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Integrated Use of Qualitative and Quantitative Methods to Elicit Women's Differential Knowledge of Breastfeeding and Lactational Amenorrhea in Periurban Bolivia

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The paper demonstrates the integration of qualitative and quantitative data in health services research through a study of breastfeeding and lactation in Bolivia.

Key words : Bolivia; breastfeeding and child spacing; knowledge and preference; additional family planning method

Traditionally, exclusive and extended breastfeeding is responsible for much of the fertility limitation and child spacing throughout the world. In many developing countries—where breastfeeding continues to be nearly universal and of long duration—women continue to be protected from closely-spaced subsequent pregnancies through the biologic mechanism of an ovulation (McCann et al. 1984; Rutstein 1991). At the same time, however, increased pressures towards modernization, rapid rural-to-urban migration, more frequent advertisements of powdered milks as breast milk substitutes, and increased employment of women outside the home are negatively effecting traditio breastfeeding practices (Bender, Rivera & Madon 1993) and altering women's related knowledge a attitudes (Bender et al. 1994).

In Bolivia, where breastfeeding initiation is alm universal and duration continues for as long two years, these patterns of change accompanyi modernization have been noted by investigat using quantitative instruments (Bender et al. 19 Gutierrez, Ochoa & Raggers 1994; Sommerfelt al. 1991) and qualitative data collection (Albó al. 1990; Bender et al. 1995). The *Encuesta Nacio de Demografía y Salud* (ENDSA'94) for Bolivia ca attention through presentation of survey findin to the lower than average frequency breastfeeding in the lowland areas of the count especially in the departments of Santa Cruz a Beni (Gutierrez, Ochoa & Raggers 1994: 111). T same authors also address the close relationsh between inadequate frequency of breastfeedi

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and the return of menses with the consequent risk of pregnancy. Among health professionals, there is increased concern for shortened birth intervals, given the rapidity of societal changes in the lowlands, and the risks to mother and child posed by inadequate birth spacing. Of further concern is the fact that younger women rarely mention breastfeeding when asked to name family planning methods that they know, although it is common for older women to mention breastfeeding as a known means of postponing pregnancy (Bender et al. 1994). Although the magnitude of these changes can be captured through the use of a population survey, the use of survey methods is less likely to reveal changes in women's conceptual knowledge, which underlie observed changes in practice.

This paper reports findings which describe and compare patterns of women's differential knowledge of breastfeeding and lactational amenorrhea resulting from data collection using a survey instrument and a focus group guide. These findings are part of a larger study on infant feeding and child spacing conducted in periurban communities in Bolivia. The study had the dual purpose of (1) documenting practices of infant feeding and child spacing practices in lowland Bolivia, and (2) assessing the potential for successful implementation of a community-based lactational amenorrhea intervention among this population. In this paper, the investigators

(a) briefly review current and historical trends with respect to paradigm and method in social science research;

(b) describe the method used linking survey and focus group research; and

(c) present findings from the study of infant feeding and child spacing, which are intended to clarify the extent of women's knowledge (and gaps in women's knowledge) of breastfeeding and lactational amenorrhea and to highlight the strengths of method complementarity.

The Methodological Shift

Disciplinary divisions between the biomedical and social sciences have often been represented in oppositional terms, that is, quantitative versus qualitative models of research (Pope & Mays 1995). The argument arose from the distinct methodological paradigms from which the two methods of data collection are derived. While this separation has been true historically, it is worth noting that in the past fifteen years, substantial progress has been made toward rapprochement. The separation of method resulted from an implicit assumption that paradigm and method were necessarily linked. Methods courses in sociology and anthropology taught students that quantitative and qualitative methods of data collection could not be combined, because of the distinct philosophical assumptions which structured the paradigm.

The paradigm on which research using quantitative data collection strategies has its philosophical underpinnings is deductive reasoning. It is positivistic, objective, outcome-oriented and concerned with numeric evaluation. Quantitative models of investigation reason from an accepted premise or hypothesis, and ask questions about particular facts that are consistent with the premise.

By way of contrast, the underlying premises of the qualitative paradigm are that data collection is best conducted within its particular context. The qualitative paradigm is inductive in its reasoning and seeks to be holistic, subjective and process-

oriented. The goal of qualitative research is the development of concepts which help us to understand social phenomenon in natural settings through observation or elicitation of meaning from the viewpoint of participants (Pope & Mays 1995). Inductive models of investigation seek to identify particular details and, through the process of accumulation of facts, build towards generalizations which will be explanatory of a class of observations. Traditionally, in both paradigms, researchers had assumed that there was an intrinsic linkage between the paradigm and the correlate research methods and data collection strategies.

