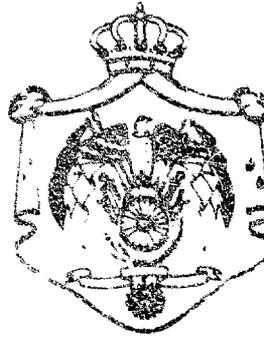


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Paper No. 10

**POST-PARTUM PRACTICES AND CHILDSPACING IN SENEGAL AND JORDAN**

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Post-Partum Practices

and Childspacing in Senegal and Jordan

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## INTRODUCTION

This paper compares intervals between birth and related factors in two populations which have achieved very similar total fertility rates--between six and seven birth per women--but are quite different on the major determinants of fertility. The comparisons make use of two recent maternal/child health surveys, the 1982 Sine-Saloum Family Health Survey conducted in a rural region of Senegal, and the 1983 Jordan Fertility and Family Health Survey. Components of birth intervals are estimated using the data collected on these surveys in order to contrast the two populations, and examine major differentials within the two populations. The goal of these comparisons is to see if the types of estimates made from data of this type appear meaningful, to see what inferences can be made about fertility patterns in the two areas, and to derive any program policy implications from the data.

## DATA

The two surveys were similar in selecting a household-based sample of reproductive-age women, and obtaining information on them and their recent children. The Senegal survey obtained health data including the woman's use of maternal/child health services and for the children born in the last 5 years immunization status, recent diarrhea history and anthropometry. The survey used a truncated birth history: for each selected woman information including dates of birth was obtained for all children born in the 5 years before interview.(1/)

The Jordan survey was a representative sample of the East Bank area of Jordan and collected much of the same health data as the Senegal survey except that child anthropometry was not done. A complete birth history of respondents was obtained.(2/)

#### THE SETTINGS

The Sine-Saloum survey was conducted in a homogeneous rural area in which the rate of marriage is high, and the use of contraception low. Only 3 percent of currently married women reported current contraceptive use in the survey, but most of this was abstinence and traditional methods such as herbs. Only five of 1,800 respondents reported use of effective methods--one condom and four rhythm.

In Jordan 26 percent of currently married women reported current use of effective methods with IUD and pill being the most common methods. Age at marriage is a major difference in the two populations--in Senegal 64 percent of women 15-19 were ever-married in contrast to 9 percent in Jordan. Thus, while the overall TFR is quite similar in the two populations, marital fertility is actually considerably higher in Jordan, which has an ever-married TFR of about 11 birth per woman compared with seven for the Sine-Saloum survey. As shown later in the paper, this apparent inconsistency--higher marital fertility and higher contraceptive use in Jordan--is due to a longer period of postpartum non-susceptibility related to long and intensive breastfeeding.

## METHOD

Inter-birth intervals were estimated for all intervals starting with a birth in the 60 months before interview. Intervals were evaluated using standard lifetable methods using the SPSS Survival program. Five post-partum variables were measured--breastfeeding, full breastfeeding, abstinence, post-partum amenorrhea and the non-susceptible period--using the current status methods.

## BIRTH INTERVALS

Table 1 shows a number of indicators of the length of intervals between births for the two surveys (see also Figure 1). Average intervals were estimated using the trimean--a weighted average of the first quartile, median and third quartile in which the median is weighted twice. Table 1 indicates that the average interval is considerably longer in the rural Senegal population than in Jordan--35 months versus 27 months. Both populations show intervals increasing with age above age 20 as might be expected. In the Senegal survey intervals are also longer at age-group 15-19, but not in Jordan. This probably related to the much earlier age at childbearing in the rural Senegal population, so that the effects of adolescent subfecundity are evident. In Jordan, there is a 3 month longer interval in urban areas, compared with rural areas. For Senegal, one of the major ethnic groups in the region, the Foulhs, has a substantially longer interval than the other groups, 41 months compared with 33-36 months.

## POST-PARTUM VARIABLES

Mean durations of post-partum variables were measured using the prevalence mean; the mean duration of breastfeeding, for example, was estimated by the number of women currently breastfeeding divided by the average number of births per month, (estimated over the 24 months before interview).<sup>3/</sup> The five variables are shown for Senegal for major subgroups in Table 2.

Breastfeeding in Senegal was 22 months with almost 8 months of exclusive breastfeeding. Post-partum abstinence averaged 5 months, considerably less than amenorrhea which was almost 20 months--quite a long duration for post-partum amenorrhea for populations in which it has been measured.<sup>4/</sup> The non-susceptible period is defined as either amenorrhea or abstinence, whichever is longer for an individual woman, and averages 20.6 months, slightly longer than amenorrhea.

