

Characteristics of Injectable Contraceptive Users In a Low-Income Population in Texas

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Among 600 women at 17 family planning clinics in Texas who expressed interest in using the hormonal injectable depot medroxyprogesterone acetate (DMPA), 536 (89%) actually received the injectable. Thirty percent of the DMPA recipients were younger than 21 and 77% were not married. The average numbers of pregnancies and births were 1.9 and 1.2 per woman; one-third of the women had had at least one abortion. The majority of women receiving DMPA (66%) were using it to space births. Their main sources of information about the method were friends (42%) and health care providers (37%), and the most commonly reported reason for its use was dissatisfaction with previous contraceptive methods.

(Family Planning Perspectives, 27:208–211 & 225, 1995)

Depot medroxyprogesterone acetate (DMPA), marketed as Depo-Provera, is the most widely used injectable contraceptive in the world.¹ DMPA is a long-acting progestin-only contraceptive that is injected once every three months. Following a developmental history of more than 25 years, and subsequent to the publication of reassuring epidemiological data regarding DMPA use and cancer risk,² the Food and Drug Administration (FDA) formally approved DMPA for use as a contraceptive in the United States on October 29, 1992.

Despite more long-term experience with DMPA around the world, little is known in the United States about the characteristics, attitudes and needs of potential acceptors and actual users of this contraceptive. The small body of available data on the profile of users and their reasons for accepting DMPA has been collected either outside the United States³ or prior to FDA approval.⁴ However, constraints on the method's availability before FDA approval may have limited DMPA's use to special groups, which may not represent the populations likely to adopt it and use it effectively. Furthermore, due to cultural differences, the characteristics and attitudes of users of this contraceptive in other countries may differ from those of users in the United States.

Prior to the marketing of DMPA, re-

searchers speculated about who would be likely to use the injectable and what would be their reasons for adopting it. DMPA was believed to be an ideal method for various subgroups of women, such as those who seek highly effective birth control but experience difficulties (i.e., problems in adhering to the regimen or health-related side effects) with other reversible methods.⁵ Furthermore, because of DMPA's high efficacy and convenience, it was thought to be especially suitable for groups such as adolescents and the intellectually impaired.⁶ However, since the method's approval in 1992, no studies have been published that examine whether this might be true. DMPA's approval has created a unique opportunity to study users of this contraceptive method within an environment where the method is offered by contraceptive providers and is consequently accessible to the general population.

The study presented in this article was undertaken because of the paucity of data regarding the characteristics and attitudes of DMPA users. Our objective was to examine the profile of women who elected to use DMPA. In addition, we report on the patients' sources of information about DMPA, their reasons for and concerns about selecting this contraceptive and their experiences with other methods.

Methodology

As part of a prospective study, 600 women who had expressed interest in using DMPA for the first time were surveyed at 17 provider sites in Texas. DMPA recipients were followed for one year after they received their initial injection. In this article, we report on the baseline character-

istics and attitudes of the study cohort.

The clinics participating in the study consisted of six City of Houston clinics, nine clinics operated by Planned Parenthood of Houston and Southeast Texas and two university-based family planning clinics. The number and ethnic diversity of patients seen at these clinics were the primary reasons for selecting them, as they were thought to provide an adequate representation of different racial groups and age-groups.

All patients who visited the clinics from October 1993 through September 1994 seeking contraceptive services were potential study participants. The normal procedure for obtaining a contraceptive method in these clinics includes a counseling and educational session, at which time each method and its contraindications are explained to the patient. If a client selected DMPA, the clinic nurse or staff member explained the nature of the study to the woman and invited her to participate. At this session, the participant was asked to complete a self-administered questionnaire. A nurse or other staff member was available to respond to any queries concerning the questionnaire.

In order to examine clients' level of understanding of the questions and the questionnaire's degree of reading difficulty, we conducted a pilot study of 50 women attending the participating clinics prior to initiation of our main study. These women were first asked to complete the questionnaire; it was then readministered to the patient by a clinic nurse, who thoroughly explained and discussed every question with the subject. Using Kappa statistics, we measured the level of reproducibility between the two sets of responses. All study questions had "excellent" reproducibility (Kappa > .84), indicating that the participants understood the study questions clearly.

