

Family Planning in Burkina Faso: Results of a Survey

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A survey of women of reproductive age was undertaken during April and May 1986 as part of an operations research project in Ouagadougou, the capital of Burkina Faso. Data were collected on respondents' knowledge, attitudes, and practice (KAP) of contraception. Although the government family planning program had been operating only since February 1985, knowledge of modern methods was surprisingly high, with 64 percent of respondents having ever heard of at least one modern method. Only 4.9 percent, however, were currently using a modern method. Use of traditional methods was high in this traditional society, with 41 percent of women currently practicing abstinence. Both knowledge and current use varied significantly across several background characteristics, the most important of which was education. The respondents were very vocal about their fertility desires regarding both the spacing and limitation of births. Moreover, attitudes toward possible future contraceptive use were extremely positive. These factors may be contributing to the steadily increasing demand for family planning services, which the government program is striving to meet. (STUDIES IN FAMILY PLANNING 1989; 20, 6: 325-331)

This report presents data from a family planning knowledge, attitudes, and practice (KAP) survey carried out in Ouagadougou, Burkina Faso from 2 April through 22 May, 1986. Burkina Faso, formerly Upper Volta, has a population of approximately nine million, almost one million of whom live outside the country (Institut National de la Statistique et de la Démographie, 1986: 8). As of December 1985, Ouagadougou, the capital, had a population of 442,223 (Institut National de la Statistique et de la Démographie, 1986: Tables 5-11).

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The country's demographic, health, and socioeconomic indicators place it among Africa's, and the world's, least developed countries, as shown in Table 1.

Burkina Faso is a landlocked Sahelian country facing the dual problems of desertification and a rapidly increasing population. The rural majority earn a scant income by cultivating millet and sorghum during the short growing seasons and practicing traditional animal husbandry. The drought of the mid-1980s and the more recent plague of locusts exacerbated the perennial problems of balancing an already fragile ecosystem. The export of labor to the cities, and especially to the richer countries to the South, notably Côte d'Ivoire, has long been an important source of income for individual families and for the country.

Family planning education and services first became available through public sector maternal and child health (MCH) clinics in Ouagadougou in early 1985; prior to that, such services were available from a few physicians or through extremely limited private channels. In the ensuing months, services were extended to other cities around the country.

From the start, services were more freely available than in many other new programs, especially those in

Table 1 Sociodemographic characteristics in six West African countries and sub-Saharan Africa

Country	Population, 1986	Total fertility rate, 1986	Crude birth rate, 1986	Infant mortality rate, 1986	Gross national product (US\$), 1986	Adult women literate (%), 1985
Burkina Faso	8,846,929	6.5	48	140	150	6
Côte d'Ivoire	10,700,700	7.1	52	96	730	31
Ghana	13,200,000	6.3	47	89	390	43
Mali	7,600,000	6.5	50	144	180	11
Niger	6,600,000	7.0	48	135	260	9
Senegal	6,800,000	6.5	47	130	420	19
Sub-Saharan Africa	424,100,000	6.7	48	113	370	—

Sources: Institut National de la Statistique et de la Démographie, *Recensement Général de la Population du 10 au 20 Décembre 1985: Résultats Provisoires* (Ouagadougou, April 1986); World Bank, *World Development Report 1988* (New York: Oxford University Press, 1988); UNICEF, *The State of the World's Children 1988* (New York: Oxford University Press, 1988).

francophone Africa. For example, service provision was never limited only to physicians; nurses and midwives are also permitted to deliver family planning care. Moreover, services are open to all women and men irrespective of age and marital status. Spousal consent is not required. While expensive and difficult to obtain laboratory blood tests were initially required of prospective users of hormonal methods, this requirement was officially lifted in 1988 as data became available showing the tests to be unnecessary for the provision of high quality family planning care.

The Burkinabe government stands strongly behind the family planning program. A 1985 Action Plan recognized population problems as a critical factor in social development and called for the full integration of family planning into the nation's health program. Family planning education and family planning services were originally the responsibilities of two different ministries, but a 1988 ministerial reorganization placed both functions under the Ministry of Public Health and Social Action.

