Qualitative to Quantitative: linked trajectory of method triangulation in a study on HIV/AIDS in Goa, India

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Introduction

With 2 to 3.1 million people estimated to be living with HIV/AIDS in India and 39.5 million people around the world, challenges posed by this disease remain daunting. In an effort to reduce the risk of HIV infection, researchers have focused their attention on risk behaviour and the underlying beliefs governing such behaviour. The aim of this article is to suggest a linked trajectory of method triangulation which captures both the interpretation and interaction aspects of the qualitative method thus facilitating the contextualisation of survey items employed in the Health Belief Model (HBM). The HBM is one of the socio-psychological models frequently used to identify risk behaviour and adherence behaviour where HIV/AIDS is concerned. The model was developed by psychologists in the 1950s to explain the high level of non-participation in programmes to prevent or to detect disease (Maiman and Becker 1974, Rosenstock and Strecher, 1997). Studies on HIV/AIDS knowledge and risk behaviours which apply HBM have been largely quantitative (Maticka-Tyndale, 1991; Ananth and Koopman, 2003). One such example is the AIDS Health Belief Scale (Zagumny and Brady, 1998). Risk behaviour studies that apply HBM by using qualitative methodology are scarce; the study by Kaler (2004) is one such venture. Moreover, the HBM has been largely used in a Western context and to a much lesser extent in a non-Western context. Vanlandingham et al. (1995) opined that HBM disregards the importance of socio-cultural factors and the influence of peer groups. Therein lies the challenge of using HBM in a non-Western

context: its adaptability to the local context. One of the aims of this article is to demonstrate that by employing the qualitative to quantitative, linked trajectory of method triangulation (LTMT) we not only *contextualise* the existing concepts of the HBM, but also *validate* new concepts and *identify* new risk groups.

Triangulation is a methodological approach that contributes to the validity of research results, when multiple methods, data sources, theories and investigations are employed (Erzerberger and Prein, 1997). Although *data* triangulation is much more common in health behaviour studies, there has been less focus on *method* triangulation. Some methodologists would stress the use of the term mixed-methods (Moran-Ellis et al, 2006). However we argue that the term is vague as the nature of the mix and the reasoning for the mix remains unclear. Triangulation is more precise as it aims to demonstrate complementarity, convergence and dissonance among the findings (Erzerberger and Prein, 1997). According to Farmer et al. (2006), in research involving triangulation 'researchers do not clearly articulate the triangulation procedures undertaken' (p. 379).

Linked trajectory of method triangulation (LTMT)

Most methodological triangulation has focused on studying a phenomenon using different methods independently and in due process validating the findings. However, because the methods are independently conducted, only data triangulation is possible. We suggest in LTMT a linked procedure of methods in a set trajectory. The linked trajectory here involves the linking of different methods involving in-depth interviews, focus group

discussions and a survey. By applying this trajectory, we inform the methods at each level and thus validate information at each level. Through LTMT we capture both the *interpretation* (in-depth interviews) and the *interaction* (focus group discussions) aspects of the qualitative methods. In order to ascertain the prevalence of behaviours and beliefs, we quantify the qualitative information in a survey. The following sections discuss the different steps employed in the triangulation procedure.

[Please insert Fig 1 about here]

Interpretation

Within HIV/AIDS research, in-depth interviews have been used extensively to document and comprehend risky sexual behaviour and to obtain an emic view (i.e. the insider's point of view) of the different understandings of risk within a particular culture or a subculture. In this study, interviews were first conducted (see Fig. 1) to understand how men interpreted their risk of HIV infection, how they understood the severity of AIDS and their use of condoms. With regard to HBM, namely, the concepts of perceived severity and perceived susceptibility, the interviews provided a deeper insight into men's interpretion of risk and their assessment of risks posed by different sexual partners. Similarly Verma et al. (2001) in a study on men in a Mumbai slum, used in-depth interviews to document the local meanings men attached to sexual health problems. A general criticism of in-depth interviews is whether they capture only the beliefs of an individual or whether they are shared. In order to ascertain whether the qualitative information provided by in-depth interviews is part of the broader cultural rationality (Bailey and Hutter, 2006), focus group discussions were employed to validate individual beliefs.

