

Teenage sexual intercourse and pregnancy

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SUMMARY One hundred and one pregnant girls aged under 18 years were interviewed to collect information about the development of their sexual awareness, attitudes towards relationships, and about their social context. The data show that the girls were likely to come from homes where the parents were divorced, where the mother married when she was under 21 years of age, and where her first child was conceived out of wedlock. Altogether 76 of these pregnant girls first had intercourse before they were 16 years old. The younger the girl at first intercourse the sooner it occurred in the relationship and for almost half of the girls first intercourse was unplanned. Although almost half used contraception on the first occasion, only one third of the girls used contraceptives regularly. Most expressed the wish that they had delayed intercourse until they were older.

In 1984 in England and Wales there were just under 10 000 conceptions to girls under 16 years of age, of which roughly half were terminated. The conception rate fell in the late 1970s but rose again so that by 1984 (8.4 per 1000) it had almost reached the 1974 level (8.5 per 1000).¹ Girls who continue with their pregnancy are at increased risk of hypertension and eclampsia, and the perinatal mortality is highest among girls under 16 years of age.² Teenage mothering also carries risks for the offspring including a high infant mortality rate^{2 3} and increased morbidity in terms of hospital admissions, trauma, and school performance.^{4 5} Young mothers often suffer educational deprivation, social isolation, and financial hardship. Those girls who have their pregnancy terminated are able to continue with their education, but there is a risk of cervical incompetence after termination particularly when performed on young teenage girls.^{2 6 7} Termination may adversely affect the outcome of future pregnancies and can also have appreciable psychological consequences for the girl.^{7 8}

Cervical carcinoma, which is increasing in incidence and presenting at a younger age, is directly linked to the age of first intercourse and to the number of partners,² and the spread of infection by human immunodeficiency virus (HIV) is also linked to the number of sexual partners. These medical problems emphasise the risks associated with teenage intercourse, particularly if with a number of

partners, in addition to the risks of the pregnancy itself.

Sex education has increasingly been included in the school curriculum and in some schools there has been a growth in social education with an emphasis upon personal relationships and social skills. Reid has stated that 'the aims of sex education and related courses for the 14-16 age group may well include the prevention of unwanted pregnancies. However, this is often neither explicit or even uppermost in teachers' minds.'⁹ School sex education curricula may not emphasise responsibilities associated with close relationships or the possibility of delaying first intercourse. Despite the considerable adverse effects of pregnancy on both the girl and any offspring few data are available, in the United Kingdom, on the circumstances of teenage sexual intercourse and conception. Three studies have reported the sociological aspects of teenage pregnancy as seen in large multiracial urban conurbations.¹⁰⁻¹²

This study was undertaken in a health district containing a small city and which has a stable indigenous and semirural population. The study has provided data, unbiased by major religious or ethnic differences, on the family background of young pregnant teenage girls, their relationships with the opposite sex, and the knowledge that they gained from sex education. Behavioural and educational aspects were of particular interest in the study in order to identify important areas for sex education

programmes and to inform professionals concerned in the care of children about the context of sexual activity in teenagers.

This study was approved by the district ethical committee.

Methods

All pregnant girls under 18 years admitted to hospital were identified either from the delivery record book on the labour ward or by the nursing staff on the postnatal and gynaecological wards. Altogether 108 girls were selected on the basis of the availability of the interviewer, and they are representative of all such admissions. Sixty six had delivered a baby and 42 had had a termination; however, seven of those who had had a termination refused to be interviewed.

Thirty six primagravidae, aged between 20–25 years, were also interviewed as a comparison population of girls who had not become pregnant before the age of 20. The girls were interviewed privately (for roughly one to two hours) while in hospital by the same interviewer (HAC).

Each interview was conducted using a questionnaire but with an opportunity for open discussion and verbatim responses, which were encoded subsequently. The areas on which there were detailed questions included the girl's family background, her school background, degree of parental supervision, sex education received from home, school, and friends, personal relationships, and factors surrounding first intercourse and the pregnancy itself.

There were four discussion sections. The first on

how sex education in schools could be improved, the second concerned the way the girl saw her future, the third information she wished she had received, and the fourth what advice she would give to a younger sibling or friend.

To assess the significance of factors in the various tables presented, contingency-table analysis and log-linear modelling were used. These analyses provided the χ^2 values from which the significant *p* values were obtained.