The questionnaire asked for information regarding the respondents' source of information about DMPA, their reasons for and concerns about selecting this method, their reproductive and contraceptive histories and their plans for future pregnancies. To keep the questionnaire concise, we abstracted demographic and reproductive information from patients' clinic records. Both English and Spanish versions of the

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Table 1. Percentage distribution of new DMPA users and of other patients receiving contraceptive services at participating clinics, by demographic characteristics, Texas, 1993–1994

Characteristic	DMPA users (N=536)	Other users (N=59,532)
Race		
White	25.0	24.1
Black	50.2	51.7
Hispanic	24.4	21.1
Other	0.4	3.1***
Age		
<20	22.4	21.6
20–24	41.0	34.7**
25–29	20.3	18.7
≥30	16.2	25.0***
Marital status		
Unmarried	77.4	36.5***
Married	22.6	63.5***
Total	100.0	100.0

Difference is statistically significant at $p < .01$. *Difference is statistically significant at $p < .001$.

questionnaire were available.

Since DMPA must be administered during the first seven days of the menstrual period, some patients were asked to return to the clinic to receive the injection, while others received it immediately following the counseling session. Participants who selected DMPA during their initial clinic visit and wanted to participate in the study but who did not ultimately adopt the method were asked to complete a second questionnaire upon making their return visit to the clinic. This questionnaire asked about their reasons for not receiving the injection, the method they obtained instead of DMPA, and their future intentions about using the injectable. If a participant failed to return to the clinic, the aforementioned information was obtained by telephone or mail.

Statistical evaluation comparing groups of interest was performed using analysis of variance, Student's *t*-test and the chi-square categorical procedure; *p* values greater than .05 were designated as non-significant. All analyses were performed using SAS System statistical software.

Results

Of the 600 women who had planned to adopt DMPA, 536 (89%) received an injection. The remaining 11% (64 women) elected not to use DMPA despite their initial decision to do so. Among these women, 52 provided information about their reasons for not using this method and their future contraceptive plans; 12 were lost to follow-up—i.e., they never returned to the participating clinic and could not be contacted by telephone or mail.

Demographic Characteristics

Table 1 presents the demographic profile of the new DMPA users and compares them to all other women who received family planning services at the participating clinics during the study period. (This comparison group consists of both new and continuing users of reversible contraceptives.) One-half of the women who accepted the injectable were black (50%); the remainder were mostly either white (25%) or Hispanic (24%). The racial distribution of the study sample was similar to that of other clients at the participating clinics.

However, DMPA recipients appear to differ from other patients at the clinics with respect to age and marital status. Injectable users were significantly more likely than other women to be 20–24 years of age, whereas a smaller percentage were 30 or older ($p < .001$). Furthermore, the majority of women adopting DMPA (77%) were not married at the time of the interview. In contrast, most of the other patients who received contraceptive care at the participating clinics were married (64%), a difference that was statistically significant ($p < .001$).

Information on DMPA users' education and income levels was also obtained (although no such data were available for all users of family planning services). Women who used DMPA averaged 11.9 years of schooling; Hispanic women had significantly less education (10.6 years) than did either blacks or whites (12.2 and 12.5, respectively; $p \leq .001$), but there was no significant difference in educational attainment between black and white participants. With regard to income, a large proportion of the women adopting DMPA earned \$10,000 or less annually (84%), with a mean annual income of \$5,978 for the entire sample. This finding is not surprising, since most study participants received care at public clinics. There was no significant difference in income level by ethnic group.

Reproductive and Contraceptive History

Table 2 displays the reproductive and contraceptive histories of DMPA users. One-fifth of women in the sample had never been pregnant, and one-third had experienced no births. Among women who had been pregnant, the average number of pregnancies was 1.9; those who had given birth had had an average of 1.2 children (not shown). Mean numbers of pregnancies and births varied significantly by race: White women had significantly fewer pregnancies (1.4) than either Hispanic or black women (2.2 and 1.9, respectively, $p \leq .001$). Furthermore, the average number of births was highest among Hispanic women (1.6),

followed by blacks (1.3) and whites (0.8), a statistically significant difference ($p \leq .001$).

One-third of the women who adopted DMPA reported a history of at least one abortion. The mean number of abortions was 0.6 among white women, 0.4 among blacks and 0.5 among Hispanics (not shown). Frequency of abortion was significantly different only between two groups: Black women had had significantly fewer abortions than whites ($p \leq .05$).

