

Continuing professional development

Measuring diabetes health beliefs in the South Asian population: a narrative systematic review of feasibility and validity

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What is known on this subject

- Health beliefs develop from exposure to a variety of social and cultural sources.
- Although standardised questionnaires about health beliefs exist, to date most research into diabetes-related health beliefs has been carried out using qualitative methods.
- The suitability of standardised questionnaires as a method of data collection is unclear, particularly with regard to the language and literacy skills required to complete a questionnaire, and especially in relation to people whose first language is not English, or who have difficulty reading any language.

What this paper adds

- The lack of studies means that the utility of using questionnaires to assess health beliefs in South Asians has not been fully assessed.
- Improved rigour in the design, execution and reporting of studies of health beliefs is required.
- Diabetes-related health beliefs may play a significant role in how South Asian patients choose to manage their illness.

ABSTRACT

The aim of this study was to conduct a systematic review to assess the acceptability, feasibility, reliability and validity of standardised questionnaires on diabetes-related health beliefs in South Asian populations. A search strategy was developed for the concepts *diabetes mellitus*, *South Asians* and *health beliefs*. CINAHL, EMBASE, Medline, PsychINFO and Geobase were systematically searched from

1992 to 2010, and the search was updated in 2012. Studies were eligible if they used standardised questionnaires to assess diabetes-related health beliefs among members of any of the seven South Asian sub-ethnic groups diagnosed with type 1 or type 2 diabetes.

Five studies met the inclusion criteria. Reporting of information on study design and methods was of

variable quality across the five studies, making it difficult to assess acceptability and feasibility. Most studies required researchers to provide face-to-face support to respondents to aid feasibility. Only two studies used questionnaires about diabetes-related health beliefs as predictors of self-management behaviour.

Despite the high prevalence of diabetes in South Asians, to date there has been little research on the

acceptability, feasibility, reliability and validity of questionnaires about health beliefs. This must be addressed if this population is to benefit from future research on health beliefs and related interventions.

Keywords: diabetes, health beliefs, questionnaires, self-management, South Asians

Introduction

The South Asian culture is diverse, encompassing seven ethnic sub-groups (Indian, Pakistani, Bangladeshi, Sri Lankan, Bhutanese, Nepalese and Mauritian), together with a number of different languages and religions (Johnson *et al*, 1999). The prevalence of diabetes is six times higher in people of South Asian descent (Diabetes UK, 2011). The serious complications and comorbidities associated with diabetes (e.g. heart disease, stroke, kidney disease) are more likely to affect South Asians because of poor glycaemic control and insufficient lifestyle changes, especially with regard to diet and increasing physical activity (Bellary *et al*, 2008; Khunti *et al*, 2009). Empowering patients to reduce the burden of the disease by effectively managing their diabetes has been an important goal for healthcare systems worldwide (Wanless, 2004). However, in the UK, education programmes and resources developed to support self-management have had limited success in the South Asian population (Hawthorne *et al*, 2010; Khunti *et al*, 2009). A number of barriers have been proposed, including poor access to health services, structural and material deprivation, experiences of migration, and language and communication difficulties (Greenhalgh *et al*, 1998; Choudhury *et al*, 2009; Hill, 2006).

Diabetes-related health beliefs may play a significant role in how South Asian patients choose to manage their illness (see Box 1). There is no one universal definition of health beliefs, but for the purposes of this review the following definition has been chosen. Health beliefs have been defined as:

socially acquired and shared expectancies that reflect, among others, thoughts about the attributes of some situation or condition, as well as consideration of outcomes of specific courses of action.

(de Wit and Stroebe, 2004, p. 54)

Health beliefs develop from exposure to a variety of social and cultural sources (Ogden, 2007). In the psychology literature there are various health belief theories which aim to explain how beliefs develop, and how they relate to the management of disorders and self-care behaviours (Harvey and Lawson, 2009).

