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BIRTH RIGHTS AND RITUALS IN RURAL SOUTH INDIA: CARE SEEKING IN THE INTRAPARTUM PERIOD

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Summary. Maternal morbidity and mortality are high in the Indian context, but the majority of maternal deaths could be avoided by prompt and effective access to intrapartum care (WHO, 1999). Understanding the care seeking responses to intrapartum morbidities is crucial if maternal health is to be effectively improved, and maternal mortality reduced. This paper presents the results of a prospective study of 388 women followed through delivery and traditional postpartum in rural Karnataka in southern India. In this setting, few women use the existing health facilities and most deliveries occur at home. The analysis uses quantitative data, collected via questionnaires administered to women both during pregnancy and immediately after delivery. By virtue of its prospective design, the study gives a unique insight into intentions for intrapartum care during pregnancy as well as events following morbidities during labour. Routine care in the intrapartum period, both within institutions and at home, and impediments to appropriate care are also examined. The study was designed to collect information about health seeking decisions made by women and their families as pregnancies unfolded, rather than trying to capture women's experience from a retrospective instrument. The data set is therefore a rich source of quantitative information, which incorporates details of event sequences and health service utilization not previously collected in a Safe Motherhood study. Additional qualitative information was also available from concurrent in-depth interviews with pregnant women, their families, health care providers and other key informants in the area. The level of unplanned institutional care seeking during the intrapartum period within the study area was very high, increasing from 11% planning deliveries at a facility to an eventual 35% actually delivering in hospitals. In addition there was a significant move away from planned deliveries with the auxiliary nurse midwive (ANM), to births with a lay attendant or dai. The proportion of women who planned for an ANM to

assist was 49%, as compared with the actual occurrence, which was less than half of this proportion. Perceived quality of care was found to be an important factor in health seeking behaviour, as was wealth, caste, education and experience of previous problems in pregnancy. Actual care given by a range of practitioners was found to contain both beneficial and undesirable elements. As a response to serious morbidities experienced within the study period, many women were able to seek care although sometimes after a long delay. Those women who experienced inadequate progression of labour pains were most likely to proceed unexpectedly to a hospital delivery.

Introduction

The neglected tragedy of deaths associated with childbirth has been addressed by the international community since the launch of the worldwide Safe Motherhood campaign in 1987, but remains a persistent problem (WHO *et al.*, 2003). Associated morbidity, variously estimated at 16 to 100 morbid events per death (Datta, 1980; Koblinsky *et al.*, 1993), also remains widespread and difficult to quantify (Fortney & Smith, 1999). In India, maternal mortality is estimated at 540 per 100,000 live births (WHO *et al.*, 2003). Rural areas, in particular, experience a high toll, and poor women are more likely to die (Graham *et al.*, 2004; Gwatkin, 2004). The majority of these deaths could be avoided if prompt and effective intrapartum care were accessed (WHO, 1999), but some of the complications that precede death are unpreventable and unpredictable.

The intrapartum period, although a limited timespan, is of critical importance, as at this time a seemingly normal labour can suddenly degenerate into a crisis. An estimated 75% of maternal deaths worldwide have direct obstetric causes (WHO, 1986). Only prompt and effective action in the event of a complication by women, their families, their communities, and by health services can address this problem. Given that an estimated 15% of women will develop a range of known complications (WHO, 1997), it is important that the social, cultural and practical barriers to effective treatment are fully researched. In rural areas where services are often difficult to access, the key element of effective maternal care is to ensure that a strategy is made for women to access appropriate care in the case of a complication, and that any woman suffering from a complication is managed appropriately in the interim.

The community study reported in this paper aims to explore the barriers to utilizing maternal care and to understand the delays that occur before care is accessed. Set in a rural context where poorly equipped facilities are located far from individual villages, many of the delays in accessing care are associated with transport to facilities and institutional delays once women have arrived at a facility. However, the focus of the community study is the very first delay in the process where a decision is made within a woman's household to seek care. The opportunity to ask questions about women's intentions for delivery care at various stages in pregnancy in this prospectively designed study has allowed the analysis of health care seeking behaviour without the inaccuracies normally introduced by recall error. In addition, the collection of intrapartum morbidities as reported by women themselves shortly

after delivery has made it possible to look at health care seeking responses to a range of perceived complications. Supplementary information from the concurrent qualitative study is also used to give depth to this account of the intrapartum period. Qualitative techniques employed included in-depth interviews with women, with family members, with health care providers and with other key informants.

Existing care practices, both at home and within institutions, as described in this paper, are potentially a key element in the decisions made about delivery care during pregnancy and labour itself. The analysis of questionnaire responses presented here gives insights into local perceptions of quality of care, especially as informed by previous experience of health services in labour and delivery. Supporting qualitative information is also presented. This is a contribution to the emerging literature focusing on the important part that quality of care plays in the initial delays in health seeking behaviour (Hulton *et al.*, 2000a).

The study setting is Karnataka, where the rural population is still underserved in terms of facilities, and maternal mortality and morbidity is high (Bhatia, 1993, 1995). However, in the Indian context, the state does maintain a progressive profile in terms of health programmes, with recent survey data confirming that 37·5% of deliveries in Karnataka take place in institutions as compared with a national average of 25·5% (IIPS, 1995). Furthermore, 51% of women in Karnataka are assisted at delivery by health professionals compared with only 34% nationally. Despite this relatively favourable aggregate position, the state does contain marked regional diversities, and the rural hinterland is considerably disadvantaged compared with the urban areas with only an estimated 26% of rural births taking place in institutions as compared with 67% in urban Karnataka (IIPS, 1995). In summary, the study location provides a background of remote services in a rural resource-poor area, typical of many developing country settings but with the potential and infrastructure for further improvements in the near future. In this context the in-depth study of health seeking in the intrapartum period is crucial to our understanding of decision-making in common, but potentially life-threatening situations.

Background: maternal health care in India

In India, the momentum for improving maternal health has been taken up by various policy directives, but the initiative is still in its infancy and there exists a huge diversity of maternal health and health services between the states and between urban and rural areas. Indian Maternal and Child Health and Family Planning Services are integrated within the broad umbrella of the Family Welfare Programme (FWP). This programme, now in its fifth decade, was designed to provide integrated preventative, promotive and curative services for men and women (Measham & Heaver, 1996a). The more recent Child Survival and Safe Motherhood Programme (CSSM) was launched in India in August 1992. This offshoot of the FWP was specifically designed to improve the health status of women and children and to reduce maternal, infant and child mortality rates. The goals of the initiative were to monitor indicators such as the proportion of pregnant women receiving three antenatal visits, and the proportion of deliveries conducted by trained attendants (Measham & Heaver, 1996b). More recently, these initiatives have been succeeded by the Reproductive and

Child Health (RCH) programme, although during the time of the study, the more recent programmes had not yet started.