A majority (96%) of study participants reported that they had not wanted to become pregnant during the three months prior to their first injection. However, 79 of these women (15%) had not been using a contraceptive. Both black and Hispanic women were less likely to have used a contraceptive method during this time than were whites ($p \leq .05$). Furthermore, women who did not want to become pregnant and had not used a contraceptive were significantly younger than those who had used a method (mean ages of 23.0 and 24.7, respectively, $p \leq .01$). Among the women who

Table 2. Percentage distribution of new users of DMPA, by reproductive and contraceptive characteristics

Characteristic	N	%
No. of pregnancies		
0	99	18.5
1	165	30.8
2	119	22.2
3	80	14.9
≥4	73	13.6
No. of births		
0	173	32.4
1	182	34.1
2	106	19.9
3	46	8.6
≥4	27	5.1
No. of induced abortions		
0	360	67.5
1	117	22.0
≥2	56	10.5
No. of miscarriages		
0	458	85.9
1	62	11.6
≥2	13	2.5
Ever had STD (%)		
No	420	78.4
Yes	116	21.6
Method used previously†		
Pill	210	39.2
Condom	167	31.2
Condom with foam/cream	50	9.3
Withdrawal	31	5.8
Abstinence	18	3.4
Sponge	13	2.4
Rhythm	8	1.5
Foam/cream	8	1.5
IUD	4	0.7
Other	16	3.0
None	79	14.7
Total	536	100.0

†Percentages and numbers add to more than total because respondents could state multiple answers. Note: Ns may not add to total in all cases because of missing data.

Table 3. Percentage of new DMPA users, by source of information about method, according to race and ethnicity (N=536)

Source	Total		White		Black		Hispanic	
	N	%	N	%	N	%	N	%
Friend	225	42.0	54	40.3	122	45.4	49	37.8
Health provider	196	36.6	45	33.6	94	34.9	57	43.5
Family member	85	16.0	18	13.4	45	16.7	22	16.8
Media	56	10.4	26	19.4	20	7.4	10	7.6
Previous user	15	2.8	5	3.8	10	3.7	0	0.0

Note: Percentages add to more than 100%, and Ns add to more than 536, because respondents could state multiple answers.

had practiced contraception just before receiving their injection, the pill was the most commonly used method (by 39%), followed by condoms (31%); the remainder used a variety of other methods (Table 2).

One-third (34%) of the women surveyed indicated they had no desire for more children, while the remainder reported using DMPA for spacing or postponing a pregnancy (not shown). Black women were significantly less likely to say that they wanted a child in the future (58%) than were whites or Hispanics (72% and 77%, respectively, $p \leq .001$). Future desire for children did not vary by marital status.

Source of Information About DMPA

The most frequently reported sources of information about DMPA (Table 3) were friends (42%) and health care providers (37%). Source of information varied significantly by ethnicity and education: White women were significantly more likely to have heard about DMPA through the media than were women from other ethnic groups; likewise, women with some college education were more likely to cite this source (not shown) than were women with less than a high school education ($p \leq .05$).

Reasons for Selecting DMPA

As can be seen in Table 4, more than one-half (58%) of the women said they adopted DMPA because of their dissatisfaction with previous methods, while 42% chose it because they were curious about it. Other commonly reported reasons included convenience (27%) and confidence in the method’s effectiveness (19%). Small proportions said they chose the injectable because of health concerns about other methods or for financial reasons.

Reasons for selecting DMPA varied significantly by socioeconomic status and reproductive characteristics (not shown). White women and those with a higher level of educational attainment were more likely to mention convenience as a reason for selecting DMPA than were blacks and Hispanics or women with less education

($p \leq .001$). However, compared with unmarried women, those who were married at the time of the interview were significantly less likely to use DMPA because of convenience and were more likely to use it because of dissatisfaction with their previous method (both $p \leq .05$).

Furthermore, study participants who elected to use DMPA because of dissatisfaction with previous methods or for health reasons were significantly older than those who cited other reasons ($p \leq .05$). With respect to their reproductive history, women with a higher number of previous pregnancies and births were significantly less likely than others to select DMPA out of curiosity ($p \leq .05$).

Women who obtained the injectable because they were displeased with their previous method were questioned about their underlying source of dissatisfaction. The largest proportion (45%) said it was difficult to remember to use their method—a point mentioned by two-thirds of oral contraceptive users and one-third of users of barrier methods. The study participants also cited such reasons as side effects, an association of the method with health problems, ineffectiveness, messiness, expense and an objection to interrupting sex in order to use it (Table 4).