Interaction

Focus groups discussions are generally used to obtain a quick and broader range of opinions on a certain issue. Focus groups can vary from a discussion on health care use to more sensitive topics such as sexual behaviour and condom use. In this study, men were hesitant to talk about their own sexual behaviour and risk perceptions within a group setting. Hence, the information from the in-depth interviews was presented as vignettes in focus group discussions. Vignettes are used as a projective technique to stimulate discussion. The vignettes were stories based on real incidents, behaviours and beliefs of men from the same community, characters in the discussion remained anonymous. Through the use of vignettes in the focus groups we not only validated the information from in-depth interviews but also obtained more information about new incidents, the nature of different sexual partners and the different spaces where men went to find sex workers.   Men found it easier to talk about the fictional person *Lingappa* in the story/vignette, and in various parts of the discussion empathised and debated on what *Lingappa* should have done.

Quantification

Using the qualitative information gained through in-depth interviews and focus group discussions, a locally informed survey was designed. The survey covered most of the concepts from the HBM as well as detailed questions on sexual behaviour and condom use. The qualitative study informed the survey in two ways: in the design of questions and in deciding the type of answering categories. For example, the qualitative part

yielded information that non-commercial sexual partners were women who were neighbours or co-workers; this aspect was included in the answering categories of a question on sexual partners. Thus, by applying LTMT, the survey questions and categories were grounded and contextualised. As seen in Figure 1, information that was yielded at the beginning of the trajectory could be directly employed at a later stage in the trajectory; for example information on migration from in-depth interviews was used in the survey which was conducted later.

Data and research methods

By applying LTMT, the study seeks to examine risk assessment of HIV/AIDS among migrant men and truckers and fishermen (mobile populations) in Goa, India.

Data were obtained from two sets of studies. An initial exploratory study was conducted in 2003. This involved 14 in-depth interviews, pile sorting, key informant interviews and community mapping. A second, larger study was conducted in 2004–2005 and included 25 in-depth interviews, 16 focus group discussions and a survey involving 1259 men (migrant population n=752; mobile population n=507, comprising 260 truckers and 247 fishermen).

Respondents in both qualitative and the quantitative studies were ever married men, aged between 20–45 years, born in Karnataka and who migrated to Goa. Mobile populations comprise truckers and fishermen who travel between Karnataka and Goa. Migrant men were selected for inclusion in the survey using stratified systematic sampling. First, a list of eligible households was compiled in each area and then every third eligible house was visited. Truckers and fishermen were selected by snowball sampling. As two different

sampling techniques were used, the results are presented accordingly. Six male research assistants conducted the survey. They were given intensive training and were field tested for their ability to interact with men on issues of sexuality. The study was conducted in Kannada and Hindi languages.

The qualitative data were analysed according to the grounded theory framework (Strauss and Corbin, 1998). The principal researcher coded the data and then identified common themes, using Atlas-ti. In the survey 10 men refused to be interviewed, thus the sample available for analysis is 1249. Using SPSS, we performed a descriptive analysis of the various variables.

Results

We present three different examples of the LTMT approach. The first triangulation was for concept contextualisation, the second for the identification of a new risk group and the third for new concept validation. The examples show how concepts and categories emerged from the data and were subsequently validated at each level of the linked trajectory.

Triangulation for concept *contextualisation*: perceived severity of HIV/AIDS

The concept of perceived severity derives from the HBM (Rosenstock and Strecher, 1997). It is generally measured as the perceived medical consequences of having a disease. However, we find that men also gave importance to the economic and social consequences of HIV/AIDS. We first observed this attitude in the in-depth interviews:

Respondent (R)*: If I die, then my wife will die, then my children will die and then who will take my family name further? The family is destroyed.*

Subsequently we composed a vignette which dealt with this attitude and presented it in the focus groups. As can be seen in the following discussion, groups discussed the incidents that happened in their communities. This validates information that the perceived social consequences of HIV/AIDS are important and that the dynamic interaction in the form of incidents provides rich contextual information.

