Questions regarding a realignment of valued professional activities were posed for two reasons: First, service activities generally are not incorporated into workload assignments of faculty as are teaching and research assignments. Second, several schools of public health have a mechanism for coordinating service attitudes, although there is no uniform administrative or organizational approach to this function. We believe that responses from faculty about responsibility for promoting and facilitating their involvement would provide additional insight on the value they placed upon a service activity.

Finally, the impetus for service in general should be addressed by the schools of public health. At present, service activities are loosely organized and not supported by explicit standards or criteria. If service is valuable, its value should be defined more concretely in terms of the beneficiary. Moreover, if the contribution of services is ever to achieve parity with that of research and teaching duties in institutions of higher education, service programs must be better organized and standardized. At the moment criteria or standards to measure the adequacy of the service activities in schools of public health do not exist. There should follow an initiative to develop with more exactness in purpose and contribution, objectives, standards, and criteria.

Equally important, service must be brought into the reward system for faculty. Regardless of stated values and expectations, the system for advancement and promotion is tied to those activities which are deemed most important. Unless service activities are more fully integrated into the traditional reward system of salary, promotion, and tenure, the legitimacy of public service performance will be undermined and the vitality of the program will be vitiated. If public service is endorsed by the university and if the support for such participation is manifestly reflected in the reward system, then faculty members will perceive service as a professionally worthwhile endeavor.

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Differentials in the Planning Status of Most Recent Live Births to Mexican Americans and Anglos

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SYNOPSIS

Data from personal interviews with 705 Mexican American and 363 Anglo women during the 1979 U.S. Mexico Border Survey were analyzed to answer the question, To what extent do Mexican Americans and Anglos differ in having the number of children they want, when they want them? Mexican Americans had a significantly higher percentage of unwanted births than did Anglos. Much of this difference is related to the fact that Mexican Americans, when compared with Anglos, have completed fewer years of schooling and have incomes closer to the poverty threshold than do Anglos.

Both Mexican Americans and Anglos had relatively moderate levels of planned births; thus, neither

THE LEVEL OF FERTILITY of most racial and ethnic groups in the United States has been declining since 1950 (1). While the general pattern of the trend has been similar for all racial and ethnic groups, Mexican Americans consistently have had the highest annual fertility rate of any racial or ethnic group in the United States from 1950 through the 1970s (1-7). Much of the decline in fertility during the 1960s and 1970s has been attributed to a reduction in unplanned (both mistimed and unwanted) births (8-11). As Westoff (8) concluded, "The decline of marital fertility during the decade of the 1960s was associated almost entirely with the reduction of unplanned fertility."

Most research on the planning status of births used national survey data (8-14) that included representative samples for whites and blacks, but not for Mexican Americans, the second largest ethnic minority group in the United States. Thus, for Mexican Americans there is little information on the planning status of their births or on the extent to which their high fertility is related to problems of timing (mistimed births) or number (unwanted births), compared with other racial and ethnic groups.

In this paper, we partly fill this void by using data from the 1979 U.S.-Mexico Border Survey (15) to compare the planning status of most recent live births of Mexican Americans with that of Anglos residing in the same geographic region. A respondent was classified as Anglo if she identified herself as white and not of Hispanic origin. A respondent was classified as Mexican American if she identified herself as any of the following: Mexican American, Chicano, Mexican, or Mexicano. The general questions addressd in this paper is: To what extent are Mexican Americans as likely as Anglos to have the number of children they want, when they want them?

Our analysis focused on three specific questions:

1. To what extent was the distribution of most recent live births that were planned, mistimed, and

group is in full control of the number and timing of their births. Our results suggest that there is a substantial need for family planning services for Mexican Americans and Anglos in the Southwest.

unwanted different for Mexican Americans and Anglos?

2. To what extent were differences between Mexican Americans and Anglos in unwanted births associated with differences in the distribution of age, parity, education, and poverty status in these two ethnic groups?