The Survey

The present survey was undertaken as the initial phase of an operations research project to improve family planning service delivery in Ouagadougou. A total of 1,007 women aged 15–49 were selected from a random sample of households in ten of the 30 sectors of the city, weighted according to the December 1985 census and representative of the city as a whole. The interviews were conducted during a six-week period in April and May, 1986 by ten female interviewers who had been trained for a total of three weeks in family planning communication and survey techniques. The respondents

were questioned on their basic demographic and socio-economic background characteristics; family planning knowledge, attitudes, and practices; fertility-related practices; and utilization of MCH services.

This report presents data on sociodemographic characteristics and on contraceptive knowledge, attitudes, and practices among 759 women aged 15–44 who were currently married or who had a partner.

Profile of Respondents

Respondents in this survey were, on average, 27.7 years of age, with 3.6 children ever-born and 2.7 living children (Table 2). Eighty-eight percent of the sample were currently married, 57 percent in monogamous and 31 percent in polygamous unions. Eleven percent of the sample were single women who reported having a partner at the time of the survey.

Sixty-five percent of the respondents had no education while 22 percent had had some primary schooling and 14 percent had secondary or higher education. The proportion of women with no education increased

Table 2 Profile of respondents in knowledge, attitudes, and practice (KAP) survey, Ouagadougou, Burkina Faso, 1986

Characteristics	Percent	Number
Age (N=751) ^a		
15–19	9.6	72
20–24	31.3	235
25–29	22.4	168
30–34	17.2	129
35–39	11.6	87
40–44	8.0	60
Mean age (years)		27.7
Marital status (N=759)		
Single, with partner	10.8	82
Married, monogamous	56.7	430
Married, polygamous	31.2	237
Widowed, divorced, separated, with partner	1.3	10
Education (N=758) ^a		
None or literacy training	64.6	488
Primary	22.2	168
Secondary or greater	13.5	102
Religion (N=757) ^a		
Muslim	61.3	464
Christian	37.3	282
Traditional	1.4	11
Residence until age 12 (N=759)		
Urban	61.1	464
Rural	38.9	295
Have living children (N=759)	86.8	
Mean number of:		
Children ever-born (N=759)		3.6
Living children (N=759)		2.7
Children ever-born to women 40–44 (N=60)		7.8
Living children to women 40–44 (N=60)		5.8

^aN<759 due to some nonresponse.

steadily with age, as 45 percent of the youngest age group and 85 percent of the oldest age group had no education (Figure 1). Muslims represented 61 percent of the sample and Christians, 37 percent. Over one-third of the respondents had spent the majority of their youth (until age 12) in a rural setting.

Knowledge and Practice of Family Planning

Considering the brief amount of time that the family planning program in Ouagadougou had been functioning at the time of the survey, knowledge of modern contraception was surprisingly high (Table 3). Overall, 64 percent of the respondents had ever heard of a modern method; the pill was the most frequently cited modern method, followed by injections and the IUD.

These figures represent "prompted" knowledge—that is, the ability to recognize a method once it is described. "Unprompted" knowledge, or the ability to name a method spontaneously, was predictably lower: without prompting, only 34 percent of all women in the sample named one or more modern methods. This discrepancy suggests that family planning knowledge, although fairly widespread, consists mainly of passive recognition (plus any "respondent courtesy" bias, which, in spite of efforts to limit it through interviewer training and questionnaire construction, occurs when respondents say they recognize the methods named even if they do not).

Prevalence of modern contraceptive use was far below the levels of contraceptive knowledge (Table 3). A total of 4.9 percent of respondents were currently using the pill, IUD, injection, contraceptive foam, or condoms, with the pill being the most commonly used method (2.5 percent).