The very long duration of post-partum amenorrhea in the Senegal data deserves some comment. A somewhat different method of estimation, the current status lifetable method, gives estimate of 18.2 months compared with 19.7 for the prevalence mean. Both figures are in excess of an indirect estimate based on mean duration of breastfeeding using Bongaarts' exponential regression equation<sup>5/</sup>, which is about 16 months. This may be related to the apparent intensity of breastfeeding, as indicated by nearly 8 months on the average of full breastfeeding.

In general, differentials in the various post-partum variables shown in Table 2 are modest. Post-partum amenorrhea has a U-shaped relationship with age with longer durations at age group 15-19, again suggesting the effects of adolescent subfecundity.

Since post partum abstinence was not obtained on the Jordan survey, abstinence and the non-susceptible period could not be estimated. The remaining three post-partum variables, shown in Table 3, indicate a mean duration of breastfeeding of 11.4 months, full breastfeeding of 3 months and amenorrhea of 6 months. In general, breastfeeding and amenorrhea follow the patterns found elsewhere <sup>6/</sup> --longer durations among the rural, older and less educated. The overall estimate of post-partum amenorrhea --6 months-- is close to the indirect regression estimate based on mean duration of breastfeeding.

#### BIRTH INTERVAL COMPONENTS

By assuming 9 months for gestation and using the trimean of the birth interval, and the prevalence mean for the post-partum nonsusceptible period, and implied average exposure interval was estimated for major subgroups of the two surveys. There are potential problems with combining these rather different estimates. For example, intervals are measured over the 5 years before interview and post-partum variables are based on current status. Any errors in the component measurements would be absorbed by the estimated exposure interval. In addition, the exposure interval will contain the average length of time lost to fetal wastage, and also some time contributed by women who will not become pregnant again, as well as by women using contraception.

Data for rural Senegal shown in Table 4 indicate an exposure interval of only 5.4 months on the average. The implied interval is longer at the youngest and oldest ages, and among the Peulh ethnic group where it is 10 months. When the current status lifetable method is used rather than the prevalence mean the overall exposure interval is somewhat longer --7 months.

In Jordan the implied exposure interval is 11.5 months (Table 5). The exposure interval is not longer among teenagers, but rather there is a clear gradient with respect to age. Other differences, such as between urban and rural areas, probably reflect differences in contraceptive use. Current users of contraception have one of the longest implied exposure intervals, but this group probably violates the assumptions regarding a steady stream of recent births that underlies the prevalence mean. Looking at non-users, never users have an implied exposure interval of 8 months, which approaches that for some subgroups found in Senegal.

#### REASONS FOR STOPPING BREASTFEEDING

The data suggest that long an intensive breastfeeding leading to a long period of nonsusceptibility is the main determinant of the longer intervals observed in the rural Senegal survey. Women were asked in both surveys why they had stopped breastfeeding. In Senegal, most women who had stopped said it was because the child was old enough (Table 6). Of those who breastfed less than one year, most stopped because the child had died.

In Jordan, (Table 7) the most frequent response was insufficient milk, 28 percent, followed by the child being old enough 24 percent, and the mother becoming pregnant, 22 percent. Clearly, the cultural attitudes and norms toward breastfeeding are quite different in the two populations.

## OTHER FACTORS

As mentioned earlier, the Sine-Saloum Senegal population was found to have a negligible level of contraceptive use while 26 percent of married women in Jordan were using an effective means of contraception. Both surveys (Table 8) found similar levels of pregnancies ending in spontaneous or induced abortions, 7 percent, but this is no doubt underreported as in most household surveys <sup>7/</sup>. About 5 percent of women over age 30 were childless in Senegal compared with 3 percent in Jordan (Table 8). In Senegal, the ethnic group Peulh does stand out with a higher percentage of fetal wastage and percent childless--9 percent. This group also had longer birth intervals and implied exposure interval.

## CONCLUSIONS

The data of the type collected in the two maternal and child health surveys--dates of recent births and current status of post-partum variables--appears to provide meaningful estimates of major factors involved in interbirth intervals. The implied exposure interval computed by combining estimated mean intervals and non-susceptible periods is in a plausible range for the two populations. Examining the components of inter-birth intervals explains the apparent inconsistency in the two data sets; shorter intervals in Jordan despite a much higher level of contraceptive use is due to a longer non-susceptible period in rural Senegal.

