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Use of Oral Contraception in the United States, 1965

In only 5 years oral contraception has become a major means of regulating fertility.

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There is probably no more propitious time than right now for a study of the behavior of the American people in the area of reproduction. In addition to whatever contribution such a study can make to the solution of world population problems, it can provide essential information on several topics of major interest and concern in the United States today. First is the decline of fertility. The American birth rate has fallen by more than 20 percent in the last 8 years; detailed information from the responsible couples is essential for interpreting this new trend. Second, the nation faces large and interrelated issues of poverty and race. Third, and of most immediate relevance to the subject of this article, no large-scale inquiry on fertility in the United States has been undertaken since 1960, the year in which the oral contraceptive was first licensed for general use.

There are many respects in which oral contraception represents a critical area for research. It exploits a new principle in fertility regulation—the separation of the processes of copulation and procreation; it is the focus of current debate within the Roman Catholic Church concerning the morality of various means for achieving responsible parenthood; and it is suspected of playing a major role in the recent decline of American fertility. Moreover, contraceptive technology is about to experience yet another transformation with the introduction of the intrauterine contraceptive devices. Although manufacturers have released some estimates of the volume of sales, no systematic attempt has been made to assess the extent of the acceptance and use of oral contraception by the total population, and differentially by demographic and social subdivisions. This article, the first report on the 1965 National Fertility Study, represents a beginning in this direction.

The National Fertility Study is a multipurpose survey of the reproductive behavior of American women. It is the 1965 sequel to the two Growth of American Families studies, which were conducted in 1955 (*1*) and 1960 (*2*), respectively. The 1965 sample represents the universe of married women born since 1 July 1910 who are currently living with their husbands. The data were collected by National Analysts, a private survey research firm, during the period 1 October 1965 through 31 January 1966. The sample base for the 1965 study is larger than the sample bases of its predecessors in three respects: (i) the subsample of white women under age 45 is some 50 percent larger than in the earlier two studies; (ii) the sample is designed to secure twice the actual representation of Negroes; (iii) a half-sample of women 45 to 54 has been added, in order to provide the first substantial basis for quantifying the termination of reproduction by menopause in a national sample.

The present article is confined to discussion of the 4808 interviews for the sample of women under age 45, and to the subject of use of oral contraception in relation to a few basic demographic and sociocultural variables. In order to report on this timely subject at the earliest possible date, we have restricted the scope of our first presentation to the most important tabulations: the past, present, and prospective use of oral contraception by age, parity (number of live births), color, religion, and education for married women under age 45 and living with their husbands. We regret that we have not yet had the time necessary to refine the denominators of our estimates so that they include only women at risk of pregnancy; the bases of the tabulations given include many women who are permanently sterile or were temporarily not at risk of pregnancy because they were pregnant. Nor have we had the opportunity to consider oral contraception in relation to the use of other modes of fertility regulation and in terms of attitudes toward its use, the duration of use, the specific product employed, favorable and unfavorable aspects of experience with it, and other demographic and sociocultural factors. Nevertheless we feel that this preliminary report, despite its simplicity, is amply justified by the high level of current interest and social importance.

Measurement of Use

During the interview, which lasted well over an hour, 13 questions were asked pertaining to oral contraception. For purposes of the present analysis we have summarized the patterns of use in the following six categories.

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1) Now using. This category comprises 15 percent of all married women under age 45. These women indicated, on a month-by-month time chart covering the period from 1960 to the present, that they were currently using the oral contraceptive.

2) May use again. Six percent of married women fell into this category. They reported that they had used the oral contraceptive pills but were not currently using them. When asked, "Do you think you might use them in the future?" they answered either "Yes" (4 percent) or "Don't know" (2 percent). We decided to combine these two responses after determining, by analyzing them separately, that they were not related differentially to the other variables in our analysis. It is our opinion that most of the women in this category are either pregnant or trying to become so.

3) Will not use again. Five percent of all married women had discontinued use of the oral contraceptive and answered "No" to the question about future use.

