MEDICAL PRACTICE

Contemporary Themes

Sexual Behaviour and Contraceptive Practice of Unmarried Female Undergraduates at Aberdeen University

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After the sixth week of the spring term of 1971 the unmarried female undergraduates at Aberdeen University were sent a postal questionnaire about their sexual behaviour and contraceptive practice and 1,552 (90%) replied. Of these, 684 (44%) had experienced intercourse, 486 in the six-week period preceding the study, of whom 46% had had it more than six times in this period. It was found that 86% of the relationships were with fiancés or steady partners.

Only half of the experienced and a quarter of the inexperienced girls thought that contraceptive advice and materials were adequately available. Contraceptives had not been used by 53% of the students on the first occasion that they had intercourse. In the previous six-week period 192 girls had intercourse without using a contraceptive—39% of those having sexual relations. The use of contraceptives increased with the frequency of intercourse and the stability of the relationship. During the previous six weeks 30% of those having intercourse were on the pill, 38% used the sheath, and 26% relied on the safe period or withdrawal as their most frequent method of contraception.

Sixty-five girls had been pregnant in the past, six were pregnant at the time of the survey, and 49 thought that they might be.

The uncertainty and difficulty that are experienced in obtaining contraceptives and the large number of occa-

sions on which they are not used are discussed. Moral and pragmatic aspects of promoting a more effective use are examined and better publicity for the family planning clinics that already exist is urged.

Introduction

In recent years there have been several reports of the increasing incidence of illegitimate pregnancy,¹⁻³ infections of the urogenital tract,^{4 5} and applications for abortion⁶ among students.

Pregnancy, or the fear of pregnancy, in unmarried undergraduates is a threat to their mental health and their ability to pursue their studies and careers.⁷⁻⁹ Large sums of public money are invested in undergraduates and these consequences of sexual intercourse can result in considerable wastage.

Knowledge about the sexual behaviour and contraceptive practice of young people in general and undergraduates in particular is limited. Fujita *et al.*¹⁰ ascribed the lack of information to a reluctance to study behaviour rather than attitudes and a fear of offending parents and authorities. Some work has, however, been reported. Schofield¹¹ found that contraception was infrequently practised by single adolescents despite fears of pregnancy, and Fujita *et al.* indicated that many single college students used inadequate or no contraceptives.

The general purpose of the present study was to obtain epidemiological information about the sexual behaviour and contraceptive practice of the unmarried female undergraduates of Aberdeen University, so that their needs could be identified and the most appropriate medical and social services suggested.

Method

Before the study could be undertaken it was necessary to carry out a painstaking public relations exercise to ensure that a

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number of people representing various bodies in the university were thoroughly appraised of the purposes and intentions of the study, so that their opinions were discovered, their advice was used to advantage, and their good will and co-operation were obtained. The inquiry was conducted by postal questionnaire* sent with an introductory letter.*

In order to distinguish current sexual and contraceptive practice during term time from more distant and necessarily less precise recollections of total sexual experience, a special section of the questionnaire restricted attention to the six-week period immediately preceding its receipt. A period of six weeks rather than a shorter period was chosen arbitrarily in the belief that it would be short enough to be accurately remembered yet long enough to provide a sufficient number of respondents for statistical analysis.

Because of the postal strike the questionnaires were delivered by us and research unit staff and collected in ballot boxes situated in prominent places throughout the university. No identifying mark of any type was placed on the questionnaires or on the return envelopes and there were no means by which any form could be associated with any student. Experience with postal inquiries has shown that in the event of an initial non-response, a follow-up letter enclosing a second questionnaire is effective in securing a worth-while response from those who do not at first reply. In order to be able to do this, yet to have no identifying mark on the questionnaire, a postcard bearing an identifying number was enclosed with the original letter and questionnaire and the students were asked to return it separately, so that the questionnaire would not be sent to them again. The key to the numbered postcards was handed to the clerical staff at the department of obstetrics and gynaecology, who sent out the second round of questionnaires, two weeks later, to those from whom they had received no postcard. The key was then destroyed.

Response

The university administration, using their computer facilities, provided adhesive address labels with the names of the 1,828 unmarried female students on their register. Sixty-nine had no address, 15 referred to persons found to be outside the limits of the survey, and 24 students could not be traced for delivery of a questionnaire at the address given. There was therefore a total possible number of replies of 1,720. Of these, 1,552 (90.2%) were returned properly completed, without evidence of inconsistency, falsification, or frivolity. This good response is attributed to a number of circumstances. Firstly, the survey was timed to take place in the middle of the second term in the academic year when all students are settled in their routine and there is no imminent pressure of examinations. Secondly, though not in any way part of the original plan, the continued presence over several weeks of the ballot boxes in prominent places awaiting the replies may have served as a reminder. Thirdly, the sober and responsible publicity accorded to the project by the student newspaper *Gaudie* and by the local papers, coupled with the letter of introduction, promoted a favourable motivation. None the less it is unlikely that any amount of encouragement on the part of the investigators or anyone else would have achieved this response had there not been a considerable interest and concern among the girls themselves.