In the health psychology literature, the Illness Perception Questionnaires (IPQ) (Weinman *et al*, 1996; Moss-Morris *et al*, 2002; Broadbent *et al*, 2006) have been used to measure beliefs about a number of chronic conditions, such as diabetes, using five key components of the self-regulatory theory, namely *identity*, *cause*, *timeline*, *consequences* and *control/cure* (Leventhal *et al*, 1998). Previous findings from these questionnaires demonstrate a positive relationship between illness perceptions and diabetes management in

Box 1 Diabetes and health beliefs in the South Asian population

Diabetes

A lifelong, chronic and progressive condition that occurs either when the pancreas does not produce enough insulin, or when the body cannot effectively use the insulin that it produces. Diabetes is more common in people of South Asian origin.

South Asians

The term 'South Asian' encompasses seven ethnic sub-groups (Indian, Pakistani, Bangladeshi, Sri Lankan, Bhutanese, Nepalese and Mauritian), together with a number of different languages and religions (Johnson *et al*, 1999).

Diabetes-related health beliefs

A person's thoughts and opinions about diabetes influence self-management of this condition.

the UK white and European populations. For instance, patients who believe that their diabetes is controllable manage their diet, exercise and glucose testing well (Glasgow *et al*, 1997; Hampson *et al*, 1990). Interventions designed to alter illness perceptions report long-term improvements in management (Cox and Gonder-Frederick, 1992; Griva *et al*, 2000). However, the extent to which health beliefs predict diabetes management in South Asian populations has yet to be confirmed.

To date most research into diabetes-related health beliefs in the South Asian population in the UK has been carried out using qualitative methods, such as focus groups, interviews (Lawton *et al*, 2007) and storytelling narratives (Greenhalgh *et al*, 1998, 2005). There is evidence from these studies to suggest that the health beliefs and practices of this population are heterogeneous and often related to the religion of the individual (Fleming and Gillibrand, 2009; Bhopal *et al*, 1999). A meta-synthesis of qualitative studies exploring culture, diabetes and nursing in the South Asian community (Fleming and Gillibrand, 2009) found that beliefs about the cause of diabetes are related to dietary behaviours, stress, and heredity and life experiences, such as migration to the UK (Lawton *et al*, 2006). Another casual factor is fatalism, especially in the Muslim population (Stone *et al*, 2005; Naeem, 2003; Lawton *et al*, 2006). Fatalistic beliefs have been suggested to lead to poor diabetes control (Lange and Piette, 2006; Egede and Bonadonna, 2003) and poor quality of life.

Some of this research has informed various interventions and structured education programmes for South Asians in the UK (Greenhalgh *et al*, 2005; Khunti *et al*, 2008). For example, Greenhalgh *et al* (2005) developed a storytelling intervention which aimed to provide an alternative way of delivering diabetes education to people who do not speak English. This study found that storytelling methods encouraged an empathetic response from participants, and so were an effective way of meeting the personal education needs of South Asians with diabetes.

Although qualitative methods have many advantages (de Leewu, 2008), standardised self-report questionnaires such as the IPQ have utility in that they enable a large population to be sampled efficiently, provide comparable data across population groups, and allow quantification of the relationships between health beliefs, self-management behaviours and outcomes. Attempts have been made to establish face validity through the use of focus groups to ensure that standardised questionnaires are culturally appropriate for South Asian populations (Lloyd *et al*, 2008, 2012). However, the suitability of standardised questionnaires as a method of data collection for measuring health beliefs is unclear. This is due to the language and literacy skills required to complete a questionnaire, especially for people whose first language is not

English or who have difficulty reading any language (Lloyd *et al*, 2006). There are also doubts about the applicability of some health psychology concepts in minority populations. For instance, the IPQ measures beliefs about illness control, but it does not specifically account for external control factors such as fatalism. The study reported here aimed to examine in more depth the use of questionnaires with South Asians diagnosed with diabetes.

Aims

The study aimed to:

- identify studies using standardised questionnaires to assess diabetes-related health beliefs in the South Asian population
- assess the acceptability and feasibility of using standardised questionnaires in a South Asian population
- assess the reliability and validity of standardised questionnaires in capturing diabetes-related beliefs.

