Reproductive Mishaps and Western Contraception: An African Challenge to Fertility Theory

CAROLINE BLEDSOE
FATOUMatta BANJA
ALLAN G. HILL

KADDy Sisay, a 30-year-old remarried divorcée, fell into a sample of women our surveyors interviewed in rural Gambia every month for 15 months during 1993–94. In this population where people so intensely desire children, Kaddy had carried at least four pregnancies. Three were with her first husband. The firstborn, a daughter who died before age three, was followed by two stillbirths. At this point Kaddy’s marriage ended, very likely a consequence of her failure to produce children for her husband. Remarrying as the marginal second wife of a man already married to a younger woman with three children, Kaddy became pregnant for the fourth time and bore a son. Our surveyors began to interview her when the baby, still breastfeeding, was about 17 months old. Four months later, this child died. Left in a precarious marriage with no children to support her in later life, Kaddy, although she expressed a strong desire for more children, did the last thing we might expect: she began a long course of Depo-Provera injections.1

This example presents three apparent anomalies. We perceive high-technology Western contraceptives as being out of place: being put to use in a country whose rural inhabitants appear to have radically different ideas about reproduction from those in the West. We also see contraceptives as being used at a point in time, and for a duration, in which “child spacing” can hardly characterize the motive. Finally, we see contraceptive use in an unexpected marital context: by a wife whose future conjugal life seems to depend crucially on her ability to produce children. It is small wonder that by the fourteenth month of our survey, Kaddy’s comment, recorded by the surveyors, was, “I am suffering in my marriage.”

An outsider’s first reaction might be to attribute these reported actions to data error or statistical aberration. Yet Kaddy’s case, as startling as
it sounds to the demographer’s trained ear, is not unusual for women in such situations. In our 1992 baseline survey of 2,980 women who had ever been pregnant, 150 women were using Western contraceptives. Of these, 18 percent were doing so after a reproductive mishap—a miscarriage, stillbirth, or the loss of a neonate or a young child. This 18 percent is all the more surprising since, in a “nonlimiting” population whose members value high fertility, no one in circumstances like Kaddy’s should be using any contraceptive method, at least according to the conventions by which fertility in Africa is usually analyzed. These findings on contraceptive use following reproductive mishaps, without apparent regard for its likely temporal penalties for fertility, fly in the face of every major demographic theory that has been advanced to explain fertility behaviors in Africa. They contradict any sort of child-replacement fertility hypothesis; they also reflect efforts to “control” fertility under circumstances where a target family size can hardly have been reached. They certainly reflect circumstances that our project’s earlier conclusions about child spacing as the basis for contraceptive use (Bledsoe et al. 1994) failed to consider: there is no child to space. Such observations seem to make no sense in a population so desirous of children.

This article shows that these very small numbers are the most striking edges of a much larger body of evidence. They suggest a convergence between conventional demographic understanding of the social and biological dynamics of high fertility and a very different framework of interpretation. The key question is not when fertility begins, the boundary that draws most demographic attention in high-fertility populations, but how it ends. We show that rural Gambians see fertility as limited by a woman’s eroding bodily capacity to bear a child safely over successive pregnancy outcomes. This capacity wears out less with the passage of time than with the cumulative effects of wear and tear on the body, particularly in the wake of obstetric traumas. Since the pace of this decline can be slowed with “rest” between pregnancies (that is, the creation of recuperative space), and since time spent in “resting” is considered largely irrelevant to ultimate child numbers, it is not surprising that the most traumatic health assaults, such as those that reproductive mishaps reflect or intensify, produce the strongest contraceptive responses.

This alternative view of reproduction and aging, which we term “body resource expenditure,” is consistent with findings from elsewhere in rural sub-Saharan Africa on contraceptive use, marriage, birth intervals, and men’s reproductive desires. This view also appears to have figured significantly in other times and regions. It draws support from every discipline that has touched on reproduction in Africa—demography, reproductive biology, medicine, anthropology, art, literature—each of which would probably claim the findings as its own “common sense”: knowledge that seems so obvious it scarcely bears stating. Yet none has acknowledged this alter-
native view of reproduction and aging as a basis either for interpreting intentional behavior or for carrying out concerted analysis.

Understanding this alternative view requires looking through a cultural lens not only at reproduction in rural Gambia but also at the interpreting frameworks by which the population sciences have come to analyze high fertility. As most of the world settles into a regime of low fertility, the science of the study of high fertility is disappearing rapidly; international medical journals now describe the predominant problems faced by older women as those of cancer and infertility. As a result, even in Africa demographic research now tends to treat contraceptives as devices to limit the number of live births, with maternal health improvements being seen as a byproduct, and contraceptive users are seen as a group apart: educated, autonomous, and nonfatalistic. We show, however, that in contexts with high levels of reproductive morbidity and mortality, a health model, not a demographic one, dominates people's thinking about contraception, superseding by far any specific worries about family size. The fact that a woman's health and life are at stake—to say nothing of the wellbeing of the extant children who depend on her—means that the medicinal effect of contraceptives, which have the potential to heal by allowing recovery from traumatic pregnancy and delivery experiences, may loom larger than their fertility-reduction potentials.

It is important to stress that we are concerned here neither with fertility levels nor with fertility decline, but with the intents with which people use contraceptives and the patterns of contraceptive use that these intents produce. We see women as pointing by their contraceptive actions to a dimension of human biology that has been disappearing from Western views of this matter and to ways in which they seek to shape biological outcomes. We first lay out a series of assumptions upon which contemporary analyses of fertility in developing countries have been grounded, including our project's own initial child spacing theme. Turning to some of the inconsistencies that began to emerge in the findings, in the rest of the article we set forth the alternative vision and adduce social and cultural evidence for it.

**Key assumptions in studies of contraception and fertility**

Most Western women, when asked how many children they want, produce a clear numerical response. By contrast, Gambian women frequently respond, "Whatever God gives me" or "Ask my husband" (for a related discussion, see van de Walle 1992). Indeed, the testimonies of subfertile women suggest that they are far from happy with their divine allotment, while those women who received a bounteous number probably would have liked even more. In such populations, the most obvious question is
not the one that policymakers typically ask: “Why do they want so many children?” Rather, it is “Why don’t they have more?” For contemporary studies of developing countries, the answer to this question has centered on two assumptions: (1) live births, if not surviving children, are the only meaningful units of fertility analysis, and (2) time imposes the ultimate check on both completed fertility and fecundability. Expressed in the numerator as live births over a specified amount of time in the denominator, the elements in this expression are set against the countdown to what is seen as the ultimate limit to fertility: menopause. These convictions are so taken for granted that they are seldom articulated: certainly they infused every aspect of the Gambian project’s original formulation.

Reproductive mishaps and the units of fertility analysis

Although infant and child mortality is a standard object of demographic data, far less so are pregnancy outcomes other than live births—namely, fetal loss, intrauterine mortality, or wasted pregnancies. In scientific terminology, “miscarriage” and “stillbirth” refer, respectively, to intrauterine “deaths that occur before and after the conceptus would have been viable in the outside world,” usually near the end of the second trimester (Wood 1994: 240). Older women may be more susceptible to these losses (Casterline 1989b; Wood 1994: 250–252), although the likelihood of their occurrence may be complicated at least in low-fertility populations by the fact that women who are continuing to try to have children at older ages tend to be those with a history of fetal loss (Santow and Bracher 1989). According to Wood (1994: 246), as many as one-third of all pregnancies end in fetal loss, although a sizable proportion occur so early that they are detectable only by hormonal analysis. Assuming the proportion is indeed this high, our large 1992 survey, which showed 8 percent of all pregnancies resulting in outcomes other than live birth, captured only 18 percent of the miscarriages and stillbirths that may have occurred, although the 8 percent reported in our survey is quite similar to the levels found in other surveys that collect fertility histories. While the project was not equipped for hormonal analysis, and its principal investigators did not begin the project with any interest in fetal loss, a greater number of reports of these instances could undoubtedly have been elicited with determined probing, had the eventual importance of these data been anticipated. (From 1998, the North Bank’s demographic surveillance system began to monitor all pregnancies.)

Western demography has now amassed vast amounts of data on child mortality in developing countries, especially on mortality of neonates and infants. In contrast, data on miscarriages and stillbirths, when collected at
all, are usually treated as temporal placeholders for births that did not oc-
cur when expected and are not analyzed. The most obvious reason why
such data are rare is that they are hard to collect. Child deaths are painful
to recount, and women sometimes omit stillborn children in fertility histo-
ries. Data on miscarriages are even more difficult to capture, because they
are often indistinguishable from a late menstrual period or because women
do not wish to disclose fertility problems. Twenty years ago, the World
Fertility Surveys tried to capture miscarriages and stillbirths, with uneven
results (see Casterline 1989a). Because events like these confound accu-
rate measurement and because contemporary demography has focused on
population growth, it is not surprising that fertility surveys turn to live
births as the basis of the most common population-level fertility mea-
surements. Almost all DHS fertility histories exclude everything except live
births. In effect, one breath of air, even if it is the only one, qualifies a
nonviable neonate as the subject of intense further investigation, while all
information on a healthy fetus who may have died in the birth canal after
lengthy, obstructed labor is omitted completely.

If information on reproductive mishaps is scarce, information on ma-
ternal behaviors following mishaps is even more so. Maternal behavior pre-
ceding early childhood deaths has attracted extensive demographic atten-
tion, as have behaviors preceding and following live births. But what a
mother does after a reproductive mishap has gone virtually unnoticed. The
behavior surrounding reproductive mishaps, especially the use of Western
contraceptives, provides some of the most compelling evidence that many
contemporary assumptions about the dynamics of high fertility have been
wrong.

In the effort to build new theory from how African logic describes
and counts fertility events, we face the inevitable problem of translating
concepts without diluting them or the empirical referents that underlie
them. In Western convention, a miscarriage is a fetus that is expelled be-
fore about 28 weeks of gestation, while a stillbirth is a fetus of longer ges-
tation that shows no signs of life at birth. This temporal division focuses
attention on the fetus, and provides a rough index of its viability outside
the womb. Gambian classification, however, emphasizes the mother’s ex-
xperience of the event and its health implications for her. In local under-
standing, a “miscarriage” (commonly translated into local English as “ab-
ortion”) refers to the loss of a fetus before it becomes a discrete entity that is
clearly separate from the mother. This occurs some time before the first
half of the pregnancy, or before the fetus has a recognizable human shape,
the latter outcome being translated as “stillbirth.” The problem, however,
is that referring only to miscarriages and stillbirths omits another group
that local people see as having important similarities: young children who
died, particularly, like Kaddy Sisay’s last child, before weaning.
To accommodate some of these distinctions, this article uses the phrase "reproductive mishap" to include both stillbirths and miscarriages, and the death of a young child. "Reproductive mishap" is an unconventional expression; however, it reflects two key cultural concerns with respect to the events so labeled: the general failure to add a child to the compound and the possibility of adverse medical consequences for the mother.

