
A Comparison of Mothers' Occupations Reported on Live Birth Certificates and on a Survey Questionnaire

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LABOR-FORCE STATISTICS have shown an increase in the participation of women in the work force in recent years (1). An ever-increasing concern for these women is their exposure to occupational risk factors and to the consequences of such factors on their health and the health of their offspring.

This concern was highlighted at the Conference on Women and the Workplace, held in June 1976 in Washington, D.C. Many questions regarding the health status of working women were posed at the conference. For example, "(Do) . . . working women experience greater disease and disability than their male co-workers. . . . Are all women at increased risk, or only women with certain exposures, or only fertile women, or only pregnant women?" (2).

A readily available data base for the research required to answer such questions may be found in the vital records. Vital records surveillance programs may be implemented to identify possible risk factors associated with conditions such as congenital malformations and prematurity. The results of these surveillance programs could be the initial step in more detailed case studies to identify occupations representing the greatest threat to successful pregnancy and then to isolate specific causative agents.

If vital records are to be used in this regard, the

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accuracy of mothers' occupations reported on the birth certificates must be assessed. Of particular interest is the extent to which mothers who report "housewife" on the birth certificates were actually employed either during or before the pregnancy. Also of interest is the extent to which mothers accurately report their usual occupations. We present the results of a survey that addressed these pertinent issues.

Background

Only two States, New York and West Virginia, require reporting of the mother's usual occupation on live birth certificates. Until recently, only limited use has been made of occupation information reported on the live birth certificates in New York State. In view of the increased interest in the health of pregnant working women, an effort was made to obtain a comprehensive coding scheme to facilitate the use of occupation data obtained from the birth certificate.

For a pilot project, we systematically selected a 2 percent master sample from live birth certificates in upstate New York (New York State exclusive of New York City) in 1975. The project was undertaken to (a) determine the feasibility of using the "Draft Standard Occupational Classification Manual 1976" (SOC) prepared by the U.S. Office of Management and Budget (3) and (b) determine the accuracy of the reported occupations.

The lack of detail about the mother's occupation reported on the birth certificate indicated that use of the full 4-digit SOC coding scheme would not be feasible. As a result, a 2-digit coding scheme based on the SOC was employed. Supplemental 2-digit codes to the SOC

were created for special groups such as housewives, students, and unclassifiable occupations.

The subsequent tabulation of mothers' occupations was greatly facilitated by the SOC coding scheme. However, the accuracy of mothers' occupations reported on the birth certificates was doubtful in view of published data on employment of women. The labor-force participation rate for women 18–34 years old was computed to be more than 58 percent in 1975, based on data published by the U.S. Bureau of Labor Statistics (1). Only 24.2 percent of the 2,566 mothers in the master sample reported that they had ever been gainfully employed. Among the remaining mothers, 64.6 percent reported that they were housewives; 3 percent, students; 1.4 percent, unemployed; and 6.9 percent did not respond. To investigate this discrepancy further, we obtained a more complete work history of mothers by means of a sample survey.

Sample Survey

A work-history questionnaire was designed to obtain a 6-year work history of a sample of mothers who had a live birth during 1975. The sample consisted of all 620 mothers in the previously described master sample who had reported gainful employment. In addition, 650 (one-third) of the remaining mothers in the master sample were selected. Where possible, out-of-wedlock births or infants placed for adoption were noted and excluded from the survey.

Questionnaires were mailed to 1,112 mothers. Of these, 548 had reported an occupation on the birth certificate, 510 reported that they were housewives, and the remaining 54 were students, unemployed, or employed in unclassifiable work.

Three attempts—2 mailings and 1 telephone contact—were made to obtain completed questionnaires from the 1,112 mothers. The results of these attempts are shown in table 1. The first mailing, in November 1976, resulted in 553 completed questionnaires. The second mailing, in January 1977, resulted in an additional 206 completed questionnaires. Telephone interviews, in March 1977, resulted in 48 completed questionnaires. Of the 305 mothers who did not respond to followup, only 17 explicitly refused to cooperate. A total of 288 mothers could not be reached because of untraceable migration between the time of the birth and the survey; 122 questionnaires were returned by the post office because the addressees moved and left no forwarding addresses. Our attempts to trace, by searching telephone directories, these 122 mothers and the remaining 166 who did not respond to our second mailing proved unsuccessful.