As part of the FWP, in the rural areas of India, maternal and child health services are delivered mainly by government-run primary health centres (PHC) and sub-centres. Female health workers, who are auxiliary nurse midwives (ANMs), provide maternal and child health services in the villages. Often, in practice, a sub-centre is an extension of the ANM's own residence. Registering pregnant women and assessing their health throughout the pregnancy is the responsibility of the ANM either at their homes or at an antenatal clinic. If pregnant women encounter any complications that are beyond the level of the health worker's competency or resources, the ANM must refer the woman to the PHC. However, the PHC has only limited resources, including capacity for antenatal and postnatal care, so that complicated cases must be referred. In all areas of India the ANM provides a crucial link in the referral chain as the inadequacy of facilities even up to district level necessitates a policy that does not encourage normal deliveries in institutions.

The private health sector in India is very strong and in Karnataka there is an important role played by charitable or mission institutions. In terms of health care during the obstetric period, private antenatal care is often accessed for problems and check-ups in pregnancy, but private delivery care is only accessible to higher socioeconomic groups. With the recent profusion of practitioners of modern systems of medicine, some with no recognized medical qualifications, it can be difficult for service users to know whether the practitioner that they have contacted is properly qualified for maternal care (Bhatia & Cleland, 1996).

Previous literature on health care seeking

The search for determinants of care seeking during the intrapartum period within the study area is informed by previous studies that have explored health seeking behaviour in general. Some more recent studies have examined maternal care specifically, although none has had the benefit of a prospective design. In trying to uncover the reasons why services are not utilized by women, researchers should consider a range of social, economic and behavioural factors (Basu, 1990).

Maternal education has repeatedly been shown to have a beneficial impact on maternal health care uptake (Cleland & Van Ginneken, 1989; Filippi *et al.*, 1990). Raghupathy (1996) found that, in the South-east Asian context, the effect of education on service uptake is much stronger in urban than in rural areas, and also that any education was a marker for improved antenatal care, but that only secondary schooling affected the use of better delivery services. In the current study only a small proportion of the population are educated. This is typical of a rural setting in many developing countries.

Age and parity, although interlinked, are clearly also important factors in terms of maternal health as well as service uptake. The high-risk categories for maternal mortality include primigravidas, teenage mothers and also women aged 35 or more and grand multiparity (Ross & Frankenburg, 1993). Research on the effects of age on utilization of maternal health services has been less conclusive. Either age is seen as a benefit to utilization, or a hindrance. Older and more parous women have an

accumulated knowledge of health care services yet younger women often have better knowledge of modern health care and facilities (Elo, 1992; Fosu, 1994; Hajo & Wildschut, 1995).

Access to resources is an important part of women's autonomy but this is often determined by household wealth. The association between household economic status and the utilization of health services is not straightforward. Some analysts have found that as household income decreases the use of modern formal health services also decreases giving way to informal and traditional care systems (Chernichorsky & Mesook, 1986; Berman *et al.*, 1987). Low household income can be a barrier to the uptake of modern health services even when services are publicly provided. In India, researchers have found that *per capita* costs of health care are high in poorer rural areas due to transport costs and private fees where no other services are available in an emergency (Duggal & Amin, 1989).

In the context of rural Karnataka and the villages where the current study was undertaken, transport costs are clearly an issue as the nearest hospital with facilities for blood transfusion or Caesarean section is in a major city many kilometres away. Transport used is commonly bullock cart or public buses as private transport and fuel is too expensive for most people. In previous studies, women have been shown to be more likely to use services when they are within walking distance: at around three kilometres from their homes (Wong *et al.*, 1987; Williams *et al.*, 1994). In the Indian context, the seeking of private health care is a sign of wealth and status. Antenatal care seeking from private providers is cheap and widespread in the region (Matthews *et al.*, 2001). However, a private delivery would cost 7000 Rs and if a blood transfusion or Caesarean section were required, this would cost an additional 35,000 or 42,000 Rs respectively. This would only be an option for a very few of the study population.

Even though most women in the study area ultimately have very little choice but to seek intrapartum care in the public sector, the perceived quality of that care has a potentially important impact on their health seeking behaviour. Previous work has suggested that the decision to seek care can be influenced by such factors. The intrapartum period has been brought into sharp focus by consideration of the delays that can happen before women with complications can access appropriate medical treatment (Thaddeus & Maine, 1994). Transport and institutional delays are clearly an important part of the care seeking problem in rural Karnataka. However, the first delay between recognizing the problem and deciding to act, usually undertaken by household members rather than women themselves, is a key focus in this community study. The planning, during pregnancy, of appropriate contingency strategies does involve the woman herself and these aspects of care seeking are studied using the prospective instruments developed for the study. Factors discussed above such as educational levels, household wealth, autonomy, age and parity are therefore examined especially in relation to decision-making delays and delivery intentions.

Methods

The study aimed to identify the sociocultural determinants of obstetric morbidity in rural Karnataka by establishing the type and extent of obstetric morbidities and

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exploring health seeking behaviours and factors affecting service uptake during the obstetric period. A related objective was to gather information on traditional beliefs and practices and to explore the nature of health services provided in the rural context. Both quantitative and qualitative methods were used, and a prospective research design was employed in order to overcome the recall biases inherent in retrospective studies. Quantitative methods consisted of a series of pre-tested questionnaires administered throughout the whole obstetric period and qualitative methods consisted of interviewing of a sub-sample of women, focus groups and key informant interviews.

The study was carried out in eleven villages covering a population of approximately 25,000 surrounding a taluk headquarters town, located about 60 km from Bangalore city. A total of approximately 6000 households exist within these villages. The closest of the study villages is about 8 km from the taluk headquarters town and the furthest about 25 km. The study villages had been randomly selected from the villages in the taluk for an earlier study, with the later addition of a larger village and a tribal village, in order to capture health seeking behaviour in a wide range of rural settings.

All women in these villages who were already pregnant at the time that the study began in August 1996 or who became pregnant during the study period were enrolled until the required total of just over 500 cases was reached. Case identification was carried out by means of village health workers and the case-load was cross-checked with *anganwadi* (village childcare centre) and ANM records to identify any missed cases. The entire process of the panel survey was completed within 25 months of the start date.

Respondents were visited five times during the study, the last visit for detailed data collection being three months after delivery. The initial questionnaire, covering background characteristics, household data and pregnancy histories, was administered, in most cases, during the first or early second trimester of pregnancy. Two more questionnaire sessions were held during pregnancy, mainly during the late second and third trimesters. These covered morbidities, nutrition, health seeking and intentions for delivery. A post-delivery questionnaire was timed within five days of delivery to capture the birth experiences of the women with minimum recall time.

Each of the questionnaires took around 30–40 minutes to administer, and the survey was carried out in women's homes. Eight trained graduate interviewers were used for the data collection and all of the interviewers were fluent in Kannada, the language spoken within the study area. Respondents answered the questions themselves, without exception, but other family members were often present while the interview was taking place. Husbands, however, were usually not present, although mothers, mothers-in-law or older sisters were often in attendance, especially for younger respondents. The effect of hierarchical relations within households on data validity, although present, is not thought to be a source of non-sampling error in this south Indian setting.