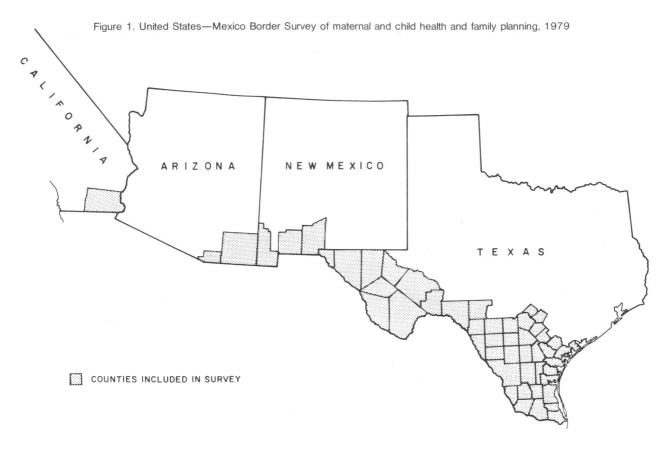
3. Were Mexican Americans and Anglos whose most recent live birth was unwanted equally likely to have used contraception before the pregnancy?

Data and Methods

The sample. The Centers for Disease Control, Department of Health and Human Services, designed and conducted a maternal and child health family planning survey (the U.S.-Mexico Border Survey) in 1979 in 51 selected counties in the four States bordering Mexico (fig. 1). The 51 counties in the survey area had a total population of 3.3 million in 1980. More than three-fourths (75.5 percent) of this population lived in 6 Standard Metropolitan Statistical Areas (SMSA) of 50,000 or more population. All six were in Texas; the largest was San Antonio, with a 1980 census population of more than 1 million. Although 6.4 percent of the total population of the United States identified themselves in the 1980 census as being of Hispanic origin, 57.0 percent of the people in the 51 survey counties identified themselves as Hispanic in the 1980 census.

A multistage probability sample design was used to select 2,500 households from the counties in the SMSAs and 2,505 households from counties outside the SMSAs. One woman in the 15–44-year age group in each survey household was selected randomly for interviewing. A total of 2,135 women completed personal interviews, for a completion rate of 89.3 percent. Of these respondents, 59.9 percent were Mexican American, 35.0 percent were Anglo, and 5.1 percent were black or another race.

The data have been weighted to adjust for differences in the strata sampling, for nonresponse at both the household and individual levels, for temporal



changes in the total population of the survey area, and for choosing one respondent from households that contained more than one eligible respondent. Percentages shown in the tables of our analysis are based on weighted numbers.

The dependent variable. The dependent variable in this analysis—the planning status of the most recent live birth—was determined from the following questions, asked of each respondent who had ever been pregnant, about whether she wanted to become pregnant before her last pregnancy.

Just before your last (or current) pregnancy, did you want to get pregnant?

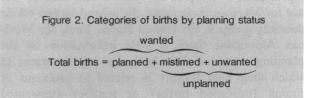
Those who answered "yes" were asked:

Did that pregnancy occur earlier than planned or did you want to have a child as soon as possible?

Those who answered "no" were asked:

Did you want a child but not until *later*, or did you really want *no more* children?

Those who answered "as soon as possible" were coded planned (wanted births, not occurring before or after they were planned); those who answered "earlier" or "later" were coded mistimed (births



that occurred before or after they were wanted); and those who answered "no more" were coded unwanted (births in excess of the number wanted). Figure 2 is a diagram of the classification scheme.

The independent variables. The independent variables used in our analysis were based on characteristics of the respondents. These variables included age at time of interview in 5-year age groups; parity (number of live births); years of schooling completed for respondents 20 and older; and respondent's family income relative to an established Federal poverty level. The Federal poverty index based on family income and number of persons in the family was used to categorize a respondent as either below the poverty threshold (less than 100 percent of the poverty level) or above the poverty threshold by 100–149 percent, 150–199 percent, or 200 percent or more above the poverty level (16).

Statistical tests. We tested the significance of the differences between Mexican Americans and Anglos in the percentage of most recent live births that were unwanted using the computer software program STDERROR (17). By using this program, the complexities of the sampling design were accounted for including differential sampling weights and selection probabilities. Appropriate ratio-type estimates and variances for population domains were also produced by the use of a first-order Taylor series linearization approximation of the deviations of estimates from their expected values (18, 19).

To adjust for the effect that differences in the distribution between Mexican Americans and Anglos in age, parity, education, and poverty status had on levels of unwanted births, we used direct standardization, with the combined Mexican American and Anglo population serving as the standard population. Significance testing for the difference in the variable of interest was performed on the standardized values. Direct standardization and the resulting difference testing are features of the STDERROR program.

Limitations. The U.S.-Mexico Border Survey did not include a full pregnancy history for each respondent, and the sequence of questions about planning status was asked only for the last pregnancy. We further restricted our analysis to live births occurring between January 1969 and September 1979 in order to minimize recall distortion (10). We recognize that by analyzing planning status only of the most recent live births, our estimates for the unplanned and unwanted planning status categories likely are biased upwards.