In a seminal paper published in 1979, Reichard and Cook questioned the irrevocable linkage between paradigm and method and posited that paradigm and method were logically separable. Selected examples from their writing support their assertion. First, they make reference to attribution research that aims to understand behaviors and beliefs from the perspective of the actors themselves. They point out that almost all attribution research is conducted in laboratories with quantitative methods (p.12). Second, the authors point out that *subjective*, a word used to imply "influenced by human judgment," has two connotative meanings. *Subjective* often refers to the objective measurements of feelings and beliefs assessed in national opinion surveys (quantitative); *subjective* also refers to informant opinion in ethnographic interviews (qualitative) as well (pp. 12-13).

In the years following, other investigators have written on points related to the refinement of the methodology (Steckler et al. 1992); the integration of the concept of culture into public health programs (Carey 1993; Strauss & Corbin 1994); and on the integration of qualitative and quantitative methods in the evaluation of health programs (Glik et al. 1986-87; Saint-Germain et al. 1993; Strauss Corbin 1994). At the same time, the focus grou first used as a tool in marketing research (Cald 1977), emerged as a valid method of data collecti in social health research (Bender & Ewbank 199 and in program planning and social marketi (Morgan & Spanish 1984; Stycos 1981). Th dominance of quantitative approaches has be questioned, particularly in instances where th health practice improvement is dependent c examining the internal dynamics between clien and interventions—not simply on wheth intervention works or not (Steckler et al. 1992). one example, the authors describe a child surviv training workshop attended by both managers ar health educators (Steckler et al. 1992). Analysis the workshop evaluation using quantitati indicators revealed that members of both grou valued the workshop. However, ratings of heal educators indicated that they had learned mo than had the managers. Analysis of focus grou data collected as part of the workshop evaluatic helped to explain the finding: in the focus grou managers complained that the concepts presente had been too complicated (health educators d not). While the quantitative assessment provide some basis for comparison of the workshop f the two groups of attendees, the use of a qualitati technique allowed evaluators to get close enoug to the participant interaction to understand th structure and process of the workshop so as to b able to revise the workshop in anticipation of mo effective replications (Steckler, Eng & Goodma 1991).

A similar approach was used in evaluation of th reasons for lack of compliance with childhoc immunization schedules. The drop-off between fir and third doses of diphtheria-pertussis-typhoi (DPT) was clearly documented through coun service utilization records. Questions about cost

distance to health departments, and scheduling were all considered as possible explanations. While these factors may have contributed in some measure, mothers of infants who participated in focus groups informed program planners from the ministry of health that women expected program planners to work through local chiefs: they were the power brokers in the community (Macauley & Bender 1990/91). Previously, ministry of health representatives had directed their appeals for vaccination completion to the women directly.

In a third example, a Dutch smoking prevention program combined qualitative and quantitative date gathering in a spiral approach to stimulate the development of the program design (de Vries et al. 1992). Use of qualitative methods to elicit the beliefs of the students and the specific needs of the teachers complemented the quantitative data gathering, which helped to define differences between smokers and non-smokers at the school level. The synergistic interaction between the two methods resulted in the inclusion of new concepts for measuring the impact of modeling, direct social influence and self-efficacy. The major contribution of the dual method approach was comparison of data obtained which, in turn, helped to clarify assumptions and data throughout the project.

These examples, among others, contribute to the body of applied research that integrates qualitative and quantitative methods in health and educational field settings. While the alliance advocating combined use of qualitative and quantitative methods continues to be uneasy, there is increasing recognition that reliance on a single research methodology results in a unidimensional understanding of the problem. Integrated use of qualitative and quantitative methods presents the problem under study in a multidimensional framework, thus challenging easy assumptions of investigators. This improved understanding of the multiple dimensions of the problem has the potential to result in improved program design for specific populations.

Methods

The purpose of the study of infant feeding and child spacing practices was to examine the interrelationships among infant feeding practices, contraceptive use, and lactational amenorrhea. The practice of lactational amenorrhea as a method of child spacing has the potential to increase the length of the birth interval, thus promoting improved maternal and infant health. The study itself served as the basis for the development of guidelines for promotion of the lactational amenorrhea method at the community level in maternity and family planning settings (Bender et al. 1994).