Methods

Inclusion criteria

Studies were eligible for inclusion in the study if they had used standardised questionnaires to assess South Asian adult patients' health beliefs about their diabetes. Type 1 and type 2 diabetes were included, and patients could belong to any of the seven South Asian ethnic groups listed above.

Search strategy

A search strategy was developed using a combination of text terms and subject headings for *diabetes*, *South Asians* and *illness beliefs* (see Table 1). We searched the following databases from 1992 to 2010: CINAHL, EMBASE, Medline, PsychINFO and Geobase. Searches were conducted from February to March 2010, and updated in January 2012. In addition, the NHS Specialist Library for Ethnicity and Health (NHS Evidence, 2011) was searched. To supplement the database search, the journals *Ethnicity and Health*, *Diabetes Care* and *Diabetic Medicine* were hand-searched from 1992 to 2010. Reference lists of key articles and other reviews were scanned for potentially relevant articles, as was the 'grey literature' using Google Scholar. Four authors of the papers included in the review were contacted to help to identify further relevant published and unpublished papers. The search results were imported

Table 1 Search strategy

Diabetes	South Asian	Health beliefs
Exp Diabetes mellitus/	India	Exp attitude to health/
Exp Diabetes mellitus, type 1/	Pakistan	Exp self-efficacy
Exp Diabetes mellitus, type 2/	Bangladesh	Illness representation model.mp
Exp Diabetes complications	Nepal	Common sense model.mp
Exp Hyperglycemia/ or hyperglycaemia.mp.	Sri Lanka	CSM.mp
Exp Hypoglycemia/ or hypoglycaemia.mp.	Bhutan	Self-regulatory model.mp
Exp Diabetic ketoacidosis/	Maldives	Parallel process model.mp
Diabetes.mp	South Asian	Leventhal's model.mp
insulin dependent diabetes mellitus.mp.	Ethnic origin	Leventhal.mp
IDDM.mp	Asian	Health belief model.mp
non-insulin dependent diabetes mellitus.mp.		HBM.mp
non-insulin dependent diabetes mellitus.mp.		Social cognitive theory.mp
NIDDM.mp		Illness cognition.mp
diabetes mellitus type I.mp.		Illness belief.mp
diabetes mellitus type II.mp.		Illness perception.mp
T1DM.mp		Illness representation.mp
T2DM.mp		Health belief.mp
DM1.mp.		Health cognition.mp
DM2.mp.		Health perception.mp
late onset diabetes.mp.		Health representation.mp
maturity onset diabetes.mp.		Personal model.mp
mature onset diabetes.mp		Self-regulation.mp
		IPQ.mp
		IPQ-R.mp
		Personal model of diabetes.mp
		Personal model of illness.mp
		Diabetes illness representations questionnaire.mp
		DIRQ.mp
		Theory of self-regulation.mp
		Parallel processing model.mp
		Self-regulation model.mp
		Illness perception questionnaire.mp
		Illness perception questionnaire-revised.mp
		The brief illness perception questionnaire.mp

into Reference Manager 11 in order to manage the review process.

Data extraction

All titles and abstracts identified were assessed for eligibility by the first author (NP), and data were extracted. All data extraction was independently checked by another researcher, and any discrepancies were resolved through discussion and/or contact with the study authors.

Measure appraisal criteria

Questionnaires in each study were appraised using formal criteria designed to assess patient-reported outcomes in clinical trials (Fitzpatrick *et al*, 1998). These criteria consist of eight dimensions, but for the purpose of this review only four criteria (see below) were selected. These criteria were most relevant for assessing the overall utility of health belief questionnaires.

Acceptability

To assess the acceptability of the questions, we extracted data on the time taken to complete the scales, the length in terms of the number of items, the response rate and the rates of missing data.

Feasibility

To assess feasibility we extracted data about the resources required to administer the questionnaire. We assessed the ease of administering and processing information from the questionnaire, such as the need for face-to-face support for participants, the coding schemes required to produce questionnaire scores, and the training required for staff to use and interpret the scale.

