

Mixing methods to improve sexual behaviour research among socially marginalised populations: insights from a study on female sex workers in Indonesia

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Abstract. Reliable and valid data on sexual behaviour and their pathways among socially marginalised populations that engage in illegal or illicit activities, such as female sex workers, remain challenging to collect. Particularly little is known about FSWs working in rural areas. This paper uses the example of a comparative mixed methods study of rural and urban FSWs in Indonesia, to (1) describe how qualitative and quantitative methods can be combined to overcome research problems accentuated in studies of sexual behaviour within the context of transactional sex, and (2) to discuss the strengths, limitations and implications for practice of such an approach. Mixed methods in this study include a survey of rural and urban FSWs (n=310), in-depth interviews (n=11), key informant interviews (n=5) and ethnographic assessments. The sample of FSWs was drawn up using a novel combination of purposive sampling techniques. We show how the use of mixed methods can enable the collection of context-specific behavioural and socio-demographic data and can serve as a tool for internal validation. In addition, failure to include the hardest to reach and often most vulnerable FSW sub-groups, such as those working in rural settings, can be avoided through the use of combined purposive sampling techniques.

Introduction

Researching sexual behaviour among socially marginalised populations, such as female sex workers, raises distinct methodological challenges. A central reason for this has to do with the varying degrees of social, cultural, religious, moral norms and legal constraints surrounding sexual behaviour and illegal or illicit activities, such as sex work (Wellings et al, 2006; Benoit et al, 2005). The associated potential legal and social sanctions tend to deter members of such population groups from identifying themselves as such and to participate in studies. As a result, research methods, which require randomisation, such as probability sampling, tend to be problematic options. Firstly, difficulties in accessing socially marginalised populations that engage in illegal or illicit behaviours, such as sex workers, make conventional probability sampling challenging and costly (Fenton, 2001). Findings from studies that use alternative non-probability sampling strategies, such as snowballing or recruiting from STI/HIV clinics, social and commercial venues, may not be representative of the wider target population (Magnani et al, 2005; Marpsat & Razafindratsima, 2010). Newer sampling strategies designed to reach hard-to-reach populations, such as Respondent-Driven-Sampling (RDS) may be inappropriate due to lack of acceptability or inadequate social network properties (Johnston et al, 2010; Simic et al, 2006), and there are still uncertainties around the degree of sampling bias in RDS (McCreesh et al, 2012). Indonesia's national HIV Behavioural Surveillance Surveys (BSS) use multi-stage cluster sampling in which female sex workers (FSWs) in surveillance areas are mapped, listed, and then sampled. However, important populations are missed, such as FSWs working in rural areas (Johnston et al, 2010; Simic et al, 2006; Pool et al, 2010).

In addition, since sexual behaviour is a largely private activity, research on sexual behaviour relies largely on participant self-reporting, usually through survey instruments (Catania et al, 1990; Weinhardt et al, 1998; Fenton et al, 2001). The limitations of survey instruments, such as structured questionnaires, for collecting sexual behaviour and other sensitive data are well recognised (Welling, 2006; Obermeyer, 2005; Pool et al, 2010). Classical problems of the self-report methodology include response biases and low response rates (Jehn & Jonsen, 2010). Standardised survey instruments also tend to yield a limited understanding of social context and meaning of sensitive issues, such as sexual behaviour in particular relating to HIV/AIDS (Obermeyer, 2005).

In contrast, qualitative research methods, such as in-depth interviews, focus group discussion and ethnography, can be rich resources of information about local contexts and social environments, which shape and are being shaped by individuals' behaviours. While also at risk of being subject to biases inherent in self-reporting, they have a great potential for facilitating access to more sensitive topics as they allow for greater flexibility and detailed probing, which in turn helps to establish closer rapport with the interviewees (Pool et al, 2010). However, key criticisms of qualitative research include researcher bias due its reliance on subjective interpretation and uncertainties around the generalisability and representativeness of the results it produces (Obermeyer, 2005; Jehn & Jonsen, 2010).