The data for Senegal suggest a very strong effect of prolonged breastfeeding in suppressing fertility. There is considerable potential for fertility rates, which are already high, to increase in the Sine-Saloum area of Senegal if durations and intensity of breastfeeding decrease. The data for Jordan indicate very short intervals between births around 2 years on the average, a pattern which could have serious negative health effects for children.<sup>8/</sup>

## REFERENCES

1. Senegal, Direction de La Statistique, "Final Report, Sine-Saloum Family Health Survey 1982," English Language Report, Division of Reproductive Health, Centers for Disease Control, Atlanta, GA, April 1984.
2. Jordan Department of Statistics, "Principal Report, 1983 Jordan Fertility and Family Health Survey", Draft, April 1984.
3. B. Ferry and D. Smith, "Breastfeeding Differentials," WFS Comparative Studies No. 23, Voorburg, Netherlands, International Statistical Institute, 1983.
4. J. Bongaarts, "The Fertility Inhibiting Effects of the Intermediate Fertility Variables", Studies in Family Planning 13(6/7), June/July 1982, pp. 179-189.
5. Bongaarts, cited in reference 4.
6. Ferry and Smith cited in reference 3.
7. J.E. Anderson, "Reported Incidence of Abortion in World Fertility Surveys and Contraceptive Prevalence Surveys," Working Paper, Division of Reproductive Health, Centers for Disease Control, Atlanta, September 1979.
8. J. Hobcraft, J. MacDonald and S. Rutstein, "Childspacing Effects on Infant and Early Child Mortality," Population Index 49(4) Winter 1983, pp. 585-618.

TABLE 1

Rural Senegal and Jordan Intervals Between Live Births (Months)  
by Age at Interview, all Intervals Started in the 5 Years  
Before Interview, 1982 Sine-Saloum Senegal, Family Health Survey  
and 1983 Jordan Fertility and Family Health Survey

A. Rural Senegal	Quartiles (Months)			Average (Timean)	No. of Intervals
	T25	T50	T75		
<u>Total</u>	25.1	34.5	46.0	35.0	2684
<u>Age</u>					
15-19	25.5	37.8	49.4	37.6	211
20-24	24.7	32.9	41.6	33.0	725
25-29	25.1	33.4	43.3	33.8	732
30-34	24.6	33.2	44.6	33.9	496
35-44	30.3	39.3	61.0	42.5	520
<u>Ethnic Group</u>					
Wolof	25.1	34.7	47.9	35.6	1412
Serer	24.9	33.4	41.7	33.4	817
Peulh	29.2	37.4	61.0	41.3	343
B. Jordan					
<u>Total</u>	18.1	24.9	38.9	26.7	5755
<u>Age</u>					
15-19	15.3	22.4	25.3	21.4	144
20-24	15.5	21.7	27.5	21.6	1003
25-29	16.2	23.7	32.3	24.0	1467
30-34	18.5	24.4	36.3	25.9	1154
35-39	21.8	29.1	45.5	31.3	1129
40-49	23.9	36.2	-	(39.7)	858
<u>Residence</u>					
Urban	18.1	25.8	43.7	28.4	3839
Rural	18.2	24.2	34.1	25.2	1916

TABLE 2

Rural Senegal: Measurements of Duration of Postpartum Variables for Selected Categories, 1982 Sine-Saloum Family Health Survey

	Mean Duration of Postpartum Variables (Months) <sup>a)</sup>					Number Women
	Breast-feeding	Breast-feeding	Abstinence	Amenorrhoea	Non-Susceptible Period	
<u>Total</u>	21.9	7.7	5.0	19.7	20.6	1513
<u>Age</u>						
15-19	21.4	9.2	5.4	16.9	17.9	163
20-24	21.3	7.9	5.5	19.5	20.3	397
25-29	21.5	7.2	4.7	20.4	21.2	386
30-34	22.1	9.0	4.4	19.6	19.9	255
35-44	24.0	5.9	4.9	21.8	23.3	312
<u>Birth Order</u>						
1-2	21.4	7.7	6.2	18.4	19.8	451
3-4	21.4	7.2	4.4	20.5	21.0	446
5+	22.6	8.2	4.5	20.2	21.0	621
<u>Survival of Child</u>						
All	21.9	7.7	5.0	19.7	20.6	1513
Surviving Only	23.6	8.3	5.3	20.7	21.7	1390
<u>Ethnic Group</u>						
Wolof	22.0	8.7	4.2	20.1	20.5	798
Serer	20.7	6.5	5.2	19.2	20.3	447
Peulh	25.9	7.5	6.3	21.1	22.2	214
<u>House Type</u>						
Modern	20.4	7.0	5.2	19.4	20.4	429
Traditional	22.5	8.0	4.9	19.9	20.7	1089
<u>Husband Occupation</u>						
Primary	22.6	7.9	4.4	20.7	21.3	1244
Non-Primary	19.2	7.3	5.4	16.9	18.0	244
<u>No. of Wives</u>						
1	21.8	7.7	4.7	19.9	20.5	735
2-3	22.1	7.7	4.2	19.8	20.5	694

<sup>a)</sup>Prevalence mean based on 24 months before interview.