Morbidity questions were treated with particular care, the women's perceptions of ill-health being elicited initially without prompts or pre-set categories, and only subsequently making recourse to a more structured set of questions. Corroboration of morbidity status from health personnel was not sought, as a range of practitioners

was involved, often without a mainstream medical training. The design of the questionnaire was carried out concurrently with medical anthropological studies on local morbidity taxonomies. Clearly the normal biases of prospective studies could not be avoided, including a raised awareness of obstetric issues as the study progressed. However, many of the results presented here were collected early in the study, including delivery intentions early in pregnancy. Furthermore, an examination of results by duration of study does not reveal any significant increase in morbidity, or changes in health seeking behaviour.

As in many other surveys in rural areas, respondents were happy to participate in the study. Only one of the women who were approached for inclusion in the study refused to do so. There was, however, a high rate of drop-out during the course of the study. Of an initial sample of 535 women who completed the initial questionnaire, 514 completed the antenatal stage of the survey, but only 388 were re-interviewed immediately after delivery. The 147 women who dropped out of the study were all, without exception, lost to follow-up because they returned to their natal village to deliver; a custom particularly followed for first births, but also, in the case of these study villages, for subsequent births too. On examining the characteristics of the drop-out population, the parity, age and socioeconomic distribution of cases was found to be very similar to that of the study group. All of the key socioeconomic and demographic characteristics had distributions in the drop-out population which closely matched that of the main study group. There were slightly more first births among the drop-outs (45% compared with 38% of the study population), but this was not a significant effect.

After data collection, the questionnaire responses were entered, checked and cleaned, and SPSS was used to perform statistical analyses. Most of the analysis presented in this paper consists of cross-tabulations of survey responses, accompanied by standard chi-squared tests if associations are being tested. Multivariate analysis was carried out in the investigation of factors affecting delivery planning. This analysis was undertaken in two parts; firstly considering only those who planned to deliver at home, and finding significant correlates of planning to deliver with an ANM in attendance. Secondly the whole sample was used to identify determinants of choosing an institution as the chosen location for planned delivery. These two analyses were therefore logistic regressions, having dichotomous variables of interest. Candidate explanatory variables were entered into logistic model fits in a mixture of forward and backward substitution, until a parsimonious final model was found. A significance level of 5% was used as an acceptable level to include explanatory variables in the model.

Characteristics of the study population

As seen in Table 1, almost three-quarters of the 388 sampled women in the study villages were between 18 and 24 years old at the start of their pregnancies, and nearly 15% were under 18. In terms of education, 55% had attended school for some time, and almost half of these had reached class 9 or 10. While some of these women were married to men with no schooling, and they were the only literate persons in their household, observations from the qualitative investigators noted that women's status

Table 1. Characteristics of study population

Population characteristic	Category	Percentage of study sample
Age	14–15 years	2·2
	16–17 years	12·2
	18–19 years	27·6
	20–24 years	43·0
	25+ years	15·0
Gravida	First birth	38·1
	Second birth	35·8
	Third birth	15·1
	Fourth or later birth	11·0
Education	No education	43·7
	Grade 1–5	13·1
	Grade 6–8	19·1
	Grade 9+	24·1
Caste	Gowda	49·6
	Lingayat	2·1
	Scheduled caste/tribe	26·1
	Other backward castes	17·4
	Lambani tribe	4·8
Value of possessions	<1000 Rs	46·9
	1001–5000 Rs	34·1
	5001–15,000 Rs	11·3
	>15,001 Rs	7·7
Village group	Village group 1	45·1
	Village group 2	29·1
	Large village	21·0
	Tribal village	4·8

Total women in the study sample is 388.

was not commensurate with their educational level. Survey measures of status and autonomy, however, are notoriously difficult to collect (see, for example, Balk, 1997, and Bloom *et al*., 1998), and the quantitative survey instrument did not attempt to capture this. Despite the mismatch of literacy levels in some households, the general picture is of low female literacy within the study group, which is typical of this district as a whole. The female rate in the study area is low compared with the all-India rural female literacy rate of 45%, but very similar to Karnataka overall state levels (Census of India, 1992a).

Data on occupations showed that all women were engaged in household work, but only 2% as salaried work or trading as a primary occupation and 8% as waged agricultural work as a primary occupation. Those who carried out agricultural wage labour were among the poorest in the sample. Apart from household duties, the majority of the women had some secondary occupation. This was generally agricultural in nature, either work on the family's own land or caring for livestock.

Twenty-five per cent of the women also reared silkworms, sericulture being widespread in the area. Most belonged to households that have small landholdings, and one-quarter of the households were landless. As can be seen in Table 1, very few were wealthy, with 81% having very few possessions within the household (this corresponds to the group who have consumer durables to a total value of less than 5000 Rs).

Age at *prastha*, when girls and women are sent to the marital household and when a sexual relationship with the husband commences, is very early in this population. Thirty-six per cent of the women reported that they were under 16 at that time and 28% reported that they were 16 or 17 years old. Many were married to relations, most commonly the maternal uncle or a cousin, which was found to be the norm in the area. More than a third of the women were pregnant for the first time, and 36% for the second (see Table 1). It was the fourth or subsequent pregnancy for 10% of the women, the reported reason for the repeated pregnancies generally being the desire for a male child.

The predominant caste in the villages is Gowda, a low caste grouping. There is also a substantial minority of scheduled castes and scheduled tribes (the lowest caste group), which make up 26·1% of the sample. The women from the Lambani tribe are part of this group. These women showed very different characteristics from other women in the sample, both in terms of health care seeking behaviour, and also morbidity and are located only in the 'tribal' village. Although they are part of the Scheduled Tribe category, they are shown separately in the caste section of Table 1. The sample drawn can be considered as fairly typical of a Karnatakan rural area in terms of caste distribution (Census of India, 1992b).

A geographical categorization was created to locate the villages within areas that had access to the same ANM or sub-centre. Group 1 consists of the four villages on the western side of the taluk which are served by one sub-centre. Group 2 consists of a more disparate group of five villages which are served by a sub-centre in the central village of the group. After this categorization, there remained the large village, situated in the southernmost part of the study area, and well served by a number of health providers. Lastly the tribal village, consisting of Lambani tribespeople only, were considered as a separate category. The proportions of the sample falling into these four geographical categories are shown at the foot of Table 1.

From the point of view of women in the study area, initial explorations showed that contingency planning for the case of an emergency is often not a priority. There is a clear spectrum of possible care in the intrapartum period for all women, most of whom assume that they will have a normal delivery. The range of delivery possibilities for pregnant women in the villages studied are:

At home: alone; lay attendant; dai; ANM.

Institutional: PHC (primary health centre); government hospital; mission hospital; private hospital.