Collectively, these first three categories constitute the 26 percent of married women under age 45 who have ever used the oral contraceptive. The remaining 74 percent who report no use are divided into the following three categories:

4) May use. Nineteen percent of the women in our sample replied negatively to the question about past use, but answered "Yes" (11 percent) or "Don't know" (8 percent) to the question about future use. As with category 2, we decided to combine these two responses because analysis of the two separately failed to reveal differences in relation to other variables.

5) Will not use. These women, 52 percent of the total, have never used oral contraception and answered "No" when asked "Do you think you might use them in the future?"

6) Never heard of it. The final category consists of a mere 3 percent of all women who responded "No" when asked the initial question in the series, "Have you ever heard about the oral contraceptive—the birth control pill?"

Table 1 presents estimates of the numbers of married women in the United States, on the basis of the proportions determined for our sample, who fall into each of the above six categories. We estimate that 3.8 million married women, under 45 and living with husband, are now using the oral contraceptive. This estimate is subject to sampling error; the probability is .95 that the true value lies between 3.5 and 4.1 million. As in any such survey, there are also errors to which precise probabilities and bounds cannot be attached, such as sampling biases, nonresponse, and errors by interviewers or coders; we have taken appropriate steps to limit the influence of such errors on our results.

Table 1. Estimated numbers (in thousands) and percentages (in parentheses) of married women in the United States in 1965 who had ever, or never, used oral contraception and who did or did not expect to do so, by age group. [Based on "Population Characteristics," *U.S. Bureau of the Census Publ. Ser. P-20, No. 144* (1965), Table 1]

Category	Under 45 (No., 24,645)	Under 20 (No., 905)	20–24 (No., 4,065)	25–29 (No., 4,646)	30–34 (No., 4,736)	35–44 (No., 10,293)
			Ever used			
Now using	3,815 (15.5)	258 (28.5)	1,241 (30.5)	1,042 (22.4)	628 (13.3)	646 (6.3)
May use again	1,341 (5.4)	89 (9.8)	419 (10.3)	373 (8.0)	206 (4.3)	254 (2.5)
Will not use again	1,232 (5.0)	42 (4.6)	246 (6.1)	311 (6.7)	326 (6.9)	307 (3.0)
			Never used			
May use	4,676 (19.0)	261 (28.8)	852 (21.0)	1,050 (22.6)	931 (19.7)	1,582 (15.4)
Will not use	12,794 (51.9)	242 (26.7)	1,188 (29.2)	1,795 (38.6)	2,502 (52.8)	7,067 (68.7)
Never heard of it	787 (3.2)	13 (1.4)	119 (2.9)	75 (1.6)	143 (3.0)	437 (4.2)

With the same strictures, we note from Table 1 that 6.4 million women have used the oral contraceptive and an additional 4.7 million indicate that they may use it in the future. Large though these figures on use are, it should be emphasized that they are underestimates of the total experience with oral contraception since 1960. We have excluded from this report women who are beyond age 45. Furthermore, our sample does not provide data on use by women who are in marital statuses other than currently married and living with husband. Accordingly, we have no data on past or present use by never-married women or by women whose marriages have been interrupted for some reason.

Correct interpretation of these data also requires recognition of the fact that not all use is for contraceptive purposes. Oral progestins are also used for the relief of menstrual discomforts, for regularization of the ovulatory cycle—frequently with the intent of promoting a subsequent conception—and for many other purely medical purposes. Preliminary analysis of the responses to questions concerning the reasons for use has been completed. We asked women who had used the pill whether the use was "at least partly to delay or prevent a pregnancy." One-sixth of these women answered in the negative; they constitute some 4.3 percent of all women in the age group. Eighty-three percent of women who have used oral progestins have used them at least in part for purposes of contraception. Use exclusively for purposes other than contraception is concentrated among women who have stopped using the pill (30 percent) in contrast to current users (7 percent).