Results

NUMBER OF STUDENTS WHO HAVE HAD INTERCOURSE

Of the 1,552 students who answered adequately, 684 (44.0%) had had sexual intercourse and 868 had not. The proportion that had had intercourse increased with age from 33% in the

group aged 18 to 62% in the group aged 22 and over, although the proportion that had had intercourse in the group aged 21 was lower than the proportion in the group aged 20.†

Age has a high correlation with year of study, and the proportion of students who had had intercourse correspondingly increased from 35% in the first year to 58% in the fourth or higher years.

Analysis by faculty showed that 34% of those in the medical faculty had had sexual intercourse compared with 46% in the arts faculty and 43% in the science faculty. The difference between those in medicine and those in other faculties was significant ($\chi^2 = 6.41$, D.F. = 1, $P < 0.02$). This difference is all the more striking because 30% of the medical faculty students are aged 22 or more whereas only 9% of the rest of the students are as old as this.

The distribution of those who had had sexual intercourse by current place of residence ranged from 35% for girls resident in lodgings to 58% of those resident in flats or "other" dwellings (Table I). The difference between those who stayed with parents (or other relatives) and those who lived in flats was significant ($\chi^2 = 17.60$, D.F. = 1, $P < 0.001$). The differences between the dwellers in lodgings, halls, and with parents were not significant.

TABLE I—Percentage of Each Residential Group who had had Sexual Intercourse ($n = 1,552$)

Lodgings	35.1	Parents or relatives	41.9
Halls of residence	37.1	Flats, etc.	57.7

Three girls gave no place of residence.

RECENTY AND FREQUENCY OF INTERCOURSE

Of the 684 students who had had intercourse, 486 (71%) had had it more recently than six weeks ago, 163 (24%) between six weeks and one year, and 35 (5%) more than one year ago. There was no significant variation in recency with age, nor by faculty, residence, age at first intercourse, or year of study.

Of the 486 students who had had intercourse in the previous six weeks, 70 (14%) had had it only once in this period and 124 (26%) had had it more than 12 times (Table II). The proportion who had had intercourse more than six times in the period was around 46% for each of the groups aged 18, 19, and 20, but decreased to 35% for those aged 21 and then increased to 53% for those aged 22 and over. Of the students whose first intercourse was experienced under the age of 18 35% had had intercourse more often than 12 times in the previous six weeks compared with 22% of those whose first experience was at 18 or over. This difference was significant ($\chi^2 = 7.84$, D.F. = 1, $P < 0.01$). Of those resident in flats 56% had had intercourse more than six times in the six-week period, for dwellers in a hall of residence this proportion was 50%, and for those resident with parents or other relatives and for those in lodgings it was 32%. The difference in distribution between the first two types of residence taken together and the second two types was significant ($\chi^2 = 27.33$, D.F. = 4, $P < 0.001$). There was little difference in the distribution of frequency by faculty.

TABLE II—Those who had had Intercourse in Previous Six Weeks ($n = 486$). Percentage Distribution of Frequency of Intercourse

Frequency	1	2	3-6	7-12	>12
%	14.4	12.1	27.1	20.8	25.5

The sexual partners of the students who had had intercourse in the previous six weeks were fiancé in 33%, steady partner in 53%, new but serious partner in 6%, a single casual partner in 4%, and more than one partner in 4%. There was little differ-

* A copy of the questionnaire and the introductory letter will be sent on request.

† This anomaly is thought to occur because the university offers three-year ordinary degree courses and four-year honours courses. A large number of girls leave between the ages of 20 and 21 after the three-year course. It is postulated that many of those leaving would soon marry and would be the more sexually active proportion of the group aged 20.

ence in frequency of intercourse between the students whose partners were a fiancé or a steady boy-friend but there was a considerable difference between these two groups taken together, 50% of whom had had intercourse seven or more times in the six-week period, and those with all other sorts of partner taken as a single group, of whom only 25% were having intercourse so often (Table III). This difference was significant ($\chi^2 = 26.76$, D.F. = 4, $P < 0.001$).