Figure 1 Percent of women with no education, by age, Burkina Faso, 1986

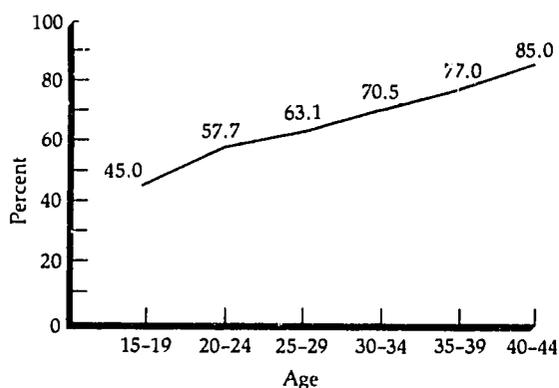


Table 3 Knowledge and current use of contraceptive methods, Ouagadougou, Burkina Faso, 1986

Method	Unprompted knowledge	Overall knowledge	Current use
Modern methods			
Pill	31.4	59.7	2.5
Injection	11.5	47.4	0.4
IUD	9.9	40.6	0.5
Contraceptive foam	6.9	31.1	1.1
Condoms	6.9	37.3	0.4
One or more modern methods	34.4	63.5	4.9
Traditional methods			
Postpartum abstinence ^a	0.5	62.6	40.6
Rhythm	4.0	38.6	9.5
Withdrawal	0	15.0	0.8
Other traditional	0	6.7	0.4

Note: N=759.

^aIn addition, 7 percent were practicing abstinence who were not postpartum.

The use of traditional methods was more prevalent, as might be expected in this largely traditional society. Forty-eight percent of women reported that they were currently practicing abstinence; this included 41 percent who were postpartum and 7 percent who were not. Of the 41 percent who were postpartum, 97 percent had a child aged three years or younger. It is interesting to note, however, that not all of these postpartum abstainers view their behavior as "contraceptive": 39 percent of current abstainers (16 percent of the total sample) responded negatively when asked whether they had ever "abstained for several months or longer in order to avoid having a baby." The interviewers were instructed to prompt on this point in order to clarify the apparent contradiction between the abstainers' behavior and their negative responses. Most responses affirmed the observation that postpartum abstinence is practiced by many for reasons of custom, and is not directly or overtly associated with family planning. This question needs further investigation using qualitative research techniques that permit a fuller understanding of the motives underlying the use of abstinence.

As noted above, 7 percent of the women who were practicing abstinence were not postpartum. It may be hypothesized that this small group was using abstinence as a contraceptive method. Thus, it appears that not all postpartum abstainers view their behavior as contraceptive and, conversely, that not all abstainers are postpartum abstainers. This would also suggest that the knowledge of abstinence figure reported in Table 3 is underestimated since it reflects only those women who recognize abstinence as a contraceptive method.

Knowledge and current use of one or more modern methods varied significantly across several background characteristics (Table 4). Women in polygamous unions were least knowledgeable, with only 54 percent able to recognize at least one modern method, while knowl-

Table 4 Current knowledge and modern contraceptive use, by selected background characteristics, Ouagadougou, Burkina Faso, 1986

Characteristic	Number	Knowledge		Use of modern methods ^a	
		Percent	χ^2	Percent	χ^2
Total	759	63.5		4.9	
Age ^b			ns		ns
15-19	72	55.6		2.8	
20-24	235	63.8		3.4	
25-29	168	66.1		7.7	
30-34	129	64.3		5.4	
35-39	87	64.4		3.4	
40-44	60	61.7		5.0	
Marital status ^b			<.01		ns
Single, with partner	82	86.6		7.3	
Married, monogamous	430	64.2		5.1	
Married, polygamous	237	54.0		3.0	
Education ^b			<.01		<.01
None or literacy training	488	51.6		2.3	
Primary	168	78.6		3.0	
Secondary or greater	102	96.1		20.6	
Religion ^b			<.01		<.05
Muslim	464	56.5		3.7	
Christian	282	75.2		7.1	
Residence until age 12			<.01		<.1
Urban	464	70.7		6.0	
Rural	295	52.2		3.1	

Note: ns = not significant.

