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Psychometric and cognitive validation of a social capital measurement tool in Peru and Vietnam

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Abstract

Social capital is a relatively new concept which has attracted significant attention in recent years. No consensus has yet been reached on how to measure social capital, resulting in a large number of different tools available. While psychometric validation methods such as factor analysis have been used by a few studies to assess the internal validity of some tools, these techniques rely on data already collected by the tool and are therefore not capable of eliciting what the questions are actually measuring.

The Young Lives (YL) study includes quantitative measures of caregiver's social capital in four countries (Vietnam, Peru, Ethiopia, and India) using a short version of the Adapted Social Capital Assessment Tool (SASCAT). A range of different psychometric methods including factor analysis were used to evaluate the construct validity of SASCAT in Peru and Vietnam. In addition, qualitative cognitive interviews with 20 respondents from Peru and 24 respondents from Vietnam were conducted to explore what each question is actually measuring.

We argue that psychometric validation techniques alone are not sufficient to adequately validate multi-faceted social capital tools for use in different cultural settings. Psychometric techniques show SASCAT to be a valid tool reflecting known constructs and displaying postulated links with other variables. However, results from the cognitive interviews present a more mixed picture with some questions being appropriately interpreted by respondents, and others displaying significant differences between what the researchers intended them to measure and what they actually do.

Using evidence from a range of methods of assessing validity has enabled the modification of an existing instrument into a valid and low cost tool designed to measure social capital within larger surveys in Peru and Vietnam, with the potential for use in other developing countries following local piloting and cultural adaptation of the tool.

Keywords: Social capital; Psychometric validation; Qualitative; Factor analysis; Developing world; Peru; Vietnam

Introduction

Social capital is a way of describing social relationships within societies or groups of people. It is a

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relatively new concept which has attracted significant attention in the field of health research in recent years. Research has shown social capital to be associated with a wide range of health outcomes including mortality (Kawachi, Kennedy, Lochner, & Prothrow-Smith, 1997; Skrabski, Kopp, & Kwachi, 2003), self-reported health status (Kawachi, Kennedy, & Glass, 1999; Veenstra, 2000), and mental health (De Silva, McKenzie, Huttly, & Harpham, 2005).

Within the health field, consensus is slowly being reached about the definition of social capital as referring to "social networks and their associated norms of reciprocity" (Putnam, 2004). Social capital comprises the features of social organisation and integration that facilitate co-operation for mutual benefit. This includes the quantity and quality of formal and informal social interactions (often called associational life), civic participation, norms of reciprocity and trust in others. Social capital is multi-dimensional and includes structural (quantity of social relationships) and cognitive (quality of social relationships) components (Bain & Hicks, 1998). Structural and cognitive social capital can refer to linkages and perceptions in relation to people who are similar to each other such as others in ones own community or people of the same socio-economic status (called bonding social capital), or to people who are different, such as people outside ones community or with a different social identity (called bridging social capital). Social capital can also occur through formal institutions such as between a community and local government structures, and this is termed linking social capital (Szreter & Woolcock, 2004).

There has been much debate as to whether social capital should be considered the property of individuals or of groups of people (an ecological construct) (Kawachi, Kim, Coutts, & Subramanian, 2004). Individual social capital is most commonly measured by asking individuals about their participation in social relationships (structural social capital) and their perceptions of the quality of those relationships (cognitive social capital), while ecological social capital is most often measured by aggregating the responses of individuals to the community level. In the health field, despite the emphasis on the importance of ecological measures by some commentators (see for example Kawachi et al., 2004; McKenzie, Whitley, & Weich, 2002), the majority of research has explored the association between individual measures of social capital and health (De Silva et al., 2005).

Despite this theoretical development, significant questions surrounding the measurement of social capital remain, in particular how to translate the different theoretical components of social capital into valid and measurable constructs (Kawachi et al., 2004). This has resulted in the development of a wide range of tools to measure social capital (for example Buckner, 1988; Grootaert & van Bastelaer, 2002; Harpham, Grant, & Thomas, 2002; Hean, Cowley, Forbes, Griffiths, & Murrells, 2003; Narayan & Cassidy, 2001; Yang, Yang, Shih, & Kawachi, 2002). Yet Van Deth's (Van Deth, 2003) plea that "assessing the validity of each measure of social capital in different settings (both cross-cultural and longitudinal) should be standard practice among empirical researchers in this area" has not been heeded. A search of the literature found only eleven studies attempting some validation of social capital tools, despite there being well over 150 studies cited in Medline examining the association between social capital and health (Kawachi et al., 2004), and many hundreds more exploring the relationship between social capital and non-health related outcomes (Halpern, 2004, cited in Putnam, 2004). The problem, partly due to differences in the conceptualisation of social capital, is that researchers have not settled on one tool to measure social capital and then validated it over a number of years. Instead they have developed new tools, sometimes without an accompanying assessment of the tools' validity. This compounds the situation as with so few validity studies the evidence is not available to distinguish between existing tools.