Use for purposes other than contraception is reported by 1 percent of all Negroes but by 5 percent of all whites. We believe that this difference reflects comparable disparities in medical care by race. No such disparities can explain the difference in percentages for white non-Catholics (4 percent of whom report use only for reasons other than contraception) and white Catholics (6 percent). Some of this difference may reflect temporary use of the oral contraceptive by Catholic women to regularize the ovulatory cycle and improve the efficacy with which they can employ the rhythm method of fertility regulation. We suspect, however, that part of the explanation may stem from a greater tendency toward dissimulation among Catholics on a question that is of great moral concern to many of them.

Use by Age and Parity

Tables 2 and 3 present proportional use, measured in three ways, for the total sample cross-classified by age and parity of the woman. In Table 2 and later tables, "now using" refers to category 1 in the code described above, "ever used" refers to categories 1–3, and "have used or may use" refers to categories 1–4.

It is apparent that on all three bases of measurement, use of the oral contraceptive is much greater among younger than among older women. Of women under 30, more than two-fifths have already used the pill; of women over 40, less than one-tenth have used it. The dominant position

Table 2. Use of oral contraception, by age group and parity, for the total sample of 4808 women.

Age	Percentage per parity group (number of live births)						Percentage of total
	0	1	2	3	4	5+	
			Now using				
< 20	19	30	49				28
20–24	28	26	37	30	32	18	30
25–29	13	15	25	24	30	23	22
30–34	3	10	14	15	14	14	13
35–39	0	5	9	7	12	9	8
40–44	2	1	5	8	6	4	5
Total < 45	14	16	18	15	17	11	15
			Ever used				
< 20	29	47	59				42
20–24	45	44	52	44	43	36	46
25–29	31	32	35	39	48	34	37
30–34	14	24	26	24	24	28	24
35–39	4	12	14	15	22	16	15
40–44	3	5	8	15	9	7	9
Total < 45	26	29	27	26	26	20	26
			Have used or may use				
< 20	65	76	71				70
20–24	66	63	73	69	70	67	68
25–29	60	56	58	61	70	54	60
30–34	37	46	51	44	40	42	44
35–39	17	27	36	33	42	39	34
40–44	11	15	19	26	20	21	20
Total < 45	48	49	47	44	44	37	45

Table 3. Numbers of women in the groups of Table 2.

Age	Parity						Totals
	0	1	2	3	4	5+	
< 20	89	79	32	11	1	0	212
20–24	171	242	227	124	64	26	854
25–29	74	125	234	208	108	101	850
30–34	70	99	216	219	156	204	964
35–39	75	93	214	212	129	200	923
40–44	70	129	254	201	131	220	1005
Total < 45	549	767	1177	975	589	751	4808

already achieved by the oral contraceptive among young couples is suggested by the observation that, whereas in 1960 only 75 percent of couples in which the wife was under 25 had ever used any method of contraception (*1*), by 1965, in the same age group, 45 percent had used oral contraception.

Various circumstances explain the observed variations in use by age. In the first place, use may decline with advancing age because the gradual advent of sterility removes the necessity for fertility control. Secondly, use of the oral contraceptive is competitive with use of other methods, and older couples may be less likely to use the new method because they have already discovered a satisfactory regulatory procedure. In the third place, we should expect all innovations to be more enthusiastically received by the newer than by the older cohorts in a population. In respect to this particular innovation, such a tendency may be augmented by the circumstance that young married couples are likely to be especially attracted to a procedure which may enhance rather than inhibit sexual satisfaction.

The relation of use to age is not uniformly monotonic; the proportions in the "now using" and "ever used" categories are somewhat less for women under 20 than for those between 20 and 24. Three explanations may be suggested for this finding. In the first place, the circumstances predisposing to early marriage may also inhibit prompt use of contraception. Secondly, these marriages are of shorter average duration than those of somewhat older women; accordingly, there has been less opportunity for use of contraception. Lastly, oral contraception may be used by some couples to time the birth of their first few children but by other couples, at a later stage in marriage, to terminate fertility. Use should accordingly be expected to rise with increasing age, as the numbers who use the pill for timing births are augmented by those who use it for terminating childbearing. This interpretation is supported by data on the percentages of women who contemplate possible future use of the pill, which show a maximum of 70 percent for the youngest cohort.