TABLE III—Those who had had Intercourse in Previous Six Weeks ($n = 486$). Percentage Distribution of Frequency of Intercourse by Partner

Partner	Frequency of Intercourse		Total
	1-6	7+	
Fiancé	52	48	100
Steady	49	51	100
Other	75	25	100

AVAILABILITY OF CONTRACEPTIVE ADVICE AND MATERIALS

As might be expected there was a considerable difference in the distribution of opinion between the group that had experienced intercourse and the group that had not. Half of the experienced girls thought that the availability was adequate, whereas 58% of the inexperienced stated that they did not know (Table IV).

TABLE IV—Opinion on Adequacy of Available Contraceptive Advice and Materials. Percentage Distribution by Sexual Experience

Opinion of Availability	Experienced ($n = 684$)	Not Experienced ($n = 868$)
Adequately available	50	24
Not adequately available	26	17
Don't know	25	58
	101	99*

*Three girls made no answer.

Of those who had had intercourse, 421 were registered with the Student Health Service and 238 were registered with a local general practitioner. About half in each group thought that their contraceptive needs were adequately met. Of those registered with the Student Health Service 22% were positively dissatisfied with the contraceptive service available to them compared with 31% who were registered with local general practitioners. The rest did not know. The difference between these two distributions of opinion was significant ($\chi^2 = 6.88$, D.F. = 2, $P < 0.05$). Regardless of where these experienced students were registered, there was an increase with age in the proportion who felt the availability of contraceptives to be adequate, from 35% of those aged 18 to 62% of those aged 22 or over (Table V). This increase was hardly apparent among the inexperienced.

TABLE V—Opinion on Adequacy of Available Contraceptive Advice and Materials. Percentage who Thought it Adequate by Age and Experience ($n = 1,552$)

Age:	18	19	20	21	22+
Experienced ..	35	41	59	53	62
Not experienced ..	23	19*	31*	27	32

*One girl aged 19 and two aged 20 made no answer.

As regards the relationship of faculty to the opinion on availability, it was found that 67% of experienced medical students under age 22 thought that it was adequate, whereas only 48% of students in the other faculties were of this opinion ($\chi^2 = 4.46$, D.F. = 1, $P < 0.05$). There was no such difference between faculties for the inexperienced.

EXTENT OF USE OF CONTRACEPTION

On their first experience of intercourse 47% of the students used a contraceptive. On their latest occasion of intercourse 66%

had taken this precaution. The increase was significant ($\chi^2 = 96.25$, D.F. = 1, $P < 0.001$). There were no significant differences on either the first or latest occasions between faculties.

At First Intercourse.—At the age of 16 or earlier only 25% used a contraceptive on their first experience of intercourse; this proportion increased to 34% at the age of 17 and to 49% at the age of 18 but thereafter was steady at around 55%. The difference between contraceptive use at first intercourse of those who were 17 and those who were 18 was significant ($\chi^2 = 7.58$, D.F. = 1, $P < 0.01$).

At Latest Intercourse.—The time that had elapsed since first intercourse made little difference to the use of contraception on the latest occasion, but the more recent this latest occasion was, the higher was the proportion using contraceptives: 68% of students who had had intercourse in the previous three months had taken precautions compared with 60% of those whose last intercourse was three months to a year past and 34% whose last intercourse was more than a year ago ($\chi^2 = 16.87$, D.F. = 2, $P < 0.001$).

At Intercourse in Previous Six Weeks.—Of the students who had had intercourse only once in the previous six weeks, 40% did not use a contraceptive on that occasion. Of the group who had had intercourse on more than 12 occasions, only 24% used no contraceptive on one or more of these occasions. Only a little over half of those who had intercourse up to 12 times used contraceptives on every occasion (Table VI). The difference in frequency of contraceptive use between those who had inter-

TABLE VI—Those who had had Intercourse in Previous Six Weeks ($n = 486$). Percentage of Occasions on which a Contraceptive was used by Frequency of Intercourse

Use of Contraceptive	Frequency of Intercourse		
	1-2 ($n = 128$)	3-12 ($n = 231$)	>12 ($n = 123$)
Never	39	19	15
Sometimes	4	28	9
Always	57	53	76
	100	100	100

Four students made no answer and are excluded.

course 3 to 12 times and those who had it more than 12 times in the last six weeks was significant ($\chi^2 = 21.27$, D.F. = 2, $P < 0.001$). The number of girls who did not use a contraceptive on one or more occasions during the six-week period was 192 and the number of occasions on which intercourse took place in this period, without a contraceptive being used, was 701 at the lowest possible estimate.