We reviewed each of the 807 completed questionnaires to determine the mother's usual occupation,

Table 1. Response to work-history questionnaire mailed to 1,112 mothers who delivered live births in upstate New York, 1975

Response	Number	Percent
Respondents	807	72.6
Response to first mailing	553	49.7
Response to followup mailing	206	18.6
Response to telephone followup	48	4.3
Nonrespondents	305	27.4
Refused to cooperate	17	1.5
Telephone number not found	288	25.9

which was defined as the kind of work the mother was engaged in for most of her reported working life before the 1975 live birth. An exception was made for mothers who reported housewife in their work history. Any length of gainful employment was con-

sidered to supersede longer lengths of time as a housewife. The basis for this exception is that the objective of a surveillance program, as described earlier, is to determine the effects of health hazards at the workplace. Furthermore, if housewife is maintained as a "pure" category, it may be used as a standard for the comparison of health risks from other occupations.

Table 2. Interval between date of last employment and a 1975 birth for mothers reporting housewife on birth certificate and gainful employment on questionnaire

Interval in months	Mothers		Cumulative percent
	Number	Percent	
<3	46	22.4	22.4
3-5	32	15.6	38.0
6-8	21	10.2	48.2
9-11	9	4.4	52.6
12-23	27	13.2	65.8
24-35	27	13.2	79.0
36-47	21	10.3	89.3
48-59	16	7.8	97.1
60 or more	6	2.9	100.0
Total	205	100.0	....

¹Specific information concerning dates of employment was not reported for 11 respondents.

In preparation for comparison with birth certificate data, usual occupation as determined from the survey questionnaire was coded in conformity with the SOC. As with the birth certificate, only 2-digit coding was feasible.

Two aspects of occupation reporting were explored in this study. First, to what extent does the entry of housewife on the birth certificate accurately reflect the mother's usual occupation as determined from the occupation history provided on the questionnaire? Among the mothers reporting housewife on the birth certificate, a comparison was made of the age and education characteristics of those determined to be housewives with those determined not to be housewives from the questionnaires. The kinds of occupations held by mothers in the non-housewife group were also tabulated.

Table 3. Mothers reporting housewife on both birth certificate and questionnaire compared to those reporting housewife on birth certificate and gainful employment on questionnaire, by age groups

Age group (years)	Housewife on both birth certificate and questionnaire			Housewife on birth certificate and gainful employment on questionnaire		
	Number	Percent	Cumulative percent	Number	Percent	Cumulative percent
16-19	12	10.2	10.2	17	7.9	7.9
20-24	23	19.5	29.7	62	28.7	36.6
25-29	44	37.3	67.0	105	48.6	85.2
30-34	26	22.0	89.0	25	11.6	96.8
35 and over	13	11.0	100.0	7	3.2	100.0
Total	118	100.0	....	216	100.0	....

Table 4. Mothers reporting housewife on both birth certificate and questionnaire compared to those reporting housewife on birth certificate and gainful employment on questionnaire, by years of school completed

Years of school completed	Housewife on both birth certificate and questionnaire			Housewife on birth certificate and gainful employment on questionnaire		
	Number	Percent	Cumulative percent	Number	Percent	Cumulative percent
0-8	12	10.2	10.2	2	0.9	0.9
9-12	79	66.9	77.1	138	63.9	64.8
13 or more	27	22.9	100.0	76	35.2	100.0
Total	118	100.0	....	216	100.0	....

The other major concern of this study was the extent to which occupations other than housewife reported on the birth certificates agreed with those reported on the questionnaires. This comparison was considered from two perspectives—the aggregate levels of particular kinds of occupations and how well the occupation from each source agreed for individual mothers.

Results

We found that a large proportion of mothers had been gainfully employed at some time, even when they reported to be housewives on the birth certificates. Of the 334 respondents who reported themselves as housewives on the birth certificates, 64.7 percent were gainfully employed according to their work-history questionnaires.

The intervals between last employment and delivery for mothers reporting housewife on the birth certificates but gainful employment on the questionnaires are shown in table 2. About half of these mothers had been working within 9 months before delivery. Another 30 percent were working from 9 months to 3 years before delivery.

Tables 3 and 4 present age and education differentials between mothers reporting housewife on both sources and mothers reporting housewife on the birth certificate but gainful employment on the questionnaire. Among the mothers who reported never to have had gainful employment, 33 percent were over 30 years old. This proportion was only 14.8 percent for the mothers reporting housewife on the birth certificate but usual occupation in the survey (table 3).

The group of mothers reporting housewife on both sources completed fewer years of school than the group reporting on the questionnaire to have had gainful employment. Among the latter group, 35.2 percent had some college education compared with only 22.9 percent among the former group (table 4).