The superficial expectation that fertility regulation should be closely related to parity is not supported by the data. Variations in use with differences in the number of live births are small. It is likely that this result reflects several crosscurrents of influence. Some women use oral contraception for timing the birth of their first few children while others use it to terminate childbearing when they have the desired number of children—and that number differs from couple to couple. Still other women may start using oral contraception after they have more than the desired number of children, perhaps because other methods have proved unsuccessful. Finally, women in the highest parity groups may use oral contraception less because, for reasons of race, religion, or education, they have less access to information about contraception. In the breakdown of proportions of users by age and parity group combined, we observe that the greatest current use of oral contraception occurs among women who are still young and who have two children. The least current use, not surprisingly, is among women of advanced age in the lowest parity groups.

Education

Tables 4 and 5 present data reflecting a major variable of relevance for the adoption of a new method of contraception—the number of years of schooling the woman has completed. The percentages of women now using oral contraception vary positively and strongly with the amount of education —from 22 percent for college graduates down to 4 percent for individuals with less than high school education. The same strong relationship holds for past and prospective use, and is independent of age. The relevance of a comparison of variations with education for the "ever used" category and

the "have used or may use" category is as follows: if these variations were less in the latter group than in the former, this would imply that education influences the time of adoption of the new method rather than the likelihood of eventual use. Such an interpretation is not warranted by the data at hand, although it cannot be denied that many couples who have not yet used the oral contraceptive will change their present opinion on the likelihood of future use.

The education-related differences observable in Tables 4 and 5 probably reflect the greater awareness of, and receptivity to, innovation which is generally cultivated by education. The proportion of women who say they have never heard of the oral contraceptive is only 2 percent for those who at least reached high school but is more than 14 percent for those whose education terminated in grade school. The importance of the data on use by age and amount of education is that they provide the best indication of the shape of future behavior in the areas of reproduction and, specifically, contraception, as newer cohorts replace older ones and the proportions of women with more education increase. The majority of younger women with at least some college education have already used the oral contraceptive; statements on prospective use suggest that eventually three-quarters of these women will do so.

Use by Whites and Negroes

The data of Table 6 for whites and Negroes reveal markedly different relationships for the two races by age and by parity, but not by education. There is considerable evidence here for the view that Negroes are using oral contraception at a later stage in their marriages than whites, presumably to terminate fertility rather than to time births. Thus, by age, the percentages of women now using oral contraception are markedly different for whites and Negroes under 25, but the divergence is trivial for age groups 25–29 and 30-34. Similarly, the percentages of women currently using oral contraception are much higher for whites than for Negroes for parities of 0 and 1, but the positions of the races are reversed at higher parities. As for the "have used or may use" category, the only large discrepancy between whites and Negroes is in the youngest age group and the lowest parity group.

Fewer differences, by race, are found in the "Education" division of Table 6 than are found in the "Age" and "Parity" divisions. In other words, much, although not all, of the difference, by race, in the extent to which oral contraception is used is explainable by differences in education. Perhaps even the substantial difference, by race, within the group of those with less than high school education is no exception; there are probably differences in numbers of years of schooling for whites and Negroes within this lowest residual group. Moreover, the meaning of a given level of education probably differs for whites and for Negroes.

A comparison of racial differentials, in percentages, in the "now using" and "ever used" categories of Table 6 shows that the differences are smaller for the "now using" category. Two possible explanations for this may be suggested. On the one hand, such a contrast would be expected if the Negro were less likely than the white to use the oral contraceptive for timing early fertility and more likely to use it for terminating fertility. This would produce a larger difference in the "ever used" than in the "now using" category because use for terminating fertility is less likely to be interrupted than use for timing births. On the other hand, it is possible that Negroes did not learn of the availability of the oral contraceptive as early as whites did; such a circumstance would also produce the contrast noted.