Estimates of current fertility rates (that is Anderson's [11] marital general fertility rate by planning status categories) were not used in our analysis because there were less than 300 total respondents with a birth in the 12 months before the survey date.

Of the sample of 2,135 completed interviews, 1,068—705 with Mexican Americans and 363 with

 Table 1.
 Planning status of most recent live birth, 1969–79, by ethnicity and social-demographic factors (percentage distribution), U.S.-Mexico Border Survey, 1979

Social- demographic factor	Mexican American				Anglo			
	Planned	Mistimed	Unwanted	Num- ber 1	Planned	Mistimed	Unwanted	Nun ber
Total	47.8	36.8	15.4	705	60.9	29.1	10.0	363
Age group:								
15–19 years	18.4	77.4	4.2	31	(2)	(2)	(2)	12
20-24 years	45.6	48.5	5.9	139	46.3	48.9	4.8	67
2529 years	52.0	38.9	9.1	187	70.8	24.0	5.3	107
30-34 years	49.6	33.9	16.5	181	65.6	26.6	7.8	109
35–39 years	53.4	22.5	24.1	93	60.5	23.6	15. 9	51
40-44 years	47.5	19.0	33.5	74	(2)	(2)	(2)	17
arity:								
1	47.8	48.6	3.6	190	74.5	24.6	0.1	114
2	58.0	32.5	9.5	205	63.6	30.8	5.6	148
3	48.8	34.9	16.3	122	63.4	29.4	7.3	58
4	38.8	36.8	24.4	94	29.3	27.1	43.6	20
5 or more	37.1	27.5	35.4	94	17.1	36.3	46.6	23
ears of completed education: ³								
0-8 years	48.1	28.0	23.4	228	(2)	(2)	(2)	11
9-11 years	41.1	41.1	17.9	138	23.7	49.8	26.5	35
12 years	54.9	35.5	9.6	208	60.9	29.5	9.6	145
13 or more years	56.1	35.9	8.0	100	71.3	22.0	6.7	160
overty status:4								
Less than 100 percent	37.1	42.7	20.2	191	18.1	55.8	26.1	20
100-149 percent	46.9	35.6	17.5	144	38.1	43.5	18.4	28
150–199 percent	53.5	24.9	21.6	103	47.6	43.1	9.4	44
200 percent or more	60.0	32.4	7.6	209	69.3	22.9	7.7	247

¹ Unweighted number of respondents.

² Fewer than 20 respondents.

³ For women 20 years or older.

4 For definitions of income levels, see reference 16.

Anglos—were available for analysis. Excluded were 695 women who had never had a live birth, 228 women whose most recent live birth was prior to January 1969, and 144 women who were either not Mexican American or Anglo in race or ethnic origin, or information pertinent to our analysis was missing.

Results

Planning status of most recent live births of Mexican

Americans. Fewer than one-half of the most recent live births to Mexican Americans were planned; 36.8 percent were mistimed, and 15.4 percent were unwanted (table 1). Fewer than 20 percent of the most recent births to young women 15–19 years old were planned. Beginning with the 20–24-year age group, as age increased, the percentage of most recent births that were mistimed decreased and the percentage of unwanted ones increased. By age group 40–44 years, one-third of the most recent live births were unwanted.

As parity increased, the proportion of most recent live births that were unwanted also increased (table 1). By parity 5, more than one-third of the most recent births were unwanted. Although there was no consistent change in the percent of mistimed births among the parity categories, it was apparent that the para 1 category had the highest percent mistimed. The proportion of most recent births that were planned was near 50 percent for paras 1, 2, and 3, but for para 4 and para 5 or higher, less than 40 percent of the most recent births were planned.

The two measures of socioeconomic status in our survey (education and poverty status) had slightly different associations with the planning status classifications. For education, there was a strong inverse association with unwanted births, but the percentages for mistimed and planned births had no clear pattern. For poverty status, the percentage of births that were unwanted did not decline markedly until the respondent's family income was 200 percent of the poverty level or higher; as with education, mistimed births showed no consistent association with poverty level. The percentage of births that were planned, however, increased sharply across the poverty levels with 37.1 percent of births planned for women whose family income was less than 100 percent of the poverty level, compared with 60.0 percent of births that were planned for women whose family income was 200 percent or more above the poverty level.