Data were collected in periurban communities of *Villa Primero de Mayo*, a periurban district located north of the fourth ring of Santa Cruz, Bolivia. Four hundred sixteen women with a child under 18 months of age responded to the survey instrument. Sixty-three women who had not participated in the survey but who lived in communities in the same district participated in one of eight focus groups. The subjects in the focus groups were similar to those questioned in the survey, but were not the same women. All interviews were conducted in Spanish. Interviewers included an American and the Bolivian investigators (Bender and Baker, respectively) and Bolivian students enrolled in the public health curriculum at Nur University paired with Earthwatch volunteer interviewers. The pairing of Bolivian and non-national interviewers was done so as to include sensitivity for Bolivian traditions and attitudes in the data collection strategy.

In the district, communities were selected at random for inclusion in the study. Within each community,

survey respondents were selected systematically. Interviewers were instructed to go to the central square of each community on arrival. Then interviewers headed north and south, and later, east and west. Interviews were held in households where mothers had infants who met the specified age criteria. For the focus groups, a convenience sampling frame was used. Women in adjacent communities of the same district were invited to participate. Women with infants who met the specified age criteria were invited to participate. The focus groups were led by one of two investigators (Bender or Baker), and assisted by one of the Bolivian survey interviewers. The focus groups took place in community centers or store fronts.

Application of the survey to a systematic sample of four hundred women enables the investigators to expect to find statistically significant differences within the sample. In this study, being able to describe the socio-demographic profile, infant feeding characteristics and child spacing practices of the periurban study population is important to being able to describe the nature and magnitude of the problem. Further, the survey findings provide a generalizable context within which to place the fuller descriptive data emerging from the focus groups.

The questions for the focus groups were taken directly from a section of the survey instrument; they were converted to open-ended questions so as to encourage narrative responses among the respondents. The questions encouraged women to discuss their observations and beliefs with respect to breastfeeding and the duration of lactational amenorrhea among themselves. The questions were divided into three subject areas. The first set of questions asked mothers about the benefits of breast feeding their infants, and whether there were benefits for mothers as well. The seco group of questions focused on the womer knowledge about how lactation preven pregnancy. The last group of questions asked t mothers about their knowledge, preferences, a practices of family planning methods. Probes we added as appropriate, always with the intention increasing the opportunity to hear women's ov voices describing their attitudes and beliefs.

The focus group data was transcribed and analyz in Spanish. Responses across groups we summarized and emergent themes describ (Bender & Ewbank 1994). Representative respons are included parallel to survey responses illustrative of the complementarity of the results

Each of the lead investigators (Bender and Bake have retained paper and disk copies of the surv and the focus group data. In addition, both da collection instruments and an accompanyir training manual are available to representatives the ministry of health or health clinics, for purpos of study replication.

The focus group methodology was used parall to the survey technique in order to elic contextualized narrative responses from wome who might be likely to practice lactation amenorrhea as a method of child spacing. Narrativ responses not only provide greater detail than do survey instrument, but this detail is embedded i its own particular context and gives "voice" to th otherwise anonymous respondents (Borges Waitzkin 1995). In addition, particular patterns word use and consistent or contradictory response within groups add additional information when th comparative framework is used.

The resulting comparative data sets allow th investigators to compare and contrast sho

enumerated answers with lengthier, narrative responses. This iterative analysis, comparing pre-selected survey responses to open-ended responses on the same questions, has the potential to increase the explanatory power of either method used alone. Adding focus group data to the analysis of survey findings augments the explanatory power of the latter. At the same time, the survey findings add the strength of larger numbers to the focus group findings, thus adding context and, where concurrence is good, increasing the generalizability of the latter findings.

Results

The women participating in the study lived in periurban communities outside the fourth ring of the city of Santa Cruz. About 20 percent of the women responding to the survey questionnaire were under 20 years of age; 22.3 percent were 30 years of age or more. The participants of the focus groups were slightly older, with 12 percent of respondents being less than 20 years of age, and 42.9 percent being 30 years of age or more. Educational backgrounds of the women who participated in both the survey and the focus groups were similar, with approximately 60 percent having an eighth grade education or less.