Describing quantity is even more difficult. The demographic notion of "parity" generally includes only live births. Rural Gambian women, however, reckon fertility according to the total number of fetuses they have borne, whether as single or multiple births, or in live births or other outcomes. Since there is no English equivalent for this emphasis in either medicine or demography, the rest of this article, when alluding to quantity, uses the term "pregnancy" to refer to the number of fetuses a woman has borne and the term "parity" when referring to the number of times a woman became pregnant with one or more fetuses.

Time, age, and birth intervals in high-fertility populations

While the practice of excluding everything but live births dominates fertility analysis, assumptions about the limitations posed by time shape every convention governing the analysis of fertility (for a lucid example, see Ryder 1959; for a departure from this view, see Hill 1993). Reproductive potential is seen as limited by time: time elapsed between menarche and first birth, in birth intervals, as menopause approaches, and so on. In populations where people do not want to limit the number of children (those governed by "natural fertility," in conventional parlance), birth intervals are one of the most thoroughly researched topics involving temporal assumptions. Even the hallmark itself of such populations is regular birth intervals, assumed to result from consistency in behaviors across all intervals and to imply no deliberate efforts to curtail births. Factors such as lengthy breastfeeding, prolonged marriage negotiations, and the cessation of sexual intercourse before menopause for women who become grandmothers are recognized as having the potential to cut into this temporal allotment of fecundity, as does the lengthening of intervals with the decline in fecundability. The assumption, however, is that once the age structure of the female population has been ascertained, together with some population-level variables (mean age at first marriage, levels of sterility, prevalence of contraceptive use, breastfeeding duration, etc.), the analyst can estimate the average number of children that women in this population are likely to bear in the future. Even the most common measures used to describe live birth rates, period or cohort age-specific fertility rates, implicitly incorporate this assumption since only live births are counted in the numerator and time is required to calculate a rate.
Time has become so embedded in the concepts and formulas of fertility studies that its passage is treated as if it had an intrinsic capacity to bring about life changes of growth and decline, and at a uniform pace among all like entities. Of course, common sense would assert that it is not time that produces these results but metabolic processes that, as they occur within a given temporal duration, lead to the growth or demise of an organism. Common sense would also assert that these processes need not occur at the same pace among all individuals. Yet it has for the most part been gerontologists who have drawn attention to the pliable and episodic, rather than linear, character of aging (e.g., Spence 1989; Hayflick 1994; Bittles 1996), and to the fact that the process of deterioration that we usually call "aging" can be affected by life events (e.g., Rowe and Kahn 1997). Such realizations have seldom been taken up outside the narrow field of aging studies, least of all by studies of reproduction. On the other hand, the possibility that reproduction and its concomitants, as major life events, can accelerate the pace of aging—a possibility of obvious significance for high-fertility societies—has not been taken up at all in gerontology.

In the model of the fixed life course that underlies fertility studies, contraceptives are treated as devices that exploit the temporal limits of fecundability. In blocking off segments from a fixed temporal potential, contraceptives can either limit or delay fertility, depending on the duration of their use, whether they simply replace abstinence, how effective they are, and so on. The ensuing logic thus seems to pit women in high-fertility societies against population planners on a temporal battleground. The former are perhaps trying to make maximum use of their fecund time span by fitting in as many births as possible, and the latter are trying to reduce the size of the completed family by blocking off or "protecting" large segments of the fertile life span through family planning campaigns to persuade women to delay, space, or stop childbearing. The odd fact, however, is that women themselves do not see the issue in these terms. Efforts to space births, even through the use of contraceptives, are not necessarily seen as limiting one’s final family size. And while menopause is drawing unprecedented attention in the United States among educated baby boomers who have postponed parenthood, it is scarcely discussed at all in The Gambia. Chronological age draws almost no indigenous interest throughout sub-Saharan Africa, a fact to which generations of frustrated censustakers and surveyors can attest.

A further irony is that contraceptive use, though it is plotted on a temporal grid, is analyzed in highly synchronic ways. In rural Africa, the few users of Western contraceptives who appear in surveys are interpreted as a tiny island of "acceptors" in a sea of the unpersuaded. These scanty numbers are also interpreted as evidence of "discontinuation," and of failure by governments to motivate women to reduce their fertility or to educate women about the utility of modern contraceptives. As such, the logi-
cal analytical strategy is to examine users' background characteristics such as age, ethnic group, religion, educational level, and exposure to family planning messages. Whereas young women, for example, are assumed to be open to change and willing to experiment with innovations such as modern contraceptives, older women are usually considered fearful traditionalists who resist Western contraceptives.

The study

Our study took place in the North Bank area of rural Gambia. Its first phase consisted largely of a 1992 baseline fertility survey, carried out in 40 villages, of 2,980 women of reproductive age. The study also included several hundred pages of open-ended interviews and field notes. Like most of sub-Saharan rural Africa, the population of rural Gambia is one that demographic convention would confidently label a natural fertility population. In our study region, ever-married women had one of the highest total fertility rates in the world, 7.5 children per woman, with no signs of major change over a long period. Birth intervals averaged around 2.5 years, and contraceptive use rates were very low. Only 5 percent of women under age 45 were using a Western method of contraception, mostly oral contraceptives and Depo-Provera. (National levels, which include urban areas, are slightly higher; Republic of The Gambia 1993.) As for methods usually termed "traditional," few women report using herbs. Far more use "juju," a small leather pouch sewn tightly around pieces of paper containing secret texts from the Qu’ran. There is widespread skepticism about the efficacy of juju, but women readily use it if nothing else is available or if other methods fail or cause complications. Abstinence is frequently reported as a contraceptive measure, although "avoiding the husband" (the way our survey phrased the query) often consists simply of a reduction in the frequency of sexual "contacts," so as to reduce the risks of a mistimed conception. A few larger towns have hospitals that can perform cesarean sections. Twenty-one women in our 1992 sample (one percent) reported that they had been sterilized surgically, a procedure that can now be performed at the regional and district health center, with the husband’s permission.

Members of the three major ethnic groups in the region (44 percent Mandinka, 36 percent Wolof, and 20 percent Fula) engage in agriculture and herding; only 3 percent of ever-married women had been to school. Most women were married (88 percent), 58 percent of them polygynously, and most had married quite early, around age 16, though the beginning of their sexual relations may be delayed for another year or so until the young wife is "transferred" formally to her husband's compound. Mean age at first birth is 18.4 years. In their husbands' compounds, women seek to establish their security and to gain a competitive edge over present and future co-wives and sisters-in-law by bearing a number of children, espe-
cially sons, who will retain rights of residence and inheritance in the compound and will eventually take over its leadership roles. Once marriage begins, birth intervals take on a classic natural fertility pattern of around 2.5 years (A. Hill 1997; C. Hill 1994). After her reproduction is finished, a woman usually tapers off the frequency of sexual intercourse or ends it altogether, an event that may or may not coincide with becoming a grandmother, though terminal abstinence is usually explained in these terms.

The first phase of our study established that birth intervals in this high-fertility population may be regular, but they are hardly natural, at least in the sense of being untouched by human intentionality. The study also indicated that it was less useful to see contraceptive users in static terms, as a discrete group whose background characteristics set them apart, than as the tip of a moving wave of numerous temporary users who were simply using contraceptives for small slices of time to space their births—especially in cases where women deemed that their fecundity had resumed before their child was ready to be weaned. Most “acceptors” rapidly, and predictably, became “non-acceptors” (and vice versa) over the sequence of pregnancy, lactation, and weaning. The rationale given in virtually all cases was not an intent to limit births but the wish to protect the health of the children and the mother (Bledsoe et al. 1994; see also Lorimer 1954; Caldwell and Caldwell 1981; and Greene, Bankole, and Westoff 1997). Women’s efforts to monitor birth intervals and to space births at safe intervals are so strong, because of both individual volition and fear of social sanction, that one might well conclude that birth intervals themselves, not numbers of children, are the focus of the calculus of conscious choice (cf. Coale 1973: 65).

These observations rendered the concept of natural fertility irrelevant to understanding African fertility. To be sure, Henry, the originator of the concept (1961), allowed that culturally prescribed practices such as observation of lengthy “sexual taboos . . . during lactation,” which have an influence (whether intended or unintended) on fertility, may be included under the rubric of natural fertility as long as such practices were not related to parity. Natural fertility could thus, in theory, apply to situations of delayed marriage, prolonged breastfeeding, premenopausal terminal abstinence, and the use of contraceptives or polygyny to space births or (as this article describes) to heal the physical damage caused by traumatic pregnancies. Yet if the principal test of a theory is its ability to explain a wide variety of practices and motives, then to stretch the concept of natural fertility to be consistent with all these de facto fertility-limiting practices holds no obvious advantage over a simple assertion that people do not try deliberately to limit fertility. The analytical task in any case is to explore the variation in fertility-affecting practices that have existed across time and place.

The second phase of our study was intended as a time to fan out the investigation in a more open-ended fashion, to enrich the information on
child spacing and contraceptive practice. Its principal instrument was a 15-month multi-round survey, conducted in 1993 and 1994, administered each month to some 270 women in eight of the 40 villages surveyed in the first phase who had had a pregnancy in the last three years.\textsuperscript{10} This multi-round design was employed to ascertain changes in postpartum sexual, reproductive, and contraceptive patterns more accurately than a cross-sectional survey would allow. The rounds contained a core fertility questionnaire, including quantifiable questions and several open-ended follow-up questions, and a longer open-ended question that varied each month.

Our analytical effort at this point was enhanced by the use of a computer software program, Epi Info, whose data entry and analysis features can be exploited for exploratory analysis in ways that exceed those of a typical statistical program. They do so by allowing quantitative data to be sorted and scrutinized in several ways, and against the template of the survey form into which individual women's answers can be read. Epi Info can also juxtapose open-ended commentary as variables alongside the quantifiable responses, allowing people to explain in their own words their answers to key questions. For example, the yes/no question “Last month did you want to get pregnant?” can be followed by “Please explain”; and “What means to avoid pregnancy did you try last month?” can be followed by “Why did you use this method [or nothing]?” The cases can then be sorted by age, number of pregnancies, or type of birth control, and the transcribed explanations can be studied. The combined effects of commentary variables plus quick access to full view of all the questions facilitate a search for unanticipated associations among variables.

**Reproductive mishaps and contraceptive use**

The project's second phase, because of its intense focus, brought to light some inconsistencies in the earlier results. One challenge was to better understand differing male reactions to contraceptive use. Throughout sub-Saharan Africa, men have a longstanding reputation as obstructing women's use of family planning. Yet the men in our surveys were hardly uniform on this question. Some men expressed moral outrage at the notion of family planning; and stormy arguments can arise when a husband discovers his wife's secret cache of tablets or hears from an indignant older female relative that his wife was seen in the family planning clinic. Other men were not only enthusiastic backers of their wives' contraceptive use; they saw themselves as "spacing" births by agreeing to abstinence, by using condoms, or even by taking their wives to the village health worker to obtain pills. Still, if contraceptives were simply being used to ensure children's health by safe birth spacing, there should be no male opposition to contraceptive use.
The two areas containing the most striking inconsistencies, however, were those that have remained farther from the gaze of population studies: the behavior of women nearing the end of reproductive life and the behavior of those who had experienced a reproductive mishap.