^aIncludes use of pill, IUD, injections, foam, and condoms. ^bTotal number is less than 759 due to some nonresponse.

edge among single women with partners was quite high (87 percent). Similarly, Christian women and women raised in an urban environment had significantly higher levels of knowledge than did Muslim women and women from rural backgrounds.

The greatest differences occurred across educational levels. Just over half of the women with no education recognized a modern method while nearly all women with a secondary education or higher were able to do so. Knowledge of modern methods did not vary significantly across age, although women aged 15-19 had significantly less knowledge than those in the other age groups.

Current levels of contraceptive use also varied significantly across religion, childhood background, and education. The proportion of Christian women and women from urban backgrounds using modern contraceptives was almost twice that of Muslim women and women from rural backgrounds, respectively. Although the differences across marital status categories were not significant overall, single women with partners reported the highest level of current modern contraceptive use (7.3 percent).

As was the case with levels of knowledge, current use varied most across educational levels. Two percent of women with no education were currently using a modern method, compared to 21 percent of those with secondary or higher education. Current use was highest

in the middle age range (7.7 percent among 25-29-year-olds) but, as was the case with knowledge, it did not vary significantly across all age groups.

Attitudes toward Family Planning

Among the attitudinal questions posed, women were asked if they wanted additional children, when and how many, and whether they would consider using modern contraceptives in the future. The responses to these questions indicate a strong latent demand for stopping as well as spacing births, and very positive attitudes toward family planning.

When asked if they wanted children, virtually all of the women who did not yet have children answered in the affirmative. Because this group was composed largely of sexually active single women who were assumed to not desire a birth before marriage, they were not asked follow-up questions regarding the desired timing of their first birth. Thus, the analysis of desired timing of the next birth is based upon women who already had children.

Twenty-three percent of women with children stated that they did not want any more (Table 5). This group was on average 35 years old, had 6.5 live births, and five living children. The realization of their fertility limitation desires would decrease their number of live births by 1.3 and their total number of living children by .8 compared to the sample of women currently aged 40-44. It may be assumed, moreover, that these women would, without family planning services, in fact surpass the fertility of the 40-44-year-olds since, at age 35, they have already achieved the fertility of 35-39-year-old women in the sample (Table 6).

An additional 47 percent of women with children reported that they wanted to delay their next pregnancy. This group was younger than those who wanted to stop having children, averaging 26 years of age, and had a mean of 3.3 live births and 2.6 living children.

Table 5 Desire for additional children among women with children, Ouagadougou, Burkina Faso, 1986

Desire for children	Percent (N=659)	Mean age	Mean parity	Mean number of living children	Percent currently practicing contraception	
					Modern	Traditional
Do not want more	22.8	34.8	6.5	5.0	10.0	64.7
Want more later	47.3	25.9	3.3	2.6	5.8	78.9
Want more, don't know when	15.3	27.3	3.5	2.5	0	20.8
Want more now	11.2	28.7	3.6	2.1	0	23.0
Don't know if want more	3.3	30.9	5.7	4.4	0	68.0

Table 6 Age-specific mean parity, Ouagadougou, Burkina Faso, 1986

Age	Number	Mean parity	Mean number of living children
15-19	72	0.6	0.5
20-24	235	1.6	1.3
25-29	168	3.4	2.7
30-34	129	5.3	4.0
35-39	37	6.6	4.7
40-44	60	7.8	5.8

Note: Total N = 751 due to eight nonresponses.

Combined, a total of 70 percent of married women aged 15-44 with children wanted to either stop or delay childbearing. These women make up a sizeable target group for family planning services.

Moreover, an additional 19 percent of the sample were uncertain as to whether or when they would like to have another child, leaving only 11 percent who reported that they wanted their next child immediately.

The future fertility desires of these women were associated with both modern and traditional contraceptive use. Use of modern methods was nonexistent among women who wanted children immediately and among those who were uncertain as to when they wanted a future pregnancy. Roughly 20 percent of women in each of these groups were currently using a traditional method, primarily postpartum abstinence (see Table 5).