TABLE 3

Jordan: Measurements of Duration of Postpartum Variables  
for Selected Categories, 1983 Jordan Fertility and  
Family Health Survey

	Mean Duration of Postpartum Variables (Months) <sup>a</sup>			Number of Women <hr/> 1926
	Breast feeding	Full Breast- feeding	Amen- orrhea	
Total	11.4	3.2	6.2	
<u>Residence</u>				
Urban	10.7	2.9	5.9	1279
Rural	12.7	3.7	6.9	647
<u>Age</u>				
15-19	11.8	5.8	6.2	92
20-24	9.8	3.6	5.8	379
25-29	9.9	2.7	5.4	476
30-34	11.3	3.1	7.2	366
35-39	13.2	3.0	7.0	368
40-49	14.5	2.9	6.0	245
<u>Education</u>				
None	13.1	3.7	7.8	742
1-6 years	10.9	3.0	5.7	525
7+ years	9.9	2.7	5.0	659
<u>Contraceptive Use</u>				
Current User	7.8	1.1	1.5	415
Past User	11.1	3.5	6.9	382
Never User	12.8	3.8	7.7	1129
<u>Birth Order</u>				
1-2	9.3	3.4	5.0	394
3-4	10.7	3.3	6.2	447
5+	12.4	3.0	6.7	1085
<u>Last Child Alive</u>				
All Children	11.4	3.2	6.2	1926
Alive Only	11.7	3.3	6.3	1882

<sup>a</sup>Prevalence mean based on 24 months

TABLE 4

Rural Senegal: Components of Birth Intervals for  
Selected Categories, 1982 Sine-Saloum Family Health Survey

	Birth Interval Components (Months)			No. of Intervals	No. of Women
	(1) Total Interval <sup>a</sup>	(2) Non Susceptible Period <sup>b</sup>	(3) Exposure Interval <sup>c</sup>		
<u>Total</u>	35.0	20.6 (19.0) <sup>d</sup>	5.4 (7.0) <sup>d</sup>	2684	1518
<u>Age</u>					
15-19	37.6	17.9	10.7	211	168
20-24	33.0	20.3	3.7	725	397
25-29	33.8	21.2	3.6	732	386
30-34	33.9	19.9	5.0	496	255
35-44	42.5	23.3	10.2	520	312
<u>Birth Order</u>					
1-2	41.3	19.8	12.5	615	451
3-4	33.1	21.0	3.1	876	446
5+	34.8	21.0	4.8	1193	621
<u>Survival of Child</u>					
All	35.0	20.6	5.4	2684	1518
Surviving Only	35.9	21.7	5.2	2323	1390
<u>Ethnic Group</u>					
Wolof	35.6	20.5	6.1	1412	798
Serer	33.4	20.3	4.1	817	447
Peulh	41.2	22.2	10.0	343	214
<u>House Type</u>					
Modern	35.4	20.4	6.0	762	429
Traditional	34.9	20.7	5.2	1922	1089
<u>Husbands Occupation</u>					
Primary	35.3	21.3	5.0	2202	1244
Non-Primary	33.1	18.0	6.1	440	244
<u>No. of Wives</u>					
1	34.5	20.5	5.0	1297	735
2-3	35.7	20.5	6.2	1236	694

<sup>a</sup>Trimean of lifetable, all intervals starting in 5 years before interview.

<sup>b</sup>Prevalence mean based on 24 months before interview.

<sup>c</sup>(3)=(1)-(2)-9.

<sup>d</sup>Estimates based on current status lifetable rather than prevalence mean for non-susceptible period.