Among survey participants, all the women responding to the survey questionnaire spoke Spanish, or Spanish and a second language, on a daily basis (i.e., there were no women who spoke only a native Amerindian language at home). Approximately 85 percent of homes were supplied with electricity; less than half of households had refrigerators, although almost three-quarters had televisions. Less than one-quarter of them had indoor plumbing (Bender et al. 1995).

The survey showed that all but 9 percent of infants under 4 months were being breastfed, although only 16 percent of them were being exclusively breastfed. Liquid supplementation had begun at less than 4 months for about 66 percent of infants. Still, about 15 percent of mothers gave only breast milk until the infant was 6 months or older. While less than 9 percent of women introduced solids to infants' diets at ages less than four months, slightly more than half added some solids when the infant was four or five months of age. Understanding infant feeding practices in a population is important because of the relationship between supplementation and duration of infant suckling, and the relationship of the latter to the duration of postpartum lactational amenorrhea.

In the survey, about 60 percent of women in all education groups reported that they had heard that breastfeeding can prevent pregnancy, their number increasing from 55 percent of those with 0-4 years of education to 66 percent of those with 9 or more years (Table S-1). Differences are statistically significant. However, only 40 percent of women correctly stated that this protective effect endures for only part of the time a woman usually breastfeeds; again the percentage of women answering correctly increases with maternal education (Table S-1). By contrast, about 15 percent of women erroneously reported that the protection afforded by breastfeeding endured for the entire breastfeeding period.

In the focus group analysis, however, the apparent consensus evident in the survey responses is obfuscated by the range of women's responses between and within groups. Women in six out of eight groups said that they had heard that breastfeeding can prevent pregnancy and believed it to be true. However, most respondents also revealed that they believed breastfeeding protected only some women and that lactational infertility was dependent on an individual physical

Table S-1 *Knowledge of Lactational Amenorrhea among Periurban Women in Bolivia as Reported in Survey*

Maternal Knowledge	Level of Education 0-4 Years %	5-8 Years %	9+ Years %	Total
A. Mother Having Heard that Breastfeeding Can Prevent Pregnancy*				
Yes	55.7	58.0	66.1	59.9
No	44.3(n=88)	42.0(n=157)	33.9(n=165)	40.1(n=410)
B. Duration of Breastfeeding Protection as Understood by Women				
All of the Time	18.0	15.7	11.5	15.1
Part of the Time	31.5	42.1	51.5	41.7
Don't Know	16.9	15.7	10.3	14.3
Have never heard of this protection	33.0(n=89)	26.4(n=159)	26.7(n=165)	28.7(n=413)
C. When Is a Breastfeeding Woman More Likely to Become Pregnant?				
Before menstrual periods return	21.6	25.2	29.7	25.5
After menstrual periods return	27.3	31.4	37.0	31.9
There is no difference	26.1	20.8	17.6	21.5
Don't know	14.8	11.3	6.7	10.9
Have never heard of this protection	14.8(n=88)	11.3(n=159)	9.1(n=165)	11.7(n=412)

*p<.05

constitution.

The belief that a woman's fertility is related to her individual physiology is common in Bolivia. According to traditional beliefs of ethnophysiology, a woman's constitution is an indicator of her health and distinguishes between her being a strong or a weak woman. It is believed that a strong woman has more blood than a weak woman and she can easily have many children without harming her own health (CIAES 1991: 21). Themes of body size and fertility surfaced in many of the focus group discussions. One respondent said that a woman could be protected for eight months to a year; another told the group that her gynecologist had said to her that she was protected for a full year while breastfeeding. Still others mentioned that they had heard nursing could help prevent pregnancy but did not believe it. One woman commented:

> *It's a lie, because I became pregnant whi nursing.*

Another affirmed the same lack of belief, saying

> *Yes, I have heard this, but I have also see friends who are nursing become pregnant.*

Two women did give reasonably accurate an complete messages:

> *Not all women have the same make-up or (sic ovulation. Some people ovulate befor menstruation, and there are others tha*

ovulate after menstruation returns. In my case, I ovulate before. The women who ovulate before and are breastfeeding become pregnant. However, those who ovulate after menstruation returns and ovulate soon after can protect themselves.

I have heard that it only protects you for 6 months.

In an environment of confused, incomplete and sometimes redundant explanations, such as those among women interacting at the community level, the more accurate messages spoken by the two latter women were unlikely to be distinguished from the others. In no group was there one complete, clear, and correct response which was agreed to by all women. Even in groups where women were quite vocal in responding to this question, answers were inconsistent. Of note is the fact that the response attributed to a gynecologist by one woman was one of those which was not accurate in its content.