Thus, conducted separately quantitative and qualitative methods both have shortcomings. This in turn has led to increased recognition of the benefits of mixed quantitative-qualitative methods research, in particular when applied to studies of sensitive issues among socially marginalised populations (Choi & Holroyd, 2007; Mayhew et al, 2009; Pool et al, 2010; Jehn & Jonsen, 2010). For instance, Choi and Holroyd (2007) conducted a qualitative study that

followed on from an earlier survey study on the influence and dynamics of the social and economic context of transactional sex on condom use negotiation by female sex workers with their clients in mainland China. Mayhew et al (2009) used a mixed methods approach to investigate the social and sexual linkages between the nature and extent of human rights abuses against vulnerable groups, including male and female sex workers, and injecting drug users (IDUs) (Mayhew et al, 2009).

However, there is still a dearth of such studies within the context of Indonesia, where survey methodology, most commonly in the form of behavioural surveillance surveys, predominates sexual behaviour data collection among socially marginalised populations, such as female sex workers. Notable exceptions include Sedyaningsih-Mamahit (1997) who used both quantitative and qualitative methods to collect data on determinants of HIV-related behaviours among brothel-based FSWs in Jakarta. Based on the assumption that clients and brothel-managers are the most powerful decision-makers regarding condom use in brothels, Sedyaningsih-Mamahit analysed the qualitative data as to how different types of clients and brothels affect condom use by FSWs (Sedyaningsih-Mamahit, 1997). More recently, Safika et al (2013) used structured interviews in combination with ethnographic observations to examine the structural influence of sex work venues on condom use by female sex workers in Senggigi, Indonesia, highlighting the importance of social context. These examples highlight that efforts to combine qualitative with quantitative methods can generate context-specific, more comprehensive and differentiated knowledge of individuals' sexual behaviours.

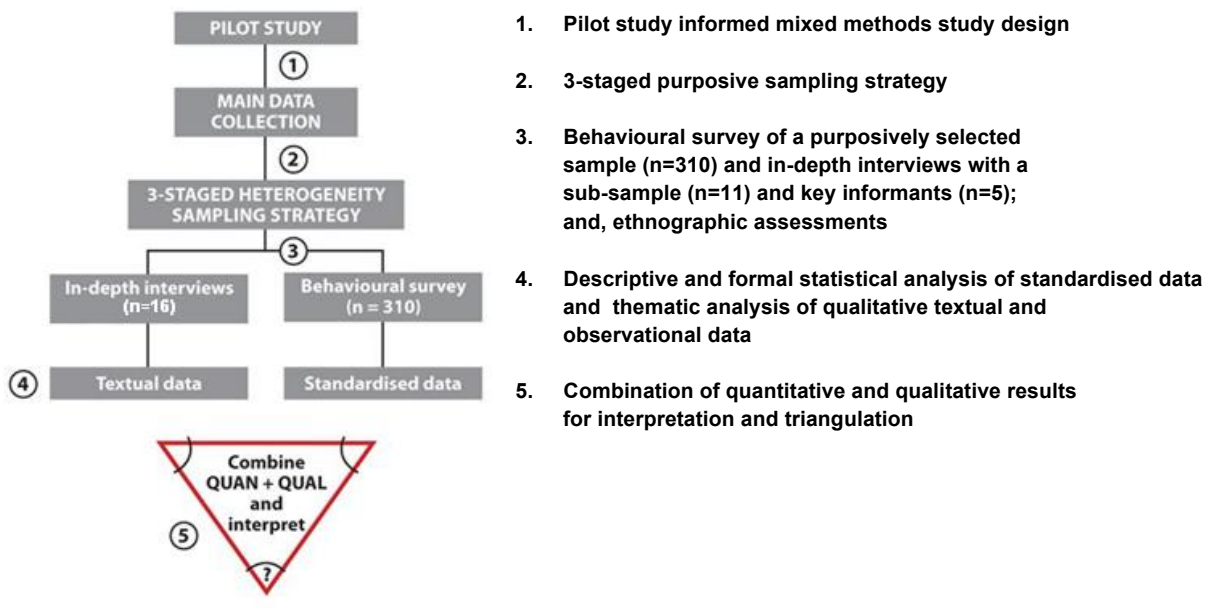
Nevertheless, research gaps remain. Even among the rare exceptions where qualitative research components were part of the study design, the research focussed on venue-based Indonesian FSWs in non-rural settings (Sedyaningsih-Mamahit ER, 1999; Basuki et al, 2002;