TABLE 5

Jordan: Components of Birth Intervals for  
Selected Categories, 1983 Jordan Fertility  
and Family Health Survey

	<u>Birth Interval Components (Months)</u>			<u>No. of Intervals</u>	<u>No. of Women</u>
	<u>(1) Total Interval<sup>a</sup></u>	<u>(2) Post-Partum Amenorrhoea<sup>b</sup></u>	<u>(3) Exposure Interval<sup>c</sup></u>		
Total	26.7	6.2 (5.9) <sup>d</sup>	11.5 (11.8) <sup>d</sup>	5755	1926
<u>Residence</u>					
Urban	28.4	5.9	13.5	3839	1279
Rural	25.2	6.9	9.3	1916	647
<u>Age</u>					
15-19	21.4	6.2	6.2	144	92
20-24	21.6	5.8	6.8	1003	379
25-29	24.0	5.4	9.6	1467	476
30-34	25.9	7.2	9.7	1154	366
35-39	31.3	7.0	15.3	1129	368
40-49	39.7	6.0	24.7	858	245
<u>Birth Order</u>					
1-2	(32.2)	5.0	-	771	394
3-4	24.3	6.2	9.1	1451	447
5+	27.6	6.7	11.9	3533	1129
<u>Survival of Initial Child</u>					
All	26.7	6.2	11.5	5755	1926
Surviving	27.0	6.3	11.7	5588	1882
<u>Education</u>					
None	28.9	7.8	12.1	2351	742
1-6 years	25.3	5.7	10.6	1566	525
7+ years	26.1	5.0	12.1	1838	659
<u>Contraceptive</u>					
Current User	33.3	1.5	22.8	1435	415
Past User	28.3	6.9	12.4	1159	382
Never User	25.0	7.7	8.3	3161	1129

<sup>a</sup>Trimean of lifetable all intervals starting in 5 years before interview.

<sup>b</sup>Prevalence mean based on 24 months before interview.

<sup>c</sup>(3)=(1)-(2)-9.0.

<sup>d</sup>Estimate based on current status lifetable rather than prevalence mean for post-partum amenorrhoea.

TABLE 6

Senegal: Reasons for Stopping Breastfeeding<sup>a</sup>,  
1982 Sine-Saloum Family Health Survey

Reason for Stopping Breastfeeding	Last Children Born 5 Years Before Interview	
	All Children	Breastfed 1 Year Or Less
Child reached age of weaning	81.1	19.6
Child died	15.1	70.9
Child ill/unable to suck	0.4	0.0
Child refused to suck	0.4	0.0
Mother ill	0.1	0.0
No milk/weak milk/not enough	0.0	0.0
Mother Wanted to Become pregnant or become pregnant	2.3	8.4
Mother preferred other method	0.5	1.1
Unknown	0.2	0.0
Total	100.0	100.0
No. of Cases	524	78

<sup>a</sup>Last births born in the last 5 years who had stopped breastfeeding.

TABLE 7

Jordan: Percent Distribution of Women with a Birth in the Past 24 Months Preceding the Survey Who Had Breast-fed, by Reason for Stopping Breast-feeding 1983 Jordan Fertility and Family Health Survey

<u>Reason Stopped Breastfeeding</u>	<u>Percent of Women</u>
No more/insufficient milk	28.0
Weakness of mother/mother's blood	8.3
Mother pregnant	22.2
Child old enough	24.1
Mother works/separated from child	1.3
Child ill	2.4
Child refused	10.0
Mother doesn't want	1.9
Other	<u>1.8</u>
Total	100.0
No. of Cases	783

TABLE 8

Rural Senegal and Jordan: Percentage of Pregnancies <sup>Exotic</sup> ~~Spontaneous~~  
in Abortion and Proportion with One or More Live Birth, by Age  
1982 Sine-Saloum Family Health Survey and  
1983 Jordan Fertility and Family Health Survey

A. <u>Rural Senegal</u>	Percentage of Pregnancies Spontaneous or Induced Abortion	Proportion with One or More Live Birth		
		<u>25-29</u>	<u>30-34</u>	<u>35-44</u>
<u>Total</u>	7.0	.96	.95	.96
<u>Ethnic Group</u>				
Wolof	6.8	.99	.97	.97
Serer	6.7	.96	.94	.97
Peulh	8.7	.89	.91	.91
<u>House Type</u>				
Modern	7.0	.96	.98	.97
Traditional	7.0	.96	.93	.96
<u>Husbands Occupation</u>				
Primary	7.1	.97	.94	.96
Non-Primary	7.1	.94	.95	.97
<u>No. of Wives</u>				
1	6.9	.96	.95	.98
2-3	7.3	.95	.95	.95
<u>B. Jordan</u>				
<u>Total</u>	7.0	.95	.97	.97
<u>Residence</u>				
Urban	6.8	.95	.97	.97
Rural	7.5	.96	.97	.97
<u>Education</u>				
None	6.9	.95	.98	.97
1-6 years	7.3	.97	.97	.96
7+ years	6.7	.94	.97	.98