Planning status of most recent live births of Anglos. More than 60 percent of the most recent live births For Anglos, approximately two-thirds of the most recent births at parity 1, 2, and 3 were planned, and the proportion of unwanted births was less than 10 percent. With 4 or more births, more than 40 percent of the births were unwanted, and less than 30 percent were planned (table 1).

Education and poverty status had similar associations with the planning status classifications. Both education and the poverty status had strong direct associations with the percent of births that were planned, and strong inverse associations with the percent of births that were mistimed or unwanted. For respondents with 13 or more years of education or whose family income was 200 percent or more above the poverty level, approximately 70 percent of the births were planned and only 7 percent were unwanted.

Comparison of Mexican Americans and Anglos. A number of differences were found between Mexican Americans and Anglos in the planning status of their most recent live births (table 1):

1. Anglos were more likely than Mexican Americans to have planned their most recent births; more than 60 percent of the Anglo births were planned compared with less than 50 percent for Mexican Americans.

2. Between ages 25 and 39, Anglo women were more likely to have planned their most recent births than were Mexican Americans. Also, a relatively high percentage of births that were unwanted occurred at an earlier age for Mexican Americans than for Anglos. The level of unwanted recent births had reached almost 10 percent by age group 25–29 among Mexican Americans; that level of unwanted births for Anglos was not reached until the 35–39 year age group.

3. Not wanting the most recent birth was an uncommon phenomenon for Anglos (less than 10 percent) until para 4, but it was moderately frequent for Mexican Americans at para 2 (nearly 10 percent of these), and very frequent for Mexican Americans

Social- demographic factors	Mexican American Angio A B		Difference A—B	Standard error	Signi- ficance
Total	15.4	10.0	5.4	2.6	P<.05
Age group:					
15–19 years	4.2	(1)	(1)	(1)	
20–24 years	5.9	4.8	1.1	3.6	ns
25–29 years	9.1	5.3	3.8	3.7	ns
30-34 years	16.5	7.8	8.7	4.7	ns
35–39 years	24.1	15.9	8.2	9.7	ns
40-44 years	33.5	0	(1)	(1)	
Total, standardized for					
ages 20-39 years	13.4	7.8	5.6	2.6	P<.05
Years of completed					
education: ²					
0-8 years	23.9	(1)	(1)	(1)	
9-11 years	17 .9	26.5		12.2	ns
12 years	9.6	9.6	0.0	4.8	ns
13 or more years Total, standardized for 9 or more years	8.0	6.7	1.3	3.5	ns
education	11.0	12.7	—1.7	3.7	ns
Parity:					
1	3.6	0.1	3.5	2.2	ns
2	9.5	5.6	3.9	3.6	ns
3	16.3	7.3	9.0	4.8	ns
4	24.4	43.6	19.2	14.2	ns
5 or more	35.4	46.6	-11.2	15.7	ns
Total, standardized for					
parity	14.4	14.7	-0.3	3.1	ns
Poverty status: ³					
Less than 100 percent	20.2	26.1	5.9	14.5	ns
100-149 percent	17.5	18.4	-0.9	9.0	ns
150-199 percent	21.6	9.4	12.2	7.7	ns
200 percent or more Total, standardized for	7.6	7.7	-0.1	3.7	ns
poverty status	14.6	14.3	0.3	4.1	ns

Table 2. Unwanted most recent live birth, 1969–79, by ethnicity and social-demographic factors (in percentages), U.S.-Mexico Border Survey, 1979

¹ Fewer than 20 respondents.

² For women 20 years or older.

after para 3. At para 1, 2, and 3, more than 60 percent of Anglo births were planned, while the percentage was close to one-half for Mexican Americans.

4. At para 4 and para 5 or greater, nearly 40 percent of the Mexican Americans had planned births compared with 29.3 percent for para 4 and 17.1 percent for para 5 and greater among Anglos.

5. For Anglos and Mexican Americans, education had a strong inverse association with not wanting a birth. Education had a strong direct association with having a planned birth for Anglos, but no consistent association for Mexican Americans. Poverty status had a strong inverse association with having unwanted births for Anglos, but the pattern was very abrupt (changing sharply for women whose family ³ For definitions of income levels, see reference 16.

NOTE: ns = not significant.

income was 200 percent or more above the poverty level) for Mexican Americans. However, for both Anglos and Mexican Americans, the percentage of births that were planned was directly associated with how far a respondent's family income was above the poverty level.