The more established the relationships the greater was the proportion of occasions on which a contraceptive was employed. Of students who had had intercourse with their fiancés during the six-week period 70% used a contraceptive on all occasions; for the students with a "steady partner" this percentage was 59 and for those with "other" partners only 39% used a contraceptive on all occasions. The difference in the proportion of occasions on which contraception was always used between the "fiancé" group and the "steady partner" group was significant ($\chi^2 = 4.49$, D.F. = 1, $P < 0.05$), as was the difference between the "steady partner" group and the "other" group ($\chi^2 = 7.80$, D.F. = 1, $P < 0.01$).

TYPE OF CONTRACEPTION

The Pill

Of the 684 students who had had intercourse, 186 (27%) were on the pill at the time of completing the questionnaire. None was fitted with an intrauterine device. The proportion on the pill

increased with age from 22% of those aged 18 or less to 38% of those aged 22 or more. The proportion on the pill aged 21 was, however, only 17%.

There were considerable differences in the use of the pill according to where the students were living; only 10% of lodgings dwellers were on the pill compared with 22% of those living with parents or other relatives, 28% of hall dwellers, and 36% of students living in flats or other dwellings. The difference between those living in lodgings and with parents was significant ($\chi^2 = 4.75$, D.F. = 1, $P < 0.05$) as was the difference between those living with parents and those in flats ($\chi^2 = 6.92$, D.F. = 1, $P < 0.01$).

There were no significant differences between the faculties nor between the Student Health Service and local general practitioners as regards the proportion of their students on the pill.

Of the 186 students on the pill, 146 (78%) considered that contraceptive advice and materials were adequately available to them in Aberdeen, but 26 (14%) considered that they were not. Of the group who had had intercourse but were not on the pill 39% thought that contraceptive advice and materials were adequately available, 30% thought not, and 31% did not know.

Type of Contraception Used in Previous Six Weeks

The methods of contraception used over the previous six weeks by the 486 students concerned could be arranged into three main groups: those on the pill (30%), those using the sheath with or without other methods (38%), and those relying on withdrawal and/or the safe period (26%); 2% used other forms and 3% used no form of contraception (Table VII). Although

TABLE VII—Those who had had Intercourse in Previous Six Weeks ($n = 486$). Most Frequent Methods of Contraception Practised

Most Frequent Method of Contraception	No.	%
Pill	148	30
Sheath	185	38
Withdrawal/safe period	127	26
Other/ not known/ none	26	5
Total	486	99

186 students were on the pill at the time of completing the questionnaire, 17 had not had intercourse in the previous six weeks and a further 21 had not taken the pill during this period. The methods most frequently used by these 21 were the sheath (9 girls), withdrawal or safe period (11 girls), and a chemical (1 girl).

There was a considerable difference in frequency of intercourse between the girls on the pill, 74% of whom had had intercourse seven or more times in the previous six weeks, and the group using the sheath or those using withdrawal and/or safe period, of whom 33% and 36% respectively had intercourse on seven or more occasions in the period (Table VIII). This difference was significant ($\chi^2 = 60.85$, D.F. = 1, $P < 0.001$).

TABLE VIII—Those who had had Intercourse in Previous Six Weeks ($n = 486$). Percentage Distribution of Frequency of Intercourse by Contraception most Frequently Practised

Most Frequent Method of Contraception	Frequency of Intercourse		Total
	1-6	7+	
Pill	26	74	100
Sheath	67	33	100
Withdrawal/safe period	64	36	100
Other/not known/ none	65	35	100

Of the 159 girls who had had intercourse with their fiancés in the previous six weeks 37% were on the pill and a further 37% used the sheath either alone or in conjunction with some other method; the corresponding proportions for those who had

TABLE IX—Those who had had Intercourse in Previous Six Weeks ($n = 486$). Percentage Distribution of Type of Contraception most Frequently Practised by Type of Partner

Most Frequent Method of Contraception	Fiancé ($n = 159$)	Steady ($n = 256$)	Other ($n = 71$)
Pill	37	29	21
Sheath	37	39	37
Withdrawal/safe period	21	28	31
Other/not known/none	5	4	11
Total	100	100	100

had intercourse with a steady partner were 29% and 39% respectively (Table IX). The difference between the "fiancé" group and the "other" group, for whom the corresponding proportions were 21% and 37%, was significant ($\chi^2 = 8.21$, D.F. = 2, $P < 0.02$).