Reliability

To assess the internal reliability of the questionnaire used, we extracted the estimates of Cronbach's alpha. We judged the internal reliability to be acceptable if the estimate was 0.70 or higher. To assess the test-retest reliability of the questionnaire, we extracted data from the questionnaire about the correlation of scores or other measures of agreement, in repeated administrations over time.

Validity

To determine validity, we first assessed whether the studies followed and/or adhered to specific translation guidelines, such as back translation (International Test Commission, 2010). Back translation involves translating the revised questionnaire back into the original language, by a third translator who has

command of both languages (Rahman *et al*, 2003). However, Rahman *et al* (2003) also state that such simple methods of translation are insufficient, and they recommend testing translation using a focus group to ensure validity and reliability.

We also assessed construct validity by exploring whether the questionnaires predicted diabetes-related variables. This involves cross-sectional or longitudinal assessments of the relationships between scores on the questionnaires and self- or observer-report measures of relevant behaviours, such as adherence to medication, exercise, diet, and other self-care behaviours or health outcomes (e.g. HbA1c, quality of life).

Data analysis

Given the heterogeneity of the studies with regard to questionnaires used, research settings and ethnic groups, a narrative synthesis was deemed most appropriate. A narrative synthesis is an approach used to summarise the findings of multiple studies, mainly using text and words (Pope *et al*, 2007). Thus this process of synthesis is descriptive, rather than statistical.

Results

Search strategy

The search strategy identified 312 abstracts, of which 186 full text papers were checked for eligibility. Five studies were eligible for inclusion. Each of the five studies was systematically assessed against the four appraisal criteria, and the next section provides further details of that assessment.

What standardised questionnaires have been used to assess diabetes-related health beliefs?

The health belief questionnaires varied between studies. Two studies used different versions of the standardised IPQ (Bean *et al*, 2007; Kart *et al*, 2007). One study (Bean *et al*, 2007) also included questionnaires about self-efficacy, metabolic rate and retinopathy, in order to further assess the relationship between beliefs and health outcomes.

Two studies (Rafique *et al*, 2006; Rankin and Bhopal, 2001) adapted existing health questionnaires by adding their own questions to specifically assess diabetes-related beliefs. Rankin and Bhopal (2001) developed a questionnaire based on the Newcastle Health and Lifestyle Survey (White *et al*, 1993), the Rose Angina

Questionnaire (Rose *et al*, 1982) and the West of Scotland Twenty-07 Study (Macintyre *et al*, 1989). Participants were given a definition of diabetes and asked what they understood by the term. Rafique *et al* (2006) developed a questionnaire using the reliability and validity of a brief diabetes knowledge test (Fitzgerald *et al*, 1998) and diabetes knowledge and sources of information among African American and white older women (Schoenberg *et al*, 1998). They also included questions on local myths about diabetes and beliefs about medication, diet, exercise and nutrition.

The remaining study designed and pre-tested a new health belief questionnaire with no specific justification. Therefore it was difficult to assess this measure in any detail using our selected appraisal criteria (Sivagnanam *et al*, 2002) (see Table 2).

Are the questionnaires acceptable?

Data about measures of acceptability were relatively limited. Only one study (Bean *et al*, 2007) stated the response rate with regard to the number of completed questionnaires. The remaining studies only reported the achieved sample size, with no specific information on response rates or rates of missing data. The length of the questionnaires ranged from 7 to 39 questions across the five studies, and none of the studies provided specific information on the time taken to complete the questionnaires. All five studies included additional questions on self-management, with the longest questionnaire containing 53 items.

Are the questionnaires feasible?

Measures of feasibility were very limited. Three studies (Rankin and Bhopal, 2001; Rafique *et al*, 2006; Kart *et al*, 2007) employed a member of the research team to either distribute questionnaires or help respondents to complete it during an interview.

Are the questionnaires reliable?

