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Cellphones get help to India's secret sex workers

19 April 2011 by [Anil Ananthaswamy](#)
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Most of India's 2.8 million prostitutes own cellphones – making it easier to contact them about HIV tests

LAKSHMI leads a double life. Her family thinks she works in a garment factory during the day. But 45-year-old Lakshmi sells sex, courting customers on the streets of Bangalore, India. At night, she goes home to her husband and children. "Sex workers maintain such secret identities for decades," says [Nithya Sambasivan](#) at the University of California, Irvine.

The explosion of cellphones in India has made it easier for social workers to contact women like Lakshmi, who has a work phone on which men call her. Back at home, she turns it off, hides it in her purse and switches to her home cellphone. While 58 per cent of India's population own cellphones, usage among the country's 2.8 million prostitutes is markedly higher. For example, about 97 per cent of sex workers in Bangalore own cellphones.

Socio-economic change in India is often stymied by bad infrastructure, so this high cellphone usage among sex workers has created an unusual opportunity: the ability to contact these women - who are at high risk of contracting HIV or other sexually transmitted infections (STIs) - while respecting their need for secrecy.

Sambasivan, along with Julie Sage Weber and [Edward Cutrell of Microsoft Research India](#) in Bangalore, realised that the cellphone-enabled urban sex workers could be reached via voice messages in their local language, bypassing additional concerns about low literacy.

Sex workers in Bangalore are often migrants from rural India and usually poor, so they are easy prey for men willing to pay more for sex without condoms. They also tend to put off getting tested for STIs. In 2005, [Project Pragati](#) (for "progress") was set up in Bangalore by sex workers for sex workers after a study revealed that 12.5 per cent of them were HIV-positive. Pragati uses field workers to advise colleagues on healthcare issues and deal with violence and harassment. The project also runs a microfinance institution that gives out small loans, but the women often forget their repayment dates. Reminding all the sex workers to get tested, take their medicines or repay their loans is difficult, as they are often working and hard to contact.

To tackle these issues, Cutrell and colleagues developed a system to call the women and play relevant voice messages. They used an open-source telephony software system called Asterisk to make the outgoing calls. The automated system allowed them to make 15 phone calls at any one time. If any feedback noise was detected from the receiver's side, indicating that the call had been picked up, the recorded audio message was played. The software then logged the outcome of each call, whether it was picked up, the time of the call, and the duration of the call.

The calls were always made between 4 pm and 7 pm - a time when both day and night sex workers were likely to have their phones on. The voice messages were recorded by a woman named Prema, who heads a drop-in women's shelter in Bangalore and is trusted by the sex workers.

To test their system, the researchers broadcast a healthcare message, reminding the sex workers about blood tests and health examinations, while avoiding any mention of HIV or STIs, in case a family member answered the phone. The researchers also broadcast a reminder for loan repayments. The study found that for the longer healthcare message (31 seconds), 90 per cent of the women picked up the calls and nearly 60 per cent of those listened to the entire content. For the finance message (13 seconds), the numbers were 95 per cent and 90 per cent, respectively.

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Subsequent interviews with the sex workers showed that they found the messages helpful. For example, one woman received the finance reminder while she was worshipping in a temple outside Bangalore. "I immediately took the bus back to Bangalore to pay my fees, since I had forgotten," she told Sambasivan.

The sex workers said that a message in a male voice or from film stars, who routinely advertise social messages in India, would not have worked. "They categorically said that Prema's voice worked because they knew and trusted her," says Sambasivan. The work will be presented at the CHI Conference on Human Factors in Computing Systems in May in Vancouver, Canada.

[Tapan Parikh at the University of California](#), Berkeley, who works on technology for the developing world, is impressed. "In terms of making the outreach much cheaper and automated, it's a great, great application," he says. Parikh and his colleagues have also developed a system that allows anyone to build a voice-based network ([see "Voice networks for all"](#)).

Cutrell adds that while their sex-worker system is a prototype and not yet ready for deployment "in the wild", the idea could work for other groups, such as farmers, to disseminate crop prices and weather forecasts, for example, or for general healthcare messages such as reminding expectant mothers about best practices in pregnancy. "India has an extraordinarily high illiteracy rate, coupled with a very high cellphone penetration. This makes the cellphone the ideal platform for interacting with many of the populations," he says.

Voice networks for all

NILGAIS are giant Asian antelopes that raid farms and destroy crops in India. Bereft of official help, farmers in the state of Gujarat are helping each other protect their crops from the animals, thanks to a new voice-based Q&A service set up by [Awaaz De](#) ("give voice" in Hindi), a company started by Tapan Parikh at the University of California, Berkeley, and colleagues.

Farmers call the service on their cellphones and navigate a voice-based menu to ask questions, listen to answers or browse topics. Messages are also broadcast to members. One farmer reported that a machine with rotating lights scared away the nilgais, and offered help to others. Seven NGOs across India are using Awaaz De to offer a variety of services.

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