Results

Factors affecting delivery intentions in the study villages

The first step to an understanding of care seeking during the intrapartum period involves an examination of how families plan for each woman's delivery, and why

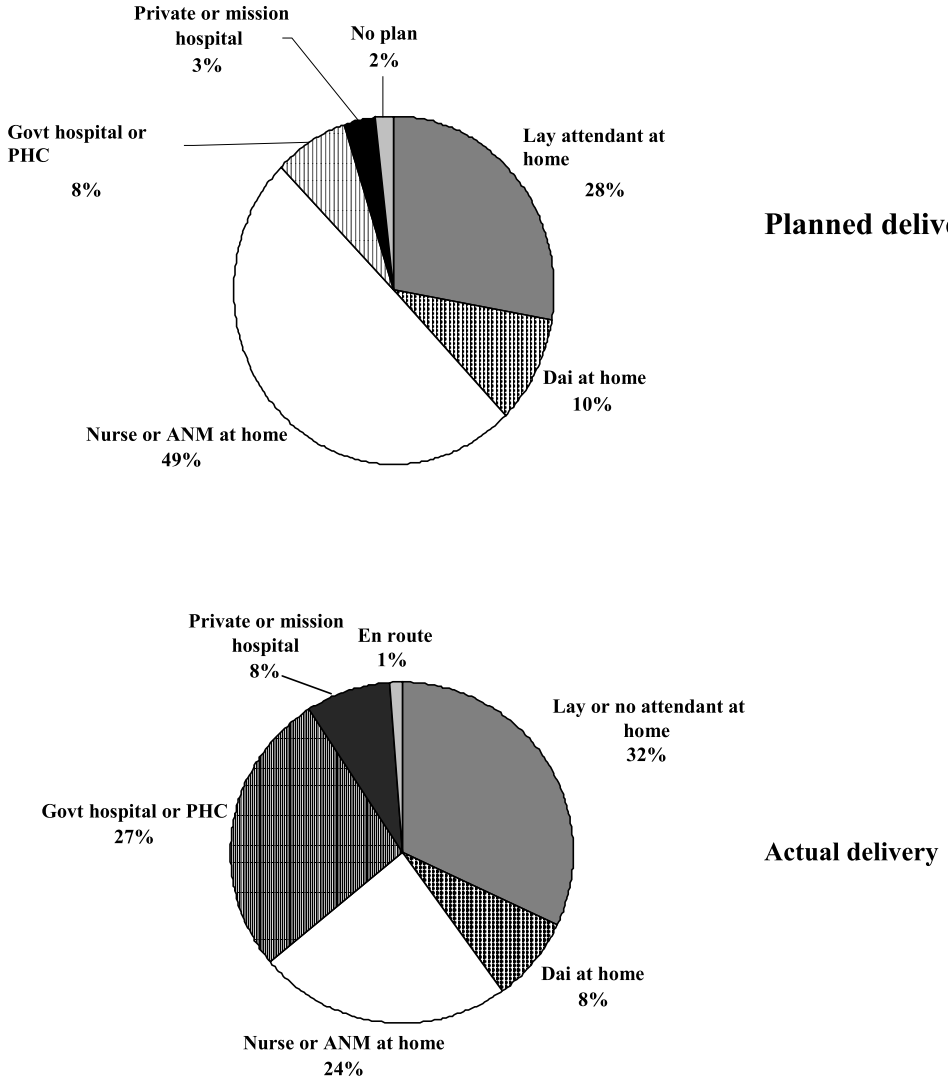

Fig. 1. Planned and actual modes of delivery.

those choices are made, and how often and why they are subsequently changed. The advantage of a prospective design in this case is that the women who were part of the study were asked about where they intended to deliver while they were already at least three months pregnant, as well as who they intended to be their birth attendant. Figure 1 compares the delivery intentions of the women in the study villages with the actual outcome of their delivery. The majority of women (87%) planned to deliver at home. Even women who visited a private physician for antenatal care generally planned a home delivery, largely because of high hospital costs, or the absence of a

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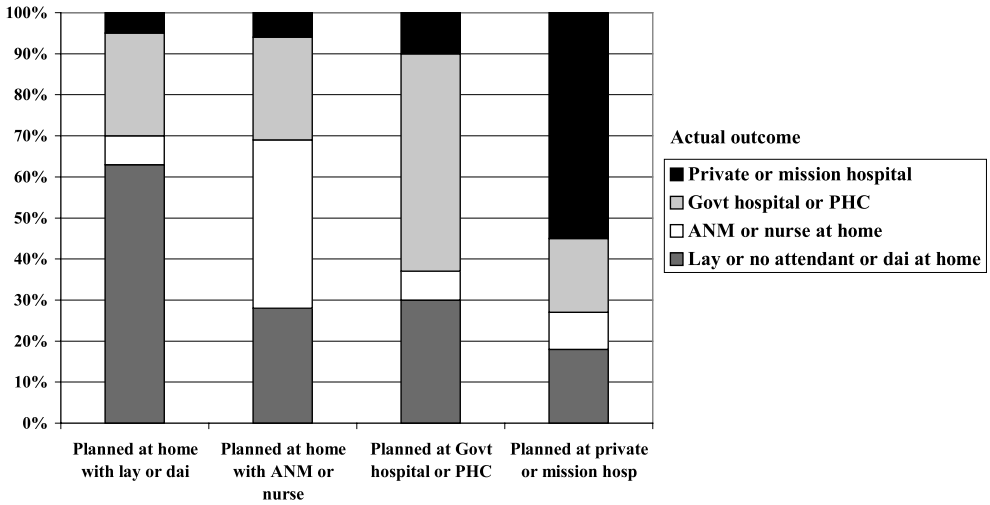

Fig. 2. Switching behaviour at delivery.

woman doctor in the PHC. About 49% of the women who planned a home delivery wished to have the ANM assist at the delivery, 28% to have an experienced relative or friend assist and 10% planned delivery with a dai.

In the event, more than 30% of women who planned to deliver at home went to the PHC or hospital (see Fig. 2), usually because of anticipated or actual complications. Conversely, some women who had planned an institutional delivery gave birth at home, either because of lack of transport, or because the ANM dissuaded them; the majority of these were eventually assisted by a lay attendant or dai. This 'switching behaviour' due to unexpected events during labour, amounted to 36% of women delivering at an institution or en route, a substantial increase on the original 11% who had originally planned institutional deliveries. This percentage is not surprising, considering that an estimated 15% of women will develop complications in the intrapartum period (WHO, 1997). However, an analysis of the morbidities that are perceived to be serious enough to consider switching to an institutional delivery is required to gain a deeper understanding into delays in accessing appropriate care.

In general, apart from a switch towards institutional delivery as a response to morbidity, the other large change from planned to actual outcomes concerned the switch from deliveries that were planned to take place with the ANM in attendance, to those that were eventually attended only by a relative, friend or dai. In fact, nearly one-third of the women who had planned to have the ANM assist at their deliveries finally had a dai or experienced relative in attendance (see Fig. 2), since the ANM was not available or was unwilling to attend if women went into labour at night.

Delivery choices were clearly made on the basis of perception of quality of care, as well as on the basis of cultural comfort. A striking finding was the propensity for

women in village group 2 to plan deliveries with the ANM, in comparison with relatively few from village group 1, despite the closer proximity to the sub-centre for those in group 1. The ANM in village group 2 was clearly regarded very highly and was a desirable birth attendant. In contrast, women from the tribal village consistently planned home or PHC births, and none envisaged assistance from the local ANM. In general women prefer to deliver at home for reasons such as support, familiarity, tradition, as well as the feeling that birth is a normal phenomenon that does not need an institutional setting.