Ten percent of Negroes have never heard of the oral contraceptive; the comparable figure for whites is less than 3 percent. Some preliminary tabulations permit a comparison of these

Table 4. Use of oral contraception, by age and education level, for the total sample. (C4) At least 4 years of college; (C) 1 to 3 years of college; (H4) 4 years of high school; (H) 1 to 3 years of high school; (G) less than high school.

Age	Percentages by education level					Percentage of total
	C4	C	H4	H	G	
			Now using			
< 20			31	27	27	28
20–24	47	41	31	24	15	30
25–29	33	26	20	21	21	22
30–34	20	14	14	11	7	13
35–39	8	8	7	11	3	8
40–44	10	7	6	3	2	5
Total < 45	22	19	16	15	7	15
			Ever used			
< 20			45	42	43	42
20–24	71	61	46	40	28	46
25–29	52	37	36	36	27	37
30–34	36	34	24	20	12	24
35–39	22	16	13	22	5	15
40–44	15	12	11	6	2	9
Total < 45	37	32	26	26	12	26
			Have used or may use			
< 20		75	70	69	73	70
20–24	78	78	67	67	52	68
25–29	74	60	60	55	53	60
30–34	63	58	45	35	29	44
35–39	44	40	36	34	20	34
40–44	30	21	23	18	11	20
Total < 45	57	52	47	44	28	45

Table 5. Numbers of women in the groups of Table 4.

Age	Education level					Total
	C4	C	H4	H	G	
< 20	0	12	83	96	21	212
20–24	39	105	400	253	57	854
25–29	70	110	393	207	70	850
30–34	81	118	431	202	131	963
35–39	64	93	407	207	152	923
40–44	64	101	392	249	199	1005
< 45	318	539	2106	1214	630	4807

data by region. For Negroes in the South, the proportion who have never heard of the oral contraceptive is 14 percent; for Negroes elsewhere in the nation, the proportion is essentially the same as for all whites (3 percent). Parenthetically we might note that the data, by region, show that the use of oral contraception for both races is highest in the West, although the regional differences (except for Southern Negroes) are not large.

Religion

The recent history of debate within the Catholic Church on contraception is well known even to a casual reader of the daily press. Development of the oral contraceptive has created major disagreements within the Catholic Church over its moral acceptability, in part because it differs from conventional contraceptives in its modus operandi and in part because it has appeared on the scene during a period of mounting concern over the problems created by rapid population growth. During this debate, which has not yet come to a conclusion, a great deal of curiosity and speculation has arisen concerning the extent to which Catholic women in the United States do in fact use contraceptives. Apparently some parish priests have decided to declare the oral contraceptive acceptable; evidently many Catholic couples have decided either to proceed on the assumption that the oral contraceptive will be declared acceptable by the Catholic Church or to ignore injunctions against its use. Although theological interpretations of morality are not necessarily and directly dependent upon current behavior, it is not inconceivable that the evidence, from the survey under discussion, that substantial numbers of Catholic women are using oral contraception might contribute to a reappraisal of some theological positions.

Since other major religious denominations in the United States do not take any strong position on use of the oral contraceptive, we have divided the sample of the white population into Catholic and non-Catholic; within the non-Catholic category, the principal components are Protestants and Jews, and they do not differ in use of oral contraception.

The data of Table 7 reveal the differences in use of the oral contraceptive by Catholics and non-Catholics. The most noteworthy feature of Table 7 is the extent of use among the Catholic women of the survey. Twenty-one percent of the Catholic women under the age of 45 have used the oral contraceptive (and 29 percent of the non-Catholic women). As noted above, a larger proportion of Catholics than of non-Catholics report that the use is for medical reasons. Excluding these, we find that the percentages of women who have used oral progestins at least in part to regulate fertility are as follows: Catholics, 15 percent; non-Catholics, 25 percent.

