A NOTE ON THE OBSTETRIC EFFECTS OF WORK DURING PREGNANCY

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For women having their first babies, gainful employment—at least during the first half of pregnancy—is nowadays common in all levels of society in Great Britain (Martin, 1954). The largest series of first births to be studied in respect of work during pregnancy was taken from the sample of all babies born in England, Wales and Scotland between the third and ninth of March, 1946 (Royal College of Obstetricians and Gynaecologists, 1948). These cases have since been the subject of a detailed report (Douglas, 1950) in which it is shown that premature babies were unusually frequent among two groups of primigravidae: those who went out to work during the later months of pregnancy, and those who lacked domestic help. In neither group was the excessive prematurity rate attributable to maternal age, economic status, or illegitimacy. Two Scottish surveys (Ferguson and Logan, 1953; Illsley, Billewicz, and Thomson, 1953) have also examined the association between prematurity rates and work during pregnancy. In both these inquiries the prematurity rate was higher among women who followed gainful employment than among housewives, but in one (Illsley and others, 1953) the authors concluded that the actual length of time worked had not affected birth weight. A more recent study (Martin, 1954) suggests that employment during pregnancy is not associated with risk of premature delivery. No stillbirths were included in this survey.

The present study, which attempts to answer the question whether pregnant women should be encouraged to follow gainful employment, is based on 1,318 single first births notified to the administrative county of Northamptonshire during 1952. In respect of employment during pregnancy these women fall into three groups:

- (1) Housewives not gainfully employed (780)
- (2) Women gainfully employed for less than 28 weeks (285)
- (3) Women gainfully employed for more than 28 weeks (253)

There were 55 perinatal deaths* and 89 babies who weighed less than 5½ lb. at birth.

In respect of both perinatal mortality and incidence of prematurity working mothers appeared to be at a significant disadvantage as compared with housewives, and women who continued working for long periods appeared to be worse off than those who retired relatively early (Table I).

TABLE I
OBSTETRIC HISTORY OF HOUSEWIVES AND WOMEN GAINFULLY EMPLOYED

Mortality, Prematurity, etc.	Housewives (per cent)	Women gainfully employed		All Cases (per cent)	Significance
		less than 28 wks (per cent)	28 wks or more (per cent)		
Perinatal Death Rate	2.8	4.9	7.5	4.2	$P < .01$
Incidence of Prematurity (i) Birthweight 5½ lb. or less	4.7	8.4	11.1	6.8	$P < .01$
(ii) Delivered 15 or more days before expected date	9.9	12.3	14.6	11.3	$P < .20$
Incidence of Toxaemia of Pregnancy	14.1	14.4	15.4	14.4	—
Frequency of Instrumental Delivery	12.9	10.5	9.1	11.7	—
Incidence of Congenital Defect	0.4	0.7	1.6	0.7	—
Number of Cases	780	285	253	1,318	

The three groups of mothers were also compared in the following respects:

Maternal Age.—470 women were over 25 years of age when the baby was born; in this group there were proportionately more deaths and more premature babies than in the group of younger women. The group with the highest percentage of women over 25 years (42.4 per cent.) was the housewives; corresponding proportions among women employed less than or more than 25 weeks were 26.7 and 24.9 per cent. respectively. This excludes maternal age as the reason why working mothers had higher infant mortality and prematurity rates.

Maternal Physique.—Recent surveys have shown that short stature and obesity in the mother are

* Stillbirths and neonatal deaths.

associated with an increased risk of foetal and neonatal death (Baird and Illsley, 1952; Stewart, Webb, and Hewitt, 1955). In both these respects there was virtually no difference between the three working groups.

Toxaemia of Pregnancy.—The sample included 190 women who showed definite evidence of toxaemia of pregnancy. These cases were so evenly distributed between the three groups (Table I) that it is difficult to believe that employment influenced this particular hazard of pregnancy. In fact, eight of the deaths had been ascribed by the certifying doctors to toxaemia, and of these three were in the younger and five (all housewives) in the older age group.

Instrumental Delivery.—The proportion of instrumental deliveries was slightly (but not significantly) smaller in the two working groups than in the other group (Table I). The eleven deaths actually ascribed to injury or difficult delivery included five among housewives and three in each of the working groups.