Safika, 2013). Yet FSWs are likely to have different behavioural patterns in different contexts. The setting in which FSWs engage clients may affect FSWs' ability to negotiate condom use, as well as client numbers and type (Buzdugan et al, 2010; Li et al, 2012; Choi & Holroyd, 2007). As elsewhere in Asia (Liao et al, 2011; Fang et al, 2008), rural sex work exists in Indonesia, where more than half of the population is rural (DHS Indonesia, 2007) and where there is considerable circular migration, including by FSWs and their clients (Hugo, 1982; Statistics Indonesia, 2005; van Lottum & Marks, 2012). This highlights the need to extend sexual behavioural research in Indonesia to apply mixed quantitative-qualitative research in combination with novel sampling strategies to a wider range of sex work settings, in particular rural areas.

For the purpose of this paper, mixed methods research is defined as “research in which the investigator collects and analyses data, integrates the findings, and draws inferences using both qualitative and quantitative approaches or methods in a single study” (Teddlie & Tashakkori, 2006: 15). Although there are various ways in which qualitative and quantitative methods can be combined, it is imperative to clarify that in this paper mixed methods research is understood to mean that both research approaches are given equal weight, that is, e.g. qualitative research is not merely afforded a formative exploratory role in the study.

This paper uses the example of a comparative mixed methods study on rural and urban FSWs in Indonesia (Fig 1), to describe the procedures used to research sexual behaviour within contexts of transactional sex and to discuss the extent to which combining qualitative and quantitative methods can overcome research problems accentuated in studies of sexual behaviour among socially marginalised populations.

Fig 1 Mixed methods study process with combined results



1. Pilot study informed mixed methods study design
2. 3-staged purposive sampling strategy
3. Behavioural survey of a purposively selected sample (n=310) and in-depth interviews with a sub-sample (n=11) and key informants (n=5); and, ethnographic assessments
4. Descriptive and formal statistical analysis of standardised data and thematic analysis of qualitative textual and observational data
5. Combination of quantitative and qualitative results for interpretation and triangulation

Mixed methods in this study

Research setting

The study was conducted in two sites in West Java, Indonesia, selected to represent one urban and one rural context. Site selection was based on secondary analyses of Indonesian Behavioural Surveillance Survey (BSS) data [15, 16] and in consultation with the Centre for Health Research at University of Indonesia (CHR-UI) and local AIDS non-governmental organisations (NGOs).

Formative research

Different methodological options were assessed and developed during a feasibility study. These methods were then tested in the pilot study and refined before being adopted during main data collection. The selection combines quantitative and qualitative self-reported methods, and ethnographic assessments.

Sampling strategy

The choice of sampling design is vital in the mixed methods process, because it addresses challenges relating to the generalisability of findings, their legitimisation or validity, and integration (Teddlie & Yu, 2007). The sample of FSWs was drawn up using a novel combination of purposive sampling techniques. First, ethnographic mapping identified locations where different types of FSWs solicit. Access to FSWs was established with the assistance of NGO outreach workers who already had trust relationships with FSWs and their ‘gatekeepers’, such as *preman* (hoodlums/thugs), managers or *germo* (pimps). The second stage of sampling, purposively selected sex work locations during pre-defined time intervals and then randomly selected survey respondents (n=310) from each time-location unit for the quantitative survey, based on the principles of Targeted Sampling and Time-Location-Sampling (TLS) (Magnani et al, 2005). The third and final stage of the sampling process involved the stratified purposeful selection of a qualitative sub-sample of FSWs (n=11) (Patton, 2002). To this end, the survey sample was stratified by selecting ‘information rich’ cases according to different types of sex work setting who would illustrate the different FSW sub-groups and facilitate comparisons. A sampling grid was kept, in which each type of sex work setting represented one stratum. To the extent possible, the number of respondents per stratum was determined by the degree of theoretical saturation – that is, the degree to which new conceptual insights were generated per each additional respondent (Strauss & Corbin, 1990). Additionally, a peripheral sample of key informant interviews (n=5) was selected, which included former FSWs, NGO staff and health care providers. The response rate was 100% in both sites for both survey and in-depth interviews.