Unwanted births: the Mexican American-Anglo differences. The 15.4 percent of most recent live births that were unwanted among Mexican Americans was significantly higher (P < .05) than the 10.0 percent of such births for Anglos (table 2). Examination of the differential showed that within each category age, parity, education, and poverty status—the Mexican American-Anglo difference in unwanted

Table 3.	Contraceptive use status at time of conception of
unwanted	most recent live birth, 1969-79, by ethnicity (in
perc	centages), U.SMexico Border Survey, 1979

Contraceptive use status and method	Mexican American	Anglo
Status at conception:		
Unweighted number	92	35
Used contraceptives	23.2	68.1
Nonuser	76.8	31.9
Total	100.0	100.0
Method used at conception:		
Unweighted number	30	21
Pills	58.6	48.2
IUD	6.2	2.2
Condom	12.2	0.0
Diaphragm	0.0	9.1
Foam	17.0	32.9
Rhythm	1.4	7.6
Other	4.6	0.0
Total	100.0	100.0

births was not statistically significant. This observation suggested that there might be distribution differences for Mexican Americans and Anglos for these variables in our survey sample that might be contributing to the overall differences in percentages of unwanted births between Mexican Americans and Anglos. We used direct standardization to control for the distribution differences.

Our results suggested that the Mexican American and Anglo distributions for parity, education, and poverty status were sufficiently different to contribute to the overall difference between Mexican Americans and Anglos in levels of unwanted births. Standardization by age, as was expected, did not affect the difference between Mexican Americans and Anglos since the overall distributions for the two groups were similar. For Mexican Americans, 50.6 percent were less than 30 years old, compared with 51.2 percent of the Anglos. After standardizing separately for parity, education, and the poverty status, the difference in levels of unwanted children between Mexican Americans and Anglos was not statistically significant (table 2).

Contraceptive use before pregnancy: a comparison of Mexican Americans and Anglos. We looked at the use of contraception at the time of conception (that is, contraceptive failure) for each woman whose most recent live birth was unwanted. Results showed that 68.1 percent of such Anglo women, but only 23.2 percent of such Mexican American women, were using contraception at the time of conception (table 3). Of those respondents who had a contraceptive failure, pills were the most frequently used method by both Anglo (48.2 percent) and Mexican American (58.6 percent) women (table 3). Anglos were also likely to have used foam (32.9 percent), while Mexican Americans were likely to have used foam (17.0 percent) or condoms (12.2 percent). More than 9 out of 10 Anglo respondents and nearly 3 of 4 Mexican American respondents who had an unwanted birth following contraceptive failure were using contraception at the time of the survey (table 4). Of the group who had a contraceptive failure and were current nonusers, 20.8 percent of the Mexican Americans and 6.3 percent of the Anglos were not using contraception for pregnancy-related reasons or because they were sterile. Thus, few Mexican Americans (4.8 percent) or Anglos (1.6 percent) who had an unwanted birth after contraceptive failure were currently at risk of having another unwanted birth.

The 76.8 percent of Mexican Americans not using contraception at the time of conception was especially striking, in that it was more than twice as great as the 31.9 percent who were nonusers among Anglos (table 3). Of the Mexican American women whose most recent live birth was unwanted and who were not using contraception at the time of conception, 57.1 percent were using contraception at the time of Anglo respondents in this category was less than 20, too few for stable estimates. However, 20.5 percent of the Mexican Americans were at risk of having another unwanted birth because they were not using contraception (table 4).

Discussion

The purpose of our paper was to respond to a number of questions concerning the planning status of most recent live births for Mexican Americans in comparison with Anglos. The first question concerned the distribution of births according to their planning status categories-planned, mistimed, and unwanted. Our results showed that neither Mexican Americans nor Anglos were in full control of the number and timing of their births. Less than onehalf of the Mexican American births were planned, and approximately 60 percent of the Anglo births were planned. This finding was similar to the observation by Weller and Hobbs (10) concerning a national sample. They concluded, "Since only about half the births were reported as being wanted at the time they occurred, it is clear that unplanned fertility is still a problem in the United States."

As an extension of the first question, we analyzed the differences between Mexican Americans and Anglos in the association between planning status and specific social-demographic variables. Within each group (Mexican American and Anglo) the patterns of association were similar. For Mexican Americans and Anglos, in general, as age increased the percent of unwanted births increased. As parity increased, the percent of unwanted births increased and the percent of planned births decreased. As education increased, the percent of unwanted births decreased and the percent of planned births increased. And as a respondent's family income rose above the poverty level, the percent of unwanted births decreased and the percent of planned births increased. These patterns were consistent with most national studies on the planning status of births (11, 17–19).