The early reproductive years have attracted the most demographic attention because of the fertility implications of early marriage among a highly fecund age group (e.g., National Research Council 1993b). Older women’s low fertility rates, whether produced by declining fecundity or by terminal abstinence, have almost completely marginalized this group as an object of interest in high-fertility populations. Their behaviors and commentaries diverged far from what investigators might expect in such a population.

As either a natural fertility or a child spacing framework of analysis would anticipate, many women were anxious to resume childbearing around weaning time as long as they could avoid overlapping children, one in the womb and the other nursing. This definition of child spacing followed the most salient local usage, although it departed from the more standard one: the use of contraceptives now although more children are wanted later (e.g., National Research Council 1993a). Among the women with weaned children whom we interviewed in monthly rounds, those who stated that they did not want to be pregnant at the moment were older (31.9 years) than those who did (29.9) \( N = 659; p < .01 \). Clues to this older/younger distinction were found in the expanded commentary responses. When asked, “Are you trying to take a ‘rest’ between your births?” (that is, to create longer spaces between weaning one child and conceiving the next), young women (under age 25 in this particular sample) offered comments like these:

—I love having children.
—My husband wants more children.
—I want more children so I want as soon as my child is weaned to get pregnant one month after weaning.
—I did not reach the age of delaying my pregnancy because I only have 3 children.

On the other hand, what stood out in the responses of many older women, even among those wanting more children, was a determination to “rest”: to slow the pace of childbearing by delaying a new pregnancy past the point when the previous child is weaned. These women were in their mid-30s or older:

—I want to delay the next pregnancy because I am weak and want to wait until I have a little strength again.
I don’t want to have a child any more. I want to rest now and take care of my present children.

My womb is now slight [weak, thin] and I delivered my present child in [the capital of] Banjul [i.e., a high-risk case].

I am not well.

As such responses suggested, young women, with their youthful reserve of strength and health, seem to recover quickly from a birth. In contrast, many older women, though their fecundity might be ebbing, were actively trying to create wider birth intervals than child health alone demanded. Finding their strength increasingly hard to regain after each successive birth, they expressed fears of the rising health risks that can accompany high-parity childbearing: complications of labor, hemorrhage, and death. Whereas younger women preferred pills and traditional contraceptives that did not appear to jeopardize their fertility, older women were much more frequent users of the long-lasting Depo-Provera. They also spoke with considerably more favor about the prospects of the husband marrying a co-wife than did younger ones; many older women took matters into their own hands to launch the search for a new wife for a diffident husband.11

While “child spacing” was beginning to erode as a satisfactory explanation of the project’s findings on use of contraception, one of the most obvious new inconsistencies surrounded the linguistic distinction between “old” and “young.” Many women who were only in their mid- to late 30s reported in the 1992 survey that they were “too old” to have another child. While such reports might be explained as indicating cases of premature terminal infertility, several of these “too-old” women were having regular menstrual periods and a number were using long-term contraceptives. Several were even breastfeeding at the time of the survey. Such responses suggested that Western concepts about age and reproduction in a high-fertility society bore little resemblance to the forces at work here. An earlier article described some of the health concerns of older women and their efforts through contraceptive use to extend the birth interval beyond the time of weaning, in order to show that fertility behaviors were indeed changing throughout the reproductive life course, though not with the intent to limit completed family size (Bledsoe et al. 1994). The earlier article, however, did not fully acknowledge that these findings were inconsistent with the definition of child spacing as the avoidance of pregnancy before the latest child had been weaned.

Older women, then, were more anxious than younger ones to stop or delay childbearing by using effective, long-acting contraceptives, and men sometimes manifested outrage at what seemed to be women’s efforts to ensure the health of their children. But the domain of inconsistencies that
posed by far the most troublesome stumbling block for the child spacing model of contraception was the fact that in a number of cases, there was no last child. Selecting only users of Western contraceptives in our multi-round sample and examining their characteristics and comments drew attention to women who were contracepting in the wake of a reproductive mishap. Such cases had been ignored in the earlier phase of the project by adherence to prevailing disciplinary practice, which counts only live births as significant data and focuses on intervals in which a child has survived.

Taking women under age 45 in the 1992 survey whose last pregnancy had ended after 1987 (within the last four-plus years; N = 1,756), Figure 1 displays patterns of contraceptive use (Western or traditional) according to the status of the woman’s last pregnancy: a child currently breastfed, weaned, or deceased; or an outcome other than live birth. The results are displayed in histogram format to convey how very small are the numbers of women reporting mishaps compared to other women.

Among the most numerous group, breastfeeding women, just under 6 percent were using Western contraception; another 6 percent were us-

**FIGURE 1  Women under age 45 using Western or traditional contraception according to the status of last pregnancies ending January 1988–April 1992**

SOURCE: North Bank survey, 1992
ing traditional contraception. Among women whose last child was weaned, 7.6 percent were using Western contraceptives, probably those who, as we saw in the quotes above, were "tired" and wanted to "rest." The bars of central interest, however, are the two small sets on the right. They show not only that there were cases of contraception after reproductive mishaps but that the proportion of such cases was unexpectedly high, particularly after miscarriages and stillbirths. The proportion of women using some form of contraception in the wake of a miscarriage or stillbirth (nearly 14 percent in all) was greater than that for any other group, including the women using contraceptives to avoid pregnancy during breastfeeding, the only pattern of contraceptive use one might have expected to find under our original definition of child spacing. Given our emphasis on the tight time frames in which contraceptive activity usually occurs, the four-plus-year interval to which the data shown in Figure 1 refer is somewhat longer than the "normal" birth interval sequence. Yet even with a shorter time window up through 1990, miscarriages and stillbirths remain consistently the most common post-pregnancy context for contraceptive use, never descending below 11 percent. The methods these women were using are even more telling. While half of the breastfeeding women who were using any method were using Western contraceptives, very few women contraceptive after a miscarriage or stillbirth were relying on traditional measures like juju or herbs. Like Kaddy Sisay, whose case introduced this article, they were using strong, "effective" methods; the proportion of Western contraceptive users among women whose last pregnancy ended in a miscarriage or stillbirth, almost 12 percent, exceeds that associated with any other outcome.

Figure 2 examines the phenomenon from another angle. Removing all constraints of age and time elapsed since the end of the last pregnancy, it shows that at each number of pregnancies the percentage of women with at least one completed pregnancy (N = 2,466) who are using Western contraceptives is consistently higher among those who have had one or more miscarriages or stillbirths than among those who had only live births. Though separated at the low pregnancy numbers by less than one percentage point, the disparity rises to 6 percentage points by pregnancy numbers 11 to 12.

Figure 3, taking only women who have had two or more pregnancies, the last of which produced a child that is still alive (again free of age and time constraints), shows that the effects of miscarriage or stillbirth reverberate throughout reproductive life. Among women with few pregnancies, those whose last pregnancy resulted in a child that is still alive are more likely to be using a Western contraceptive if they had only live births than if they had one or more miscarriages or stillbirths. Among women with four or five pregnancies, however, the pattern shifts decisively. Even though women with one or more miscarriages or stillbirths are likely to have fewer surviving children than those whose pregnancies all resulted
in live births, women with any outcomes other than live birth are more likely to be using Western contraceptives than those with only live births. Like the previous figure, this one suggests that the effects of such events on contraceptive use, whether they occurred recently or in the distant past, operate with increasing intensity as the number of pregnancies rises.

Although the patterns are both clear and consistent, the actual numbers, especially of women reporting that their last pregnancy ended in a miscarriage or stillbirth, are very small. Once the effects of other factors such as age and number of pregnancies are controlled, logistic regression analysis reveals no significant differences in the type of contraceptive use between women who have had a miscarriage or stillbirth and those who have had only live births. Yet although the small number of cases could be confounding these results, the fact that anyone in this population was contracepting after such an event warrants investigation. Out of the 2,980 women in the 1992 survey, only 25 out of the 1,823 whose pregnancies had ended within the last four years were using some form of contraception after experiencing a mishap. Because of their importance as the most unlikely of cases, Table 1 lists some of the pertinent details.

Conventional fertility analysis, assuming contraceptives to be methods for limiting the number of children (and determining that there is no
last child in these cases), might suggest that these women have reached a desired number and are trying to stop childbearing. As Table 1 shows, however, very few of these contracepting women have particularly successful fertility records. Out of their collective 149 pregnancies, only 53 percent have survived as living children. Only six women have more than four surviving children—five of these women aged 40 years or older. Out of the 24 women with two or more pregnancies, 17 had lost at least one other pregnancy besides the last. Yet even among these most unlikely of contraceptors, several stand out: (1) the seven women with the last two or more immediately preceding pregnancies lost, six of whom were using a Western, rather than a traditional, contraceptive; (2) one of the 25-year-olds, using Depo-Provera, who had lost all four of her last pregnancies; only her first child had survived; (3) a 36-year-old, also on Depo-Provera, with eight pregnancies, seven of which were lost, including the last two; (4) the two youngest women, ages 18 and 19, both with no surviving children. The 19-year-old was one of nine women in the whole survey using two Western contraceptives simultaneously and by far the youngest; she was also the only woman in the survey to be using an IUD.
**TABLE 1**  All women contracepting after a reproductive mishap, by age: Pregnancies ending between January 1988 and April 1992