Vignette: *In Vasco I met Lingappa. He told me that if a person gets HIV/AIDS then his whole family is destroyed. Because there will be no one to take his family name further. What do you think of his story?*

Discussion:

R1: Now I am sick, when I die, my children and my name will be spoilt

R2: How will the family be destroyed?

R3: If someone knows then they will say, "His father had AIDS." People will wonder who will marry his children. What do you say?

R4: I know one such case, husband and wife both died. The elder child survived but the one born afterwards which was in the womb, that died, mother died, man also died. All three of them died. Only the eldest child is alive. Two such cases, another one in Madgaon. They went to Karnataka and died, husband, wife and child. No one survived.

These reactions of participants were further quantified in the survey. Not having progeny to continue the family name is a social stigma for the migrant men. Men feared that if they died, their wives and children would die as well, and then there would be no one to continue the family name. In the Indian context, the continuation of one's family name is through male progeny. Hence there is preference for a male child. In the survey more than 91 percent (see Table 1) of the migrant men and 94 percent of mobile men feared that there would be no progeny to continue the family name if a person contracted HIV/AIDS.

[Please insert Table 1 about here]

Triangulation for *identification of new risk group*: lovers

During the fieldwork non-governmental organisations in Goa reported that they knew that migrant men also had non-commercial sexual relations. However, they could not identify and target this new risk group of women. We first heard about this group in the interviews, where men referred to these women as 'lovers'. The term lover echoes the Bollywood movies wherein the romantic ideal of love is depicted. The discursive meaning that men attach to it demonstrates that they prefer to have a lover rather than a sex worker, as they perceive a low risk of HIV infection from the former as compared to the latter. Applying the LTMT approach we thus aimed to identify this new risk group.

> *R: I have some lovers and I don't use condoms with them. They are here in*
>
> *this area and in Birla. I feel safe so I don't use condoms. There in Baina*
>
> *(former red light area) it's a different story. There in Baina many people*

would have come and gone. Here we know that there is no one else. And it's

only between me and my lovers.

The term lovers was not limited to a certain group of people. In the focus group

discussions on lovers we could identify the background of these women.

Vignette

Then Nagraj has a lover called Geetha who works in the factory with him.

He does not use a condom with her. He says that because she loves him a lot

he trusts her. And he says he knows this from his friends with whom she

talks. She does not talk with other men. He feels he can trust her. Do you

think Nagraj is right?

Discussion

R1: Now a person died here, I will not tell you his name. He had a lover and a wife.

First his lover died, then he died and then his wife died.

R2: We know we know the story…. It was his neighbour.

R1: First his lover died, then he died…….

R3: He is his friend (pointing to a person in the group)

R1: We were in Panaji. He would go after many girls. He was mad…he died.

In the survey we included a question about whether men had extramarital relations with a

lover in the last six months preceding the survey. Forty-five out of 742 (6 percent)

migrant men and 60 out of 507 (15 percent) mobile men answered in the affirmative. To

identify who the women were, as depicted in Figure 2, we asked, following the

qualitative research, whether the lovers were neighbours, co-workers or other women. Neighbours constituted the most prominent category among both groups of men. This further emphasises the point that risky sexual behaviour is not necessarily 'out there' (i.e. in the red light areas) but very much in and around the neighbourhood.