Modern use was somewhat higher but still very low among women who wanted to stop or delay childbearing: only 10 percent and 6 percent, respectively, were modern contraceptive users. A majority of these women, however, were using traditional methods, which, again, consisted mainly of abstinence. While these women were indeed protected, abstinence may be inadequate as a long-term contraceptive method for three major reasons. First, the survey data showed the average duration of abstinence to be 14 months (calculated among women reporting a closed abstinence interval). Second, based upon focus group research conducted just after the survey as part of the operations research project, women reported the use of abstinence

to be onerous for social, economic, and emotional reasons.¹ Third, abstinence has been widely hypothesized to be on the decline in Africa, especially in urban environments (Chieh-Johnson et al., 1988; Caldwell, 1981). The present data may support this hypothesis since the duration of abstinence was lower among younger women, educated women, and among those raised in an urban environment than among older, uneducated, and rural women.² Hence, a large segment of women who wanted to stop or space their births were either at immediate risk of an undesired pregnancy or were protected only by abstinence, which, with all its shortfalls, may be considered temporary protection at best.

As demonstrated in World Fertility Survey and other data for other African countries (ISI, 1984; Chieh-Johnson et al., 1988; Segamba et al., 1987), the present survey showed a dramatic increase in the proportion of women who stated that they did not want additional children as the number of living children increased (Table 7). Almost one-third of women with four children and over 60 percent of those with five or more did not want additional children. These figures are comparable to those reported in the urban population of Senegal and in Ghana.³

An important consideration in the analysis of these figures is their relationship to maternal mortality. It has been shown elsewhere that the risk of maternal mortality is greatly increased among women aged 35 or older and of parity five or greater (Maine et al., 1986). In the present sample, large proportions of the women with these characteristics express the desire for family size limitation. Their ability to realize their stated fertility desires will decrease their risk of maternal mortality, making the case for improved family planning service delivery all the more compelling.

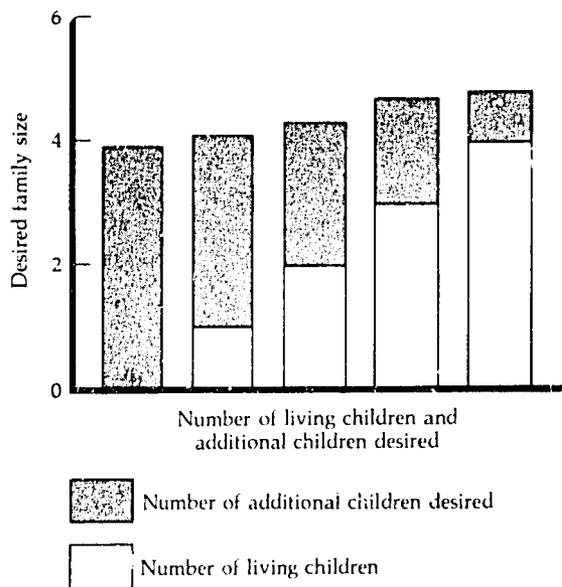
Those women who wanted additional children were asked how many more they wanted, and desired family size was then calculated by adding the number of children desired to the number of living children (Table 7). Approximately two-thirds of women gave a numeric response. Women with no children wanted an average

Table 7 Desire for additional children, by number of living children, Ouagadougou, Burkina Faso, 1986

Variable	Number of living children							
	0	1	2	3	4	5	6	7+
Do not want another child								
Percent	0	2.0	10.3	18.1	30.1	52.8	55.8	76.7
(Number) ^a	(115)	(147)	(126)	(116)	(93)	(53)	(43)	(43)
Mean number of additional children desired								
(Number) ^a	3.9	3.1	2.3	1.7	0.8	0.4	0.4	0.2
	(77)	(90)	(78)	(72)	(54)	(36)	(31)	(38)

^aNumber giving numeric response to question on number of children desired. Non-numeric responses were primarily "As many as God wills."