<table>
<thead>
<tr>
<th>Age</th>
<th>Outcome</th>
<th>Year of birth</th>
<th>Age at death</th>
<th>Contraceptive method</th>
<th>Outcome/ Year of birth</th>
<th>Early child death</th>
<th>Surviving children</th>
<th>Number of consecutive preceding pregnancies lost</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>live birth</td>
<td>1990</td>
<td>14 mos.</td>
<td>pills</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>19</td>
<td>miscarriage</td>
<td>1991</td>
<td></td>
<td>pills/IUD</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>20</td>
<td>miscarriage</td>
<td>1992</td>
<td></td>
<td>abstinence</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>22</td>
<td>live birth</td>
<td>1990</td>
<td>19 mos.</td>
<td>pills</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>23</td>
<td>live birth</td>
<td>1989</td>
<td>2 yrs.</td>
<td>traditional</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>24</td>
<td>miscarriage</td>
<td>1991</td>
<td></td>
<td>pills</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>25</td>
<td>miscarriage</td>
<td>1992</td>
<td></td>
<td>pills</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>28</td>
<td>live birth</td>
<td>1990</td>
<td>6 mos.</td>
<td>Depo-Provera</td>
<td>5</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>29</td>
<td>stillbirth</td>
<td>1991</td>
<td>14 mos.</td>
<td>Depo-Provera</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>30</td>
<td>live birth</td>
<td>1991</td>
<td>1 yr.</td>
<td>Depo-Provera</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>31</td>
<td>miscarriage</td>
<td>1988</td>
<td></td>
<td>abstinence</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>34</td>
<td>miscarriage</td>
<td>1990</td>
<td></td>
<td>sterilization</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>34</td>
<td>miscarriage</td>
<td>1990</td>
<td></td>
<td>pills</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>34</td>
<td>miscarriage</td>
<td>1990</td>
<td></td>
<td>abstinence</td>
<td>6</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>34</td>
<td>live birth</td>
<td>1990</td>
<td>&lt;1 day</td>
<td>Depo-Provera</td>
<td>7</td>
<td>0</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>36</td>
<td>miscarriage</td>
<td>1990</td>
<td></td>
<td>Depo-Provera</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>37</td>
<td>live birth</td>
<td>1991</td>
<td>&lt;1 day</td>
<td>Depo-Provera</td>
<td>8</td>
<td>1</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>38</td>
<td>stillbirth</td>
<td>1991</td>
<td></td>
<td>sterilization</td>
<td>11</td>
<td>1</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>39</td>
<td>miscarriage</td>
<td>1990</td>
<td></td>
<td>pills</td>
<td>11</td>
<td>1</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>40</td>
<td>live birth</td>
<td>1991</td>
<td>&lt;1 day</td>
<td>sterilization</td>
<td>10</td>
<td>2</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>43</td>
<td>stillbirth</td>
<td>1989</td>
<td></td>
<td>Depo-Provera</td>
<td>8</td>
<td>1</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>43</td>
<td>live birth</td>
<td>1990</td>
<td>1 mo.</td>
<td>Depo-Provera</td>
<td>10</td>
<td>0</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>44</td>
<td>stillbirth</td>
<td>1991</td>
<td></td>
<td>Depo-Provera</td>
<td>11</td>
<td>4</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>50</td>
<td>live birth</td>
<td>1989</td>
<td>&lt;1 mo.</td>
<td>pills</td>
<td>10</td>
<td>1</td>
<td>2</td>
<td>7</td>
</tr>
</tbody>
</table>


Although some of the older women with high numbers of pregnancy losses command the most immediate attention, the most unexpected may be these last two women, both under age 20. Together, they comprised two out of the only three teenagers in the entire survey (the total number of women below age 20 was 589) who were using Western contraceptives; the third teenager was breastfeeding a baby.

**Why focus on such anomalies?**

Despite the problem of small numbers, similar increases in contraceptive use after miscarriage or stillbirth occur throughout the data sources: the monthly
rounds, the 1994 followup survey, and case material on women who were not from the study area. Still, most women in our study population are not currently using contraceptives, and most pregnancies do not end in mishap. Why, then, turn attention to such anomalies? The answer is that they shed new light on the logic that underlies postpartum fertility behaviors in general. The key lies in the power of the counterintuitive logic itself: if contraceptives are being used simply for child spacing, to ensure an adequate period of breastfeeding before weaning, then there is no reason why they should be used after a reproductive mishap.  

Women who were trying to have a child but failed should be most anxious to start again and the least likely to be using any contraceptives, especially very “effective” ones. Rather than seeing these anomalies as statistical “proof”—which they are not—they should be seen as highlighting the aberrations, almost any one of which should call into question aspects of the dominant theory concerning child spacing and contraceptive use. The fact that this contraceptive behavior is occurring more frequently after reproductive mishaps than among women with other pregnancy outcomes should be grounds for a major rethinking.

The post-mishap contraception cases, along with the other anomalies highlighted above that are more statistically noteworthy (male reactions to contraceptive use, differential use rates in contraceptive methods among women of different ages and number of pregnancies, and incongruous declarations of fecundity status), raise serious doubts not only about the analytic framework concerning child spacing with which our project began but also about much more fundamental assumptions underlying time as the basis of fertility analysis. To be sure, age data are often unreliable in rural Africa. Still, great leaps of the imagination seem necessary to explain why women like Kaddy Sisay should be letting time, their most precious resource, slip away as they return for dose after dose of Depo-Provera.

If age has never been questioned as the basic analytic category, what about fertility itself? Mainstream anthropology, to its disadvantage, has been largely indifferent to questions concerning the number of children women have. Both demography and anthropological demography, however, have largely taken as given that that number is the key fertility question, especially the number of surviving children. What would seem to make no sense at all, then, are remarks like those of 32-year-old Oumie Dibba. Oumie reported five pregnancies: one was a miscarriage, and she also suffered a child death, leaving her with two boys and one girl. Reporting that she was nearing the end of her childbearing years “because of many pregnancies and too much hard work,” she declared that she was nonetheless “tied” to the compound—that is, she felt secure and was committed to its future welfare:

The number of children I have borne in this compound makes me feel “tied.” I have 5 children with this husband: 2 died and 3 are alive. . . . I’m more tied than my co-wife because she has only two children and I have 5. (Round 13)
The temptation of a Western observer would be to summon the surveyor who recorded this response and dispatch her back to the field to resolve the numerical inconsistencies. But taking the quote seriously raises a critical question: are live births the sole units of reproductive currency? If not, then, what are people counting?

The rural Gambian fertility framework

The use of effective, long-acting contraceptives toward the end of reproductive life might suggest that many women are trying to limit the number of their children, a pattern that fertility transition watchers might seize upon. Yet there is a critical distinction to make here. “Avoiding pregnancies” is not necessarily the same thing as “limiting the number of children.” Efforts to unravel the logic embedded both in the commentaries and in the numbers began to reveal the contours of an alternative perception of fertility. This alternative view converges in some areas with the child spacing and natural fertility frameworks. But in overall shape and thrust, it is radically different from both.

Reproductive endowment

Rural Gambian logic sees the fundamental unit of fertility calculation as neither a live birth nor a surviving child but a “fetus” (harijeo) or “potential,” of which every woman is considered to have a pre-endowed number. “Hapo” literally means an “amount” or a “number” of anything from mangoes to kilograms of rice. When applied to fertility, it refers specifically to what might be called an “endowment,” the number of potential reproductive outcomes or fetuses that God has given a woman to bear throughout her life. The hapo incorporates both live births and non-surviving fetuses, and it stands independently of the number of pregnancies required to produce this total number of fetuses. A statement from a 24-year-old woman illustrates this conviction: “I would have any number [of children] that God gives me. The number of children that everyone will have since when he created us and whatever the case may be, everyone will get that number.” Each fetus, whether it is born as one of a pair of twins or is miscarried, represents one constituent from this total endowment.

How many children will a particular woman have? No one knows how large her endowment is until it is exhausted. Some women have large endowments; some have very small ones. A few tragically have none at all. What everyone does know is that although a woman cannot end up with any more surviving children than her God-given endowment, she can certainly end up with fewer. If she is lucky, all of her fetuses will be born as live children and will survive to maturity. More likely, some of these fetuses will be lost before being born, and some of her live-born chil-
dren may die. Thus, a woman’s family elders or in-laws may pray for God’s blessing, asking him to bestow many children on her, a practice recorded in innumerable ethnographies of African populations. Yet they are not asking God to increase her total endowment. This would be presumptuous, even blasphemous. Instead, they are asking God to allow each of her fetuses to result in a child who survives. Because reproduction is not limited by time but by one’s endowment, a woman with an endowment of nine fetuses who has had her pregnancies in close succession will finish childbearing well before a woman with the same nine fetuses but lengthier birth spacing.

Westerners would likely see the ex post facto attribution of child numbers to divine will as highly circuitous reasoning. Certainly the notion of a pre-endowed number of potential fetuses is something Western scientists would be reluctant to accept. It would be mistaken, however, to dismiss the entire framework as superstition and to abandon pursuit of the cultural logic before asking how, precisely, God’s will is said to be enacted. Whereas Western culture gauges the limits of reproduction by the passage of time, the rural Gambian view of reproductive senescence holds that the number of God-given fetuses a woman will realize as miscarriages or stillbirths, as sickly infants, or as children who survive and prosper is contingent on her eroding bodily capacity to continue bearing and caring for children. Involved are concrete anatomical and physiological processes to which rural women are finely attuned, though their vocabularies and frameworks of understanding do not coincide precisely with those in the counterpart domains of Western science. This section presents the local “ethnophysiological” understandings, though the Western analogues are in many cases quite apparent. Most salient in women’s fertility calculations are worries about their bodily resources—muscles, strength, and blood.

**Muscles.** The basic physical component of reproductivity is translated loosely as “muscles” (*faso*; literally, “sinews”), a metaphor that may refer to what Westerners call “muscle mass” or “muscle tone.” Muscles are said to be “cut” or “reduced” (*kuntu*) during grueling physical exertion such as farm work. In the local understanding, this refers to a “wearing out” by repeated, stressful use. The analogy of an elastic band is often used to describe how muscles, so taut and strong in a young person, grow irreversibly slack with repeated stretching and straining. The most taxing event by far for women’s muscle strength is pregnancy termination. One woman, who had undergone three deliveries, explains in graphic detail:

Concerning muscle reduction, after each pregnancy it is true, because of the severe pain and the strong muscle contraction. During this contraction all muscles opened wide in order to give enough space for the baby to pass through. The space from womb to the birth canal is very tight and it needs to be widened for the baby to pass. (field notes)
Reproduction is seen less as additive within a fixed time limit, as Western analysis tends to depict the process, than as subtracting from a physical base. Both men and women enter their early years of proadulthood at about the same time: what they call their “twelve” (“12 years old”), a lively, exuberant phase of boundless youthful energy. Men are said to remain in their “twelve” as late as age 30 or so. Although a few women who have excellent health and ample domestic support may remain in their “twelve” for some time, reporting no discernible muscle loss, most say, again metaphorically, that they lose one muscle during each pregnancy termination. For a strong, healthy young woman, the toll she feels from a normal childbirth will be slight. The “older” (more worn out, tired) she becomes, the more likely she is to feel the toll. Most women’s “twelve” dissipates rapidly, usually beginning its descent by age 20, because of the precipitous loss of muscle in childbirth. Difficult deliveries are especially costly to muscles; some people contend that giving birth to boys, who are said to be larger than girls, and possibly more stubborn, “cuts” two muscles. After the first child, giving birth usually becomes relatively fast and easy. At some point, though, it becomes dangerous again because of the loss of muscles over successive pregnancies.

The most extreme manifestation of muscle loss is having a “deep womb”: thinly stretched by successive fertility events, it has lost the power to expel a fetus. Using the metaphor of a well in the arid Sahel, a woman described this wearing, subtractive process: “For every birth the stomach [womb] is scooped and it eventually deepens. The older the well the deeper it becomes and the more difficulty in drawing water from it” (Round 6). It is still possible to conceive with a “deep womb,” but everyone recognizes this as a dangerous state; the body has lost its ability to expel a fetus. For women whose deliveries become longer and more painful, more time is required for recovery. At some point, a woman realizes clearly that she is sarifo (“spent”17). She might be able to conceive and bear another child or two, but at risks she knows have now risen sharply. God’s will cannot be known until reproduction is finished, but it certainly becomes much clearer as the end approaches.