The distribution of the most frequent method of contraception practised by the approximate proportion of occasions on which a contraceptive was used is given in Table X. For the group of 112 who practically never used a contraceptive 12% took no precautions at all, 87% relied on the safe period and/or withdrawal, and one girl occasionally used the sheath or some other method. Of the group of 80 who used a contraceptive on one-quarter to three-quarters of occasions, 79% used the sheath as their most frequent type of contraception and 18% used the safe period and/or withdrawal. For the group who nearly always used a contraceptive 51% were on the pill, a further 41% used the sheath, but 5% gave the safe period/withdrawal as their most frequent contraceptive. This group, which comprised 14 girls, contained five who had made comments on the questionnaire. It was clear from these comments that they definitely used the methods stated and used them rigorously; all but one of the 14 had also answered that "a contraceptive" had been used on the "last occasion of intercourse." It seems that these 14 girls have redefined the terms of the question. One third of the group whose most frequent form of contraception was the sheath did not always use it (Table X).

TABLE X—Those who had had Intercourse in Previous Six Weeks ($n = 486$). Distribution of Most Frequent Method of Contraception Practised by Approximate Proportion of Occasions on which a Contraceptive was Used

Most Frequent Method of Contraception	Approximate Proportion of Occasions on which a Contraceptive was Used				
	None	¼ to ¾	All	Not Known	Total
Pill	—	—	148	—	148
Sheath	1	63	120	1	185
Safe period/withdrawal	97	14	14	2	127
Other	1	2	6	1	10
None	13	—	—	—	13
Not known	—	1	2	—	3
Total	112	80	290	4	486

The reasons why 208 students did not "always" use the pill, sheath, or some other contraceptive that has to be obtained in advance are given in Table XI. Of the 203 girls who gave answers, 80% relied on the safe period and/or withdrawal to protect them from conception. Only five girls did not approve of contracep-

TABLE XI—Those who had had Intercourse in Previous Six Weeks ($n = 486$). Why a Contraceptive was not Always Used*

Reason for Not Using a Contraceptive	Using Safe Period/Withdrawal	Not Using Safe Period/Withdrawal
Do not approve of contraception	5	—
Not worried if become pregnant	6	1
Not anticipating intercourse	25	20
Had contraceptive but did not use it	9	2
No contraceptive obtained through fear, embarrassment, or ignorance	32	10
Other	4	7
No other reason	82	5
Total	163	45

*Multiple reasons have been reduced to "person-reason" equivalents.

tion and seven would not be unduly worried if they were to become pregnant. On one or more occasions of intercourse 45 students had not anticipated that intercourse would take place and 11 had had a contraceptive but failed to use it. With regard to obtaining contraception, 42 either did not know how to set about it or were too embarrassed to take practical steps or afraid that their doctor would disapprove.

REQUESTS TO DOCTORS FOR CONTRACEPTIVE ADVICE

Of the 684 girls who had had intercourse 211 (31%) had asked the doctor with whom they were registered for some form of contraceptive in the previous year. Of these, 75% thought that contraceptive advice and materials were adequately available in Aberdeen but only 42% of those who had not asked were of this opinion ($\chi^2 = 50.94$, D.F. = 1, $P < 0.001$). There were no significant differences in the distribution of opinion between the students registered with the Student Health Service and those registered with local general practitioners either for the group who asked for contraceptives or for the group who did not. Neither was there any difference in the proportion of students who had asked for a contraceptive between the two registration groups.

Of the group of 206 who had received a contraceptive from any doctor in the last year, 74% thought that they received sufficient information about use or problems which may arise and 26% thought that they had not.

PREGNANCY

Six girls stated that they were pregnant (0.4% of respondents to questionnaire), 49 thought they might be pregnant, 65 said that they had been pregnant in the past, 552 had never been pregnant, and 14 made no answer.

If they were pregnant or were to become pregnant under the present circumstances, 75% of those engaged would wish to marry and 14% to obtain a legal abortion (Table XII). For those with steady partners the proportions were 36% and 43% respectively and for other partners, 7% and 66%.

The outcome of the pregnancy for the 65 girls who had been pregnant in the past was a legal abortion for 40, natural abortion for 12, and "other abortion" for three; six girls had their baby adopted and one remained single and kept the baby, three made no reply. In their circumstances at the time of the survey 20 of the 40 (50%) who had had a legal abortion would have a second legal abortion and 12 (30%) would wish to get married. The distribution of sexual partner for the group of 43 girls who had been pregnant in the past and had had intercourse in the previous six weeks was similar to the general distribution.

TABLE XII—Those who had had Intercourse in Previous Six Weeks ($n = 486$). Preferred Outcome of a Pregnancy by Partner

Preferred Outcome of Pregnancy	Percentage		
	Fiancé ($n = 159$)	Steady ($n = 256$)	Other ($n = 71$)
Marry	75	36	7
Legal abortion	14	43	66
Other	6	12	11
Uncertain	4	9	16
Total	99	100	100

Of the 55 girls who were pregnant or thought that they might be pregnant at the time of the survey 53 had had intercourse in the previous six weeks. The sexual partner was their fiancé in the case of eight girls (5% of those engaged), steady partner in the case of 29 (11% of those with steady partners), and some other type of partner for the remaining 16 (23% of those with other partners). The difference in distribution of sexual partners

between this group and the rest was significant ($\chi^2 = 15.57$, D.F. = 2, $P < 0.001$).