Of the eleven studies that did conduct some validation of their social capital tool, nine used psychometric validation such as factor analysis to assess internal validity (Hean et al., 2003; Li, Pickles, & Savage, 2003; Narayan & Cassidy, 2001; O'Brien, Burdsal, & Molgaard, 2004; Onyx & Bullen, 2000; Robinson & Wilkinson, 1995; Stone & Hughes, 2002; Yang et al., 2002; Young, Russell, & Powers 2004). All of these studies found the tools they validated were able to distinguish between the different theoretical constructs of social capital, and therefore to have acceptable discriminant validity. However, in a field where no gold standard measure is available to assess concurrent validity, a broader approach to validation is necessary.

As Bowden et al. argue (Bowden, Fox-Rushby, Nyandieka, & Wanjau, 2002), psychometric validation does not contain any analysis from the respondents' viewpoint, a perspective which is vital in order to understand how respondents interpret the questions and therefore what the tool is actually measuring. Two of the eleven studies did use cognitive validation techniques (Boreham, 1999; Earthy, Maltby, Arber, & Cooper, 2000), but neither was set in the developing world. The results from these studies highlight the importance of using qualitative methods of validation in addition to more standard quantitative approaches, with significant differences reported between what the researchers believed they were asking, and the way in which the respondents interpreted the questions.

While generic tools are often used to measure social capital in different cultural settings, Szreter and Woolcock (2004) argue that social capital is a product of the prior history of political, constitutional and ideological

developments in any given setting. As such, it is important to validate a generic tool in each cultural setting in which it is to be applied. The organisations and social networks which are important for structural social capital may differ between different cultures, while culture may affect perceptions of social relationships (cognitive social capital) for example notions of trust. This means that the same question may be interpreted differently in different cultural settings, and culturally specific questions may need to be asked in order to capture the range of social capital available. This paper aims to validate an existing tool to measure social capital using psychometric and cognitive techniques in two different cultural settings (Peru and Vietnam) in order that the association between social capital and health can be more accurately estimated.

Methods

Instrument

A relatively short instrument to measure the social capital of adults in a quantitative manner has been formed from a longer instrument developed by a team from the World Bank (Krishna & Shrader, 2000). The instrument is intended for use in surveys where social capital is just one element of a broader study. The resulting Adapted Social Capital Assessment Tool (A-SCAT) (Harpham et al., 2002) has been used in Colombia (Harpham, Grant, & Rodrigues, 2004) and Sub-Saharan Africa (Thomas, 2003). It was subsequently modified by the Young Lives (YL) research project on childhood poverty in four developing countries (Ethiopia, Vietnam, Peru and Andhra Pradesh in India). It was used to measure the individual social capital of caregivers of children aged 1 and 8 years old in 2002 (www.younglives.org) in order to explore the association between caregiver's social capital and different aspects of child well-being, for example educational outcomes and physical and mental health. This modified A-SCAT is called the SASCAT (Table 1 lists the full SASCAT tool). The tool could also be used to measure ecological social capital by administering it to a representative sample of a community and aggregating their responses. The remainder of this paper focuses on the validation of SASCAT in two of the YL countries—Vietnam and Peru.

SASCAT was translated into Spanish and Vietnamese and back translated into English. The tool comprised one section of a much larger questionnaire and took on average 4 minutes to complete. The whole questionnaire was interviewer-administered to 3000 caregivers of 1 and 8 year old children across 31 communes from 5 provinces in Vietnam, and to 2771 caregivers across 203 communities from 28 districts in Peru. This is the first time social capital has been quantitatively measured in Peru and the second time in Vietnam (see Tuan et al., 2003 for a description of results from Vietnam, and Escobal et al., 2003 for results from Peru).

Validation methods

As there is no 'gold standard' tool for measuring social capital with which the SASCAT can be compared, a range of different methods were used to evaluate its construct validity (the degree to which a tool measures the theoretical construct it intends to measure). Firstly, different aspects of construct validity were assessed using psychometric techniques including factor analysis and an assessment of face and content validity. This was followed by an in-depth cognitive assessment of the respondents' viewpoint through qualitative interviews in Vietnam and Peru. Methods and results are presented separately for the two different methods.

Methods and results: psychometric assessment of validity

In order to provide a comprehensive assessment of the validity of SASCAT, each type of construct validity outlined in the schema developed by Trochim (2000) was assessed. Methods and results are presented separately for each aspect of construct validity.

Translation validity

Translation validity focuses on whether the tool is a good reflection of the construct which is being measured. It encompasses two types of validity; face validity ('on the face of it' are the questions a good translation of the construct being measured), and content validity (does the tool reflect all concepts within the construct). SASCAT has credible face validity as it measures both structural and cognitive social capital and does not measure any outcomes of social capital (such as crime rates). However, as it was designed for use in much larger surveys, SASCAT is considerably shorter than the original A-SCAT questionnaire, and while covering many aspects of social capital it may not measure them comprehensively. For example, SASCAT groups together emotional, economic and instrumental sources of support instead of measuring them separately. Group membership is recorded not as the absolute number of groups a respondent is a member of, but whether a respondent is a member of a particular type of group or not (e.g. sports group or community association). As such, the question may under-report group membership.