Two studies (Bean *et al*, 2007; Kart *et al*, 2007) stated that the questionnaires had internal consistency, but none of them reported on test-retest reliability (see Table 2). Three studies (Bean *et al*, 2007; Kart *et al*, 2007; Rafique *et al*, 2006) translated the questionnaires, but only two of these (Kart *et al*, 2007; Rafique *et al*, 2006) met international standards for translation by adopting the method of back translation. Although back translation is reported to be one of the most common methods of translation in survey research (Brislin, 1970), none of the studies referred to translation guidelines.

Are the questionnaires valid?

The studies differed in terms of how they assessed the relationship between beliefs and diabetes management. Bean *et al* (2007), using the IPQ, found these health beliefs to be predictive of self-care and metabolic rate. For example, *personal control* beliefs were positively associated with dietary self-care and exercise, *identity* beliefs were associated with medication taking, and beliefs about *treatment control* predicted better glucose testing, whereas *emotional representation* predicted HbA1c outcomes (see Table 2). Kart *et al* (2007) also found that *treatment control* was significantly correlated with exercise, complementary alternative medicine, stress and lower use of medication. Beliefs about the *chronic* and *cyclical* elements of diabetes predicted healthy eating and adherence to medication, whereas *emotional representation* was predictive of foot care (see Table 2).

The remaining three studies were more descriptive and did not provide any additional information about the relationship between beliefs and other health outcomes associated with diabetes. These studies only stated the findings from the belief questions. For example, 85% of the respondents in the study by Sivagnanam *et al* (2002) believed that wheat played a crucial part in the diet for people with diabetes, and over 50% believed that diabetes only affected adults. Rankin and Bhopal (2001) reported that controlling and reducing sugar intake and eating a healthy diet were factors believed to prevent diabetes. Similarly, Rafique *et al* (2006) found that people with diabetes significantly held diet-related beliefs about managing their diabetes.

Discussion

Summary of main findings

The aim of this review was to identify studies in which standardised questionnaires were used to assess health beliefs in South Asians with diabetes. Each questionnaire was assessed for feasibility, acceptability, reliability and validity using established appraisal criteria. Five studies were identified, of which four used pre-existing questionnaires from the literature, and one study designed a new questionnaire. Two studies showed that diabetes-related health beliefs may predict relevant health outcomes in the South Asian population. However, the studies conducted to date have been of varying quality, and there are only limited data on acceptability, feasibility, reliability and validity.

Table 2 Appraisal of questionnaires

Author, year and country of origin	Belief questionnaires	Sample ethnicity, size, recruitment and duration of diabetes	Mode of administration	Response rate	Predicated health outcomes	Measure translated	Process of translation	Meets translation standards	Cronbach's alpha (CA)	Test-retest calculation
Bean <i>et al</i> (2007) New Zealand	Brief Illness Perception Questionnaire (Broadbent <i>et al</i> , 2006) <i>Additional questionnaires</i> Multi-dimensional Diabetes Questionnaire (Nouwen <i>et al</i> , 2003) Summary of Diabetes Self-Care Activities (SDSCA) (Toobert <i>et al</i> , 2000)	E =Indian, Fiji Indian, Bangladeshi R= opportunistic sample from clinic and GP waiting rooms N = 86 D = 9 years for men and women	Self-report	82%	<i>Personal control</i> associated with: dietary self-care ($r = 0.35$, $P < 0.01$), exercise ($r = 0.27$, $P = 0.05$) <i>Identity</i> associated with medication taking ($r = 0.28$, $P < 0.5$) Greater perceptions of <i>treatment control</i> predicted better glucose testing ($P = 0.035$) <i>Emotional representation</i> predicted HbA1c ($\beta = 0.45$, $P = 0.013$)	English to Hindi, Gujarati, Tongan and Samoan languages	Translated by native speakers and checked by independent person for quality	No	BIPQ: CA = 0.58–0.70 for all items	Not calculated