Statistical Discriminant Analysis was used to identify the important demographic factors that best distinguished between the study and comparison groups (for the mathematical and statistical details of the technique see, for example, Johnson and Wichern¹³). The particular method used entailed a stepwise procedure in which only those variables contributing significantly to the discrimination were included in the estimated discriminant function.

Results

Out of the 101 girls interviewed 13 had already experienced pregnancy, five of these had ended in termination, one in a miscarriage, and seven had delivered a baby. Forty one of the study group had conceived before their 16th birthday.

FAMILY BACKGROUND

Table 1 shows that the social class distribution (based upon the Registrar General's Classification of the girl's father's occupation) was similar in both the study and the comparison group. In particular, in the study group, there was no evidence of bias towards the lower social classes. A comparison of

Table 1 *Family background of girls studied*

	Study group No (%)			Comparison group No (%)
	Delivery	Termination	Total	
No from families with ≥ 3 children	<i>n</i> =64 27 (42)	<i>n</i> =34 11 (32)	<i>n</i> =98 38 (39)	<i>n</i> =35 12 (34)
Social class:	<i>n</i> =61	<i>n</i> =35	<i>n</i> =96	<i>n</i> =36
Ia, II	8 (13)	15 (43)	23 (24)	5 (14)
III non-manual	7 (11)	5 (14)	12 (13)	4 (11)
III manual	19 (31)	8 (23)	27 (28)	14 (39)
IV, V	7 (11)	1 (3)	8 (8)	3 (8)
Unemployed	6 (10)	3 (9)	9 (9)	3 (8)
Unclassified	14 (23)	3 (9)	17 (18)	7 (19)
Parents divorced	<i>n</i> =66 32 (48)	<i>n</i> =35 14 (40)	<i>n</i> =101 46 (46)	<i>n</i> =36 9 (25)
Mother married when under 21 years	<i>n</i> =60 45 (75)	<i>n</i> =34 18 (53)	<i>n</i> =94 63 (67)	<i>n</i> =33 12 (36)
Mother's first child conceived out of wedlock	<i>n</i> =65 36 (55)	<i>n</i> =34 14 (41)	<i>n</i> =99 50 (50)	<i>n</i> =36 7 (19)

*Study group total significantly different than the comparison group ($p < 0.05$).

n=Number with data for this question.

the group who had had a termination with those girls in the study group who had delivered a baby, however, showed a significant difference, with more of the group who had had a termination coming from the non-manual sector ($p < 0.025$). The measure of family size used in table 1 included step brothers and sisters and half brothers and sisters and it indicated that the girls in the study group did not come from unusually large families. The parents of the study group were significantly more likely to be divorced, the mothers to have married when they were aged under 21 years, and the first child in the family to have been conceived before marriage.

Ten (10%) of the girls in the study group did not get on with their mother and a quarter did not get on with their fathers; in the comparison group four (11%) did not get on with either parent.

With regards to supervision exercised by the girl's parents in both study and comparison groups (table 2) the girls who first had intercourse under 16 years were less likely to have to ask permission to go out

Table 2 Supervision exercised by parents

	Study group No (%)		Comparison group No (%)	
	<16	≥16	<16	≥16
Age at first intercourse				
Permission needed to go out	n=76 49 (64)	n=24 22 (92)*	n=6 3 (50)	n=30 24 (80)*
Time given to be home by	57 (75)	22 (92)*	n=7 4 (57)	n=29 23 (79)*
Limit given to number of times out	21 (28)	8 (33)	1 (14)	10 (35)
Parents who wait up/stay awake	55 (72)	15 (62)	3 (43)	24 (83)*
Parents who know where daughter is going	n=75 64 (85)	23 (96)	6 (86)	26 (90)
Parents who comment on dress	19 (25)	n=23 7 (30)	2 (29)	10 (34)

*Significant difference from <16 group ($p < 0.05$).
n=Number with data for this question.

Table 4 Age and length of relationship before first intercourse

	Age at first intercourse				
	Study group No (%)			Comparison group No (%)	
	≤14	15	≥16	<16	≥16
Length of relationship before intercourse (months)	n=30	n=44	n=24	n=7	n=29
0-3	14 (46)	17 (39)	8 (33)	5 (71)	9 (31)
4-6	8 (27)	13 (29)	5 (21)	0	4 (14)
>6	8 (27)	14 (32)	11 (46)	2 (29)	16 (55)

n=Number with data for this question.