The content validity of SASCAT is good. It measures both cognitive and structural social capital, with similar weight given to each (four and five questions respectively). Within the structural social capital questions

Table 1
SASCAT tool

Question	Coding
Group membership items	
1. In the last 12 months have you been an active member of any of the following types of groups in your community? ● Work related/trade union ● Community association/co-op ● Women's group ● Political group ● Religious group ● Credit/funeral group ● Sports group ● Other: specify	Score between 0 and 8
Support from groups items	
2. In the last 12 months, did you receive from the group any emotional help, economic help or assistance in helping you know or do things? ● Work related/trade union ● Community association/co-op ● Women's group ● Political group ● Religious group ● Credit/funeral group ● Sports group ● Other: specify	Score between 0 and 8
Support from individuals items	
3. In the last 12 months, have you received any help or support from any of the following, this can be emotional help, economic help or assistance in helping you know or do things? ● Family ● Neighbours ● Friends who are not neighbours ● Community leaders ● Religious leaders ● Politicians ● Government officials/civil service ● Charitable organisations/NGO ● Other: specify	Score between 0 and 9
Citizenship activities items	
4. In the last 12 months, have you joined together with other community members to address a problem or common issue?	O = no, 1 = yes
5. In the last 12 months, have you talked with a local authority or governmental organisation about problems in this community?	O = no, 1 = yes
Cognitive social capital items	
6. In general, can the majority of people in this community be trusted?	O = no, 1 = yes
7. Do the majority of people in this community generally get along with each other?	O = no, 1 = yes
8. Do you feel as though you are really a part of this community?	O = no, 1 = yes
9. Do you think that the majority of people in this community would try to take advantage of you if they got the chance?[a]	1 = no, O = yes

[a]This variable has been reverse coded so that high scores indicate more social capital.

one relates to group membership, two to social support, and two to citizenship activities, encompassing the 'public good' aspects of social capital. The four cognitive social capital questions cover trust, social harmony, sense of belonging and sense of fairness, all key concepts in social capital theory (Harpham et al., 2002).

The tool also covers bonding, bridging and linking social capital with questions asking about bonding relationships to those with a similar social identity (e.g. neighbours, friends and relatives), bridging relationships to people of a different social identity (e.g. community leaders and local politicians), and linking relationships through formal power structures and official organisations (e.g. local government authorities and trade unions).

Criterion-related validity

Criterion-related validity assesses whether the tool behaves as it should, given the theory of the construct, and is judged against four different criteria. This study is unable to assess the first and most robust criterion, convergent validity (the degree of association among different measurement instruments that purport to measure the same concept), as no 'gold standard' way of measuring social capital exists. Other tools that measure social capital were not included in the YL survey so the results of two or more different tools cannot be compared. We are also unable to assess the second criterion, concurrent validity (the ability to distinguish between groups that should be different) as existing research has so far not highlighted consistent differences in levels of social capital between different groups (for example between men and women).

The third criterion is predictive validity (the ability to predict something it should theoretically be able to predict), for example whether social capital measured by the tool displays known associations with other variables. However, as we are not aware of any other research that has explored the association between social capital and other variables in Peru and Vietnam, and the extent to which associations found in the developed world should be replicated in the developing is unclear, we are not yet able to assess the predictive validity of SASCAT.

The last criterion, discriminant validity, examines the lack of association among constructs that are supposed to be different (for example whether questions intended to measure structural and cognitive social capital are actually measuring something different). SASCAT aims to measure four distinct aspects of social capital, three relating to structural social capital (group membership, support from groups and individuals, and citizenship), and one relating to cognitive social capital. To test whether the tool discriminates between these four theoretical factors, separate principal components factor analyses using Varimax rotation with Kaiser Normalisation were performed on the data from the 3000 caregivers in Vietnam and the 2771 caregivers in Peru collected by the YL surveys.

Table 2 presents the results of these factor analyses. As the factor analysis only involved nine items, these results cannot provide a comprehensive assessment of the discriminant validity of the tool. There were striking similarities between the results from Peru and Vietnam, with the same three independent factors accounting for 56% and 57% of the total variance among the intercorrelations of the nine social capital variables in Peru and Vietnam respectively. The strongest factor in both countries was group membership/social support. We expected group membership and support from groups to be highly correlated as the support question was only asked if the respondent had stated that they were a member of a group. Support from individuals loaded more weakly onto this factor (0.49 in Peru and 0.51 in Vietnam), but did not emerge as a separate factor. The second strongest factor was cognitive social capital with all four questions relating to this loading onto this factor in both countries. The third factor was citizenship, with both questions relating to citizenship activities loading onto this factor.

The factor analysis shows that SASCAT has good discriminant validity as it clearly distinguishes the different concepts which form the construct social capital, though refinement is needed to distinguish support from individuals from group membership. The factor analysis also confirms that SASCAT does distinguish between structural and cognitive components as cognitive social capital was an independent factor which was negatively correlated to the questions which made up the two structural social capital factors. Importantly, these findings were strikingly similar between Peru and Vietnam, indicating the tool's potential to measure core constructs of social capital in very different cultural settings.

However, while the results from these psychometric validation techniques provide some evidence about the validity of the SASCAT tool, these techniques rely on data already collected by the tool and are therefore not capable of eliciting how the respondents interpret the questions and thus what they are actually measuring. These tests assume that respondents interpret the questions in the same way the researcher intends them to. However, with complex questions containing culturally specific constructs this assumption may not always hold. Cognitive validation has been suggested for addressing this problem (Bowden et al., 2002).