The largest differences in use are found in the youngest age groups and lowest parity groups. The most striking discrepancy is in the under-20 age group: in this group 56 percent of non-Catholics but only 15 percent of Catholics report ever having used oral contraception. Although some of this difference may be attributable to religion-associated differences in age at marriage and in duration of the marriage, the principal explanation is probably that Catholics first use contraception at a later stage in their marriage than non-Catholics do. This interpretation is supported by the tendency of percentages for Catholics and non-Catholics in the "now using" category to converge in the somewhat higher age and parity groups, and particularly by the similarity of percentages in the "have used or may use" category beyond the lowest age and parity groups.

Tables of data, by age and parity, for white non-Catholics and Catholics (not given here) show that the most striking difference occurs among childless women under age 25. In this category, 34 percent of the non-Catholics but only 7 percent of the Catholics are currently using oral contraception. The differentials are considerably attenuated for higher age-parity combinations. The contrast is similar to that observed for whites and Negroes: non-Catholics are more likely to use oral contraception for timing births as well as for terminating fertility; Catholics are more likely to use oral contraception solely for terminating fertility. In regard to future use, interpretation is difficult. Young Catholics appear to be much less likely to use oral contraception eventually than young non-Catholics are, yet the percentages for Catholics in the "have used or may use" category are actually higher in age group 25–29 than those for non-Catholics. From these data it seems reasonable to suggest that Catholic attitudes toward oral contraception are modified as families grow in size. The data on use of the contraceptive by Catholics and non-Catholics of different levels of education do not indicate the need for any important modification of this interpretation: approximately the same patterns of difference in current, past, and prospective use are found. In both religious categories, college attendance is associated with higher percentages in each use category.

Table 6. Use of oral contraception, by age, parity, and education level, by whites (W) and Negroes (N).

Category	Now using (%)		Ever used (%)		Have used or may use (%)		Number of women	
	W	N	W	N	W	N	W	N
Age								
< 20	30	17	45	22	74	44	155	54
20–24	32	17	49	30	68	65	640	203
25–29	22	23	38	25	60	56	650	183
30–34	14	12	25	18	44	46	762	185
35–39	8	5	15	9	35	29	741	172
40–44	5	2	9	9	20	12	821	172
Parity (number of live births)								
0	16	4	29	8	52	24	426	119
1	17	10	31	19	49	43	604	153
2	18	14	28	22	47	50	987	173
3	16	14	26	23	44	46	797	163
4	16	23	26	29	44	54	483	99
5+	10	11	20	15	36	40	473	262
Education level								
College								
4 years	22	21	38	29	57	50	277	38
1 to 3 years	19	16	33	24	53	46	457	74
High school								
4 years	16	17	26	25	47	49	1788	302
1 to 3 years	16	12	27	19	43	45	850	343
Less than high school	9	3	13	6	28	27	396	212
Total	16	12	27	19	45	43	3769	969

Prospects

If no developments in contraceptive technology were to be expected, the data presented here would support the confident prediction that the oral contraceptive is likely to become the principal method of fertility regulation in America. Its use is concentrated among young women, and especially among those who have attended college. The category combination of white, non-Catholic, 20 to 24 years old, and college graduate yields the highest proportion of women who have ever used the oral contraceptive, 81 percent, and an additional 4 percent who say they may use it in the future. This is indeed an extraordinary datum for a procedure which was not even available until 1960. Although there are differences in use by Catholics and non-Catholics, these would probably disappear if the Catholic Church were to approve the use of oral contraception for purposes of responsible parenthood. Improvements in the product itself, resulting in the alleviation of minor side effects now experienced by some women or in the reduction of the number of pills required per ovulatory cycle, would support this expectation.

But forecasting in a field that has experienced such a high rate of innovation in recent years is exceedingly risky. Already the intrauterine device is playing a significant and growing role in fertility regulation. Although the evidence is unconvincing to date, it is not yet beyond the bounds of possibility that long-term use of oral progestins will be found to have deleterious consequences. Most likely of all is the possibility that new products will emerge and alter the entire pattern of contraceptive practice. In such circumstances the most reasonable prediction is that there will be change.