Congenital Defects.—Only nine deaths were due to congenital defects; the incidence is higher for housewives than for the other two groups but the difference is not significant (Table I).

Social Class.—The perinatal death rate and the incidence of prematurity were more than three times as high among wives of semi-skilled and unskilled manual workers (Classes IV and V) as among wives of professional men and business executives (Classes I and II) (Table II). There was also a higher proportion of housewives (not gainfully employed) in the latter group. Within groups defined by social class there were differences in the obstetrical

TABLE II
SOCIAL CLASS OF HOUSEWIVES AND WOMEN GAINFULLY EMPLOYED

Mortality, Prematurity	Social Class	Housewives (Per cent.)	Women Gainfully Employed		All Cases (per cent.)	Significance
			less than 28 wks (per cent.)	28 wks or more (per cent.)		
Perinatal Death Rate	I and II	1.9	—	—	1.5	—
	III	2.6	5.3	6.1	4.0	—
	IV and V	3.9	6.0	12.3	6.1	—
Incidence of Prematurity (birthweight 5½ lb. or less)	I and II	2.6	3.3	5.9	3.0	$P < .02$
	III	4.0	8.5	10.4	6.5	
	IV and V	7.8	10.4	13.7	9.6	
Number of Cases	I and II	156	30	17	203	—
	III	421	188	163	772	—
	IV and V	203	67	73	343	—

results of employed women and housewives. Only in Social Class III (the largest of the groups analysed) were these differences statistically significant, and then only in respect of the incidence of prematurity.

Civil Status at Time of Conception.—In the sample there were 48 illegitimate births and 162 legitimate births conceived two or more months before marriage. Since it had been shown that the risk of perinatal death was virtually the same for these two classes (Stewart and others, 1955), they were combined and compared with all other births in the sample (see Table III). The perinatal death rate and incidence of prematurity were significantly higher for the premarital than for the postmarital conceptions. There was also a higher proportion of housewives in the latter group. Within groups defined by civil status at the time of conception there were differences in the obstetrical results of employed women and housewives. In the largest group (postmarital conceptions) the differences in incidence of prematurity reached a 5 per cent. level of significance.

TABLE III
CIVIL STATUS AT TIME OF CONCEPTION

Mortality, Prematurity	Conception	Housewives (per cent.)	Women Gainfully Employed		All Cases (per cent.)	Significance
			less than 28 wks (per cent.)	28 wks or more (per cent.)		
Perinatal Death Rate	Premarital	4.8	9.7	12.9	9.5	—
	Postmarital	2.6	3.6	4.8	3.2	—
Incidence of Prematurity (birthweight 5½ lb. or less)	Premarital	6.3	14.5	14.1	11.9	$P < .05$
	Postmarital	4.6	6.7	9.5	5.8	
Number of Cases	Premarital	63	62	85	210	—
	Postmarital	717	223	168	1,108	—

Matched Samples.—In a group of 143 women employed for less than 28 weeks and an equal number of housewives, matched for age, social class, and civil status at time of conception, the incidence of prematurity was 4.9 per cent. for the employed women and 2.1 for the housewives. In an equivalent group of 152 women employed for more than 28 weeks and 152 housewives, the corresponding rates were 7.3 and 1.3 per cent.

Stated Causes of Death.—In addition to 28 deaths ascribed to toxaemia, injury and congenital defects, there were nine cases in which a definite cause of death was given by the certifying doctors, and

eighteen in which vague terms (such as prematurity and atelectasis) were used. The deaths included 25 babies who weighed $5\frac{1}{2}$ lb. or less at birth, distributed as follows:

Nine housewives (1.2 per cent.);

Five women employed less than 25 weeks (1.8 per cent.);

Eleven women employed more than 25 weeks (4.3 per cent.).

Taken in conjunction with the other findings, this result suggests that the reason why women employed during pregnancy had less successful pregnancies than housewives was that they gave birth to more small babies whose survival rate was low. Occupations of mothers with dead babies did not appear to be either exceptionally dangerous or unusually exacting even when compared with housework.

SUMMARY

An examination of 1,318 records of first pregnancies suggests that attempts to combine housework and paid work increase the risk of prematurity and consequently of stillbirth and neonatal death.

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