Methods and results: cognitive validation

Methods

The cognitive validation comprised two stages. Firstly, an in-depth interview was conducted by MDS with the

Table 2
Factor loadings for Peru ($n = 2771$) and Vietnam ($n = 3000$) using principle components factor analysis with varimax rotation using Kaiser Normalisation

Item	Factor loadings					
	Group membership/social support		Citizenship		Cognitive social capital	
	Peru	Vietnam	Peru	Vietnam	Peru	Vietnam
Number of groups respondent is a member of	0.88	0.91	−0.35	0.05	−0.17	−0.08
Support from groups	0.90	0.92	−0.40	0.06	−0.18	−0.06
Support from individuals	0.49	0.51	−0.25	0.24	−0.11	0.20
Talked to authorities about a community problem	0.07	0.10	0.68	0.76	−0.03	0.07
Joined with others in community to resolve a problem	0.113	0.15	0.65	0.75	−0.05	−0.04
Can the majority of people be trusted	0.02	0.18	0.02	−0.25	0.64	0.34
Do the majority of people get along with each other	0.00	0.07	−0.09	0.06	0.74	0.78
Do you feel part of this community	0.04	0.06	0.02	−1.02	0.60	0.81
Would people try and take advantage of you if they got the chance	−0.04	0.20	−0.12	−0.05	0.57	0.59
Total variance explained (%)	20.5	22.8	16.6	14.0	19.3	19.8

designer of the SASCAT (TH) to establish what each question was intended to measure. In-depth cognitive interviews were then conducted with 20 Peruvian and 24 Vietnamese respondents, purposively selected to be representative of the sample used for the YL survey (the full methods of this study are presented elsewhere (De Silva et al., in press; Tuan, Harpham, Huong et al., in press).

In Peru, respondents were purposively sampled using community contacts and door-to-door canvassing in one rural and two urban communities. These comprised Villa Maria, one of the oldest and well-established shanty towns in Lima, Huaycán, a more recent shanty town on the outskirts of Lima with large areas of newly occupied land, and Chalaco, a remote Andean village and its surrounding hamlets in the Morropón region in the north of Peru. In Vietnam, 48 female caregivers of 1 year old children were identified by commune leaders across three different locations. These sites cover a large range of the Vietnamese population: disadvantaged and isolated ethnic minorities in the mountains (Lao Cai), metropolitan dense areas (Hanoi) and typical rice growing areas (Hung Yen). Respondents' socio-economic status was assessed using a wealth index method, and 24 caregivers were selected from the 48 using the same proportion of caregivers from each wealth index group found in the YL survey (for details on the wealth index distribution method and the survey, see Tuan et al., 2003).

Semi-structured interviews were conducted in the respondent's home and lasted on average 50 minutes in Peru, and 2 hours in Vietnam. The cognitive interviewing techniques developed by Bowden et al. (2002) were employed, whereby the respondent is asked a question from the SASCAT tool and then their thought processes behind their answer are probed. Fig. 1 gives examples of the questions used. Interviews were tape-recorded with the permission of the respondent. The analysis identified particular questions or concepts that were interpreted by the community members in a different way to that intended by the designers of the tool.

The Vietnamese sample was younger and more homogenous than that from Peru. All but three respondents were female. The average age of the respondents was 40 years in Peru (range 21–76) and 28 years in Vietnam (range 21–42 years). In Peru, all but three of the respondents were either married or living with a partner, and most had two children (range 0–10 children), while in Vietnam all were married and had on average two children (range 1–5). The community members covered a range of different socio-economic levels, and had lived in their community for an average of 25 years (range 1–76 years) in Peru, and 7 years (range 3–22 years) in Vietnam.

Results

Table 3 summarises the intended meaning of each question and whether the majority of respondents interpreted each question as intended. The first column contains the original English wording of the questions:

Structural social capital

Short A-SCAT question:
In the last 12 months, have you received any help or support from your neighbours, this can be emotional help, economic help or assistance in helping you know or do things?

Cognitive probing:
What type of help did they give you?
Who do you include when you think of your neighbours?

Cognitive social capital

Short A-SCAT question:
In general, can the majority of people in this community be trusted?

Cognitive probing:
Can you give me some examples of people trusting each other?
Can you give me some examples of people not trusting each other?
Who were you thinking of when you answered about 'the majority of people in this community?'

Fig. 1. Examples of questions used in cognitive interviewing.

however, after the translation process a number of changes were made to the question wording in both countries. For example, in Vietnam the first question refers to 'organisations' instead of 'groups', and in Peru respondents are asked whether they have joined together with other community members to 'resolve a problem or work together' rather than to 'address a problem or common issue'. Column 2 presents the meaning of each question as intended by the designer of SASCAT, and column 3 whether the majority (defined as over half of respondents) interpreted the questions as intended.

Concept of community

The original SASCAT tool prefaces the questions with the statement 'Now I would like to ask you some questions about your community'. In Vietnam, community was defined as the official commune, which was well understood by all respondents as commune is a resilient and highly meaningful geographical construct in Vietnam. In Peru the concept of community was much more problematic. 'Community' was a word hardly ever used spontaneously by respondents, and many had difficulty defining what their community was when asked. Interestingly, in urban areas, half the respondents interpreted 'community' as people helping each other, as one resident of a shanty town commented ''community is people who help each other, who share things and are supportive''. Only a minority of respondents defined their community as the geographical area they lived as intended by the designers of SASCAT.