The distribution of occupations for the 216 mothers who had reported to be housewives on the birth certificates but were gainfully employed according to their work histories is shown in table 5. Occupations such as teacher, clerk, and service-oriented dominate the kinds of reported employment, accounting for 64.7 percent of the stated jobs. The level of skilled and professional status employment for this group is lower than for the group of mothers who reported gainful employment on the birth certificate (table 6). The broad categories of professional and technical employment accounted for 49.5 percent of the mothers who reported gainful employment on the birth certificate. Only 22.1 percent of the mothers reporting housewife

but who were found to be gainfully employed were associated with professional or technical employment.

The distribution of occupations for the 425 respondents reporting gainful employment on the birth certificate and the distribution of usual occupation for these mothers as determined from the survey questionnaire are shown in table 7.

Occupations as determined from each source were similarly distributed. The proportions of mothers re-

Table 5. Distribution of occupations of mothers reporting housewife on birth certificate and gainful employment on questionnaire

Occupation reported on questionnaire	Housewife reported on birth certificate	
	Number	Percent
Office administrator	1	0.5
Manager	1	0.5
Management	5	2.3
Lawyer or social worker	2	0.9
Teacher	22	10.2
Writer or artist	7	3.2
Nurse	9	4.1
Technologist	1	0.5
Marketing	17	7.9
Sales	1	0.5
Clerical	82	37.9
Accountant	14	6.5
Service	36	16.6
Private household	1	0.5
Agriculture	1	0.5
Transportation	1	0.5
Precision production	2	0.9
Machine set up	1	0.5
Machine operator	4	1.8
Production inspector	1	0.5
Elemental occupations	7	3.2
Total	216	100.0

Table 6. Distribution of broad occupational categories reported on questionnaire by mothers reporting gainful employment or housewife on birth certificate

Occupational category	Gainful employment		Housewife	
	Number	Percent	Number	Percent
Professional	129	31.5	38	17.8
Technical	74	18.0	10	4.6
Office	146	35.6	114	52.8
Service	39	9.5	37	17.1
Production	20	4.9	15	7.0
Other	2	0.5	2	0.9
Total	¹410	100.0	216	100.0

¹ 15 mothers who reported gainful employment on the birth certificate but not on the questionnaire were excluded from the distribution.

porting their occupation as teacher, nurse, clerk, or service oriented are nearly identical for both sources at the aggregate level. Proportions for other less frequently reported occupations are also close.

Agreement, that is the extent to which a mother reports the same occupation on the birth certificate as that determined to be her usual occupation on the questionnaire, was also high; 88 percent of the mothers in all occupations were in agreement. Of the 49 mothers for whom the occupations reported on the birth certificates and the questionnaires differed, 28.6 percent were in the same broad occupational category.

Occupations as determined from the birth certificate and the questionnaire for these 425 respondents were collapsed into broad categories. The resulting distributions are presented in table 8. At this broad level, the distributions are not statistically different (χ^2 at the 5 percent level of significance with 5 degrees of freedom is not significant).

Not included in the analysis thus far are 48 mothers for whom a questionnaire was returned and for whom

the entry made for mother's occupation on the birth certificate could not be classified as either housewife or as gainful employment. The distribution of occupations reported on the questionnaire for these mothers is presented in table 9; it may provide a preliminary basis for distributing not stated and unclassifiable entries for statistical analysis.

Summary and Conclusion

A survey of 1,112 mothers revealed that the occupation of housewife is overreported on birth certificates. In a master sample of 2,566 birth certificates filed during 1975 in upstate New York, 64.6 percent of the mothers entered their usual occupation as housewife. However, by a questionnaire survey of a sample of mothers reporting to be housewives on the birth certificate, it was determined that approximately 65 percent of these mothers were engaged in gainful employment at some point before delivery. In fact, approximately 50 percent of these mothers were working within 9 months before the delivery.

