shared belief/common terminology of inherited or passed on social influences of their family ways of dealing with things. Here the interview data were useful to understand a very different use of language specifically a lack of a biomedical meaning associated with the term 'bone'.

## Overall discussion

In this article, we presented the need for a new mixed method assessment of illness perceptions and described the concept, development and application of the Barts Explanatory Model Inventory. The BEMI is in our view a useful addition to the other assessment instruments. It takes much less time to administer than current interview assessments and

assesses more culturally varied beliefs than current questionnaires. The combination of assessing perceptions with interviews and checklists supports clinicians and researchers to overcome practical difficulties of time intensive issues around qualitative research at the same time being more inclusive in culturally varied beliefs assessed in current questionnaires.

The interview should help clinicians understand their patients better and refer to the particular language patients use to describe their perceptions. It tells them what their patient believes their problem is, what caused it and what consequences they have experienced as a result. As it is less structured it allows exploring different dimensions and their relationship better. The interview also helps to determine past and expected timeline of experienced distress, patients' preferred treatment approaches and their own evaluation of past help-seeking attempts. The checklists assist clinicians to explore the patient perspective in relation to specific symptoms, causes, consequences, treatments, aid to reduce the risk of omitting pertinent information and allow for quantitative comparisons between groups.

Our findings also support the use of mixed methodologies as a possible way of disentangling cultural biases in assessments and allow a greater understanding of cross-cultural variations in the content and communication of illness perceptions to develop (Gabrenya, Kung, & Chen, 2006). As well as the many conceptual benefits of mixed method approaches, it should be said that mixed methods research is also challenging particularly with larger sample sizes. The amount of data that are produced in interviews can be difficult to manage and organize. Our 23 theme framework facilitates this management and organization, but issues remain relating to the size of the data. Current statistical data management software does often not allow simultaneous storing and analysing of long answer scripts alongside quantitative variables. Another challenge for mixed methods concerns the validity of interview and checklist data when they do not correspond. When an individual misses out a box on the checklist or narrates a different perception in interviews it may be complicated to determine what has happened and how this should be dealt with. Developing new rules how to treat and manage data from different sources could therefore be one of the most important new challenges ahead for mixed methods research.

Furthermore we want to relate limitations in the development of the BEMI. Even though we aimed for being as culturally diverse as possible by including accounts from all five continents and over 35 different cultural groups, we were not able to access accounts from all over the world. Reliance on published accounts also meant that these were in effect secondary data analyses. Much future research is necessary to determine whether the captured themes are indeed comprehensive of all world cultures and explore the utility of documenting cultural variations in this thematic framework. The thematic framework however can be easily expanded if future themes would be found. So far we have used the BEMI to explore variations in perceptions and help-seeking for distress in three ethnic groups in East London (Rüdel, 2006). Specific perceptions elicited by the BEMI were able to predict diagnostic classification of common mental disorder and further allowed to explore ethnic variations in help-seeking behaviour (Bhui, Rüdel, & Priebe, 2006; Rüdel, 2006; Rüdel, Bhui, & Priebe, 2008).

In conclusion, this article presents the conceptualization, development and first application of the BEMI. Further studies are warranted to establish psychometric properties of this tool and validate it in different cultural contexts. Examples from a pilot study with the tool were presented to relate how data may be treated in a mixed methodology assessment and to share experiences with the tool. The BEMI is one approach that (in our opinion effectively) combines qualitative and quantitative assessments of illness perceptions across cultural groups. We found that mixed methodologies were helpful to avoid some of the conceptual problems with cross-cultural assessment and assessment bias, but they also bring with them so much more complex data.

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