Asking respondents 'what is the name of the place that you live' proved more successful in establishing Peruvian respondents' geographical community. However, 'layered' concepts of community were common, whereby place of residence could be defined by any one of a decreasing circle of geographical areas. For example, a respondent might say they live on a block within a zone of their shanty town, and then refer to different levels of 'community' depending on the question asked. Thus questions on group membership may be answered on the basis of the whole of the shanty town, while those regarding trust may only relate to the residents of their block whom they know personally.

These problems highlight the difficulties in formulating meaningful definitions of community so important for the accurate measurement of ecological social capital. To ensure that respondents refer to their geographical community in each question, and to prevent respondents referring to different levels of community depending on the question asked, the tool has been modified to include the name of the geographical community in which the respondent lives (predefined by the researcher).

Group membership

The questions on active membership of community groups were intended to measure live, current connections as opposed to dormant ones where there is no social interaction, as individuals must actually connect with other people in the group they are a member of in order to have structural social capital.

In Vietnam less than half of the respondents interpreted active participation as intended; two stated they did not understand the word 'active' and 12 interpreted the question as relating to participation—whether active or not. Non-active participation would, for example, include attending a meeting but not contributing (i.e. playing a passive role). In Peru, the definition of 'active' participation varied according to the type of group respondents were a member of. While active participation in a community organisation such a residents association was frequently interpreted as having an

Table 3
Differences between intended and actual meaning of SASCAT questions

Question	Intended meaning	Question interpreted by majority of respondents as intended?	
		Peru	Vietnam
Structural social capital			
Definition of community	Spatial definition of community based on administrative boundaries	No	Yes
Group membership	Respondents have to connect with other people in the group they are a member of in order to have structural connections. Live, current connections as opposed to dormant ones where there is no social interaction	No	Yes
Support from groups	Respondents should think widely about types of support received, not just economic, hence the inclusion of different types of support in the question wording	No	No
Support from individuals	Respondents should define the groups of individuals (i.e. 'family') however they want Could be overlap between individuals listed here and the groups listed in 11.1 (i.e. politicians/political groups)	Yes	Yes
Joined together with other community members	The actual connections between people that are formed when people join together. Not hypothetical joint action Joined together = Definition deliberately left open for the respondent to decide what activities they consider 'joining together'. Intended to cover a broad range of things from just talking to other people in the community about a problem, to setting up a formal action group Problem or common issue = Left to respondent to decide which issues constitute a problem or common issue. The important thing is that people are making connections	Yes	Yes
Talked with a local authority or government organisation	Exact meaning left to respondents, but intended to have a broad meaning ranging from a phone call, writing a letter or having meetings. Any form of connection/communication. Does not include voting	Yes	Yes
Cognitive social capital			
Trust	Giving access to things that you care about to other people in the community because you know that respect, fellow feeling and reciprocity is such that they would not harm the things that you care about	No	No
Social harmony	Generally get along = Left to respondents own interpretation. No order of magnitude specified. Personal contact between people not required for people to get along with each other	Yes	Yes
Sense of belonging	Sense of belonging and attachment to community	Yes	Yes
Sense of fairness	Perceived fairness, sense of exploitation, lack of altruism, selfishness.	Yes	Yes

official position, for example treasurer or president, and not solely attending meetings, simply attending meetings was sufficient to be considered active participation for religious and political groups. Clearly defining what active membership is for each group type, based upon concepts of structural social capital, is needed to ensure that only active membership that contributes to an individual's social capital is recorded.

The different interpretations by respondents of what each group type meant highlights the need for culturally specific questions relevant to the local context. For example, in Peru trade unions, credit, and funeral groups were rarely recognised by respondents. This is backed up by data from the YL survey which showed that less than 1% of respondents were a member of such groups (Escobal et al., 2003). Most YL respondents are part of the informal labour market and thus not eligible for trade union membership, making this category an unimportant source of structural social capital among Peru's poor.

There was also confusion as to what constituted a community association in Peru. While many respondents included food distribution programmes such as communal kitchens, few included residents associations in this group. Indeed, two respondents said they were not members of community associations yet it later emerged that they were both committee members in their local residents association.

These results highlight the need for a culturally relevant list of organisations that are important to the setting in which social capital is to be measured. All groups which make a significant contribution to the social capital of an area must be included, and stated in such a way that respondents recognise the group types as non-overlapping categories. What constitutes active participation sufficient for creating or maintaining social capital for each group type must also be pre-defined by researchers, to ensure that all types of social connections that may be important for social capital are captured. As a result, SASCAT has been modified to include a list of organisations important for Peru and Vietnam, respectively.

Social support

Respondents were asked to report any support or help received from groups they were a member of or from a list of individuals. They were asked to think widely about different types of support received including emotional, economic and instrumental (help to know or do things) support. Despite this, the first type of support that most respondents listed was economic. In Peru, this comprised financial assistance in urban areas and donated goods in rural areas, and in Vietnam either donated money or rice. In Vietnam, emotional help was not perceived by respondents to be a form of support, while in Peru it was often listed only after additional prompting. Instrumental support was rarely reported. This may reflect the question design with the possibility that respondents were not hearing all the different types of support listed. This is a classic example of multiple questions within one and although the study objectives did not need separate responses to each form of support, these questions have been separated out in the modified version of the tool.