Table 7. Level of agreement based on occupational category for mothers reporting gainful employment on birth certificate and questionnaire

Occupational category	Birth certificate		Questionnaire		Level of agreement	
	Number	Percent	Number	Percent	Number	Percent ¹
Executive	1	0.2	...	...	0	...
Office administrator	1	0.2	2	0.5	1	50.0
Management	6	1.4	7	1.7	4	57.1
Engineer	1	0.2	1	0.2	1	100.0
Scientist	2	0.5	3	0.7	2	66.7
Lawyer or social worker	6	1.4	6	1.5	5	83.3
Teacher	108	25.4	104	25.4	99	95.2
Doctor, dentist, or pharmacist ..	3	0.7	2	0.5	2	100.0
Writer or artist	7	1.7	4	1.0	4	100.0
Nurse	67	15.8	71	17.3	64	90.1
Technologist	3	0.7	3	0.7	3	100.0
Marketing	10	2.4	7	1.7	7	100.0
Insurance or real estate	2	0.5	2	0.5	1	50.0
Clerical	118	27.8	112	27.3	101	90.2
Accountant	14	3.3	21	5.2	12	57.1
Office equipment operator	3	0.7	4	1.0	2	50.0
Service	47	11.1	39	9.5	34	87.2
Transportation	3	0.7	2	0.5	2	100.0
Mechanic	1	0.2	...	...	...	...
Precision production	4	0.9	3	0.7	3	100.0
Machine operator	6	1.4	5	1.2	4	80.0
Assembler	4	0.9	5	1.2	4	80.0
Production inspector	1	0.2	1	0.2	1	100.0
Elemental occupations	7	1.7	6	1.5	5	83.3
Total	425	100.0	² 410	100.0	361	88.0

Number of mothers reporting same occupation on birth certificate and questionnaire

² 15 mothers who reported gainful employment on the birth certificate but not on the questionnaire were excluded from the distribution.

$$^1 \text{ Percent agreement} = \frac{\text{Number of mothers reporting same occupation on birth certificate and questionnaire}}{\text{Number of mothers reporting occupation on questionnaire}} \times 100$$

Table 8. Level of agreement based on broad occupational categories for mothers reporting gainful employment on birth certificate and questionnaire

Occupational category	Birth certificate		Questionnaire		Level of agreement	
	Number	Percent	Number	Percent	Number	Percent ¹
Professional	135	31.8	129	31.5	120	93.0
Technical	70	16.5	74	18.0	67	90.5
Office	147	34.6	146	35.6	133	91.1
Service	47	11.0	39	9.5	34	92.3
Production	22	5.2	20	4.9	19	95.0
Other	4	0.9	2	0.5	2	100.0
Total	425	100.0	² 410	100.0	375	91.5

Number of mothers reporting same occupation on birth certificate and questionnaire

$$^1 \text{ Percent agreement} = \frac{\text{Number of mothers reporting same occupation on birth certificate and questionnaire}}{\text{Number of mothers reporting occupation on questionnaire}} \times 100$$

² 15 mothers who reported gainful employment on the birth certificate but not on the questionnaire were excluded from the distribution.

The misreporting of housewife when gainful employment is indicated in the work history was more common among mothers aged 20–29 years. Mothers who misreported their occupation as housewife had completed more years of school than those who did not. Occupations held by these mothers were more concentrated in nonprofessional categories than the occupations entered for mothers who reported gainful employment on the birth certificate.

If all mothers had reported their usual occupations according to the findings of this survey, the proportion of mothers indicating labor-force involvement on the birth certificate would have increased to 66 percent. This level appears to be credible because the proportion of women 18 to 34 years old in the labor force was approximately 58 percent in 1975.

Table 9. Distribution of mothers with occupation not stated, unclassifiable, or reported as student on birth certificate, by occupation reported on questionnaire

Occupation reported on questionnaire	Response on birth certificate			Total
	Not stated	Unclassifiable	Student	
Housewife	5	..	..	5
Teacher	2	..	..	2
Clerk	3	2	1	6
Accountant ...	1	1	..	2
Service	1	2	1	4
Machine operator	1	..	..	1
Assembler ....	..	2	..	2
Not stated	11	..	2	13
Unclassifiable ..	..	12	..	12
Student .....	..	1	..	1
Total ..	24	20	4	48

The distribution of occupations among mothers who reported gainful employment on the birth certificate was not significantly different from the distribution of occupations reported on the questionnaire. Agreement for the occupations reported on both sources for the same mother was high.

The live birth certificate is a compendium of medical and health data concerning the pregnancy and the delivery. Together with occupation data, the birth certificate offers a complete and timely mechanism with which to monitor the course and outcome of pregnancies associated with various kinds of employment.

We found that occupations associated with gainful employment that were entered on the birth certificate accurately reflected the mother's usual occupation and will be useful for occupation surveillance activities. On the other hand, the overreporting of housewife must be reduced to further strengthen the role of the birth certificate in this regard.

Hospital staff responsible for preparing the birth certificate should be advised to query mothers who report that their usual occupation is housewife. Only after it is determined that the mother was never gainfully employed should housewife be entered on the birth certificate.

References

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