Data collection methods

Mixed methods included a behavioural and socio-demographic survey of rural and urban FSWs (n=310), in-depth interviews (n=11), key informant interviews (n=5) and ethnographic

assessments. This enabled the complementary collection of different types of information in the form of both standardised and textual data (Table 1). The survey was conducted to provide standardised socio-demographic and HIV-related sexual behaviour data, to be used for descriptive and formal statistical testing. The qualitative component yielded richer data on the heterogeneity of the contexts of transactional sex and an improved comprehension of why female sex workers do not consistently use condoms.

Table 1 Types of information by data collection method

Research paradigm	Data collection method	Type of information
Quantitative	Structured questionnaire	Standardised sexual behaviour and socio-demographic data
Qualitative	In-depth interviews	Textual data about respondents' experiences of condom use and its negotiation in different contexts of transactional sex
Qualitative	Ethnography Field journal keeping Key informant interviews	Observational data about sex work settings in which condom use takes place, including the physical, organisational and social context of each sex work site as well as structures and activities, such as NGO involvement in an area, condom and HIV/STI health service access

Triangulation of findings

For the purpose of this paper triangulation is defined as the ‘combining of results of complementary methods in order to get more accurate results’ (Tashakkori & Teddlie (1998) in Poole et al (2010): 4). In this study, ethnographic research provided insight into organisational and environmental characteristics of different types of sex work settings. This provided for a context-specific FSW typology across the categories of which standardised quantitative data on individual-level and derived group-level factors were compared to establish differentiated HIV-related sexual risk behavioural profiles. Further, the quantitative survey data enabled the exploration of the relative role of individual-level and socio-structural correlates of consistent condom use, using multiple regressions. The qualitative

component in turn provided a perspective on condom use and its negotiation in the presence of competing concerns from the voices of women working as sex workers themselves, to highlight how contextual factors can find their expression at the level of the individual. The results, therefore, presented themes identified by both qualitative and quantitative methods, with each adding to the interpretation of the other. Details of the findings of this study have been reported elsewhere (Puradiredja & Coast, 2013).

Discussion

Mixed methods research is not without challenges. However, as will be illustrated by this paper, different internal and external measures of validation can be employed, to maximise the degree of validity and reliability of both the quantitative and qualitative findings. These include rapport-building with the study population through ethnographic field visits and collaborating with local outreach workers and key members of the study population, “triangulation” inherent in mixed methods research through the complementary use of both qualitative (in-depth interviews and ethnographic assessments) and quantitative (survey) methods, as well as external validation through triangulating survey results from this study for consistency with similar information on the overall spectrum of behaviour from secondary data sources, such as the Indonesian Behavioural Surveillance Survey (BSS) and Demographic Health Survey (DHS). The study sample was not a population-based sample, since a sampling frame of all FSWs in the West of Java was not possible to construct due to the hidden nature of sex work. However, the purposive sampling design aimed to make the sample representative in terms of the study population’s heterogeneous sex work contexts. Nevertheless, more research with samples in different rural settings outside West Java province in Indonesia would be useful to confirm findings. Further, while we attempted to sample ‘in depth cases’ with diverse backgrounds from each type of sex work setting, as well as a ‘peripheral’ sample of key informants who are not central to the phenomenon but

associated with it, the final sample size was ultimately also determined by time and resources. For example, the qualitative sub-sample did not include in-depth interviews with FSWs in rural non-venue-based settings. This means that theoretical saturation of the qualitative sample was not necessarily achieved. However, consultation with NGO fieldwork assistants with extensive experience of the fieldwork setting suggested that the narratives of the women interviewed - and complemented by the key informant interviews - represented a wide range of FSW perspectives in the field sites.

Conclusion

Mixed quantitative-qualitative methods approaches are needed to produce a context-specific evidence-base of sexual behaviour among marginalised populations. Unfortunately, the perceived costs and complexity of combining methods from different disciplines deters from its wider implementation. Whilst using mixed methods is certainly not without challenges, it is hoped that the illustrative example discussed in this paper demonstrates how mixed methods research can be implemented effectively even under time and resource constraints.

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