Citizenship

The questions about joining together with other community members and talking with a local authority or governmental organisation about problems in the community were well understood by respondents and needed no modification. In Peru, as well as reporting times when they had joined together to resolve community problems such as doing communal works like clearing drains and repairing roads, respondents also reported joining together to address individual problems. These often involved helping a friend or neighbour who was sick by raising money through the sale of food, or a group of mothers raising money to buy Christmas presents for their children. When asked why she considered helping a sick neighbour to be a community problem, one respondent replied "Because we are all in the same place, the same community. We define ourselves by this. So we should help each other to get ahead. If I help him today he can help me tomorrow". This sense of community responsibility for individual problems may be a powerful indicator of the social capital of a community.

Trust

Respondents' interpretation of trust was multifaceted. Importantly, respondents in both Peru and Vietnam were unwilling to provide an assessment of trust in 'people in general'. The vast majority would only comment about trusting known individuals, and statements such as "I need to know a person to trust them" were common. A more worrying finding was the interpretation of the question by the majority of respondents from shanty towns in Lima as referring directly to trust in authorities rather than to the general population. Opinion was widespread that community leaders work for their own personal benefit and cannot be trusted, and thus many respondents answered no when asked if they trusted others. Perceptions of trust therefore depend on personal experience and are variable in that people can be trusted in some things but not others. These factors make the intended interpretation of questions measuring trust extremely difficult to capture. As a result, SASCAT has been modified to ask separate questions about trust in

neighbours, leaders and strangers in the community in order to avoid asking questions about generalised trust, but this approach remains untested.

Social harmony

This question was well understood and correctly interpreted by respondents in both countries and therefore required no modification. While there were many different interpretations of 'getting along' ranging from not fighting or arguing to helping each other and working together, all tapped into a concept of social harmony. Interesting differences emerged between rural and urban respondents in their interpretation of social harmony, with much more profound levels of social harmony required in rural areas where people rely upon each other for their livelihoods. As one rural respondent reported "If you don't get along with people you can't ask them to come and help you work". Whereas in rural areas not reciprocating work favours was considered a serious threat to social harmony, in urban areas getting along was much more superficial and was largely interpreted as just greeting each other in the street and avoidance of 'interference with each other'.

Sense of belonging

This question was interpreted as intended by the majority of respondents and needed no modification. In Peru, many respondents reported a strong sense of attachment to their community, despite previously reporting low levels of trust and social harmony, and even reporting that they did not like where they lived. This sense of belonging was expressed by respondents in terms of residency "I live here", "I am used to it here", and long-standing association "Because this is where I was born and grew up and maybe will die".

Sense of fairness

This question was the most difficult for respondents to understand. In Vietnam, three respondents did not understand the question at all, and in Peru additional explanation of the meaning of 'take advantage of' was often required. However, once the question was understood, respondents in Peru and Vietnam interpreted it as intended as referring to a range of different ways in which people could be taken advantage of. In Peru the most common interpretation was taking advantage of people financially, for example by charging them too much in a store or by lending money that is not repaid. An example of what taking advantage of means has been added to the question to avoid problems with interpretation of this question in the future.

Discussion

Discussion of results

This paper argues that cognitive validation is a valuable addition to psychometric techniques when validating complex tools for use in different cultural settings. Psychometric techniques to explore discriminant and predictive validity show SASCAT to be a valid tool reflecting known constructs and displaying postulated links with other variables. However, these techniques rely on data already collected by the tool and are therefore not capable of eliciting what the questions are actually measuring. The addition of an analysis from the respondents' viewpoint using qualitative cognitive interviewing techniques explores how the respondents interpret each question and therefore what each question is actually measuring. Such an analysis paints a more complex picture of the validity of the SASCAT, with some questions being appropriately interpreted by respondents, and others displaying significant differences between what the researchers intended to measure and what they actually do.

It is interesting that despite differences between the intended and actual interpretation of some questions, and some differences in interpretation between Peruvian and Vietnamese respondents, the factor analysis results from the two countries were strikingly similar. This may be because each question is designed to measure distinct concepts with little overlap between questions. Therefore, even if respondents interpreted the question in a different way to what was intended, for example by reporting all group membership rather than just active group membership, the question is still fundamentally measuring group membership. This highlights the complementary nature of the two approaches to validation. While psychometric validation can assess among other things whether key concepts are being measured, cognitive validation can delve deeper into the meaning of those key concepts. Despite this, combining the results of these different validation techniques remains a challenge. This is perhaps best achieved by conducting the cognitive validation during initial development of the tool to ensure the questions elicit the desired interpretation, followed by psychometric validation after the tool has been applied to a much larger sample during piloting.

Only three other studies have used cognitive interviewing techniques to qualitatively validate social capital questions, all of them set in the UK (Blaxter & Poland, 2002; Boreham, 1999; Earthy et al., 2000). However, they show striking similarities with the results of our validation study. In line with much of the community psychology literature, our study highlighted problems with the definition of community in Peru with respondents referring to different geographical areas depending

on the question being asked. This is mirrored by findings from two UK studies (Boreham, 1999; Earthy et al., 2000). For example, in cognitive interviews with 31 respondents from rural and urban areas in Southern England, Earthy et al. (2000) found that when asked about community services respondents talked about the area within a 15 minute walk from their home. However, when asked about trust in people in general they only referred to their street or immediate vicinity.