[Please insert Fig 2 about here]

Triangulation for new concept *validation*: cultural heuristics

The qualitative research identified new concepts relevant for HIV/AIDS risk assessment by men, one of which is the concept of cultural heuristics. Heuristics are mental shortcuts that people use when assessing their risk (Kahneman et al. 1982). The construction of cultural heuristics is based on the cultural schemas on health and well-being (see Bailey and Hutter, 2006). Of the five cultural heuristics identified, here, we present one of them, which is the 'visual heuristic'. Men reported using physical markers to assess whether a sex worker was healthy or not. These included the appearance of the face and body, since men believed that a person who has AIDS has hollow cheeks and less body fat. The use of appearance as a indicator of whether a sex worker posed a risk or not was influenced by individual schemas on the appearance of healthy people. Men recalled the appearance of people living with HIV and AIDS in the last stages, and used these visual heuristics to assess whether a particular sex worker was risky.

The information on appearance first surfaced in the in-depth interviews. It was incorporated as a story in focus group discussions to obtain more information about the significance of the visual heuristic.

R: We have to think about that. It can be seen from the face (chera). If there are girls with sickness (bemari) then we don't go to them. If they are healthy then the face is plump, but if the person is sick then her face is small and dark.

The following discussion, based on the vignette, took place among truck drivers and it indicates how they employ visual heuristics to assess the risk of HIV infection from a sex worker.

Vignette

Patil told me that when they sat on the Kati near a teashop and a girl gave him a signal, he went with her behind the factory and had sex. As the 'adjustment' was sudden, there was no time to buy a condom. What should Patil have done in such a situation? When I asked Patil why he did not use a condom he said that he could see from the appearance of the girl whether she has AIDS or not. I am confused, what do you think?

Discussion

R1: They say "face to face" if you see then you will know.

R2: I don't know what I would do.

R3: How she is inside who knows? To look at her face is nice

R2: You cannot touch her.

R3: Shouldn't touch her.

R1: That's why you look at her from the truck? (Laughter)

Subsequently, in the survey, 50 migrant and mobile men reported having visited a sex worker. When these men were asked whether they used visual heuristics to select a sex worker, 52 percent of migrants and 36 percent of the mobile population confirmed they did, suggesting that the two groups differed in their use of heuristics.

[Please insert Fig 3 about here]

Discussion and conclusions

The linked trajectory of method triangulation as seen through the preceding examples is an efficient way of using multiple methods and generating context-specific knowledge. The linked trajectory approach in this study is useful to *contextualise* the concepts from the HBM, for example i.e. perceived severity was not solely related to health consequences. The migrant and mobile men also perceived socio-cultural consequences to be severe. Most HBM surveys are designed from the researcher's point of view or in case of HIV/AIDS from the bio-medical view (etic, i.e. the outsider's point of view). In this study, using the qualitative to quantitative approach, we show that qualitative information (emic, i.e. the insider's point of view) can suitably inform researchers in designing questions and answering categories of surveys, thus making the measurement of these concepts more precise and valid. The survey conducted in this study consisted of a small sample. The information gained however can easily feed into designing larger surveys. In all the three examples presented we observe both the convergence and complementarity of the findings as required by the triangulation procedure.

Through the LTMT procedure we achieve contextualisation as we take both the interpretation and interaction aspects of the qualitative method into account. Further we use quantification to seek validation of our findings. Validation is also achieved in the way in which we use vignettes for the focus group discussions. In the LTMT we went from a qualitative to quantitative approach as we wanted to achieve both contextualization and validation. If we had adopted the reverse (quantitative to qualitative) we could contextualise but not validate new concepts that emerged from triangulation. Within the literature on triangulation we do find the mixing of methods but they are hardly linked in a particular trajectory. Thus this article makes a first attempt to show the linking process and opens avenues for further research which could use different approaches in linking qualitative and qualitative methods.