Our second question concerned the Mexican American and Anglo differential in unwanted births. Our findings showed that Mexican Americans had a significantly higher level of unwanted births than did Anglos. This Mexican American-Anglo differential in these border counties differed from that found by Sabagh (20). In Sabagh's survey of 1,129 Mexican American women aged 15-44 years in Los Angeles in 1973, he found that "Chicanos (Mexican Americans) are just as successful in planning their pregnancies as the general population of the United States."

To evaluate more fully the Mexican American-Anglo differential in unwanted births, we investigated whether differences in the social-demographic characteristics of Mexican Americans and Anglos in our sample might have accounted for the difference. We found that, when standardized by parity, education,

or poverty status, the Mexican American-Anglo differential in unwanted births was not significant. The Mexican American respondents could be characterized generally as having higher parity, less education, and a higher percentage whose family income was below the poverty level than the Anglo respondents. Of the Mexican Americans, 30.3 percent had more than 3 births, 58.2 percent had less than 12 years of schooling, and 71.9 percent had family incomes less than 200 percent of the poverty level; in comparison, among Anglos, only 13.5 percent had more than 3 births, 12.5 percent had less than 12 years of schooling, and 24.0 percent had family incomes less than 200 percent of the poverty level. We do not know how the Mexican Americans and Anglos in our sample would compare with Sabagh's Mexican American sample, but we do know that in our survey the differences in Mexican American and Anglo social-demographic distributions confounded the differential in unwanted births.

As a final step, we examined the differential between Mexican Americans and Anglos in contraceptive use and the efficiency of use. We found that Mexican Americans whose most recent birth was unwanted were much more likely than Anglos to have been nonusers of contraception when they became pregnant. Anglos were more likely to have had a contraceptive failure problem; however, in our data set we could not determine the extent to which this was method or use failure. Also, the Mexican American nonusers at conception were more than twice as likely as Anglos to continue not to use contraception after having the unwanted birth. Our finding was similar to that of Bauman and Udry (21), who examined black-white differences in levels of unwanted

 Table 4.
 Contraceptive use status at time of conception of unwanted most recent live birth and current use status, by ethnicity (in percentages), U.S.-Mexico Border Survey, 1979

	Unweighted number	Current user	Current nonuser			
Contraceptive use status at conception			Pregnancy related 1	Sterile 2	Other ³	Total
User						
Mexican American	30	74.4	20.8	0	4.8	100.0
Anglo	21	92.1	2.0	4.3	1.6	100.0
Nonuser						
Mexican American	62	57.1	11.2	11.2	20.5	100.0
Anglo	414					

stable estimates.

¹ Not using contraception, because woman either desires pregnancy, is postpartum, or is breast feeding.

² Not using contraception because woman is surgically sterile for noncontraceptive reasons or nonsurgically sterile (menopause or subfecund). ³ Not using contraception at the time of the survey; however, contraceptive use between birth and date of interview is not known. ⁴ Number of Anglo respondents was fewer than 20, too small for births and found "that the difference in unwanted births is partly produced by blacks being less likely than whites to use the more effective methods and more likely than whites to use no contraception."

Conclusion

Two major conclusions can be reached from the findings in our study:

1. Mexican Americans had a significantly higher level of unwanted births than Anglos. However, Mexican Americans are a low status group in comparison with Anglos; this status differential contributed significantly to the differences in levels of unwanted births and probably was an important factor contributing to the high Mexican American fertility.

2. Less than 50 percent of the Mexican Americans and about 60 percent of the Anglos had planned their most recent live births. This relatively moderate level of planned births for these two groups suggests that neither Mexican Americans nor Anglos are in full control of the number and timing of their births.

These conclusions lead us to believe that there is a substantial need for family planning information and services for Mexican Americans and Anglos in the Southwest, especially for Mexican Americans. This conclusion is consistent with an earlier study on contraceptive use, which focused on the need for family planning services in the survey area (22). In this paper, we found that the failures in birth planning were experienced by women in the lower social status levels—the less educated and the poor. Thus, a continuing challenge is presented to the public health community (the traditional source of health care for many lower social status women) to meet their needs for family planning.

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