As regards the girls who had had intercourse in the previous six weeks, the types of contraceptive used by the 53 who were or might have been pregnant were the pill (4%) and sheath or cap (34%). The proportions using these forms of contraception were significantly lower than the remainder of the girls ($\chi^2 = 29.14$, D.F. = 1, $P < 0.001$). The types used by the 43 girls who had been pregnant in the past were the pill (60%) and the sheath or cap (19%). The proportion using the pill was significantly higher than for the remainder of the girls ($\chi^2 = 14.79$, D.F. = 1, $P < 0.001$) (Table XIII).

TABLE XIII—Those who had had Intercourse in Previous Six Weeks ($n = 486$). Most Frequent Method of Contraception Practised by Experience of Pregnancy

Most Frequent Method of Contraception	Percentage		
	Previously Pregnant ($n = 43$)*	Not Pregnant ($n = 392$)	Now Pregnant or Possibly So ($n = 53$)*
Pill	60	31	4
Sheath	16	41	34
Withdrawal/safe period	16	24	47
Other/not known/none	7	4	15
Total	99	100	100

*Two girls were both previously pregnant and are now either pregnant or possibly so.

As would be expected, the group who had been pregnant were in general older than the total group who had had intercourse, 72% being aged 20 or over compared with 57% for the total group ($\chi^2 = 4.85$, D.F. = 1, $P < 0.02$). There was no difference in age-structure for the group of girls who thought that they were or might be pregnant. There were no significant differences in place of residence between either of these two groups and the remainder.

RESPONDENTS' COMMENTS

Of 255 girls who added their comments and opinions all but three were in a serious vein. In over a hundred of the replies the main content was concerned with a more detailed description of personal experience, attitudes, and moral beliefs. The opportunity to give vent to these topics would seem to have been welcomed. Many of the replies contained pleas for improved arrangements for obtaining contraceptive advice and criticisms of the present facilities. Persistently recurring themes were: there is a need for more guidance and advice about contraception, venereal disease, and abortion, and a need felt by many for clear and reliable information on these subjects with the means of access to it well publicized.

These themes found their logical end-point in the advocacy of positive steps to promote contraception. Posters in the union and leaflets in the lavatories, not omitting the addresses of the clinics, were suggested, as was the use of the psycho-sexual talk at the beginning of session as a means of conveying practical information about where and how to get the pill. Some felt the need for special facilities for students where contraceptives could be obtained regardless of where the student was registered and without the need for a letter of introduction. Many felt strongly that they had suffered a moral interrogation when they had sought contraceptives and that this was totally out of place. Many more pointed out the inhibiting and often insuperable block which a local girl may feel to consulting her general practitioner, if he is the family friend. Family Planning Clinics were largely found to be sympathetic and helpful but the need for a referral letter was deplored.

Discussion

The proportion of unmarried undergraduates in Aberdeen who are sexually experienced at present is substantial, but not

necessarily greater than the proportions reported from other areas, since they refer to practices and situations that obtained a few years ago. Schofield,¹¹ who studied a random sample of 939 unmarried teenage girls from seven areas in England in 1964, reported that among those who had reached the age of 18, 17% had experienced intercourse, whereas the rate of experience of those aged 18 in the present study was 33%. Fujita *et al.*¹⁰ found that in 1968 30% of 283 female college students from an American university of average age 19.9 years had had sexual intercourse, and Barták and Mellan¹² reported that at the age of 18 31% of female university students at Prague had experienced intercourse. Their data were derived from a questionnaire survey in 1966-7.

In the present study it was found that much of the sexual activity was confined to established relationships, at least in the eyes of the girls. Promiscuity, in the sense of relationships with more than one person over a short period, was rare (only 19 girls). Others have reported similar findings.^{11 13 14} The implications of current student sexual practice therefore are probably less serious for the spread of venereal disease than for unwanted pregnancy.