In any case, it is evident from the data presented here that the oral contraceptive, in the few years in which it has been available, has already transformed the pattern of fertility regulation in the United States. The critical current demographic question is the extent of its responsibility for the downward trend in the American birth rate that began in 1957. There are several considerations which suggest caution in answering this question. In the first place, part of the decline has been caused by the temporary appearance of an age distribution which is unfavorable to childbearing. Second, the decline in fertility indices that eliminate the influence of the age distribution antedated the appearance of the oral contraceptive. Third, the employment of oral contraception is most evident in the youngest age groups, yet the decline in fertility has not been confined to these ages. Lastly, the American population has had highly effective means of fertility regulation available to it for a long time, and during the Depression it demonstrated that it was able to use them. The postwar baby boom has taught us that, in the area of reproduction, ends as well as means are highly variable, and that detailed investigation of the voluntary component in childbearing is essential for rigorous analysis. Nevertheless, it seems likely that a complete picture of movements of the birth rate in the past 5 years must include careful consideration of the impact of oral contraception. Its effect is not confined to enhancement of the ability of couples to terminate childbearing when they have the desired number of children; any trend toward greater use of oral contraception (among other procedures) for delaying the birth of the first few children, whether or not a change in eventual family size occurred, would lead to a drop in annual measures of fertility. It is also likely that couples who delay the birth of their first and second children will have smaller families than those who do not. These are possibilities that should be studied fully. In the meantime, we can report that the young American wife has shown an extraordinary immediate enthusiasm for oral contraception.

Table 7. Use of oral contraception, by age and education level, by non-Catholics (non-C) and Catholics (C).

Category	Now using (%)		Ever used (%)		Have used or may use (%)		Number of women	
	Non-C	C	Non-C	C	Non-C	C	Non-C	C
			Age					
< 20	37	10	56	15	75	56	114	41
20–24	35	25	54	36	74	54	452	188
25–29	24	18	39	35	60	61	474	176
30–34	16	9	29	18	48	36	520	242
35–39	9	5	15	16	35	35	535	206
40–44	6	3	11	6	23	16	580	241
			Parity (number of live births)					
0	19	8	35	12	58	33	315	111
1	18	13	34	22	51	44	443	161
2	20	13	29	25	50	49	745	241
3	17	12	28	20	45	40	578	219
4	19	10	29	21	46	40	309	174
5+	12	8	20	21	34	39	285	188
			Education level					
College								
4 years	24	12	38	33	58	51	226	51
1 to 3 years	21	15	34	28	54	49	341	116
High school								
4 years	18	11	29	20	49	41	1235	553
1 to 3 years	17	12	30	20	46	37	604	246
Less than high school	10	6	14	13	28	27	268	128
Total	18	11	29	21	48	39	2675	1094

Summary

This is the first report from the National Fertility Study, 1965, a survey of the reproductive behavior of a national sample of married women, under the age of 55, living with their husbands. The report presents basic data on the use of oral contraception by women under the age of 45, in relation to age, parity, education, race, and religion. The study leads to certain conclusions, as follows. Present, past, and prospective use vary inversely with the age of the woman and directly with the number of years of schooling; the majority of young women with college training have already used the oral contraceptive. Use by Negroes is somewhat less extensive than use by whites, particularly for ages below 25; some of this difference is explainable by concomitant racial differences in educational level. Negroes seem less likely than whites to use oral contraception for timing early births, and more likely, when they do use it, to be attempting to terminate their fertility. The same observation holds for white Catholics in relation

to white non-Catholics. Although the extent of use may be lower among Catholics than non-Catholics, the proportion of Catholics who report use is substantial indeed in view of the persisting theological controversy.