The community psychology literature emphasises the different definitions of community ranging from a geographical area defined by administrative boundaries to a dense inter-connected network of people who care about each other (Kaplan, 2004). Our study showed that the term 'community' was little used or understood by Peruvian respondents. Cognitive interviews with 35 elderly residents in the UK also found that community "was a word almost never used" by respondents (Blaxter & Poland, 2002). However, in Vietnam where commune is a resilient and highly meaningful geographical construct, no such problems were encountered. These studies highlight our finding that a culturally specific geographical frame of reference must be clearly defined for respondents and repeated in each question to ensure that the area to which the questions refer remains constant.

One of the most problematic set of questions identified by our study were those referring to group membership. The use of generic group types not salient in the Peruvian context meant that many respondents had difficulty understanding which actual groups each category referred to. Earthy et al. (2000) also found questions on group membership the most difficult to ask in the UK, largely due to the small numbers of respondents who participated in groups.

Our study showed that group membership might be under-estimated by only recording membership of group types as a number of respondents were members of more than one group within each group type. This is backed up by a quantitative analysis of group membership in the USA which showed that while 26% of people are a member of four or more groups, only 16% are member of four or more types of groups (deUlzurrun, 2002), highlighting the fact that people tend to be members of more than one of the same type of group.

Perhaps, the most problematic question in our study was that related to generalised trust in others. Respondents were unable or unwilling to comment about people they did not know personally, and therefore did not comment on people who did not live in their immediate vicinity. Importantly, this finding was replicated in all of the cognitive validation studies that tested this question. In two UK studies, respondents had difficulty abstracting responses to the community level and preferred to talk only about those people they knew personally (Blaxter & Poland, 2002; Earthy et al., 2000). These findings have ramifications for the many social capital tools which include questions on generalised trust.

Methodological limitations

This study is subject to a number of limitations. Firstly, cognitive interviews with respondents were only conducted in six different communities across two diverse countries. Thus some culturally distinct groups were not included, for example in Peru interviews were not conducted in the jungle region. Secondly, lack of resources meant that it was not possible to assess the reliability of SASCAT, limiting this study's conclusions to an assessment of validity.

Implications for future validation of social capital tools

This study highlights two issues for survey methodology. Firstly, the importance of cognitive interviewing for the piloting and development of tools, especially those measuring complex constructs such as social capital. Such validation exercises are especially important when implementing existing tools in new cultural settings, and should incorporate an analysis of the appropriateness of the translation of the tool in eliciting the correct interpretation of the question from respondents. Such studies can highlight both culturally specific problems with the tool, and also universal challenges to its validity which require the original tool to be redesigned.

Secondly, this study highlights the importance of cognitive interviewing for the analysis and interpretation of quantitative data collected by the tool. Respondents showed varied, layered and complex interpretations of the questions, highlighting the complex and layered nature of many of the concepts that were being measured. An understanding of these different layers of meaning facilitates a deeper and more accurate interpretation of quantitative data.

To our knowledge, this is the first study that has used cognitive interviewing techniques to validate a tool to measure social capital in two countries in the developing world, and has also compared these results to those obtained from psychometric validation. This has enabled the modification of an existing tool into a valid and low cost instrument designed to measure social capital within larger surveys in Peru and Vietnam with the potential for use in other developing countries following local piloting and cultural adaptation of the tool. Establishing the validity of a tool is a cumulative process requiring different approaches across a number of different studies. We hope that future research will continue the validation of the SASCAT tool in different cultural settings.

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References

Bain, K., & Hicks, N. (1998). Building social capital and reaching out to excluded groups: The challenge of partnerships. In *Paper presented at CELAM meeting on the struggle against poverty towards the turn of the millennium*, Washington, DC.

Blaxter, M., & Poland, F. (2002). Moving beyond the survey in exploring social capital. In C. Swann, & A. Morgan (Eds.), *Social capital for health: Insights from qualitative research*. London: Health Development Agency.

Boreham, R. (1999). *Social capital and health: Cognitive pilot report*. London.

Bowden, A., Fox-Rushby, J. A., Nyandieka,, L., & Wanjau, J. (2002). Methods for pre-testing and piloting survey questions: Illustrations from the KENQOL survey of health-related quality of life. *Health Policy and Planning*, *17*(3), 322–330.

Buckner, J. C. (1988). The development of an instrument to measure neighborhood cohesion. *American Journal of Community Psychology*, *16*, 771–791.

De Silva, M.J., Harpham, T., Huttly, S., Bartoleni, R., Penny, M.E., & Escobal, J. *Validation of a social capital measurement tool for use in Peru: Young Lives working paper*, in press.

De Silva, M. J., McKenzie, K., Huttly, S., & Harpham, T. (2005). Social capital and mental illness: A systematic review. *Journal of Epidemiology and Community Health*, *59*(8), 619–627.

deUlzurrun, L. M. D. (2002). Associational membership and social capital in comparative perspective: A note on the problems of measurement. *Politics and Society*, *30*(3), 497–523.