Table 2 Continued

Author, year and country of origin	Belief questionnaires	Sample ethnicity, size, recruitment and duration of diabetes	Mode of administration	Response rate	Predicated health outcomes	Measure translated	Process of translation	Meets translation standards	Cronbach's alpha (CA)	Test-retest calculation
Kart <i>et al</i> (2007), Nepal	Illness Perception Questionnaire – Revised (IPQ-R) <i>Additional questionnaires</i> Summary of Diabetes Self-Care Activities (SDSCA) (Toobert <i>et al</i> , 2000)	E = Indian R = oppor- tunistic sample from national diabetes hospitals and diabetes clubs N = 300 D = 11 years for men and women	Face-to-face – interview format	Not stated	<i>Treatment control</i> correlated with exercise ($r = 0.18$, $P < 0.05$), complementary alternative medicine ($r =$ 0.314 , $P < 0.05$) stress ($r = 0.31$, $P < 0.05$) and lower use of medication ($r = -0.35$, $P < 0.05$) <i>Timeline and time</i> <i>cycle</i> predicted healthy eating ($r = 0.16$, $P < 0.05$), adherence to medication ($r = 0.15$, $P < 0.05$) <i>Emotional</i> <i>representation</i> predicted foot care ($r = -0.16$, $P < 0.05$)	English to Nepalese	Translated by co- author	Yes	Reported using principal component analysis with varimax rotation for each IPQ indicator	Not calculated

Table 2 Continued

Rafique <i>et al</i> (2006), Pakistan	Questionnaire developed from previous studies: Diabetes Knowledge Test (Schoenberg <i>et al</i> , 1998) The reliability and validity of a brief diabetes knowledge test (Fitzgerald <i>et al</i> , 1998) Further questions based on local beliefs and clinical observations	E = Pakistani R = opportunistic sample from hospital outpatients waiting room N = 199 D = 7.3 years for men D = 8.8 years for women	Face-to-face – interview format	Not stated	None reported	Not stated	Not stated	N/A	Not calculated	Not calculated
Rankin and Bhopal (2001), Newcastle, UK	Questionnaire developed from the Newcastle Health and Lifestyle Survey (White <i>et al</i> , 2003) West of Scotland Twenty-07 Study (MacIntyre <i>et al</i> , 1989) Rose Angina Questionnaire (Rose, 1962) and questions on understanding the disease were devised by authors	E = Indian, Bangladeshi and Pakistani R = snowball N = 16 D = not stated	Not stated Face-to-face – interview format	Not stated	None reported	English to Bengali, Hindi, Punjabi and Urdu	Translated by native speaker and back translated into English by an independent person	Yes	Not calculated	Not calculated

Table 2 Continued

Author, year and country of origin	Belief questionnaires	Sample ethnicity, size, recruitment and duration of diabetes	Mode of administration	Response rate	Predicated health outcomes	Measure translated	Process of translation	Meets translation standards	Cronbach's alpha (CA)	Test-retest calculation
Sivagnanam <i>et al</i> (2002), Sri Lanka	Designed specifically for local population	E =Nepalese R = diabetes clinic N = 243 D = not stated	Self-report	Not stated	None reported	Not translated, as designed in the local language (Tamil)	N/A	N/A	Not calculated	Not calculated

N, number of participants; D, duration of diabetes; R, method of recruitment; N/A, not applicable; E, ethnicity

The utility of using questionnaires to assess diabetes-related health beliefs

The studies in this review show that using questionnaires to assess beliefs in the South Asian population with diabetes has some utility. The studies varied with regard to the types of questionnaires used, and provided very limited information about acceptability and feasibility, making it difficult to assess them against these two criteria. Most studies required a high level of resources because researchers provided face-to-face support for either recruitment or assisting participants to complete the questionnaire. This is consistent with previous research in the literature which has reported barriers to the use of questionnaires with the South Asian population (Lloyd *et al*, 2006, 2008). The main problem with some of the studies in this review was the lack of information about and justification of the choice of questionnaire. For instance, in the study by Sivagnanam *et al* (2002) it is unclear why the authors of that study decided to develop a new measure when other researchers had used modified or existing questionnaires.