The prospects for increased use of oral contraception seem very good at present, but they may be limited by further developments in the technology of fertility regulation. Meanwhile the birth rate has declined substantially. Although much sophisticated analysis of other data from the survey will be required to determine the extent of the contribution of oral contraception to this decline, the findings presented here suggest that the contribution is substantial for young married couples. The major effect on the couple's eventual number of children may be less than the effect on the time pattern of childbearing; in any event, both lower eventual parity and delayed fertility contribute to a decline in the numbers of births from year to year. Whatever the intent may be, it is apparent that young American couples have adopted a new means for achieving their reproductive goals.

References and Notes

1. R. Freedman, P. K. Whelpton, A. A. Campbell, *Family Planning, Sterility and Population Growth* (McGraw-Hill, New York, 1959).
2. P. K. Whelpton, A. A. Campbell, J. E. Patterson, *Fertility and Family Planning in the United States* (Princeton Univ. Press, Princeton, N.J., 1966).
3. The National Fertility Study is being directed jointly by the authors under a contract from the National Institute of Child Health and Human Development, Bethesda, Md.

The Phylogeny and Ontogeny of Behavior

Contingencies of reinforcement throw light on contingencies of survival in the evolution of behavior.

B. F. Skinner

Parts of the behavior of an organism concerned with the internal economy, as in respiration or digestion, have always been accepted as "inherited," and there is no reason why some responses to the external environment should not also come ready-made in the same sense. It is widely believed that many students of behavior disagree. The classical reference is to John B. Watson (*1*):

> I should like to go one step further now and say, "Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in and I'll guarantee to take any one at random and train him to become any type of specialist I might select—doctor, lawyer, artist, merchant-chief and, yes, even beggarman and thief, regardless of his talents, penchants, tendencies, abilities, vocations, and race of his ancestors." I am going beyond my facts and I admit it, but so have the advocates of the contrary and they have been doing it for many thousands of years.

Watson was not denying that a substantial part of behavior is inherited. His challenge appears in the first of four chapters describing "how man is equipped to behave at birth." As an enthusiastic specialist in the psychology of learning he went beyond his facts to emphasize what could be done in spite of genetic limitations. He was actually, as Gray (*2*) has pointed out, "one of the earliest and one of the most careful workers in the area of animal ethology." Yet he is probably responsible for the persistent myth of what has been called "behaviorism's counterfactual dogma" (*3*). And it is a myth. No reputable student of animal behavior has ever taken the position "that the animal comes to the laboratory as a virtual *tabula rasa*, that species' differences are insignificant, and that all responses are about equally conditionable to all stimuli" (*4*).

But what does it mean to say that behavior is inherited? Lorenz (*5*) has noted that ethologists are not agreed on "the concept of 'what we formerly called innate.'" Insofar as the behavior of an organism is simply the physiology of an anatomy, the inheritance of behavior is the inheritance of certain bodily features, and there should be no problem concerning the meaning of "innate" that is not raised by any genetic trait. Perhaps we must qualify the statement that an organism inherits a visual reflex, but we must also qualify the statement that it inherits its eye color.

If the anatomical features underlying behavior were as conspicuous as the wings of *Drosophila*, we should describe them directly and deal with their inheritance in the same way, but at the moment we must be content with so-called behavioral manifestations. We describe the behaving organism in terms of its gross anatomy, and we shall no doubt eventually describe the behavior of its finer structures in much the same way, but until then we analyze behavior without referring to fine structures and are constrained to do so even when we wish to make inferences about them.

What features of behavior will eventually yield a satisfactory genetic account? Some kind of inheritance is implied by such concepts as "racial memory" or "death instinct," but a sharper specification is obviously needed. The behavior observed in mazes and similar apparatuses may be "objective," but it is not described in dimensions which yield a meaningful genetic picture. Tropisms and taxes are somewhat more readily quantified, but not all behavior can be thus formulated, and organisms selected for breeding according to tropistic or taxic performances may still differ in other ways (*6*).

The experimental analysis of behavior has emphasized another property. The probability that an organism will behave in a given way is a more valuable datum than the mere fact that it does so behave. Probability may be

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