The effect of sociodemographic variables on child-spacing in rural Saudi Arabia

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تأثير المتغيرات السكانية الاجتماعية على مباعدة الولادات في منطقة ريفية بالمملكة العربية السعودية

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خلاصة: تعتبر المباعدة الكافية بين الولادات عاملاً يؤثر إيجابياً في صحة الأمهات وأطفالهن. وقد أجري استقصاء ميداني عن طريق الزيارات المنزلية شمل 332 من النساء في قرية العوينة بالمملكة العربية السعودية، وذلك في شهري نيسان/أبريل وأيار/مايو 1995، بهدف معرفة الممارسات الجارية لمباعدة الولادات والعوامل المؤثرة فيها. وشملت المتغيرات التي دُرست عمر الأم، والعمر عند الزواج، ومستوى التعليم، والدخل، وعدد الولادات، ونوع تغذية الرضيع وترتيب الولادة. وتبيَّن أن عمر الأم والعمر عند الزواج ومستوى التعليم، كانت مرتبطة بطول مدة المباعدة بين الولادات بدرجة جوهرية. كما وجد أن سن الأم حالياً وعدد الولادات هما المتغيران الوحيدان القادران على التنبوء بدرجة جوهرية بالمدد الفاصلة بين الولادات.

ABSTRACT Adequate child-spacing is considered a positive factor in the health of mothers and their children. A house-to-house survey of 332 women in Al-Oyaynah village, Saudi Arabia was carried out in April and May of 1995 to determine the existing practice of child-spacing and factors influencing it. The variables examined included age of the mother, age at marriage, education, income, parity, type of infant-feeding and birth order. The age of the mother, age at marriage and education were significantly associated with the length of the birth interval. The current age of mother and her parity were found to be the only significant predictor variables of birth interval.

L'effet des variables socio-démographiques sur l'espacement des naissances dans les zones rurales d'Arabie saoudite.

RESUME L'espacement des naissances suffisant est considéré comme un facteur ayant une influence positive sur la santé de la mère et de ses enfants. Une enquête de porte à porte a été réalisée en avril et mai 1995 auprès de 332 femmes dans le village Al-Oyaynah en Arabie saoudite afin de déterminer les pratiques existantes en matière d'espacement des naissances et les facteurs qui l'affectent. Parmi les variables examinées figuraient l'âge de la mère, l'âge au moment du mariage, l'instruction, le revenu, le nombre d'enfants, le type d'alimentation du nouveau-né et le rang de naissance. Il y avait une association significative entre d'une part, l'âge de la mère, l'âge au moment du mariage et l'instruction, et la longueur de l'intervalle entre les naissances d'autre part. On a constaté que l'âge de la mère et le nombre de ses enfants étaient les seules variables qui constituaient des éléments prédictifs importants de l'espacement des naissances.

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Introduction

Adequate child-spacing is considered a positive factor on the health of mothers and their children [*1*]. The birth interval has been reported to have a significant effect on the child's future physical and mental capabilities [*2–4*]. It has also been shown to affect the health of mothers. In a recent study of anaemia, its prevalence was 35.2% among mothers whose birth spacing was less than 12 months [*5*]. The birth interval not only directly affects the chance of infant survival but it also acts as the filtering factor through which other variables indirectly operate on infant mortality [*6*]. The use of the lactational amenorrhoea method in family planning is advocated by researchers as it simultaneously promotes child-spacing and breast-feeding, both of which are essential to the optimal health of mothers and infants [*7,8*]. Variables such as age at marriage, present age of mother, woman's occupation, sex composition of the children already born, duration of breastfeeding, family income and place of residence have profound effects on the variation of the length of the first birth interval [*6,9*].

The industrialized countries of the world have achieved control over the birth interval through the use of modern contraceptive techniques. The resultant effect of this is a reduced level of fertility. However, women's education is a prime determinant of fertility [*10*]. The overall increase in schooling opportunities for women in Saudi Arabia will undoubtedly be an important factor in changing the fertility pattern of Saudi women and consequently their child-spacing practices. In developing countries such as Saudi Arabia, the use of modern family planning methods is extremely low, and often not medically supervised when practised. The provision of free medical care and other welfare services, which considerably reduces the burden on family resources, negates the culture of modern contraception. It is interesting, therefore, to study the pattern of child-spacing in such communities and factors associated with it. The present report examines child-spacing in a rural area of Saudi Arabia. The effects of sociodemographic factors and nutritional habits on child-spacing in this rural community were also investigated.

Materials and methods

A cross-sectional study was conducted in Al-Oyaynah, a village of 2000 inhabitants, 50 kilometres north-west of Riyadh, during the months of April and May 1995. A house-to-house survey was carried out on all households in the village and women of childbearing age who were or ever had been married were interviewed. The sample consisted of 332 women, 16.6% of the total population. A structured questionnaire was used, administered by the nurses in the health centre who were trained by the author in the interview method. The questionnaire included items on demographic characteristics of the mother, her fertility history, information on the birth interval preceding the last infant and their infant feeding habits.