A simple probe—"Why, what is happening?"—was used as a follow-up to try to elicit more detail from the respondents on the mechanism of postpartum anovulation. Women in four groups simply had no response. A woman in one of the other groups commented,

They say it is because the babies are sucking. I don't know why that would be the reason.

Another woman responded, almost parenthetically,

...because the baby sucks all the blood from the period.

As the focus group facilitator probed beyond the clarity of survey responses, it became clearer just how little substantive knowledge the women had with which to explain their beliefs.

When women in focus groups were asked about the duration of pregnancy prevention, their responses reveal no clear pattern of knowledge. In only three of the eight groups was a woman able to give the most correct response, that is, for six months. In three groups women said that they were protected against pregnancy as long as they were breastfeeding. In some cases this was believed to be true even if they were nursing for a year or more.

Well, if you are nursing and your period doesn't return and you nursed your child for a year or two you are protected during that time.

Women in two groups had no answer. In addition, the women usually related only their own experience, rather than responding from a broader more generalized body of knowledge.

At 40 days, my period came.

I became pregnant after 1 year and 2 months.

In my case, my period came recently after I stopped nursing and I didn't become pregnant.

I think it protects for more or less 3 months and nothing more.

The shortest duration of protection from breastfeeding reported was 40 days; the longest time period was 2 years; and there was bimodal clustering of responses around 40 days and 6 months. Again, correct responses were given by several women in three of the groups, however even in those groups there was no consensus on

correct information. In each of those groups, there was at least one voice which contradicted the correct answer to the question. In comparing the focus group responses to the survey responses, it became more clear how uncertain women were of the meaning of the phrase "part of the time." The confusion apparent in the focus group responses belied the apparent clarity of responses in the survey where a full 40 percent of the women gave the correct answer, i.e., breastfeeding protects a woman from pregnancy for part of its duration.

As in the previous responses, references to a woman's physiology and the ability to become pregnant were evident within many of these comments about duration of contraceptive effect as well. One response repeats what the doctor has told her about a woman's ability to become pregnant within the context of the woman's physical condition.

> *The doctor says that some of us are too tough to become pregnant quickly and others are soft and become pregnant sooner.*

Survey responses to the question about when a breastfeeding woman is more likely to become pregnant (Table S-1) are almost equally divided among three available responses: about 25 percent of respondents chose "before the menstrual period returns;" slightly more than 30 percent of respondents chose "after menstrual periods returns;" and approximately 20 percent of women chose the response "there is no difference." While there was a trend for women with more education to be more likely to give the correct response (i.e., after menstrual periods return), differences for educational groups were not as great as for above questions.

The lack of clarity regarding when a woman is more likely to become pregnant is echoed in the focus group analyses. While some women in half of the groups commented that the risk of pregnancy is greater after a menstrual period returns, their point of view was sometimes contested. The dialogue among the women in one group illustrates the degree of uncertainty which prevails:

> *Before the period comes, because you are aware that when it comes to start taking precautions. Others that don't get their period also become pregnant.*
>
> *I believe that it's more likely that you become pregnant before.*
>
> *I say after.*
>
> [probe: And why do you think it is more likely before or after?]
>
> *It's more likely before because you have no way to know if you are pregnant or not. In contrast, [once your period returns it is easier] to protect yourself. [In the beginning], it is more difficult to know the day that you are ovulating.*
>
> [probe: Are you able to know what day you are ovulating before?]
>
> *You know when you are ovulating, you know when the menstruation comes, you feel like a dampness and it's when you are ovulating. I became pregnant after I got my period.*
>
> [probe: Having the period is easier to know when you ovulate?]

There are times that ovulation comes before the period.

This conversation segment suggests that women were fully aware of the risk of pregnancy after menstruation returns. However, they were less certain of the possibility of pregnancy before the menses return, although there is some evidence that some women knew that ovulation can occur before menstruation. One woman's response summed up the answers of all the women succinctly, saying, *"I would say since we are all different, we run the risk before and after, but it is more likely that you become pregnant after."*

The final set of questions discussed women's knowledge about and preferences for family planning methods. Women were asked first when they believed was the best time to adopt a method of family planning in addition to breastfeeding (Table S-2). About two thirds of all survey respondents correctly stated that a second method of family planning should be initiated before 4 (53 percent) or at 5 to 6 (13 percent) months after birth.