Overall, it was clear from the qualitative analysis that there is a strong reluctance to plan ahead, especially for problems, mainly because of a feeling that this might be prophetic. The ANM is rarely consulted when women and their families are making plans to have her conduct the delivery; the possibility of her being away in the course of her work, and hence unavailable, is not considered. Also, there is scant understanding of the urgency of many intrapartum problems; women expect to be able to consult the ANM if a problem arises and then seek care wherever she suggests. The opportunity for detailed contingency planning is not taken up in the majority of these women's cases. Obstetric history taking and communication of danger signs are also not undertaken regularly by health professionals in the area.

Factors associated with planning delivery are shown in Table 2. Those envisaging a delivery either at an institution or at home attended by the ANM tended to be of higher caste, higher socioeconomic status, higher education and located either in village group 2 or the large village. The latter may be largely a matter of proximity to services and perceptions of quality of service. Women's occupations, however, and the structure of families as nuclear or extended (both possible proxies for autonomy), were not related to her delivery intentions. What is clear is the association between socioeconomic status and plans for delivery. Those whose husbands were salaried were much more likely to plan a hospital birth or to plan for an ANM-assisted delivery. The possessions score of each household also correlated strongly with intention to deliver in an institution. An examination of livestock and landholdings for each household also yielded some interesting associations; those with extensive lands and much livestock were very similar to the landless families in their delivery intentions. Those families who were large landowners were not necessarily wealthy in terms of possessions.

Surprisingly, demographic effects of age and gravida are not important determinants of delivery intention. Previous experience of problems both antenatally and during labour and the postpartum were, however, associated with the stated delivery intentions. The strongest of these associations was with antenatal problems, rather than later problems. The problems included were those stated by the women without prompting, as these were more likely to influence subsequent health seeking behaviour. Prominent among the antenatal problems cited were bleeding, abdominal pain and severe nausea.

A multivariate analysis of plans for delivery among those 380 who stated an intention, broadly upheld the bivariate results (see Table 3). However, wealth as measured by possessions and landholdings, were not important correlates of planning for an ANM-assisted delivery at home, after education and caste had been controlled in a logistic regression analysis. Most importantly, plans to deliver with an ANM

were strongly associated with village location; those from the large, well served village had more than five times the odds of planning an ANM-assisted delivery than those from village group 1. Notably, those from village group 2 were also much more likely to plan to deliver with an ANM than those from the other village group when other factors are controlled. An additional logistic regression analysis, performed to find significant associations with institutional delivery intention, found very different results. Instead of caste and education, the two correlates that showed associations strong enough to control for all others, were wealth (in terms of possessions) and previous experience. These two regression analyses did not include the tribal cases, as their lack of institutional or medically assisted delivery intentions resulted in problems in estimation of parameters.

Labour and delivery practices within the study villages

Once labour pains begin, a *kashayam* (herbal decoction usually of cumin) is often given to the woman, as this is believed to help differentiate between true labour pains and other abdominal pain. This *kashayam*, with or without coffee or rice *ganji* (rice broth), is also given during labour to strengthen labour pains, inadequate pains being a commonly perceived problem. Traditionally the woman is encouraged to walk and move about during labour and finally delivers in a squatting position or seated on an upturned basket, with the perineum supported with a wad of cloth. The frequencies with which these practices are carried out as reported by the women in the study are shown in Tables 4 and 5. Lay attendants and dais are always women in this context (this is usual in developing countries, although there are some exceptions where traditional birth attendants are men; see Koster, 1999).

During delivery, most of the experienced lay attendants encourage the woman to squat, but, as seen in Table 4, only 23% of women attended by the dai delivered in this position. The dais in these villages assert that during their training they were taught to make the woman adopt the supine position for delivery. The ANMs or nurses almost always conduct the delivery with the woman in the supine position. A disturbing finding is that 'injections to increase pains' were reported by 51% of the women who were attended by the ANM, and even some of the deliveries attended by relatives and dais. The families are asked to buy the medication, and are charged for giving the injection. ANMs deny the use of injections for this purpose, unless the woman is delivering at the PHC and the Lady Health Visitor has prescribed the injection.

At home the cord is usually cut after the placenta has been delivered. Cord care is generally indicative of broader obstetric care levels, and should be examined closely. Desirable aseptic precautions were not always taken according to the women's survey responses; for example a variety of instruments were used, which were not adequately sterilized. The ANMs and dais rarely used sterile cord care kits. The cord stump is sometimes dressed with talcum powder, ash or turmeric or burnt with the flame of a lamp. The baby is almost always given a bath soon after delivery. Although warm water is generally used, this still increases the risk of hypothermia. Branding around the navel (using a heated needle or glass bangle) is routinely done, and is thought to prevent various infantile problems such as colic.

Table 2. Factors associated with planned care at delivery

Factor	Percentage who planned delivery at:				
	Home with dai or lay attendant	Home with ANM or nurse	PHC or Govt. hospital	Private or mission hospital	Total (*n*)
Caste**					
Gowda	34	51	11	4	100 (188)
Lingayat	24	54	9	9	100 (21)
Other low caste groups	23	73	2	2	100 (53)
Scheduled caste/tribe	52	43	5	0	100 (99)
Lambani	89	0	11	0	100 (19)
Education**					
None	50	41	7	2	100 (172)
Grade 1–5	42	54	2	2	100 (48)
Grade 6–8	35	54	8	3	100 (72)
Grade 9+	18	64	12	6	100 (88)
Gravida					
First birth	35	55	8	2	100 (143)
Second birth	40	50	6	4	100 (136)
Third birth	48	45	7	0	100 (60)
Fourth birth	37	44	12	7	100 (41)
Age					
14–15 years	57	43	0	0	100 (7)
16–17 years	44	48	8	0	100 (46)
18–19 years	36	54	7	3	100 (105)
20–24 years	39	50	7	4	100 (166)
25+ years	39	46	13	2	100 (56)
Location**					
Large village	21	68	6	5	100 (78)
Tribal village	90	0	10	0	100 (19)
Village group 1	54	33	11	2	100 (173)
Village group 2	20	73	4	3	100 (110)
Husband's occupation*					
Unemployed	14	86	0	0	100 (7)
Agricultural wage labour	53	39	8	0	100 (98)
Own agriculture	41	50	6	3	100 (181)
Salary/own small business	25	60	12	3	100 (60)
Salary/own larger business	18	61	12	9	100 (34)
Previous problems*					
Any previous antenatal problem	37	43	10	10	100 (49)
No previous antenatal problem	43	49	7	1	100 (192)
Any previous intra/postpartum	36	43	6	15	100 (33)
No previous intra/postpartum	42	49	8	1	100 (208)

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Table 2. *(Continued)*

Factor	Percentage who planned delivery at:				
	Home with dai or lay attendant	Home with ANM or nurse	PHC or Govt. hospital	Private or mission hospital	Total (*n*)
Possessions**					
<1000 Rs	46	47	6	1	100 (182)
1001–5000 Rs	36	54	7	3	100 (128)
5001–15,000 Rs	32	47	14	7	100 (44)
>15,001 Rs	19	54	15	12	100 (26)
Family type					
Nuclear	45	45	9	1	100 (103)
Joint	37	52	7	4	100 (277)
Total	39	50	8	3	100 (380)

Eight women had no plans for delivery location.
*Significant association from chi-squared test $p<10\%$; **significant association from chi-squared test $p<5\%$.