A multiple linear regression analysis was used. The multiple linear regression coefficient of predictors was used to analyse maternal variables of birth spacing and arrive at a coefficient of predictors or significant predictor variables of birth interval.

Results

Of the 332 women interviewed, 49 (14.8%) had had no previous delivery (primiparous). The mean birth interval of 251 wom-

en, after excluding the 49 primipara and 32 who had no children, was 31.2 months (SD = 10.1 months). Table 1 shows the demographic characteristics of the women by birth interval. Age of the mother and education were found significantly associated with birth interval. The results also showed that parity and type of infant-feeding, although associated with birth interval, did not reach the 5% level of significance. One-way analysis of variance also revealed a significant increase in birth interval with age and level of education. However, multiple regression analysis, which defines birth interval as a dependent variable, showed that current age of the mother and parity were the only significant predictors of birth interval. The results of polychotomous logistic regression analysis of the factors associated with child-spacing are presented in Table 2. Women 30–34 years old had about an eightfold likelihood of increased birth interval compared to those in the younger age group (20–24 years). Older women, 35 years and over, were 19 times more likely to have a long birth interval.

Table 1 **Frequency distribution of some maternal variables by birth interval in a sample of women from rural Saudi Arabia, 1995**

Maternal variable	Birth interval (months)			P
	≤ 18	19–36	> 36	
Age (years)				
20–24	10	43	6	
25–29	5	54	10	0.0105
30–34	4	67	29	
35–39	2	15	6	
Education				
Illiterate	4	64	17	
Read and write	0	27	0	
Primary	4	29	9	0.0008
Intermediate	5	17	3	
Secondary	3	27	7	
University	5	15	15	
Parity				
1–3	8	32	10	
4–5	7	49	18	0.11
6+	6	98	23	
Feeding mode				
Breastfeeding	8	36	13	
Bottle-feeding	6	58	22	0.24
Mixed	7	85	16	
Income (Saudi riyals[a])				
< 4000	7	49	12	
4000–7499	9	89	26	0.8978
7500 +	5	41	13	
Housing				
Villa	13	90	22	
Flat	3	21	9	0.2466
House	3	21	11	
Mudhouse	2	47	9	
Total	21	179	51	

[a] *US$ 1 = 3.75 Saudi riyals*

Discussion

The sample of women reported in this study was limited to the childbearing population to avoid memory bias in reporting the interval between the current child, or pregnancy, and the child before. The community is a young population and the data collected could be said to reflect typical fertility behaviour in rural communities of Saudi Arabia.

The observed birth interval of almost three years is comparable to figures in some developing countries that rely mainly on lactational amenorrhoea and breast-feeding practices for birth spacing. A birth interval of 3 years has a considerable beneficial effect on the birth weight of children and consequently lowers their risk of death. This could be one of the factors responsible for the reported gradual decline in the infant

Table 2 **Multiple linear regression coefficients of predictors of birth interval in a sample of women from rural Saudi Arabia, 1995**

Variable	Coefficient	Standard error	Odds ratio	95% confidence interval
Constant	1.461	0.40		
Age of mother (years)				
20–24	0.00		1.0	
25–29	1.069	0.503	2.9	1.1–7.8
30–34	2.049	0.537	7.8	2.7–22.0
35–39	2.943	0.608	19.0	5.6–64.0
Parity				
1–3	1.0			
4–5	1.504	0.429	1.2	0.5–2.7
6+	–0.9703	0.474	0.4	0.2–0.95

and child mortality levels in Saudi Arabia in recent years. The good health care system, which is accessible to and affordable by the people, has also helped to reduce infant and child mortality

The fact that child-spacing increased with age is not surprising because of the relationship of breastfeeding practices with age and parity. This finding is corroborated by the results of the multiple linear regression model fitted to these data, selecting only age of mother and parity as the significant predictor variables of birth interval after adjustment for the effects of other variables. The advantage of multiple regression analysis is the removal of collinear variables. Thus, mother's education, which was significant in the univariate analysis, was no longer significant in the multivariate analysis. The proportion of women with short birth interval, i.e. ≤ 18 months, was lower in high parity and older women. Older mothers still practised breastfeeding as their primary contraceptive method, and some of them might have achieved their family size. Also, there might have been a general change in fertility patterns. Another important factor was the mother's education and mothers with more than secondary education had longer birth intervals. The reason for this could be increased awareness of modern contraceptive methods and knowledge of the harmful effect of a short birth interval on the health of the children. Surprisingly, the type of infant-feeding was not associated with child-spacing. Similar research has indicated that the birth interval is longer in breastfeeding than bottle-feeding mothers. A significant positive correlation has also been reported between duration of breastfeeding, length of lactational amenorrhoea and birth interval.

Although the practice of breastfeeding as a contraceptive method has declined in Saudi Arabia, the use of contraceptives sold freely over the counter can be taken as the major reason for a prolonged birth interval. Other reasons could be abstinence or the effect of a polygamous culture. It is nevertheless important to encourage mothers to breastfeed their infants in view of the mass of evidence of its beneficial and protective effects for both mothers and infants.

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