As muscles reach their end, the body becomes “worn out” (koto tale). Translated literally as “old” or “aged” (thus, muso koto: “old/worn out woman”), this implies having flaccid muscles; wrinkled, sagging flesh; and dry, flaky skin.18 As used here, the word koto implies that one has come to this condition because of childbearing. For women, being “old” therefore has special meaning: childbirth is so taxing that women who have suffered more difficult pregnancy and childbearing ordeals, especially if these ordeals are closely spaced, become “old” more quickly than those who have not. They become “old” not simply in reproductive function but in physical appearance well before their male age peers.19 Such perceptions are
reflected in men’s comments about their wives. In one of the male surveys, men were asked if they planned to marry another wife. Yes, said a 46-year-old man whose 38-year-old “spent” wife had had ten pregnancies: “Because she is getting old, and I am still young.” Yes, also, said another man, aged 48: “Because you know a woman and a man are different in getting old easily.”

To say the least, time-free notions of reproductive endowment and of aging are different from how most Western science conceptualizes fertility and senescence. Everyone knows that time passes, whether this passage is measured in years, seasons, or generations or cohorts of people. They also know that some people were born before other people in these measurable units. Yet for Gambians, “old” does not refer to a measure of time. For a woman, deliveries—especially a series of closely spaced or difficult ones—are seen as producing the effects of the “aging” or “wearing” of the body that Westerners attribute to time, a notion with intriguing parallels in the history of Western culture (e.g., Women’s Co-operative Guild 1916), though such ideas are now largely relegated to folklore. While an infertile woman will eventually reach menopause, get old, and die, it is not time but life’s hardships that are seen as causing her to age, although this state wherein the body is “aged” or “worn out” is potentially sustainable for a long time. The statement of a 29-year-old woman (six pregnancies: one miscarriage, five surviving children), explaining how she came to her present stage of bodily decline, illustrates the aging phenomenon: “I’m getting old now. I came to this stage because of childbearing. I had six pregnancies and I had difficulties in delivering all of my children. These made me look older than my age. I have lost all my strength now” (Round 12). Since what we might call a woman’s “reproductive age” is considered far more important than her chronological age, the rest of this article uses the term “age” in the noun form to refer to number of years that have elapsed since her birth, while other forms of the word (“to age,” “aging,” “aged”) denote bodily decline.

Strength. Like muscles, strength (or “power”—sembo; most closely translated as “energy”) is lost gradually over time, especially during times of physical stress such as the hunger season, just before the harvest. Like muscles, strength is lost particularly during childbirth. But unlike muscles, which can only decrease, strength can be replenished with rest and nutritious foods such as meat and chicken. 20 It never again, however, rises to the level of one’s “twelve.” Dipping and surging over the life cycle in an overall downward direction, strength is life itself. When all strength fades, whether slowly or abruptly, life ends.

A woman with an ample diet and abundant help for child care and farm work will probably have easy births because she can regain her strength readily. An undernourished woman, who alone must tend to her husband
as well as elder in-laws and small children (including visits to distant clinics for routine well-baby checks and emergency treatments), while she tries to keep pace with heavy farm work and earn a small cash income by walking several miles to sell vegetables, will find it increasingly difficult to withstand the strain of childbirth. In her tired, weakened state, one difficult delivery will sharply escalate the risks of another one the next time. It will also drain her strength, forcing her to use more of her reserves of muscles during labor and delivery, and she may lose two muscles rather than one during the next delivery. Thus, although muscles are the primary locus of reproductive capacity, strength is far more prominent in everyday conversations about fertility. The reason, apparently, is that the ultimate quantity of muscles is not only unknown but fixed, so it is the gain or loss of the more contingent element, energy, that determines how, or even whether, a woman will be able to use all her muscles.

Blood. Blood (yelo) is the third principal component of a woman’s reproductive potential. Having sufficient blood is critical for maintaining strength. Yet blood is also needed to make a baby, and the process of giving birth is considered to be a major cause of blood loss for a woman, particularly when intensified by hard work and inadequate diet. Being pale and listless, a state frequently compounded by one of the world’s highest malaria levels, is an ominous sign that a woman is unprepared for the next pregnancy and birth. At risk is not only her own safety but that of her baby, who may be born sickly and die. Such problems are intensified because blood, unlike strength, is replaceable only with great difficulty. (Menstruation is considered draining to women; this is expected and is considered normal, although abnormally heavy or lengthy menstrual periods provoke worry about blood loss.) The ferrous sulfate and folic acid tablets now given to pregnant women in family planning clinics are considered poor substitutes; the only sure way to replace blood is transfusions. Because the blood donated to one person is blood lost to someone else, however, even close relatives donate to each other with great reluctance—a pattern long noted throughout most of the region.

The basic constituents of reproduction—muscles, strength, and blood—operate in a close bodily synchrony, particularly during childbirth and its aftermath. Such interactions among bodily resources determine both how quickly a woman can safely spend her reproductive endowment and how many of her fetuses will survive to birth and to healthy maturity. Whereas it is impossible to tell by looking at a woman whether her “endowment” is gone, losses of strength, muscles, or blood are apparent to the astute eye. The main points here are two: (1) Fecundability is seen as only one of a number of factors that determine a woman’s ability to reproduce, and often a comparatively minor one. (2) Senescence, whether that of one’s re-
productive capacity or of the body overall, occurs during wearing life events. The decline of body resources may occur slowly and steadily, or in sharp, unpredictable drops interspersed by long, steady progression. The pace depends on an individual’s life circumstances.

It is important to reiterate that these are local descriptions of reproductive dynamics. However, many of their links to what various Western disciplines would recognize as scientific “facts” are quite close, a circumstance that makes these cultural tenets all the more convincing, given the inevitable difficulties in translation and in interpreting the metaphorical quality of some of the vocabulary in which they are expressed.

The medical significance of mishaps in the body resource framework

While a woman fully expects to expend all her reproductive capital eventually, she prefers to do so through normal childbirth events. What she most fears is prolonged, injurious deliveries: in particular, those that fail to produce living children and are themselves destructive of reproductive capital. Mishaps can be both cause and consequence of traumatic pregnancy outcomes. A mishap may be caused by (among other things) overly frequent childbearing (“rampant” births), a heavy workload, a shortage of blood, or simply being very tired. If the womb is not well, the pregnancy cannot survive. A reproductive calamity may thus reflect an underlying health problem. Alternatively, it may so badly deplete a woman’s body that it precipitates another mishap the next time, especially if she has had no opportunity to recover. Physically traumatic pregnancy outcomes are in any case considered more costly than normal births to a woman’s reproductive capacity.

Giving birth to a stillborn child (siiringo) is often described as extremely difficult. A living baby makes small movements that render every push of the mother more effective in dislodging it, but a stillbirth can exact enormous muscle tolls during attempts to expel a large, inert fetus; and many women, particularly those who undergo stillbirths after many pregnancies, describe acute, prolonged suffering. A miscarriage (wulu [“delivery”] kurong [“extremely taxing”]) is quite different. Using an analogy of the locally ubiquitous mangoes, a village traditional birth attendant vividly captured the miscarriage experience. When a ripe mango is picked, the fruit snaps off the dried stem easily, its life moister sealed intact on both sides of the break: the tree and the fruit. Trying to pick an unripe mango is quite a different experience. The fruit can be pulled off the green stem only with determined force. Once it is finally torn off, both the mango and the tree undergo a dramatic, sustained loss of fluid. The same is said to occur with a miscarriage: since the fetus is not yet a discrete entity, it is essentially a
piece of the woman—her own flesh—that is being torn out, causing great pain, heavy blood loss, and possibly internal damage. A woman can even bleed to death. Induced abortion is abhorred for precisely these reasons. It can do great damage, to the extent that the woman may even destroy her future fertility potential, if not her life. Although some miscarriages are experienced simply as late menstrual periods (and although some women even attempt to induce “late” periods—Levin, forthcoming), those attempts that occur further into the pregnancy, but before the fetus becomes distinct from the mother, are considered especially hazardous. The knowledge that schoolgirls sometimes induce abortions in order to avoid expulsion may in some cases underlie families’ decisions to withdraw from school a girl whose academic attentions seem to be straying. Both stillbirths and late miscarriages entail labor pains, and a late miscarriage, like a stillbirth, “cuts” at least one muscle, sometimes more. Yet so feared is the bloody loss of flesh that a miscarriage and its aftermath can be considerably worse. By contrast to a stillbirth, in which all the tissues and fluids are expelled, the effects of a miscarriage may leave residual infections, and the damage may heal slowly.

In sum, while Western fertility analysis effectively treats miscarriages and stillbirths as events that take up time in a birth interval, Gambian women see outcomes other than live birth as causing more harm than live births and even as reducing their overall fertility potential. Although God may have endowed a woman with eight pregnancies, the experience of two miscarriages may leave her so drained that she is able to produce only four of the eight as live births. Moreover, a series of difficult births can exact a disproportionate bodily toll: they can make her look, feel, and behave as if she were much older than her actual age would suggest.

If these observations begin to cast new light on the medical problems that miscarriages and stillbirths may reflect, the death of a young nursing baby may be understood in similar terms: as a manifestation of maternal health problems. The woman’s milk may have been impure or diluted, or her womb may have retained some contaminated blood after the last birth. Alternatively, she may have had little opportunity after the birth to recover her strength. (See McDade and Worthman, in press, on maternal physiological burdens.) Similar principles are occasionally used to explain even the death of a weanling child who cannot yet fend for itself. A tired or ill mother who is burdened with the needs of her husband, her mother-in-law, and her other children may be unable to ensure that the child gets nutritious foods consistently, or to take it to the clinic for immunizations and well-baby checkups. She will be unwilling to leave her farming and other duties to take the child to the clinic unless its condition becomes serious. An older child, by contrast, is better able to seek attention when hungry or in distress. Such a child learns to appear at other people’s houses just as food is being distributed, to pilfer small bits of food from the family
cooking pot, or to make or embezzle small profits from the family market business. The younger the child—or fetus—that must depend on a worn out mother, the greater its jeopardy and the more likely its demise will be attributed to the mother’s infirmities because its life is dependent on her bodily substance and energy. Similarly, the more worn out the mother, the more likely the child’s infirmity will be traced to the mother’s own health troubles.

A few women declare that they do not want any more pregnancies or children. When their comments are examined closely, however, it is clear that they see particular circumstances, not the attainment of an ideal family size, as imposing the limits. What such a woman is monitoring much more closely are two things: the toll that various fertility outcomes have taken on her body over successive fertility events (whether or not these have been live births) and the reactions to how she is spending her body by those on whom her physical and social fate rests. Women do try to keep births occurring a safe distance from each other, to allow adequate “rest.” However, it is not time that comprises this sense of “space”; it is instead “safety” or “strength” for the woman herself as well as for her breastfeeding child and her unborn child.

**Body resource expenditure**

Although a woman’s greatest resource at the outset of her adult life is her body’s capacity to reproduce, everyone recognizes that she will eventually grow old and lose her reproductive potential. The question is how she will do so and with what results. While biology lays the groundwork for how the mechanisms of aging and reproduction play themselves out, the social and economic environment determines the success with which an endowed reproductive potential can be realized.