Pill users were significantly more likely than the other women to have switched to DMPA because they could not remember to use their method ($p \leq .001$). However, barrier method users were significantly more likely than users of other methods to be dissatisfied because of messiness, concerns about effectiveness, their partner’s disapproval of the method and objections to interrupting sex ($p \leq .05$).

Concerns About Use of DMPA

The bottom panel of Table 4 details the types of concerns DMPA users had about the method. A change in their menstrual cycle was the most commonly reported concern, indicated by one-fourth of women who received the injection. Concerns about the method’s effect on future pregnancies and the women’s ability to conceive were mentioned by 17% and 10% of DMPA acceptors, respectively. In addition, a possible hormonal effect and the newness of the method were each cited by about 15% of DMPA users. Nearly one-half (45%) of the women surveyed expressed no concern about the method.

Types of concern about DMPA were examined with respect to demographic characteristics and reproductive histories. Although all of the different types of reservations expressed about the injectable contraceptive were investigated, only those with significant associations are presented in Table 5. Women who indicated concerns about the method’s newness, changes in the menstrual cycle or an effect on future pregnancies or the ability to conceive had significantly fewer pregnancies or births than those who voiced no concern ($p \leq .05$). Furthermore, women who were worried about the effect of DMPA on future pregnancies were significantly more educated than those who were not worried (12.6 years vs. 11.8 years, respectively, $p \leq .01$). Women of different ages and ethnic origins expressed similar types of reservations about DMPA.

Reasons for Not Adopting DMPA

Of the 600 women who initially planned to use DMPA, 64 declined to do so. DMPA users were comparable to nonusers with respect to age (means of 24.3 and 24.1 years), education (means of 11.9 and 11.5 years), number of previous pregnancies (means of 1.9 and 1.7), number of past

Table 4. Percentage of DMPA users, by reasons for selecting DMPA, for their dissatisfaction with previous methods and for concern about DMPA before receiving the injection

Reason	N	%
For selecting DMPA	536	na
Not satisfied with previous methods	312	58.2
Curiosity	224	41.8
Convenience	146	27.2
Confidence in effectiveness	102	19.0
Health reasons	39	7.3
Desire to save money	20	3.7
For dissatisfaction with previous methods	312	na
Difficulty remembering to use	140	44.9
Side effects	47	15.1
Health problems	46	14.7
Ineffectiveness	39	12.5
Messiness	33	10.6
Objection to interrupting sex	30	9.6
Expense	21	6.7
Partner’s objection to its use	19	6.1
For concern about DMPA	536	na
Change in menstrual cycle	135	25.2
Effect on future pregnancies	93	17.4
Hormonal effect	81	15.1
Newness of method	78	14.6
Headache	61	11.4
Effect on future fertility	54	10.1
Possible pain	55	10.3
Ectopic pregnancy	52	9.7
Other side effects†	39	7.1
Weight gain	24	4.5
No concern	240	44.8

†Including hair loss, skin problems, cancer, depression, nausea and osteoporosis. Notes: Percentages and numbers add to more than total because respondents could state multiple answers; na—not applicable.

births (1.2 and 1.1) and number of abortions (0.5 and 0.4). However, the racial distribution differed significantly, with black and Hispanic women more likely to use the method than were whites ($p \leq .05$).

The most frequently cited reasons for not receiving the injection involved the fear of side effects associated with the method, including (but not limited to) bleeding problems (21%), acne or skin problems (21%), abdominal pain (19%) and weight gain (14%).

When women who did not adopt DMPA were asked whether they might choose this contraceptive in the future, the majority (54%) said they would not do so. The rest expressed an interest in trying DMPA at a later time (19%) or were not sure (27%). When the participants were questioned on the method they planned to use instead of DMPA, 37% expected to use oral contraceptives, 23% planned to use condoms alone or in combination with foams or creams and 14% were undecided. The remainder planned to use a variety of other methods.

Discussion and Conclusions

Although DMPA was used by women of various ages and ethnic backgrounds, our study of family planning clinic patients in Texas indicates that DMPA use appears to be more common among young and unmarried women. This observation may have profound implications for the occurrence of unintended pregnancies, in that these have been reported to be highest among teenagers, members of ethnic minorities and the unmarried.⁷ The prevalence of previous induced abortions in our sample (33%)—slightly higher than the level seen in national data (29%)⁸—indicates a high rate of previous unwanted pregnancies. Use of contraceptive methods such as DMPA, in which effectiveness does not depend on an individual's correct and consistent use, may reduce the occurrence of unintended pregnancy in at-risk populations.