Comparison with the literature

The South Asian diet has commonly been used to explain the high prevalence of diabetes in this population (Misra *et al*, 2009). The findings from three studies in this review (Rankin and Bhopal, 2001, Sivagnanam *et al*, 2002; Rafique *et al*, 2006) also found beliefs about the cause of diabetes to be commonly associated with diet. These findings reflect those of the qualitative studies discussed earlier (Fleming and Gillibrand, 2009; Stone *et al*, 2005). We also speculated that fatalism was one of the beliefs related to the management of diabetes, yet the studies in this review did not include specific questions to measure fatalistic beliefs. The relationship between fatalistic beliefs and diabetes management requires further study. This could potentially be assessed by extending the causal or controllability dimensions of the IPQ questionnaires in future studies.

Earlier we identified the importance of language and literacy and good-quality translation. Although some of the studies in this review attempted to overcome language barriers, current evidence in this field suggests that South Asians are often illiterate in both English and their native language. For example, a randomised controlled trial investigating an education package to improve understanding of diabetes care among South Asians in the UK found that only 30% of the sample were fluent in English, and 21% were unable to read their own languages (Vyas *et al*, 2004). This reflects the situation of countries such as India which have high rates of illiteracy (Bansal, 1999). Moreover, it is thought that first-generation immi-

grants who are illiterate and over the age of 40 years are unlikely to become literate (Hawthorne, 2001). The utility of questionnaires must therefore be questioned, but there may be other ways of collecting data using modern technology to overcome these issues (e.g. computer-assisted administration based on the use of voice rather than the written word).

Finally, the aim of this review was to assess the acceptability, feasibility, reliability and validity of using questionnaires to measure health beliefs in the South Asian population with diabetes. It was not our primary aim to explore illness perceptions in relation to self-management. However, the evidence from the two studies that used illness perception questionnaires and additional health outcome questionnaires (Bean *et al*, 2007; Kart *et al*, 2007) helps us to better understand the link between beliefs and diabetes management. For example, both studies found that beliefs about treatment, identity, emotions and personal control influenced specific self-management behaviours, but more research is needed for a rigorous assessment of the utility of these questionnaires, and to ascertain whether there is comparable utility in other populations.

Limitations

This review focused only on diabetes-related beliefs. The extent to which beliefs predict self-management behaviours in other long-term conditions in South Asians has yet to be confirmed. The search strategy was comprehensive and used a combination of approaches to identify studies, but the search terms were specifically tailored to seven South Asian sub-ethnic groups. The review included data from a range of healthcare systems and research settings. The data retrieved by this review were limited. The lack of studies means that the utility of using questionnaires to assess health beliefs in South Asians cannot be fully assessed.

Implications for future research

The lack of evidence about the use of questionnaires to determine health beliefs among South Asian people with diabetes is a cause for concern because it may hinder the development of disease management strategies for this population. Prospective longitudinal studies with larger patient samples are required to further assess the ability of health beliefs to predict diabetes management and other relevant outcomes over time. However, future studies should take account of the need for improved rigour in the design, execution and reporting of research (see Box 2),

Box 2 Self-test questions for future research

What health belief measures are currently available?

How useful are they?

What are their limitations?

Do I need to design a new questionnaire?

What process do I need to follow to ensure my questionnaire will be acceptable, valid and reliable?

Does the questionnaire need to be translated?

What translation guidelines do I need to follow?

Box 3 Useful resources

International Test Commission (2010). (www.intestcom.org/upload/sitefiles/40.pdf)

Translated copies of the illness perception questionnaires (www.uib.no/ipq)

Diabetes UK (www.diabetes.org.uk): a leading non-government organisation that provides support, information and advice for people with diabetes.

especially with regard to translation (see Box 3), as inadequate translation has the potential to invalidate questionnaires.

Conclusion

Very few studies have used questionnaires to assess diabetes-related health beliefs in the South Asian population. There are some preliminary data which suggest that it is possible to measure health beliefs using questionnaires in these populations, and there is some evidence that these beliefs may predict self-management in this target population. However, a significant programme of work on the development and validation of measures is required if the potential of health belief interventions is to be realised in this population.

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CONFLICTS OF INTEREST

None.

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