Among the domains that this view of fertility most vividly illuminates is that of women’s relations to men and in-laws. Reproductive “struggle” cannot be considered independently of its intended beneficiaries. A woman is seen as expending (as expressed in Fula, “to dry” or become thin) this resource on behalf of those who are supporting her: her husband and his family. As a young bride, she is admonished that she must “struggle” in the husband’s compound. To the degree that she works hard and manages to have children, especially sons, she will succeed in establishing “roots,” a Fula expression, which anchor her firmly to the compound and its future. Posing an abstract question such as “How many children do you want?” makes no sense to her without reference to a specific man. Such a query is understood as an implicit question about the state of her marriage.

Physically, a woman will be “spent”—weak, thin, and haggard—when she finishes childbearing. Her muscles will be gone, and she may well be
anemic from the cumulative stresses of childbearing and illnesses, especially malaria. Now is the time her children and husband should rally and nourish her. Whereas her muscles cannot be replaced, her body fat will be restored and her skin will regain a glow. She can begin to sit back and enjoy the fruits of her labor, living in the gratitude of her husband and children. She may be sent by her sons to Mecca, returning to start a market business with capital they provide her, and moving into a managerial, consultative role in the compound. Any ailments she has will be treated immediately; her grown children will hire a taxi to take her to the clinic or even to Banjul, and they will purchase any necessary medicines. This implies that much of old age can be a time of leisure, rest, and freedom. Certainly it can be a time of far better health than she suffered during the harsh struggles of her childbearing years.

The sub-fertile age peers of the mother of many children may look and feel younger than she does; they may even live longer. She, however, has exchanged her youth for children—by far the preferred option. No one would prefer the fate of a long life of barrenness to a possibly shorter, but far happier life of a woman whose “heart is at rest.” (Of particular note in this idiom is the cultural equation of “rest” with “happiness.”) Old age, even more clearly than the ethnographers of Africa have realized, is considered a bodily achievement, especially for women. Becoming “old” in the service of the husband’s family by such a visible “struggle” and “sacrifice” is one of life’s most honored achievements.

The body expenditure ideology, however, confronts a woman with a paradoxical dilemma. She needs children, but should her marriage go sour or her husband prove “useless,” her body will have been spent on a dead-end relationship and her income on its progeny. An educated woman with wide contacts in the international development field expressed the predicament as “maternal depreciation.” Although she may have been alluding to “maternal depletion,” her own phrase captured far better the combined economic and medical plight of a woman who must watch each longed-for pregnancy result in a mishap or a child her husband does not support. In such a situation, each pregnancy devalues her cumulatively and makes divorce increasingly unfeasible. Eventually, to make ends meet, she may try to suspend childbearing until she finds a better man. Her own family members, since they will likely bear the brunt of the support for her children, are likely complicit. Scolding her for “delivering for nothing,” they may demand that she stop having children. They do not mean, however, that she should stop altogether but that she should reserve her remaining endowment for someone else.

What about (to adapt an old demographic concept) the “value” of mishaps? Women’s ways of demonstrating wifely virtue are not limited to childbearing or to rearing a child successfully, although these are by far
the most desirable outcomes. Simply getting pregnant periodically, even if some of these pregnancies eventually go wrong, is a key sign that a marriage is on track. The most tragic case of all is a woman who has never had a pregnancy, not even a miscarriage, her youth suspended in an eerie agelessness. Fearing such stigmas, barren women sometimes go to the clinic seeking medical verification that they have had a miscarriage so they can report to their husband that they have at least been pregnant. (For descriptions of treatment of infertility and miscarriages in The Gambia, see Skramstad 1997 and Sundby 1997.)

Preventing reproductive mishaps and mitigating their effects

Although the odds seem set against them, Gambian women are far from helpless in the face of forces that deplete their bodies and deprecate their value as wives. Large numbers of living children are highly desirable. Yet women’s efforts to realize their physical capacities reflect wide scope for individual action. A woman gains cognitive skills that enable her to mitigate body expenditure. She learns to read body signs: her own and those of her co-wives and daughters-in-law. As she advances in number of pregnancies, she tries to eat energy-rich foods and to reduce heavy work to preserve her muscles for their remaining reproductive ordeals. Above all, she tries to monitor her bodily decline and to avoid pregnancy when her body is unprepared.

In such contexts, the patterns of contraceptive use following reproductive mishaps, so counterintuitive to Western beliefs about the dynamics of high fertility, make good sense. Since the principal roadblock to having as many children as God gives is not time but a deficit of body resources, the best strategy in cases of traumatic reproductive mishaps is not to rush ahead and waste a precious pregnancy out of one’s remaining endowment; rather, it is to slow down and wait for the body to heal the damage that pregnancy and childbirth can inflict. So damaging are such mishaps, especially to reproductively “old” women, that these women may actually welcome the long-term effects of Depo-Provera, something that most younger women just beginning their childbearing careers avoid at all costs. A “spent” woman may try to wait as many as three or four years before seeking another pregnancy.

Women use whatever means they can—long-lasting contraceptives, abstinence, extended visits to kin—to try to limit the number of dangerous pregnancies and birth traumas. The fact that the majority of contraceptors in the wake of such mishaps were using Western methods suggests that such women were probably more determined than those with still-surviving children to avoid a new pregnancy. It is quite plausible, in fact, that the un-
doubtedly small proportion of miscarriages and stillbirths that our surveys captured were among the most damaging pregnancies, judging by the types of contraceptive responses. If so, this would lend greater support to the body expenditure thesis. Women fear that if they do not slow down, especially as their domestic burdens increase, their worn out bodies are likely to miscarry again or to produce sickly children who will be nourished with inadequate bodily resources. Causal direction in such cases is often ambiguous. Bad health may lead to a miscarriage or stillbirth; but the event itself may have set off a cycle of interrelated health and pregnancy impairments that the woman is now trying to bring under control. Women with problematic fertility records not only take greater contraceptive precautions while breastfeeding; they also breastfeed longer than other women, whether to ensure that the present child (unlike a previous one) will survive or as an excuse to prolong abstinence in order to recover from a traumatic reproductive event. Because of the perceived intimate physiological link between a mother and a dependent child, both explanations are likely true.

There are always balances to be struck between trying to prevent reproductive mishaps and trying to maintain a reasonable reproductive pace. A “spent” woman with several children who finds herself divorced must try to rebuild her child base quickly with another man, even if her strength is ebbing and her muscles are almost gone. The same is true for a woman with few surviving children (see also Jeffery and Jeffery 1996 on North India.) A statement from a 35-year-old woman, who after a number of pregnancies, among them one child death and five miscarriages or stillbirths, was left with only two surviving children, illustrates the latter point:

I came to this stage because of many pregnancies that are not spaced. I have lost most of my muscles and strength. Women in rural areas lose their strength also due to hard work because they are responsible for all their housework and also they join the men in farming. That is why we get old very easily. Most of my children died. Only 2 out of 7 are alive, that is why I want another one so that I have at least 3 children. If they were all alive I would not have need for any more because I am getting old now and I have little strength in me. (Round 12)

Regardless of the outcome of a particular pregnancy, the decision to begin a new pregnancy immediately or to delay it is based largely on the woman’s condition. If previous pregnancy outcomes have taken a light toll, it is considered safe to initiate a new conception soon; indeed, when the mother is young and healthy, some overlap between finishing breastfeeding and beginning a new pregnancy may even be sought. However, in the case of a miscarriage or stillbirth that has left the woman exhausted and sick, she will likely try to wait for her body to recover, whether for a few months
or for many. (See the Appendix for parallel patterns elsewhere in sub-Saharan Africa.)

While women suffering a recent miscarriage or stillbirth are likely to use contraceptives until their bodies heal, contraceptive users with many pregnancies whose last-born child is still alive, yet who have had one or more miscarriages or stillbirths in the past, would seem to have less cause to delay a new pregnancy; for this reason, their cases are perhaps the best evidence of the validity of our alternative analytic framework. For such a woman, this experience can reflect a trauma of such magnitude that it may affect how she manages her subsequent reproductive life. Thirty-seven-year-old Fanta Juwara had carried seven pregnancies, of which five seemed to have survived, including the last. Despite all these pregnancies, the one stillbirth remained vividly inscribed in her memory as she recalled her ordeal and its debilitating effects:

The stillbirth I had was more painful than all my births because I did not deliver that one with life. He was dead inside me so I had to use all my power to push him out. If he had been alive he would be moving himself as I pushed but that was not the case. Because of that trouble over strength, my husband wanted me to rest for two years before I got pregnant again. I did not take any medicine to avoid pregnancy [because the husband was away most of the time] but I was washing [treating] my stomach with local and toubab [modern/Western] medicine because my stomach was not well then. When I felt my stomach was well enough to have another child I got pregnant and my husband left again. (field notes)

Yet without doubt, the starkest case among all the women from whom we have commentary is that of Kaddy Sisay, whose case began this article. With no surviving children after several pregnancies, Kaddy had begun Depo-Provera injections as soon as her last remaining child died, apparently just after she was interviewed in Round 5. She next appears in Rounds 7 and 10 with comments like these:

My stomach is in pain when blood is coming out. I would like to have a rest because I always have difficulties when breastfeeding. I want to have a rest. [I am using] injection to delay pregnancy because I always have problems while pregnant. (Round 7)

I used to suffer a lot before I delivered. I used to have 5 days in labor or more. I want to rest and also to regain my strength. I am afraid of labor. Since I started childbearing I always have difficulties before delivery. I am forgetful; therefore the pills which require everyday attention are not suitable for me. I take the injection once every three months, which is very convenient for me. (Round 10)
Kaddy’s difficult fertility history is undoubtedly responsible for her conjugal troubles in her second marriage. Thus, although Kaddy wants more children (in Round 12 she expressed a desire for four more), it is not clear that she wants them with her present husband: “I am suffering in my marriage. I think I do not want a child here anymore. I do not talk to him [her husband] about it” (Round 14). Kaddy’s most telling response, however, was her answer to a query about which of Islam’s tenets are important for women and how she tries to observe them:

A woman is ordained by Allah to follow the orders, advice, and wishes of her husband. A good Muslim woman should not refuse to have contact with her husband when requested, and should also bear children for him. As said by the Holy Prophet, the best among his people is the one that increases the number of his people, because in the day of judgment he doesn’t want the people of other prophets to be more numerous than his own. I encounter a great difficulty in following these rules. I was following them all along, but since I started bearing children, I suffered a lot during my pregnancies and much more in labor, because in each delivery, my people thought that I would die, yet none of these children are alive. Now I am using family planning to prevent pregnancy in order to regain my strength, power, and health. Though my husband does not like it, I am using it for prevention. (Round 11)

Rethinking fertility, time, and aging

What are the implications of these testimonies? One set of implications concerns the principal data sets that are now available for international analysis. Having data on miscarriages and stillbirths is not essential to understanding fertility behavior within the traditional conceptual framework in which high-fertility societies are viewed. Yet in the absence of other relevant medical data, such events represent one of the most telling indicators of likely reproductive trauma. The core Demographic and Health Surveys questionnaires for Africa, which contain no questions about miscarriages and stillbirths, were grounded in a very different set of assumptions about the concerns that are important to fertility decisions. Since there is no accurate knowledge of what pregnancy outcomes occurred recently, much less in the past, there is no way to discern the full fertility context in which contraceptive use is occurring.