Still, almost 15 percent of the same respondents thought that the best time to adopt a method of family planning apart from breastfeeding was 12 or more months after the infant's birth.

In the focus groups, much less consensus about the best time to adopt a family planning method emerges. A wide range of responses was offered by the women both within and among groups. The following list shows this diversity:

Table S-2 *Mother's Beliefs about use of other Contraceptive Methods for Breastfeeding Women, as Reported by Survey*

Maternal Beliefs	Level of Education			
	0-4 Years %	5-8 Years %	9+ Years %	Total
A. When is Best Time to Begin Using Method of Family Planning Apart from Breastfeeding to Prevent Pregnancy				
Before 4 months after birth	51.6	51.3	55.9	52.9
5-6 months after birth	14.5	15.1	9.7	13.1
7-12 months after birth	19.4	23.5	18.6	20.5
More than 12 months after birth	14.5(n=62)	10.1(n=119)	15.9(n=145)	13.5(n=326)
B. Women Interested in Having an IUD				
Yes	51.2	58.1	63.5	57.6
No	48.8	41.9	36.5	42.4
	(n=84)	(n=155)	(n=159)	(n=398)
C. Women's Perception of Best Time to Have IUD Inserted				
Immediately after birth	31.1	37.3	35.2	34.5
When infant is 6 months old	15.6	10.8	11.1	12.5
When menstrual periods return	53.3(n=45)	52.0(n=102)	53.7(n=108)	53.0(n=255)

Unsure:

I don't know (2 respondents)

Related to the period:

It depends on the time it takes for the period to return

The first period

After the period

When your period returns

There is a risk after menstruation

After you stop breast feeding:

When you stop nursing

Until you stop breastfeeding

After a year, when you stop breastfeeding

Specific amount of time:

One/two months

40-45 days

40 days (5 respondents)

3 months (3 respondents)

After 5, 6, or 7 months

2 years

Other responses:

Each person is different

...when you begin to have sexual relations

Women in six of the eight groups gave the respons "40 days;" this time period corresponds with th traditional Bolivian practice of providing a woma 40 days of rest post-partum. Among more tradition groups of women, if the post-partum rest period ignored or violated, it was interpreted to be a omen which could cause the death of the newbor (CIAES 1991). A second response made by wome in three groups indicates that women believed necessary to adopt a second method of famil planning when menstruation returns. In one c these groups, the use of this response wa attributed to a physician, as well.

In a third type of response, women make the lin between sexual relations and the need for anothe method of family planning explicit; however, ther was no reference to the protective effect c lactational amenorrhea in this response. A woma in one group postponed sexual relations until months postpartum; in two other groups, referenc was made to resuming sexual relations at 40 day These responses are relatively consistent with thos given in the survey, where about half of the wome responded that intercourse should not be resume during the first month postpartum, and about 1 percent indicated that resumption of sexu relations should be delayed for 3 months.

Women in two groups commented that use of a additional family planning method was nc necessary for 2 years. These responses may b reflected in the survey responses, but in th questionnaire, the longest time frame which wa asked about was "more than 12 months after birth Traditionally, since many women breastfed for tw years and modern contraceptives were nc available, there is ample historical and cultural bas for this response. It is also likely that thes responses were shaped, in large measure, by th national government's strong pronatalist polic

effectively prohibiting use of family planning devices (MPSSP 1989). This policy has only changed within the past decade.

Finally, women were asked about their interest in having an IUD and when they thought was the best time to have an IUD inserted (Table S-2). Among survey responses, almost 60 percent of all women indicated that they were interested in having an IUD inserted. About half of the women thought that an IUD should be inserted when the menstrual period returned. Another one-third thought that the IUD should be inserted immediately after birth; this finding is consistent with the government's family planning message which has been widely communicated during the past four or five years. Less than 15 percent of women responded that an IUD should be inserted when the infant is 6 months of age, the time at which advocates of lactational amenorrhea suggest adoption of a second method for protection against pregnancy (Labbok et al. 1994).