Many were naive and unsophisticated about contraception. Over half of those without experience did not know whether contraceptive advice was adequately available. A proportion of them no doubt do not intend to have sexual intercourse and therefore have not wanted to find out about obtaining contraceptives, but intentions are not always fulfilled, since in the recent six-week period a number of girls had intercourse without a contraceptive because they were not expecting such a relationship. Over a quarter of the girls who had obtained a contraceptive from a doctor in the last year felt that they had not received sufficient information about its use or about the snags that might arise. The younger the girls were, the less did they feel that contraceptive advice and materials were adequately available. Although a medical training might be imagined to provide more *savoir faire* with regard to the obtaining of contraceptives, almost as high a proportion of inexperienced medical students were doubtful about local facilities as other inexperienced students. All these findings suggest a need for a better dissemination of knowledge, especially at an early stage of university life.

A disquieting amount of intercourse took place without the use of any contraceptive. Notwithstanding the remote possibility of thromboembolism or hypothetical long-term hazards, the pill seems to be the only really reliable contraceptive available to single women at the moment. Mechanical contraception cannot fail to take something from the spontaneous enjoyment of the sexual act, though probably far less than the practice of withdrawal. Hence these methods are likely to be omitted on some occasions. There seem also to be a few people who feel that intercourse loses something without the "sporting" chance of a pregnancy, even though a pregnancy is not in itself wanted, but the girls who had been pregnant in the past were now the most careful with their contraception. This suggests that ignorance more often lay behind their illegitimate conception than a persistent irresponsibility which experience could not change.

If so much ignorance exists about contraceptives, and if they are used so ineffectively among university undergraduates, how much more are they a closed book to less privileged young women?

PROVISION OF ADVICE AND PRACTICAL HELP

The Student Health Service and many general practitioners have supplied a contraceptive service which has satisfied some, especially the older and experienced girls, but others have been discouraged from taking precautions by the present arrangements. It is obvious that a better service for the provision of advice and practical help in the whole area of sexual function could be mounted, but unanimity does not exist that this is desirable. Some believe that premarital sexual intercourse is immoral, that fear of pregnancy is a legitimate dis-

couragement, and that contraceptives should not therefore be made easy to obtain.

These are not our views. We feel that, provided a girl is over the age of consent, the decision to have intercourse is a personal and private one and that it is unwarranted to allow a girl to suffer a conflict between fear of pregnancy and her emotional and biological drives in order to press personal moral beliefs. A doctor has a right to express his own attitudes and a duty to acquaint his patient with the relative risks of having intercourse, of pregnancy, and of the various methods of contraception, but if the patient, with these insights, wants a contraceptive the doctor should see that she is provided with the most appropriate form available.

Morals apart, it is necessary also to take a pragmatic view. On the whole, society seems to be moving towards a more permissive stance. Legislation in 1968 has liberalized the abortion laws. Women are gradually obtaining a social status equal with men and want the chance to bear children if and when it suits their other aspirations. At the same time many of these women want freer sexual relationships.

The present findings suggest that there are many girls with high sexual drive and liberal moral attitudes. It is unlikely that they will be much influenced by moral exhortations from people of a generation with which they cannot identify and whom they may not greatly respect. For such girls sound knowledge about contraception, and easy access to it, would seem to offer the best chance for their good function in today's society. A service setting out to provide these things should be directly approachable without any letter of introduction from a doctor. It should be available to anybody regardless of marital status, sex, or where they may be registered for general medical care. It should be scrupulously confidential and morally uncommitted, it should provide information about sex, pregnancy, venereal diseases, contraception, and abortion. There should be opportunity for full discussion of individual problems and a chance to report any emerging difficulties or untoward effects at a later date. All aspects of this service should be financed from public funds. It would be totally anachronistic to discriminate against less wealthy members of the community in these matters.

So far as students are concerned they should have an opportunity to take part in discussion with the professional staff of this special service at the very outset of their university careers so that the apprehension, embarrassment, and uncertainty which obviously inhibit some students from obtaining a contraceptive could be dispelled.

The Family Planning Clinics, which in Aberdeen are financed by the local authority, are already providing a sophisticated service to all comers along the lines suggested, but it is evident that far too few people know this. Small wonder, for there is no entry in the local telephone directory under family planning, contraception, or birth control. How are people meant to find out? Financial resources and advertising expertise should be used to make this facility known, and not least important is to publicize addresses, telephone numbers, and consulting hours. If this were done an increasing demand on the service could be anticipated and its further development would then be required.

Withholding knowledge is a well-tried expedient of those who fear opposition to their opinions or to their establishments. An example germane to the present topic can be found in American history when at the end of the last century through the Comstock Laws all literature or information about birth control was fanatically suppressed. It is to be hoped that in this country today the examples of such methods, which still linger, will be recognized and swept away.