Figure 2 Desired family size, Burkina Faso, 1986



of four, those with one wanted three, and those with two or three wanted two. Those with four or more wanted an average of less than one. Thus, desired family size remained at a fairly constant level of four among those who had four or fewer living children (Figure 2). This finding differs markedly from the assumption often made regarding large desired family size in Africa (Frank, 1987).

When asked whether they would use modern family planning methods in the future, respondents showed strong positive attitudes. Eighty-nine percent of women who had never used any method, 87 percent of those who had used only traditional methods, and 87 percent of former modern method users stated that they thought they would use a modern method in the future. While this is not a sure indicator of future behavior, it does show a strong receptivity and openness to family planning use among these women.

Discussion

The family planning program as initiated in Ouagadougou in 1985 included public information campaigns that were designed to emphasize the overall benefits of family planning and not, at least in the early stages, detailed information on specific methods. This emphasis may help to explain the generalized knowledge found among respondents during the survey as well as the relative lack of detailed knowledge.

The new program also included the provision of family planning services (pill, foam, and condoms, and later, IUDs and injections) in five, and later in nine, government MCH centers. Availability was limited, however, due to a number of practical and policy factors. Services were only made available on a limited schedule due to the shortage of trained staff and the continuing need to provide the full range of other MCH services. In addition, the clinical examination and laboratory tests required of potential contraceptive users, while considered necessary for safe contraceptive prescription, were expensive and time-consuming. These factors may have discouraged women from obtaining services and may be partially responsible for the low levels of contraceptive use observed. As the government's program progressed, these issues have been addressed systematically. For example, the laboratory tests are no longer routinely required of family planning acceptors.

Overall, the data presented here portray a population that has fairly widespread but vague knowledge of family planning, very limited use of modern contraceptive methods, a strong desire to space and limit births, and positive attitudes toward future family planning use. Future contraceptive prevalence will depend on both the degree to which the observed motivation is transferred into action and the degree to which services become truly available and accessible to all those who want them.

Acknowledgments

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Notes

1 In focus group discussions held in Ouagadougou after the survey, women reported that they did not like abstinence because it forced their husbands to go outside marriage for sex. They explained that this was costly, since the husbands must buy presents for their girlfriends, and dangerous, since they often brought venereal diseases home with them. The women also said that they were sometimes expected to raise the children resulting from their husbands' liaisons. Moreover, the women said, sex between husbands and wives can improve marital harmony.

In earlier focus groups with men, the participants agreed that abstinence was a practice adhered to only by women. Men, both monogamous and polygamous, simply satisfied their sexual desires elsewhere while their wives abstained.

- 2 In the absence of longitudinal data, it is not clear whether postpartum abstinence increases with age or whether the shorter durations observed among the young reflect a true change over time.
- 3 In urban Senegal, 28.5 percent of currently married women wanted no more children. The figure rose to 41.2 percent of those with five children and 74.0 percent of those with six or more (Ministère de l'Économie et des Finances, 1983).
In Ghana, 22.8 percent of currently married women wanted no more children, while 55.4 percent of women aged 45–49 years, who had a mean of 5.65 living children, wanted no more (Ghana Statistical Service, 1988).