In the focus groups, the question about IUDs made specific reference to the copper-T, the Bolivian government's choice of method. There is some confirmation that women were interested in using the IUD. Some of those who answered favorably already had experience with the copper-T:

> *For me, I don't like the pills; I prefer the copper T.*

> *That is how I am protecting myself; they put in the T. It has been fine for me; after they took it out I have become pregnant.*

Several indicated their interest in trying an IUD:

> *It interests me because I have never tried it. I also would like to use it.*

> *I'm waiting for my period to return so they can put in the T, because even though I always nurse, I become pregnant.*

However, other respondents showed considerable skepticism about the effectiveness of the copper-T in preventing pregnancy due to experiences of others :

> *I wouldn't use it because I have known of cases that although they have the T, they still became pregnant.*

> *There is danger with the T because you can still become pregnant. My sister-in-law was using the T and became pregnant and her little boy was only 5 months old.*

> *Pills make me fat, but I don't trust the T because I have seen others become pregnant while using it.*

> *The copper-T hurts some women and others become pregnant, I don't trust it much.*

> *Not me, because I have known cases that although they have the T, they have still become pregnant.*

Potential health risks associated with the copper-T were also a concern among groups. Some of the responses included the following:

> *They say it causes cancer.*

> *No, I think that it's a foreign object to our bodies and it makes me feel uncomfortable.*

Generalized fear of the size effects of the IUD was also evident in the women's responses.

I am afraid, more than anything else, because they say it can come out when the woman is squatting.

Finally, some women indicated that they preferred the use of the rhythm method over something new and uncertain like the IUD. Many commented that they preferred to use the rhythm method because they consider it to be "más sano" or healthier.

I wouldn't use the T, I prefer the rhythm method.

... with the days is the best method.

I prefer it because it's more secure, but it also depends on your husband and if he accepts it. The rhythm method always works when the period is on time.

For years, I have used the rhythm method for protection, it's healthier.

Because it's healthier for the body, whatever method you use, the T, pills, etc., you always run the risk of harming your health.

These responses are probably not uncommon among women in Bolivia. For example, data from Demographic and Health Surveys (DHS) indicates that use of traditional methods of family planning is the most common in Bolivia. In 1989, 24.8 percent of women questioned said that they had at one time used a traditional method; 22 percent reported having used rhythm or periodic abstinence (Sommerfelt 1991: 42). Other studies conducted in Bolivia show similar health concerns. In a study of traditional maternity practices, women also claim that artificial contraceptives make them obese, too thin, or nervous (CIAES 1991: 49). Data from the DHS show that the main reason for discontinuing use of the IUD and the pill is the side effe (Sommerfelt et al. 1991: 50).

When women were asked what they thought w the best time to have a copper-T inserted, t majority answered between 40 and 45 days. Th did not explain the reason for this choice, b perhaps there is an association between 40-45 da and the traditional period of rest accorded postpartum woman in Bolivian society. Oth responses to this question included the followin

It depends on the woman.
When the doctor decides.

Women in three groups said artificial contraceptio should be used immediately after birth, while thos in one other group remarked that no method o artificial family planning is good.

Discussion

This analysis has presented findings related t women's knowledge of breastfeeding an lactational amenorrhea; it uses integrated qualitativ and quantitative data collection methods as a mean of enriching the investigators' understanding of th problem and cross-validating the results. Survey findings were given depth through the addition of focus group results. The results from the eight focus groups, collected from women who lived in communities of similar cultural and economic circumstances, were able to be interpreted in the larger more generalizable context of the survey findings.

Asking questions using parallel forced choice and open-ended methods enabled investigators to have a set of checks-and-balances on the reliability and validity of the data. The use of the parallel methodology also enabled investigators to hear the women's deeply held convictions and frustrations

which undoubtedly influence their practice. Using questions with similar wording, in two formats, allowed for analysis of both the representativeness and the meaning intended in the responses. The resulting synergy revealed more about the extent and nature of the problem under study than would have been possible using only one or the other method of data collection. In addition, the combined results provided program planners interested in promoting the lactational amenorrhea method of child spacing with both broad and in-depth data. The complementarity of the findings is an asset in the selection of service delivery mechanisms and in the design of educational messages and marketing strategies.

The use of a cross-sectional survey provided structure and clarity to the focus groups. The use of focus group guides extracted directly from the survey added depth to our understanding of the knowledge and attitudes held by the women in these periurban communities. The integrated use of both approaches resulted in a clearer depiction of these women's understanding of breastfeeding as a child spacing method. The analysis also reveals their fears—and possible willingness to use other contraceptive methods.