A second set of implications concerns inferences about causal direction and intentions in fertility research. The primary idiom in which contraceptives are promoted in most African countries is to “space” births, to protect the health of the mother and child, while the potential of contraception for “limiting” births is usually muted. The reasons are not difficult to discern. Early efforts at family planning in several African countries such
as Malawi and Tanzania ran afoul of political authorities, who resented what they perceived as Western attempts to reduce their economic and political viability by depressing growth rates (e.g., Cohen and House, ms.). Such reactions have been countered, for example, by efforts to integrate family planning services with the delivery of maternal and child health services. The resulting ambiguity allows women access to family planning at times when they are most likely to be interested in it for “spacing” or “health” reasons and permits them to decide on contraception outside the presence of suspicious spouses and mothers-in-law who might suspect “limitation” motives (see Watkins, Rutenberg, and Wilkinson 1997 on a similar theme). Yet following the publication of Child-Spacing in Tropical Africa (Page and Lesthaeghe 1981), which perceptively signaled indigenous concerns for child spacing (and presented anthropological evidence for them), public appeals to space births for health and welfare benefits have been sounded more openly throughout sub-Saharan Africa, coming from sources as diverse as national radio broadcasts, local health clinics, and elderly midwives. Nonetheless, as most informed observers would likely acknowledge, the overriding concern of outside supporters of family planning services remains one of fertility limitation and not maternal and child health, Cairo ICPD ideals notwithstanding, although a case can be made that the two concerns are inseparable if fertility decline must be preceded by reductions in child mortality.

The use of an ideology, in this case favoring child spacing, to persuade is by no means peculiar to the population field. Nor should such actions be interpreted as exploitative of local people, as is sometimes implied by critics; indeed, the people to whom child spacing messages are directed often seem more adept at exploiting and reworking the potential uses of contraceptives than do the purveyors (Bledsoe and Hill, in press). Most people are not only happy to have contraceptive options; they would probably like more.

The problem for researchers, however, is that these virtually exclusive concerns with the fertility-reduction potentials of contraceptive technologies, coupled with worries about committing political transgressions and assumptions of minimal intentions in fertility behavior, have generated several striking analytical gaps. All center on the purposes for which contraceptives are promoted: child spacing and health.

Agreement is nearly universal that children born at widely spaced intervals have better survival chances than those born at short intervals (e.g., Hobcraft, McDonald, and Rutstein 1983, 1985), and that women with widely spaced births have better health than those who do not. There is also growing recognition that most women in Africa who are using contraceptives are doing so to space births. Yet so strong does the assumption remain that women in high-fertility populations do not try to control the
timing and circumstances of their births that fertility continues to be analyzed not by previous events in a woman’s reproductive career but by background characteristics (age, region of residence, marital status, and so on) or by the population’s total fertility rate.

Assumptions of minimal intentionalities also distort the analysis and interpretation of child spacing. Discussions of contraceptive use in Africa seldom ask whether people are indeed trying to use contraceptives to space children so as to reduce child mortality.24 The topics of contraceptive use and child health/mortality are linked only in the theme of appeals to provide women with more information on the benefits of family planning or to change fertility practices. If we are to take at face value the stated goal of child spacing that accompanies the promotion of contraceptives in Africa, then contraceptives represent one of the largest international investments in child health in the region. Yet despite the amounts of data now available, there are virtually no empirical analyses of the effects of contraceptive use on either child spacing or child health/survival: the very reasons for which contraceptives are promoted. The widely noted deleterious effects of high fertility on child and maternal health are read as an almost entirely different literature from that of the use of contraceptives on reducing fertility.25 Indeed, because the literature on contraceptive use in high-fertility populations stems almost exclusively from concerns of fertility limitation, the possibility that rural African women may be using Western contraceptives to space their births but not to limit them is often taken, by implication, as problematic. (For some exceptions, see Adeokun 1983; Oni and McCarthy 1986; DaVanzo and Starbird 1991; and Winikoff and Mensch 1991.)

In forcing us to focus on fertility through the lens of a different cultural context, a body expenditure view of fertility behavior decisively shifts the ground from which most Western science treats the relationship between time and senescence, whether the relationship applies to fecundity26 or to aging. Instead of time and aging being seen as predictable forces that will work their effects independently of other life events, a highly relative, contingent assessment of life emerges; body resources fluctuate and erode in response to the vagaries of personal circumstance—particularly, for women, those of reproductive events. These cultural notions of body resource deterioration very likely are not simply idiosyncratic perceptions of reality; they correspond to empirical observations.27

How do these new understandings about reproduction and senescence help to clarify some of the puzzles with which this article began? To start, why are so many women reluctant to give a numerical answer to the question of how many children they want? The answer becomes clearer if we recognize that, in our rural Gambian setting, the overriding fertility question throughout a woman’s reproductive life is not how many children she wants but rather how much of her God-given endowment she will be
able to realize as living children. Thus, the question is probably being inter-
terpreted as a query about the “amount” or “number” of potential children
with which a woman has been endowed. Although she may insist that she
wants as many children as God gives her or may simply refuse to give a
number, responses connoting superstition or fatalism, further probing re-
veals that it is primarily younger women who give this answer.28 Because
a woman cannot know before she is “spent” what her potential is, it hardly
makes sense to ask her how many children she wants. To a young woman,
this is an entirely open question, the answer to which she can only glimpse
as her marriage and fertility trajectories take more visible shape.

As to the notion of time and its relationship to fecundity and aging,
worries about menopause or the effects of time rarely appear in women’s
narratives of their fertility histories. While these facts seem to defy com-
mon sense in a society so desirous of children, the logic that now emerges
reveals that fecundity—and even “aging” itself—are seen as having little to
do with what Western society refers to as “age.” Western assumptions posit
that the countdown to menopause is a time-dependent event and that this
countdown poses a growing threat to a sub-fertile woman as time elapses.
By contrast, rural Gambians see reproduction, particularly the stresses of
labor, as eroding body resources. In fact, whereas menopause certainly ter-
minates the possibility of reproduction, reproduction, in aging the body,
may precipitate menopause. Because a woman who has lost all her bodily
reproductive resources is deemed to be “old,” it is not surprising that many
women who by Western standards might be judged young in years claimed
to be “too old” to bear children, often drawing attention to their aged appear-
ance. In terms of the endowment/body expenditure view of fertility, a woman
who survives to age 70 could have been “old” for over half of her life.29

Clearly the case of a rural Sahelian country is an extreme one. Here,
where fertility reaches one of its highest peaks in the contemporary world,
women must reproduce under conditions of sparse obstetric care, recur-
rent malaria, and intense work and nutritional stress. Yet it is precisely
such factors that make this a critical case for challenging Western science’s
confidence in the time-bound nature of reproductive capacity. Under these
conditions, a woman’s bodily potential is very likely to be expended quickly,
a fact that renders both the duration of birth intervals (assuming they are
not excessive) and the timing of menopause largely irrelevant to ultimate
child numbers. Since the anatomical and physiological limits of the body
will undoubtedly be reached before any temporal boundary, time can even
be an ally: moderate attempts to stretch birth intervals can aid attempts to
achieve a large family size.

As for the often-perplexing male perspective on reproduction, the is-
sue has usually been cast in dichotomous terms: men either support or do not
support contraceptive use. Seeing reproductivity as a potential to be realized
rather than a time-bound capacity helps to explain why men—and their elder female kin—sometimes object strongly to the use of contraceptives, and why women’s health can be such an inexplicably volatile domestic issue. If a young contraceptive woman were locked into a time-bound framework, she would be depriving herself of children as well as her husband. But since the limit is not one of time, she has much to gain if she withholds pregnancies from him in order to reserve them for someone else, possibly by feigning tiredness or exaggerating the severity of an illness. Once the question is posed as one of contraceptive use not to “limit” children but to “space” them and to spare worn out wives, men voice almost uniform support for contraception.

The chief value of the body expenditure thesis is that it explains many behaviors that previously eluded explanations except fatalism or lack of education. If the two cultural logics, Gambian and Western, are placed side by side, the grounds of disagreement become clear. Westerners would see the notion of God’s will and of reproductive outcomes whose numbers cannot be known in advance as manifestations of superstition in societies labeled as traditional. Gambian women, however, if someone were to explain to them the parallel Western beliefs about reproduction, would probably find the reduction of fertility to a time frame as begging the question. That is, since the validity of the notion of time is taken as given in the question about fecundity, women’s answers cannot be phrased in meaningful ways. People are not confused by the concept of age or of chronological time or with the notion that body processes transpire at a certain average temporal pace. Under the conditions Gambian women experience, attempting to force the notion of a highly contingent reproductive capacity into a fixed temporal frame would make no sense.

Placing Western and African beliefs about fertility side by side exposes the biological facts that Western society has taken for granted to the same tests and skepticism to which African theories have long been subjected. It is not at all clear that the Western view would prevail.

Appendix: Evidence from elsewhere in Africa

Contemporary demographic approaches that treat live births as the only reproductive currency and time as the baseline against which fertility must be calculated have pushed aside a number of anomalies that suggest that an alternative principle, the depletion of bodily resources over life’s wearing events, underlies reproductive behavior. While the consistencies in these alternative formulations are both striking and prevalent across our data sources, such principles appear to apply also to other times and places, from historical Europe to ethnographic accounts of contemporary North India, New Guinea, and Egypt (Bledsoe with Banja, ms.). As for Africa, anthropological work suggests that these forces permeate not only fertility behavior but many domains of social and ritual life; similar indica-
tions can be found in works of fiction (e.g., Emechta 1979: 32, 213). Demographic evidence for the body expenditure thesis using DHS data on sub-Saharan Africa can be found in Lockwood (1996); see also Blanc et al. (1996: 39) on Uganda and Watkins (field notes, 1994) on rural Kenya. If we concentrate, however, on numerical patterns of contraception following reproductive mishaps, what evidence can be gleaned?

A country that appears to be undergoing a fertility decline is not an ideal test for the body expenditure thesis since it is not clear whether contraception following reproductive mishaps would reflect an attempt to heal the body or to keep completed family size low. Nonetheless, Simon Gregson (personal communication; Gregson et al., ms.) finds in his data from rural Zimbabwe the same relationship between contraceptive use and reproductive mishaps that the Gambian data show: women who experienced a miscarriage, abortion, or stillbirth in the previous five years were more likely to be current users of modern contraceptives, after controlling for age, education, media access, and religion.