In terms of institutional delivery it can be seen from Table 5 that a doctor was present at just over one-quarter of the deliveries that occurred at a government facility; even potentially complicated deliveries were conducted in the absence of a doctor. More than 90% of all women, and more than 75% of women with no complications, were given repeated injections or intravenous infusions of oxytocics to hasten labour. The situation at the private and mission hospitals was better in regard to the presence of the doctor at the delivery, but even here most women were given repeated injections of oxytocics to speed up labour.

The alleviation of pain during labour is clearly not a priority, as only one woman reported receiving an injection for this indication. Episiotomies at government institutions, as seen in Table 5, were reported at a moderate rate (12%) but 38% of women at the private and mission hospitals report having episiotomies. In spite of the importance of recording the birth weight, just 11% of the infants born at the PHC and government hospital were weighed; the room containing the weighing scale at the PHC is reportedly often locked for fear of theft. This situation was improved at private facilities, but even here, over a quarter of babies were not weighed. Women were discharged a few hours after delivery, with little or no advice and no appointment for postpartum care. This is true even when the delivery had been complicated or the infant was premature.

Morbidity and health care seeking among the study group

There was one maternal death among women in the study. She developed bleeding and convulsions while in labour, and was moved from home to the private hospital at which she had received her antenatal care, where stabilization of her condition was

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Table 3. Results of logistic regressions to find significant correlates with delivery intentions

Factor	Level	Parameter estimate (SE)	Odds ratio	*n*
Regression to model choice of ANM at home delivery[a]				
Location	Large village		1·00	69
	Village group 1**	− 1·67 (0·39)	0·19	151
	Village group 2	0·53 (0·43)	1·70	103
Caste	Gowda		1·00	161
	Scheduled caste/tribe**	− 1·25 (0·34)	0·29	94
	Other backward classes	0·20 (0·45)	1·23	51
	Lingayat	− 0·03 (0·66)	0·97	17
Education	None		1·00	143
	Grade 1–5	0·13 (0·40)	1·14	46
	Grade 6–8	− 0·33 (0·35)	1·39	63
	Grade 9+**	1·17 (0·38)	3·21	71
Constant		1·11 (0·43)		323
Regression to model intention to deliver at an institution				
Possessions	<1000 Rs		1·00	169
	1001–5000 Rs	0·45 (0·43)	1·57	125
	5001–15,000 Rs**	1·31 (0·51)	3·70	42
	>15,001 Rs**	1·69 (0·55)	5·43	26
Previous problems	No previous antenatal problems		1·00	178
	Previous problems**	1·20 (0·46)	3·32	45
	First deliveries	0·11 (0·40)	1·11	139
Constant		− 2·91 (0·38)		362

[a]Only those who planned a home delivery included in this model.
Tribal group excluded.
Those with no plans excluded.
Parsimonious models are shown above; all likely correlates were tried in the models, and eliminated by a mixture of backward and forward substitution.
**Significant association from chi-squared test $p<5\%$.

not carried out. The family was advised to take her to a hospital in Bangalore, and she died soon after reaching this place.

Apart from this very extreme outcome, there were many morbidities experienced by women in the study group, and clearly many of them resorted unexpectedly to institutional care during labour. Table 6 shows the incidence of intrapartum and early neonatal morbidities reported. Overall, one or more episodes of the morbidities listed were reported by 32% of all women. When the reports of inadequate pains are excluded, the incidence is 18%. While this is a little higher than some other estimates (Bhatia, 1993; Srinivasan, 1997), variations in design, lay recall, questionnaire wording and definition of morbidity can explain the difference. Using those morbidities excluding inadequate pains as the definition of morbidity, there are

Table 4. Intrapartum management for home births: percentage of deliveries with specific labour practices

Labour practice	Attendant at birth			
	Lay person (119)	Traditional dai (31)	ANM or nurse (93)	All home deliveries (243)
Kashayam (herbal drink) given	44	61	66	54
Encouraged to walk about	11	13	5	9
Oxytocics injected to induce	2	7	51	21
Squatting at delivery	61	23	2	34

Table 5. Intrapartum management for institutional births: percentage of deliveries with specific attendant or practice

Attendant or practice	Location of delivery		
	PHC or government hospital (104)	Private or mission hospital (32)	All institutional deliveries (136)
Main person attending			
ANM	16	0	13
Nurse	58	25	50
Doctor	26	75	38
Total	100	100	100
Management practices			
Oxytocics injected to induce	92		
Episiotomy	12	81	90
Baby's weight recorded	11	74	26

Of the institutional deliveries, one person received an injection for pain relief.
Four additional deliveries occurred en route to services.
Five more additional deliveries had no attendant at all.

78 morbidities for each maternal death in the study. However, many analysts have reported on the difficulties inherent in lay reports of morbidity when compared with medical diagnoses (see, for example, Ronsmans *et al.*, 1997; Fortney & Smith, 1999; and Hulton *et al.*, 2000b). For the purposes of investigating health seeking behaviour, understanding the perceived morbidities is crucial, as well as tracking responses to morbidities as seen by women and their attendants. These responses are presented in Table 7. The issue of care seeking in response to perceived morbidity only arises when the woman suffers the problem while at home, and the tracking of care seeking behaviour within the tabulation only refers to women who were in this situation.

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Table 6. Extent of intrapartum and early neonatal morbidity

Morbidity	Number of deliveries	Percentage of all deliveries
Intrapartum morbidity		
Inadequate pains	54	13·9
Prolonged labour (>18 h)	15	3·9
Heavy bleeding during labour	3	0·8
Retained placenta	20	5·2
Perineal tear	19	4·9
Loss of consciousness	5	1·3
Prematurely ruptured membranes	7	1·8
Abnormal presentation	14	3·6
Heavy bleeding after delivery	25	6·4
At least one of the above	**124**	**32**
Early neonatal morbidity		
Asphyxia	25	6·4
Injury	3	0·8
Cord around neck	1	0·3
At least one of the above	**27**	**7·0**

Total sample size is 388.

Table 7. Care seeking as a response to serious intrapartum morbidity

Numbers of women with:	Total	Developed morbidity during labour or childbirth at home	Stayed at home	PHC or Govt hospital delivery	Private or mission hospital delivery
Inadequate pains	54	51	17 (33%)	31 (61%)	3 (6%)
Prolonged labour	15	14	5 (36%)	7 (50%)	2 (14%)
Membranes ruptured prematurely	7	6	1 (17%)	4 (66%)	1 (17%)
Abnormal presentation	14	13	6 (46%)	5 (38%)	2 (16%)
Heavy bleeding during labour	3	3	1 (33%)	1 (33%)	1 (33%)
Perineal tear	19	18	11 (61%)	7 (39%)	0
Retained placenta	20	19	16 (84%)	3 (16%)	0
Heavy bleeding after delivery	25	21	15 (71%)	5 (24%)	1 (5%)
Loss of consciousness	5	5	4 (80%)	1 (20%)	0
Total women in sample	**388**	**361**			

Twenty-seven women planned to deliver in an institution and actually delivered in an institution: these were not included in columns 2, 3, 4 or 5 above.