Conclusions

Nearly a third of all unmarried female undergraduates had had sexual intercourse during the six weeks before the inquiry and nearly a half of these girls were having it more than once a

week. It must therefore be accepted that sexual intercourse is a common practice in this group of girls. Much of this sexual activity goes on with ineffective and intermittent contraceptive precautions. The failures to use contraceptives competently are all too often due to ignorance, embarrassment, fear of medical disapproval, and unpreparedness.

It is apparent from the large and forthcoming response to this inquiry that the present generation of students are very willing to discuss sexual topics at a serious level with anyone who shows concern or interest. Many are aware of the deficiencies in their knowledge and practice of contraception and want to remedy them.

The climate is ripe for giving unashamed publicity to the contraceptive services available and for their growth and development to meet a rising demand.

The study evolved from an idea of a final-year medical student, Miss Helen Taylor (now Dr. Helen Kirk) who was a partner with us in the planning and field work of the study.

We are grateful to the Mental Health Research Unit staff for much technical help; to Mrs. Linda Wilson for her innovative ideas; to Mr. Leslie Butler, the Editor of *Gaudie*, for his article urging co-operation with the study; to the president and past-president of the students' representative council and the senior members of the university who assisted in launching the project;

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References

- ¹ Finlay, S. E., Proceedings of the British Student Health Association, 1962.
- ² Finlay, S. E., Proceedings of the British Student Health Association, 1965.
- ³ Brown, J. B., Proceedings of the British Student Health Association, 1965.
- ⁴ Catterall, D., Proceedings of the British Student Health Association, 1962.
- ⁵ Gifford, P. W. W., Proceedings of the British Student Health Association, 1966.
- ⁶ Aitken-Swan, J., in *Experience with Abortion: a Case Study of North-East Scotland*, ed. G. W. Horobin. London, Cambridge University Press, 1972. In press.
- ⁷ Kidd, C. B., Giel, R., and Brown, J. B., Proceedings of the British Student Health Association, 1964.
- ⁸ Giel, R., and Kidd, C. B., *British Journal of Psychiatry*, 1965, 111, 591.
- ⁹ Pearman, C., Proceedings of the British Student Health Association, 1965.
- ¹⁰ Fujita, B. N., Wagner, N. N., and Pion, R. J., *American Journal of Obstetrics and Gynecology*, 1971, 109, 787.
- ¹¹ Schofield, M., *The Sexual Behaviour of Young People*. London, Longmans, Green, 1965.
- ¹² Barták, V., and Mellan, J., *Časopis Lékařů Českých*, 1970, 109, 604. Reported in *Archives of Sexual Behaviour*, 1971, 1, 181.
- ¹³ Lambert, J., *British Medical Journal*, 1971, 4, 156.
- ¹⁴ Newton, J., Elias, J., and Newton, P., *British Medical Journal*, 1971, 2, 642.

Clinical Problems

Rehabilitation after Cardiac Illness

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Summary

Though the total number of patients with cardiac illness referred to a work classification clinic was relatively small (57), the results obtained in terms of patients at work in the year after assessment is encouraging. It is suggested that a comparatively simple method can help in the rehabilitation of patients, often by removing minor anxieties, and by improving communication among the various agencies interested in the welfare and employment of the individual patient.

Introduction

It has become increasingly recognized that rehabilitation is an important aspect of the management of patients with cardiac disease. This is especially so in cases of coronary artery disease, where the onset is often sudden and dramatic, compared with other types of heart disease where the progression of symptoms is more gradual. Recent reports on coronary artery disease¹⁻³ suggest that 80% of survivors who are fit enough will return to

work within about six months of myocardial infarction. Most of these will return to their previous occupation perhaps with some minor alteration. This, however, leaves a formidable residue of patients who do not return to work for a variety of reasons, and it may be that six months is in general excessively long before returning to work.

Much of the pioneer work in attempts to elucidate this problem has been done by Hellerstein and Ford⁴ and by Goble, Adey, and Bullen.⁵ They have made use of the work classification clinic principle, where representatives of the disciplines concerned can interview, examine, assess, and discuss patients with cardiac illness and employ measures to help with their problem.

In March 1969 a work classification clinic was established at the Southern General Hospital, Glasgow, as part of the cardiological service of the hospital. This paper describes experience with the patients referred during the first year of the clinic's existence. Staffing consists of a physician with a special cardiological interest, a psychiatrist interested in the psychological aspects of cardiac illness, a medical social worker, and a disablement resettlement officer representing the local office of the Department of Employment. The resources of the hospital including radiological, electrocardiographic, psychological, and secretarial services are available and a liaison exists with the local industrial rehabilitation unit.

Method

Referrals to the clinic were sought from the cardiologists and all the consultant physicians in the hospital. They were invited to

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