Perhaps the most compelling comparative test of the body expenditure thesis comes from the World Fertility Survey, which contained full fertility histories. With the help of Sangeetha Modhavan, we consulted 1977–80 data from the six African countries that are now archived by the International Statistical Institute in The Hague, to see whether any patterns similar to those found in the Gambia might emerge. The presumption, as with the Gambian data, was that if people see fertility only as an issue of fecundability or numbers of surviving children, then women in situations of problematic health and/or fertility would be the least likely to be using what the WFS called “efficient” contraceptives: pills, condoms, injections, IUDs, and sterilization. Of particular interest were women who were ever-married, uneducated, and rural: the group most comparable to the women in the Gambian study and those least likely to want to limit their fertility. Because the total number of “efficient” contraceptive users in the samples was quite small, only 109, users from all six countries were treated as a single group, assuming that collectively they could provide a rough comparison to contemporary Gambia.

As indicators of the least ambiguous evidence of contracepting for reasons other than fertility limitation, we identified two subcategories of women: (1) those currently breastfeeding a child and (2) those living in what these societies would likely have regarded as highly problematic fertility situations. These included women (a) whose last pregnancy had not survived, whether the outcome was a living child who later died or a miscarriage or stillbirth, (b) who were infertile/sub-fertile (defined as women aged 30 or older with fewer than three living children), (c) who had a high incidence of miscarriages or stillbirths (for ages 20–29, 2+ miscarriages or stillbirths; for ages 30+, 3+ miscarriages or stillbirths), or (d) who had few surviving children out of their total pregnancies (one-half or fewer resulting in a live birth; or 5+ pregnancies that had not survived). Several striking findings emerged (see Appendix Figure 1).

At least 21 percent of all uneducated, ever-married rural women using “efficient” contraceptives had highly problematic fertility records, including 13 percent who were contracepting after a reproductive mishap. Moreover, all the women using contraceptives for reasons that were almost certainly not those of fertility
limitation (cases of problematic fertility and those of breastfeeding) account for at least 38 percent of these unlikely users. And at least 7 of the 19 breastfeeding contraceptors had a history of fertility problems or what appeared to be closely spaced pregnancies. We hypothesize that many of these women had gone out of their way to obtain what during this period must have been an exceptionally rare “treatment” for their health or fertility problems.

How do these WFS results from the late 1970s compare with those from The Gambia in 1992? While contraceptive use for limiting births might have been expected to rise over the last 15 years, there is no evidence for this. Although overall increases in contraceptive use have occurred, the proportion of Gambian women with background characteristics comparable to WFS women who are contracepting for non-limiting purposes appears to have risen sharply, to 58 percent. The sole component of this change is a rise in the use of contraceptives while breastfeeding: 38 percent for Gambian women versus 17 percent for WFS women. Most pertinent to this article, the proportion of Gambian women who are using Western contraceptives in situations of problematic fertility (20 percent) and, in particular, following a reproductive mishap (13 percent) is almost exactly the same as among women in the WFS: 21 percent and 13 percent, respectively.
Notes

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1 The interview rounds indicate seven months of Depo-Provera coverage, but data entry for the last two months was incomplete.

2 Demography is the focus of this article because it is the discipline in which contemporary Western assumptions about age and reproduction have shaped some of the most sophisticated analytical tools for the measurement of fertility; see, however, a parallel analysis of sociocultural anthropology, in Bledsoe with Banja (1997).


4 The question of how people count children and reckon fertility lies outside the scope of this article. For an attempt to use the Gambian findings to revisit the question in the context of contemporary cultural views of reproduction and contraception in the United States, see Bledsoe (1996).

5 In the cases and quotes, names have been changed to preserve anonymity, and surveyors’ English transcriptions are lightly edited for better comprehension. Unless otherwise stated, all local terms are in Mandinka, the language of the largest ethnic group in the area.

6 This question has inspired seminal demographic work in other pre–fertility transition contexts (e.g., Bongaarts and Potter 1983; Coale 1986). Related questions have been addressed in other fields such as anthropology, microeconomics, obstetrics, and reproductive biology. In the case of evolutionary biology, see Burt-Jones (1986); Pennington and Harpending (1988); Kaplan (1994); and Calder (1984). This article recognizes the intrinsic importance of empirical findings stemming from studies in evolutionary biology, although it stops short of drawing any conclusions for natural selection or reproductive fitness. It also posits active, conscious efforts to influence biological outcomes in ways that have lain outside the thrust of work in this field. (See, however, Irons 1983: 204–205.)

7 For facility, this article uses the term “menopause” to refer both to the end of the menses and to the premenopausal decline in fecundability, which may predate menopause by several years. Wood (1994: 414) underscores the paucity of research on the causes of the timing of menopause.

8 Reproductive mishaps are obviously only one of the factors that influence fertility behavior in high-fertility populations. They are not the only traumatic obstetric events; nor are they all equally traumatic. However, all pregnancies are seen as taxing for women, though some are far more so than others.

9 The Gambian census of 1993 reported a decline in total fertility of some 6 percent (Sonko 1995; Republic of The Gambia 1997).

10 The analysis drawing on the multi-round survey data represents numbers of events, not individuals. Thus, several individuals appear only once, while a number of women are represented as many as 13 times.

11 Cases of sterilization were largely lost from view. Because the study was designed largely to examine birth intervals among still-fecund women, the rounds, on which much of the second part of the study was based, focused only on women who had had a live birth in the last three years. Since this strategy selected heavily for unsterilized women, we have no commentary from sterilized women describing why they took this measure.
12 As for the three cases of sterilization observed, two instances occurred after a miscarriage or stillbirth and the third after a live birth. While there is no way to tell why these measures were taken—whether voluntarily to limit the number of children or as a result of life-saving measures during an obstetric emergency—the proportion of women using Western contraceptives after a miscarriage or stillbirth is 10 percent, still higher than use following any other outcome.

13 There is some possibility that the miscarriages or stillbirths these young women reported were actually induced abortions, in which case their subsequent contraceptive use might imply that they were simply trying, as many urban teenagers do, to delay childbearing. Both of these women were married, a fact that diminishes the abortion possibility but does not eliminate it.

14 In theory, a contraceptive woman whose pregnancy ended with a miscarriage or stillbirth could have been attempting to space a previous live birth: by inducing an abortion in order to continue breastfeeding her previous child. However, no women in the 1992 survey whose previous pregnancy resulted in a still breastfeeding living child was contracepting after a reported miscarriage or stillbirth.

15 We are grateful to Medical Research Council physician Elizabeth Poskitt in The Gambia and to nurse-midwife Patricia Woolcott (Evanston, Illinois) for Western scientific perspectives on some of the materials in this section.

16 There is considerable Western scientific support for these notions. In the womb of a young woman, the fetus is observed to lie upright, well-supported by taut muscles. With a multipara, the uterine muscles have slackened and the fetus tilts forward, increasing the risk of a breech presentation or the initial emergence of a limb. Uterine muscles and ligaments are tight at the outset of reproductive life, but they become increasingly slack as they are torn or stretched irreversibly over multiple births. This is true particularly of the abdominal wall, the rectal sphincter, and the anterior vaginal wall.

17 We are grateful to Carla Makhlouf Obermeyer for noticing this word's likely Arabic origin (sarf) and to John Hunwick for pointing out its likely subsequent West African transformation through vowel additions.

18 Parfait Eloundou-Enyegue (personal communication) reports a similar linguistic phenomenon in Cameroon; the verb teg in Ewondo is used to mean to "age," "wear out," or "soften."

19 Patricia Woolcott lends support to this observation, based particularly on her experience with high-parity Orthodox Jewish women in Illinois.

20 "Lack of strength" might be interpreted as maternal depletion syndrome, in which a woman who has finished breast-feeding is unable to replenish her nutritional reserves to pre-pregnancy levels, particularly when births occur in rapid succession or seasonal hardships are imposed by work, hunger, or disease. (See, for example, Miller, Rodriguez, and Pebley 1993; Miller and Huss-Ashmore 1989; Winkvist, Rasmussen, and Habicht 1992.) The Gambian notion of reproductivity, however, subsumes this realization as one of several key components that determine both the course of reproduction and its end. Ben Campbell (personal communication) believes that the concept of maternal depletion, though it is usually applied to the loss of energy reserves from fat and body weight during each birth interval, can also apply to the cumulative net energy/body expenditure over the lifetime. As for muscle loss, this may also decline over the adult lifespan, but perhaps to an extreme degree in West Africa where protein intake is often inadequate and fertility is high.

21 Patricia Woolcott finds this description at odds with her experience in the United States, where a stillbirth usually causes no more difficulty than a normal birth. She speculates that a stillbirth may produce a hard labor in cases where the fetus may have been dead for some time and the head, which may have begun to decompose, has become plant, making it difficult to deliver the shoulders. A letter written in the early part of the twentieth century to the Women's Co-operative Guild (1916: 85) in England by a woman describing a stillbirth lends support to both sides: "the birth . . . was harder than usual, as a live baby helps in its
22 The same suggestive interpretations arise when examining sources such as the Women’s Co-operative Guild (1916), containing letters from working-class women in England just after the turn of the century.

23 Some women using Western contraceptives after a miscarriage or stillbirth may be doing so because they were taken to the health center either for help with a problematic delivery or for treatment after such events. Since local medical personnel, like their clients, are highly attuned to the problems of difficult pregnancies, they may have urged the women to use contraceptives so as to postpone the next pregnancy. Women’s commentaries, however, indicate that they actively sought contraceptives after a miscarriage or stillbirth.

24 A search in Population Index’s World Wide Web site for the joint key words “contraception” and “mortality” turned up only one source for the decade 1986–96: Hobcraft (1992). That article, examining the possible relationship between recent increases in birth intervals and improvements in child health in several WFS/DHS countries throughout the world, suggested that some of these changes may stem from increased use of contraceptives; however, a direct examination of this question was beyond the scope of the article. See hypothetical treatments of the question by Trussell and Pebley (1984) and Montgomery and Lloyd (1996); see also an analysis by Phillips et al. on Matlab in Bangladesh (1982), and an exchange of views it generated in PDR 14 (1988): 171–190. This discussion, however, seemed to hit an impasse, as noted in a National Research Council report (1989).

25 The new interest in reproductive health as broadly defined at the 1994 International Conference on Population and Development should in theory rectify some of these disjunctions, although we have detected as yet few tangible signs of such a trend.

26 As further evidence of the fact that cultural context shapes the ways in which scientific terminology comes to be understood, Patricia Woolcott found the phrase “fertility research” in demographic studies at odds with how the medical community in the United States uses the phrase. While the former refers to an endeavor to track problematic high fertility, the latter, she pointed out, refers to the study of, and attempt to mitigate, infertility.

27 According to Linda Martin (personal communication), recent work on aging suggests “a strong lifecourse perspective . . . that emphasizes environmental (broadly defined) influences over genetic influences.”

28 Round 12, containing a special add-on survey to address the body expenditure thesis, showed that women who, by self-assessment, were not yet “spent” were willing to leave the matter of additional children up to God in 40 percent of cases, while only 8 percent stated they wanted no more children. “Spent” women, however, yielded to God or gave no number in only 22 percent of cases. Nearly half (48 percent) said they wanted no more children.


References