Earthy, S., Maltby, S., Arber, A., & Cooper, H. (2000). The use of cognitive interviewing to develop questions on social capital for the 2000/1 General Household Survey. *Survey Methodology Bulletin*, *46*(1), 24–31.

Escobal, J., Lanata, C., Madrid, S., Penny, M., Saavedra, J., Suárez, P., et al. (2003). *Young Lives preliminary country report: Peru: Young Lives working paper*.

Grootaert, C., & van Bastelaer, T. (2002). *Understanding and measuring social capital: A multidisciplinary tool for practitioners*. Washington, DC: World Bank.

Halpern, D. (2004). *Social Capital*. Cambridge: Polity Press.

Harpham, T., Grant, E., & Thomas, E. (2002). Measuring social capital within health surveys: Key issues. *Health Policy and Planning*, *17*(1), 106–111.

Harpham, T., Grant, E., & Rodrigues, C. (2004). Mental health and social capital in Cali, Columbia. *Social Science & Medicine*, *58*(11), 2267–2277.

Hean, S., Cowley, S., Forbes, A., Griffiths, P., & Murrells, T. (2003). *An examination of the potential to identify an instrument reflecting measurable attributes of social capital—Final report*. London: HDA.

Kaplan, G. (2004). What's wrong with social epidemiology, and how can we make it better? *Epidemiologic Reviews*, *26*, 124–135.

Kawachi, I., Kennedy, B. P., Lochner, K., & Prothrow-Smith, D. (1997). Social capital, income inequality, and mortality. *American Journal of Public Health*, *87*(9), 1491–1498.

Kawachi, I., Kennedy, B. P., & Glass, R. (1999). Social capital and self-rated health: A contextual analysis. *American Journal of Public Health*, *89*(8), 1187–1193.

Kawachi, I., Kim, D., Coutts, A., & Subramanian, S. V. (2004). Commentary: Reconciling the three accounts of social capital. *International Journal of Epidemiology*, *33*.

Krishna, A., & Shrader, E. (2000). *Cross-cultural measures of social capital: A tool and results from India and Panama*. Washington, DC: World Bank.

Li, Y., Pickles, A., & Savage, M. (2003). *Conceptualising and measuring social capital: A new approach.* Manchester: Center for Census and Survey Research, University of Machester.

McKenzie, K., Whitley, R., & Weich, S. (2002). Social capital and mental health. *British Journal of Psychiatry*, *181*(4), 280–283.

Narayan, D., & Cassidy, M. F. (2001). A dimensional approach to measuring social capital: Development and validation of a social capital inventory. *Current Sociology*, *49*(2), 59–102.

O'Brien, M., Burdsal, C. A., & Molgaard, C. A. (2004). Further development of an Australian-based measure of social capital in a US sample. *Social Science & Medicine*, *59*, 1207–1217.

Onyx, J., & Bullen, P. (2000). Measuring social capital in five communities. *Journal of Applied Behavioural Science*, *36*(1), 23–42.

Putnam, R. (2004). Commentary: 'Health by association': Some comments. *International Journal of Epidemiology*, *33*.

Robinson, D., & Wilkinson, D. (1995). Sense of community in a remote mining town: Validating a neighbourhood cohesion scale. *American Journal of Community Psychology*, *22*, 137–148.

Skrabski, A., Kopp, M., & Kwachi, I. (2003). Social capital in a changing society: Cross-sectional associations with middle ages female and male mortality rates. *Journal of Epidemiology and Community Health*, *57*, 114–119.

Stone, W., & Hughes, J. (2002). *Social capital. Empirical meaning and measurement validity* (pp. 1–70). Melbourne: Australian Institute of Family Studies.

Szreter, S., & Woolcock, M. (2004). Health by association? Social capital, social theory, and the political economy of public health. *International Journal of Epidemiology*, *33*, 1–18.

Thomas, E. (2003). *Social capital and women's health in Sub Saharan Africa*. London: South Bank University, University of London.

Trochim, W. M. (2000). *The research methods knowledge base Cincinnati*. Ohio: Atomic Dog Publishing.

Tuan, T., Lan, P.T., Harpham, T., Huong, N.T., Thach, T.D., Tod, B., et al. (2003). *Young Lives preliminary country report: Vietnam*.

Tuan, T., Harpham, T., Huong, N.T., De Silva, M., Huong, V.T.T., Long, T.T., et al. Validity of a social capital measurement tool. *Asian Journal of Social Science,* in press.

Van Deth, J. W. (2003). Measuring social capital: Orthodoxies and continuing controversies. *International Journal of Social Research Methodology*, *6*(1), 79–92.

Veenstra, G. (2000). Social capital, SES and health: An individual-level analysis. *Social Science & Medicine*, *50*(5), 619–629.

Yang, M. J., Yang, M. S., Shih, C. H., & Kawachi, I. (2002). Development and validation of an instrument to measure perceived neighbourhood quality in Taiwan. *Journal of Epidemiology and Community Health*, *56*(7), 492–496.

Young, A. F., Russell, A., & Powers, J. R. (2004). The sense of belonging to a neighbourhood: Can it be measured and is it related to health and well being on older women? *Social Science & Medicine*, *59*, 2627–2637.