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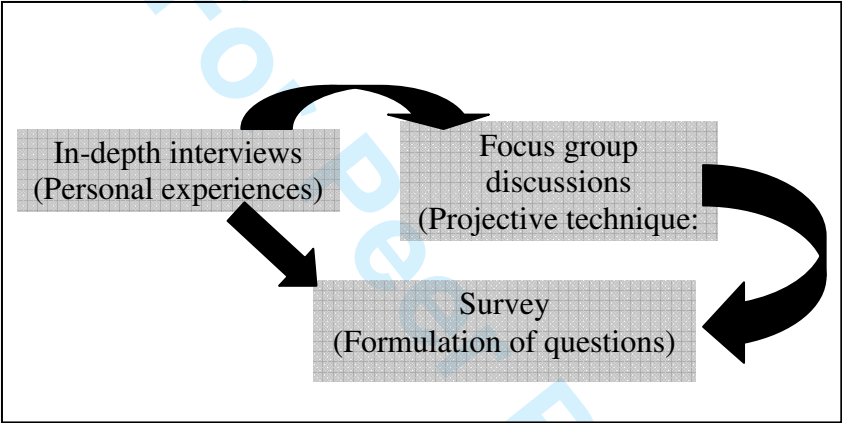
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Table 1 Reactions to statement: If a person gets AIDS then there will be no one to continue his family name.

|	Migrant population (N=752)	Mobile population (N=507)
If a person gets AIDS then there will be no one to continue his family name		
Agree	91.0	94.3
Cannot say	0.8	0.4
Disagree	6.6	4.7
Don't know	1.6	0.6

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Figure 1 Linked trajectory of method triangulation

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Fig 2 Percentage distribution of the category 'lovers': neighbours, co-workers and other women.
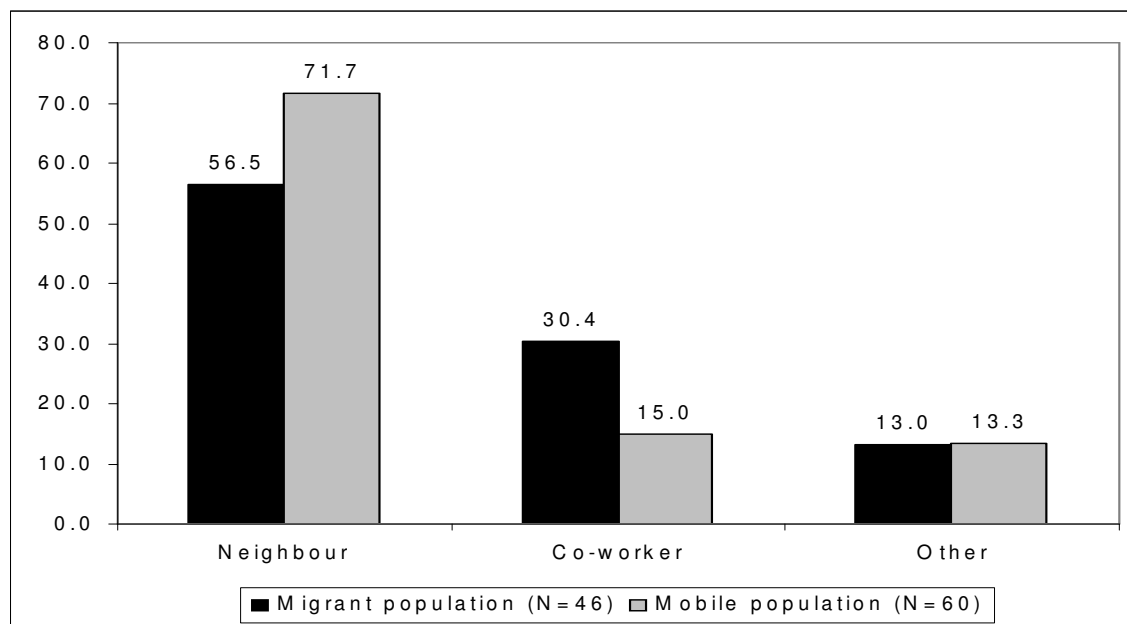
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Fig 3 Reaction to statement: If a commercial sex worker looks healthy and plump then we know that she does not have AIDS