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Many women in the villages reported 'inadequate pains' as a complication of labour for which most sought care at an institution. A labour that was 'too long' was also cited as a reason for concern. From Table 6 it can be seen that 69 women reported inadequate pains or that their labour was abnormally long. This represents a very significant 18% of the study population, almost 1 in 5 perceiving that length of labour or unsatisfactory progress in labour were a serious problem. Prolonged labour is usually defined as labour lasting more than eighteen hours but the onset of labour and its duration are very subjective perceptions and it was found that the responses to questions on exact duration of labour were difficult to interpret. In addition, the distinction that is made locally between inadequate pains and prolonged labour seems rather ambiguous, and appears to depend on the woman's perception of the severity of the labour pains. It is not clear from discussions with the women or the birth attendants precisely what criteria they use for making these distinctions. However, 67% of women who reported inadequate pains during a home delivery and 64% of those who reported prolonged labour during a home delivery sought unplanned care in an institution (see Table 7).

Fourteen women reported abnormal presentation, and seven were shifted to the hospital for this indication (Table 7). Breech or footling presentations, which can cause serious problems in delivery, do not seem to cause concern, nor to evoke any standard responses from health care personnel. For example three women, all primigravidas with the breech presenting and otherwise uncomplicated histories, were managed in quite different ways. One woman, who had originally planned to deliver in the hospital, was dissuaded by the ANM and had a difficult delivery at home. Another was referred from the PHC to the government hospital at the taluk headquarters where the delivery was conducted without any problem, while the third went from the PHC to the same hospital, where she was told that she had a serious problem and referred to the government hospital in Bangalore.

Only three women reported heavy bleeding while in labour and two of these sought care at the hospital (Table 7). This has also been a difficult entity to evaluate from self-reports: in one case, the woman reported heavy bleeding, but the mother refuted this, saying that her daughter was not aware of what was normal. There were many more reports of heavy bleeding subsequent to delivery. Twenty women reported that the placenta was not expelled spontaneously, the majority of whom did not seek institutional care. The local perception is that the placenta should be delivered within half an hour after the baby is born. If it takes longer than this, the woman is made to retch or vomit (generally by being told to swallow her own hair) as it is believed that this causes the placenta to be expelled.

The condition of the infant after birth is to some extent a reflection of the adequacy of management of labour. Ten of the 388 women had stillbirths representing a rate of 26 per 1000 deliveries. Of the 378 liveborn infants, 25 were blue or not breathing at birth, and required resuscitation. The resuscitation procedures used often included sprinkling cold water on the child and sometimes immersing its body in a mixture of water and cow dung. Mouth-to-mouth resuscitation was only reported once and neither dais nor ANMs had suction apparatus. Overall, in 7% of deliveries there was a serious morbidity associated with the newborn (see Table 6). There were sixteen neonatal deaths, the equivalent neonatal mortality rate being 42·3 deaths per

1000 livebirths. This is slightly lower than the earlier Karnataka rural estimate, calculated at 55 per 100 livebirths from the 10-year period before the INFHS was carried out in 1992 (IIPS, 1995).

Discussion

When a service is perceived as beneficial, families within the study area avail themselves of it, sometimes in spite of beliefs and customs that might mitigate against its use. However, this study's findings indicate that only certain kinds of obstetric care seem to have gained acceptance. Routine antenatal care is generally accepted and the choice of the ANM as the attendant at delivery is widespread, but domiciliary births remain the norm, and routine postpartum care is hardly ever sought (Kilaru *et al.*, 2004).

The impediments to seeking care are well known (see, for example, McCarthy & Maine, 1992; Sundari, 1992; Ambaretnani *et al.*, 1993; Kutzin, 1993; and PMM Network, 1995) and many are borne out by this study. Among them are cost (including the hidden costs of payment for supposedly free services), lack of education and social standing, problems of time and distance, perceptions of the severity of unexpected problems, and the culturally unacceptable ambience of nearby facilities. Although demand side factors have been explored more thoroughly in this analysis than the actual provision of services, several key results have suggested that the quality of care that is expected from local services is a crucial element of a family's decision-making process when choosing whether to seek care for pregnant women or those in labour. In most cases of severe morbidity, there is an awareness on the part of women's attendants that care should be sought. This is consistent with the findings of a larger scale study of maternal deaths in a nearby region (Bhatia, 1993). Delays in making care seeking decisions are influenced by perceptions of the quality of local services, and clearly the outcome of each morbid state is also directly affected by the treatment or referral procedures carried out (Hulton *et al.*, 2000a). Thus there is a clear mandate for not only the improvement of procedures carried out, but also of interpersonal relations between women, their families and service providers in the region.

From the recent debates about the effectiveness of antenatal care to avert maternal ill health (see, for example, Rooney, 1992; Villar & Bergsjø, 1997; Lumbiganon *et al.*, 1998), it is clear that one of the primary advantages of the contact between antenatal care-givers and pregnant women is the opportunity it gives for history taking, and advice on contingency planning for the delivery. In the case of the women in this study, such opportunities could have been missed, as evidenced by the considerable level of unplanned institutional care seeking during the intrapartum period. The leap from planned to actual institutional delivery from 11% to 35% is startling in itself, but in addition there was a significant move away from planned deliveries with the ANM, to eventual births with a lay attendant or dai. The proportion of women who planned for an ANM to assist was 49%, as compared with the actual occurrence, which was less than half of this proportion.

There was an intention on the part of a large proportion of the women to have an ANM present at their delivery. Given the lack of resources in the area and the

culturally hostile environment of a hospital labour ward, this is probably the most rational choice on the part of most women. From the survey results, the location of the village was the most important factor in deciding to seek an ANM-assisted delivery; women only sought care where a good service was available. The eventual non-appearance of the ANM at many of the births serves to highlight the chronic lack of resources in the area. However, it should be stressed that the demand for a trained assistant clearly exists and that the need is unmet in the case of rural Karnataka. Very high maternal education (grade 9 or above), even though not necessarily a marker for higher status, was also clearly associated with the choice of a trained medical attendant. This finding concurs with other studies which have shown that though a small amount of education can have a beneficial effect on child health, a higher educational level is required for positive decision-making in favour of improved maternal health (see Bloom *et al*., 1998). The final factor associated with the choice of ANM at delivery was caste: still a strong factor in care seeking in the rural context with scheduled castes and tribes much more likely to opt for lay assistants.

The number that sought a hospital delivery, however, was very small. Many of those that did were conscious of previous problems in pregnancy, or they had the resources to be able to afford the considerable cost of a private delivery. To place these costs in context, the costs for delivery in a private hospital, blood transfusions and Caesarean sections are several hundred times an average monthly salary. Interestingly, neither previous problems nor wealth were important factors associated with the choice of an ANM-assisted delivery.