An interesting finding of our analysis was the larger proportion of unmarried women among DMPA users than among other family planning patients. Although the younger age distribution of DMPA recipients may explain part of this difference, it probably does not account for the total variance. The underlying reason for this disparity is not clear.

A woman's future childbearing intention (i.e., whether she wants to postpone a birth or totally prevent childbearing) is a strong predictor of method choice. Sterilization has been reported to be the first

choice among women who consider themselves to have completed childbearing, whereas oral contraceptives are selected more frequently by those who do not.⁹ The majority (63%) of DMPA recipients in our study were using the method to delay or postpone a birth; the remainder were seeking termination of fertility. Similar findings (in a comparable population) have been observed among first-time users of the hormonal implant.¹⁰ In contrast, outside the United States, DMPA has been used primarily to terminate childbearing.¹¹ This discrepancy may be explained by the higher age distribution of DMPA users in foreign studies than in our sample. Overall, our findings indicate that although DMPA was employed in our population primarily to space births, it may be an attractive alternative to permanent sterilization for some women.

DMPA has been hypothesized to be ideal for use by teenagers and by specific groups of women, including those who experience problems with other methods.¹² Consistent with these speculations, nearly one-third of DMPA acceptors in our study were 20 years of age or younger, and 10% were younger than 18. In addition, we found that the primary indication for DMPA use was dissatisfaction with previous methods.

An interesting finding was the observation that more than 40% of DMPA acceptors were using the method as a result of curiosity; in contrast, in one study only 7% of implant acceptors cited curiosity about the method as reason for adopting it.¹³ Women may be less likely to try the contraceptive implant out of curiosity because of perceived difficulties associated with implant removal and the method's initial high cost.

One potential limitation of our study is that the majority of participants were seen at public clinics and were, therefore, economically disadvantaged; women of lower socioeconomic status may differ from their more affluent counterparts with respect to their attitudes and beliefs about DMPA. Future research on the extent of DMPA use among women of higher socioeconomic status is needed. A further limitation is that our study was confined to describing the characteristics and attitudes of initial DMPA acceptors in one state. Finally, this study provided a cross-sectional perspective only. To provide public health professionals with the information necessary to determine the actual impact of DMPA on the reproductive lives of American women, investigators will need to explore the reactions of U.S. women over time, including their satisfaction with the method, their experience

Table 5. Means (and standard deviations) for demographic and reproductive characteristics of DMPA users, by whether users expressed concern about the injectable, according to type of concern

Characteristic and concern	Concern	No concern
Change in menstrual cycle	N=135	N=401
Age (in years)	24.3 (6.0)	24.3 (5.8)
Years of education	11.9 (2.9)	11.9 (2.8)
No. of pregnancies	1.6 (1.5)	1.9 (1.6)*
No. of births	1.0 (1.2)	1.3 (1.2)*
No. of induced abortions	0.4 (0.7)	0.5 (0.9)
Future fertility	N=54	N=482
Age (in years)	23.2 (5.5)	24.4 (5.9)
Years of education	12.5 (2.9)	11.9 (2.8)
No. of pregnancies	1.3 (1.3)	1.9 (1.6)*
No. of births	0.7 (0.9)	1.3 (1.2)**
No. of induced abortions	0.5 (0.8)	0.5 (0.8)
Effect on future pregnancy	N=93	N=443
Age (in years)	23.5 (5.4)	24.5 (5.9)
Years of education	12.6 (2.7)	11.8 (2.8)**
No. of pregnancies	1.3 (1.3)	2.0 (1.6)**
No. of births	0.9 (1.2)	1.3 (1.2)**
No. of induced abortions	0.4 (0.7)	0.5 (0.9)
Newness of method	N=78	N=458
Age (in years)	24.8 (5.7)	24.2 (5.9)
Years of education	12.4 (2.8)	11.8 (2.8)
No. of pregnancies	1.7 (1.6)	1.9 (1.6)
No. of births	1.0 (1.1)	1.3 (1.2)*
No. of induced abortions	0.5 (0.8)	0.5 (0.9)

*Difference is statistically significant at $p \leq .05$. **Difference is statistically significant at $p \leq .01$. Note: For those concerns not included here, no statistically significant difference was observed by demographic and reproductive characteristics.

with side effects and their rates of method continuation and failure.

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