References

- Caldwell, J.C. 1981. "Fertility in Africa." In *Fertility Decline in the Less Developed Countries*. Ed. N. Eberstadt. New York: Praeger. Pp. 97–118.
- Chieh-Johnson, D., A.R. Cross, A.A. Way, and J.M. Sullivan. 1988. *Liberia Demographic and Health Survey, 1986*. Monrovia: Bureau of Statistics, Ministry of Planning and Economic Affairs, and Columbia: Westinghouse, Institute for Resource Development.
- Frank, O. 1987. "The demand for fertility control in sub-Saharan Africa." *Studies in Family Planning* 18, 4: 181–201.
- Ghana Statistical Service. 1988. *Ghana Demographic and Health Survey 1988, Preliminary Report*. Accra: Ghana Statistical Service, and Columbia: Institute for Resource Development/Westinghouse.
- Institut National de la Statistique et de la Démographie. 1986. *Recensement Général de la Population du 10 au 20 Décembre 1985: Résultats Provisaires*. Ouagadougou: Institut National de la Statistique et de la Démographie.
- International Statistical Institute. 1984. *World Fertility Survey: Major Findings and Implications*. Voorburg: International Statistical Institute.
- Maine, D., A. Rosenfield, M. Wallace, A.M. Kimball, B. Kwast, E. Papiernik, and S. White. 1986. "Prevention of maternal deaths in developing countries: Program options and practical considerations." Background paper prepared for the International Safe Motherhood Conference, Nairobi, 10–13 February 1987.
- Ministère de l'Économie et des Finances. 1988. *Enquête Démographique et de Santé au Sénégal, 1986*. Dakar: Ministère de l'Économie et des Finances, and Columbia: Institute for Resource Development/Westinghouse.
- Segamoa, L., V. Ndikumasabo, F. de Tomassi, and C. Makinson. 1987. *Enquête démographique et de santé au Burundi, 1987: Rapport préliminaire*. Burundi: Ministère de l'Intérieur, Département de la Population, and Columbia: Institute for Resource Development/Westinghouse.

The Effects of Breastfeeding and Birth Spacing on Child Survival in China

Ping Tu

Using data from the In-depth Fertility Survey, conducted in Shanghai Municipality and Shaanxi Province, People's Republic of China, in April 1985, this study shows that breastfeeding and birth spacing have significant effects on child survival in Shaanxi, but not in Shanghai (controlling for potential confounding factors and reverse causality). The effect of breastfeeding decreases with age. Introducing proper supplemental food is very important for child survival in Shaanxi, where a high proportion of children are breastfed exclusively for much too long, sometimes up to nine months. An increase in the length of the previous birth interval improves child survival in Shaanxi significantly, especially for high-order children, and the first child has the highest survivorship in both Shanghai and Shaanxi. The effects of subsequent birth intervals are statistically significant in Shaanxi, but have a small actual impact on child survival in the first few years of life, since the arrival of a sibling does not affect the index child's risk of dying in the first few months of life, when the mortality rate is extremely high. (STUDIES IN FAMILY PLANNING 1989; 20, 6: 332-342)

It is well known that breastfeeding provides protection against malnutrition and infectious diseases that is very important for child survival (Butz et al., 1984; Habicht et al., 1986; Palloni and Tienda, 1986; Palloni and Millman, 1986). The protection conferred by breastfeeding is especially important in rural China, where access to modern medical facilities is quite limited and infant formulas are unknown.

Breastfeeding is almost universal and of very long duration in China, particularly in the less developed areas (Tu, 1989). Intensive breastfeeding patterns have contributed to long birth intervals in China, a situation that existed even before fertility started to decline in the 1970s. Birth spacing not only served as a way to check the rate of population growth in an already densely populated country, but also as a means of maximizing the survival chances of existing children by concentrating scarce resources on them (Hobcraft et al., 1983; Omran, 1976, 1981; Palloni and Tienda, 1986; Palloni and Millman, 1986; Trussell and Hammerslough, 1983).

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This study analyzes the effects of breastfeeding and birth spacing on child survival, and assesses the possible impacts of changes in breastfeeding and birth spacing practices on infant and child mortality in Shanghai Municipality and Shaanxi Province, the People's Republic of China.

Data Collection and Background

Data were taken from the In-depth Fertility Survey conducted by the State Statistical Bureau of the People's Republic of China in Shanghai and Shaanxi, in 1985. Information was collected on the complete reproductive histories of 4,143 and 4,084 ever-married women under age 50, in Shanghai and Shaanxi, respectively, with detailed background information on each respondent (State Statistical Bureau, 1986a).

Shanghai Municipality is located in the Yangtze Delta on the east coast of China. It is the biggest industrial base and seaport of China, and had a population of over 12 million by the end of 1985 (State Statistical Bureau, 1986b). Various socioeconomic and health service indicators for Shanghai, such as per capita income, educational attainment, and doctors per 1,000 population, are among the highest in China. The total

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