Women's survey and focus group responses on breastfeeding and family planning revealed much about their knowledge and preferences. The survey data demonstrated that a majority of respondents have some knowledge of the protective effects of breastfeeding, and were familiar with some types of family planning methods. However, the focus group responses, whether clear, wordy and rambling, or completely absent, conveyed a much more tentative picture with respect to understanding the amenorrheic effect of breastfeeding and women's willingness to use a second contraceptive method to extend the protective effects of lactational amenorrhea. While survey responses represent a best "guesstimate" of women's preferences, women's own narrative responses were far more powerful in terms of their ability to inform the listener of the depth or shallowness of the knowledge base from which they work.

The combined use of quantitative and qualitative methods, however, is not without its challenges. Presenting two sets of complementary (or conflicting) responses opens the door to multiple interpretations that may not be easily resolvable. Investigators may feel the need to collect more data before they resolve divergent positions. This can be costly, in both time and money. Integrated method use predisposes interested audiences to generalize from illustrative examples of focus group data to the population, because of the survey context and the temptation to generalize from a small sample to a larger one. It is likely that women in the larger sample would have similar responses to those in the focus groups, but that cannot be known with statistical certainty. In an article titled "An Uneasy Alliance: Combining Qualitative and Quantitative Research Methods," Buchanan makes reference to a similar difficulty, that of making analytic sense of singular responses (1992). While it is reasonable to present focus group data in tables, using as the denominator the number of groups (Bender and Ewbank 1994), the richness of a particular narrative response may be lost in doing so. It is the character of this singular response, and the judgment as to its representativeness, to which Buchanan refers. Singular responses do have a place as illustrative examples, but caution is needed to avoid generalizing from a case study to the population. Singular responses are, however, useful in providing a check on the potentially glib interpretations accompanying survey findings. Those schooled in qualitative methods—and

comfortable with the higher degree of ambiguity of the findings—are quick to defend the worth of such a response.

The cost of data collection and analysis using integrated methods may be higher than the cost associated with the use of a single method. In addition, some argue that qualitative research itself is too expensive. Costs are an important consideration and should be considered in advance. Adding a qualitative component to a survey does increase the cost. However, costs associated with qualitative research may appear high because they are unanticipated; because the infrastructure to manage qualitative data is less well-developed; and because of the often-found assumption that qualitative data collection is easy, unsophisticated and quick. Often, interviewers must be trained in the use of the particular qualitative method as well as in the study design; new software must be purchased; and unexpected time and energy must be invested in transcription and/or translation. Interpretation and presentation of such data requires skill and an understanding of the respondents' context and the audience's expectations that is different from quantitative analysis. In quantitative data collection and analysis, the hardware and software infrastructure is widely available, and costs are implicit, not explicit. The time for cleaning and management of the data is predictable. At the point when data is ready to produce results, the work is nearly complete. Interpretation and presentation are quite standardized, given an emerging consensus of investigators. Anticipating costs of integrated method use accurately and in some detail at the outset can effectively reduce the frustration associated with the excessive-cost argument.

Those who prefer the reassurance that comes from knowing the exact size of a percentage or a correlation coefficient are equally quick to dismi any value in singular responses. A middle grour must be cleared. There must be a new recognitic that the potential for understanding compl responses of likely health services clients increased when investigators are able to integra qualitative and quantitative methods to addre specific questions. Despite a certain rhetoric whi claims to give equal weight to both method researchers who combine quantitative ar qualitative methods in their own work often ha a natural tendency to value one set of metho over another. Acknowledging these natur tendencies is important . Further, addressing particular research question and the nature of t responses sought will enable researchers of varie disciplinary backgrounds to focus on the desire outcome, rather than their own methodolog preferences. If one of the purposes of da collection is to identify potential programmat solutions, then the struggle to maintain the uneas balance between qualitative and quantitati research methods appears to be worthwhile.

In earlier research traditions, the social scienc have often accepted the natural science's view th knowledge is inherently universal, accepting th the findings of research should be stated universalistic knowledge claims, and that loc deviations from universal knowledge should b rendered as "beliefs." Experience in field settin with cross-disciplinary research teams has instea developed a working sense of intuition th knowledge is inherently local, that representatic of local knowledge must share its local nuance and that scientific representation of loc knowledge has special value for applie interventions (Pope and Mays 1995). This emerge methodological stance in applied research has th potential to most clearly represent the perspectiv of community respondents to program planne

while providing policy makers with data relevant to policy and strategic planning objectives.

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