Shortcomings in the actual care provided both at home and in facilities, such as inadequate services or even mismanagement, cause some scepticism regarding the benefit of such care. Delivery at the PHC or government hospital does not guarantee good care. Further, the insensitivity with which women are treated makes them averse to institutional, or medically attended deliveries. Many women prefer to have a birth within a household with an experienced relative in attendance, where cultural practices related to ritual pollution and *bananthana* can be followed, and where their care-givers are familiar. Institutional deliveries are only sought where problems have occurred before, or where the improved setting of a private hospital can be afforded.

Taking both institutional and home delivery into account, there are beneficial and harmful practices in both settings that can have a direct effect on outcome as well as a more indirect effect on perceived quality and subsequent use. For example, undesirable practices in hospital wards may actually increase morbidity by causing iatrogenic problems, such as uterine tetany following injected oxytocics. Table 8 gives a breakdown of practices, both undesirable and beneficial, in traditional and modern institutional situations within the study area. 'Traditional' here means delivery within the household with lay or dai attending, and 'modern' is equivalent to an institutional delivery. Delivery with the assistance of an ANM at home has elements of both the modern and traditional, the home setting being a more traditional context, but with a medically trained attendant.

The division of practices into harmful and beneficial here is supported by a wide range of maternal health literature. Clearly medical expertise and equipment, along with aseptic conditions are required for complicated cases, and have much potential to improve outcome for less serious cases too. Referral patterns have been shown to

Table 8. Beneficial and undesirable practices in the study area

	Undesirable	Beneficial
Traditional	● Management of retained placenta ● Unhygienic surroundings ● Cord care and instruments ● Resuscitation procedures	● Squatting to deliver ● Encouraged to walk about ● Supportive atmosphere ● Culturally appropriate
Modern	● Injections of oxytocics ● Delivery position ● Inappropriate referral ● Lack of resources and poor function	● Hygienic conditions ● Medical expertise ● Equipment

be a key link in the maternal health care chain, and mistakes made at this stage can often prove fatal (Sundari, 1992; Fawcus *et al.*, 1996). In addition, the culturally alien environment of the hospital ward can lead to adverse outcomes if social support to women in labour is strictly controlled. Fear, pain and anxiety may be increased by a mechanized clinical environment and unknown attendants, with potentially undesirable effects on the progress of labour. It has been shown that support during labour accelerates recovery, favours early bonding between mother and child, decreases anxiety and depression during the first six weeks postpartum and reduces the time spent in labour (Hofmeyr *et al.*, 1991; Klaus & Kennell, 1992).

Supine position for delivery serves no physiological purpose during normal deliveries. Generally, if given the choice, women choose positions such as squatting or standing that more closely complement the physiology of the labouring process, ensuring that gravity contributes to effective labouring. Lying down, or semi-reclining, effectively results in a more restricted birth passage. In these positions, particularly the latter, the woman will be sitting on her coccyx and sacrum, curving the interior of her pelvis and bringing her pelvis and spine closer together, which reduces the space available for the baby's head (Sutton & Scott, 1996). A number of trials (Liddell & Fisher, 1985; Stewart & Spiby, 1989; Crowly *et al.*, 1991; Bhardwaj *et al.*, 1995) suggest that an upright position or a lateral tilt during second stage labour has greater advantages than a supine position. Findings demonstrate that the upright position causes less discomfort and difficulty when bearing down, less labour pain, less perineal trauma and fewer wound infections. Much of the positive effect of the vertical position depends on the ability of the birth attendants and their experience with any position other than the supine. Birth attendants may need to be trained to help women deliver in positions other than the supine (WHO, 1996, p. 27).

In this study area as well as in many other areas of the world intramuscular oxytocin is frequently administered by injection to augment labour. Use of any intramuscular oxytocin before the birth of the infant is generally regarded as dangerous because the dosage cannot be adapted to the level of uterine activity. Hyperstimulation may result, which is harmful to the fetus (WHO, 1996). An increased incidence of ruptured uterus has also been linked to this practice (Kane

et al., 1992). This harmful practice should be abandoned (WHO, 1996), especially if there are no facilities on hand to perform an emergency Caesarean section. The emphasis on inadequate pains as a serious problem in labouring women has clearly encouraged the practice within the study villages.

Unanticipated problems during labour and delivery can arise suddenly. This study indicates that 34% of women experience some morbidity during labour and delivery, and many more report problems in the postpartum period. Two recent studies in south India show rates of 8% and 17% for intrapartum morbidity and of approximately 24% for morbidity in the postpartum period (Bhatia & Cleland, 1996; Srinivasa *et al.*, 1997). No definition of what exactly constitutes obstetric morbidity has been established, nor is there a consensus regarding severity. Figures ranging from 16 to 100 pregnancy-related morbidity episodes per maternal death are found in the literature (Koblinsky & Harlow, 1993). Some of the variation in different reports can be explained by the difference in populations, but part is probably due to methodological issues such as definitions by investigators of what constitutes morbidity, the use of self-reported, spontaneous or prompted responses to collect data, and recall bias in retrospective studies. The validity of self-reported data depends greatly on the interviewer's skill and even experienced interviewers can find reports of certain problems like prolonged labour and heavy bleeding difficult to evaluate. The means of measuring these and the accuracy of observation by lay persons, or even by health professionals, is fraught with error.

Findings from this study also suggest that many women did not seek professional care for their health problems, or sought it after an inordinate delay. Retained placenta and heavy bleeding after delivery, for example, were often not reasons for seeking care. Conversely, consultation was sometimes unnecessarily sought; for instance, the supposedly inadequate progress of labour might actually just be inadequately evaluated by the birth attendant. While certainly preferable to not seeking care, this suggests an inappropriate pattern of care seeking.

Improving maternal health requires the observance of appropriate practices, both traditional and modern, for women without complications, as well as the adequate management of problems which develop in the obstetric period. Appropriate strategies vary with the local situation. The question of whether women who anticipate an uncomplicated birth need to deliver at a hospital is being debated worldwide; in rural areas such as Karnataka, with limited resources, universal institutional delivery might well be impossible for the foreseeable future. However, given the current situation of inadequate transport, inefficient referral services, lack of knowledge of danger signs, variable quality of service and lack of contingency planning, there is much that could be done to improve the situation as it stands. Many programmes exist that might be appropriate in this setting. There are schemes to extend the use of routine antenatal care, to provide health education to communities, to increase institutional deliveries, to encourage 'lying in' homes close to well equipped health posts and to facilitate more efficient transportation to institutions. Given the unfulfilled demand for skilled attendants in the area there is clearly an imperative to ensure that the outreach system achieves a more effective coverage. The study findings also indicate that there is an imperative to encourage a more reflective approach to quality of care at institutions that women from this study

area often use in an emergency. The political will necessary to achieve these changes is rooted in the 'rights to reproductive health' movement, which was recognized internationally at the International Conference on Population and Development in 1994, and whose importance has recently been reaffirmed at the 10th anniversary of that conference (Germain, 2004).

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