Table 3 Age at first intercourse

	Study group No (%)	Comparison group No (%)
Age at first intercourse (years)	n=100	n=36
≤14	32 (32)	2 (6)
15	44 (44)	5 (14)
16, 17	24 (24)	12 (33)
>17	*	17 (47)

*Girls in study group were all under 18.
n=Number with data for this question.

than those who were over 16 years old. Similarly the girls who were under 16 years at first intercourse were less likely to have been given a time at which they had to be home. Most of the parents knew where their daughters were going, in both the study and comparison groups.

DEVELOPMENT

In the study group menarche started significantly earlier; 64 (63%) starting their periods before they were 13 years old in contrast to 14 (39%) of the comparison group ($p < 0.05$). A third of the girls in the study group started having intercourse before their 15th birthday and three quarters before their 16th (table 3). In the comparison group one fifth had started having intercourse before the age of consent but had not become pregnant.

Table 4 shows that in both the comparison and study groups the younger the girl at first intercourse the sooner this occurred in the relationship. Considering the study group alone, we can see that this trend continues even down to the lowest age group and the shortest relationship, although this does not achieve significance. Combining the groups shows that those girls having first intercourse under 16 were more likely to have intercourse early in a relationship (less than 6 months) than those beginning over 16 ($p < 0.05$).

Of those who started having intercourse when they were under 16 years only a quarter said they

had enjoyed intercourse on the first occasion and although half of those over 16 had enjoyed their first experience of intercourse it is of interest that even in the older group one half had not enjoyed the experience. There were no significant differences between those who were under and those over 16 years at first intercourse in relation to whether the first occasion of intercourse was the beginning of a relationship with intermittent or regular intercourse. For both age groups the number of girls who continued to have intercourse with their first sexual partner were significantly less in the study group than in the comparison group ($p < 0.01$). As expected, boyfriends were older, with a third of girls in both the study and the comparison group having boyfriends who were four or more years their senior. Despite this only 17 of the study group felt that they had been pressurised by their partners into having intercourse (table 5) and this was not related to the age of the boyfriend. A third of the study group had planned to have intercourse on the first occasion, but almost half claimed it was unexpected and had 'just happened'. In the comparison group it was more likely that the first occasion of intercourse had been a conscious decision ($p < 0.05$) but it was still unplanned in a quarter of cases and unwanted in a tenth.

Of the 35 girls in the study group who were asked, 20 thought their parents were aware that they were having intercourse with their boyfriend before conception took place. Fifty three of the 90 girls asked in the study group (59%) had intercourse for the first time in either their or their boyfriend's parent's home, and in just over a fifth of these cases the parents were actually at home. This contrasts with nine out of 25 (36%) of the comparison group who had intercourse on the first occasion in their parent's homes. In most of the remaining cases in both groups intercourse occurred while the young people were away from parental homes and in only a very few cases (6%) was first intercourse associated with a party or alcohol consumption. A third of the

Table 5 *Reasons given for first intercourse*

Reason given for first intercourse:	Study group		Comparison group	
	No	(%)	No	(%)
	<i>n</i> =101		<i>n</i> =36	
Conscious decision	33	(33)	19	(53)
'Just happened'	45	(45)	9	(25)
Pressure from boyfriend	17	(17)	4	(11)
Other—for example, uncertain	6	(6)	4	(11)

girls in the study group who had started intercourse under 16 years of age had had three or more partners by the time of the interview (table 6). In the comparison group, where the women were on average seven years older, six out of seven girls who first had intercourse under 16 years had had at least three partners.

CONTRACEPTIVE USAGE

Forty six of the girls in the study group aged under 16 years at first intercourse used contraception on the first occasion, and only a quarter used contraceptives on a regular basis (table 7); in all cases the contraceptive method used was the sheath. The comparison group was significantly more likely to have used contraceptives on the first occasion and to have continued to do so whether or not they were under 16 years at the time of first intercourse. Although a quarter of the comparison group and just under half of the study group said intercourse had just happened, almost a half of these girls reported that their boyfriends had used contraception, indicating that their partners, at least, had anticipated having sexual intercourse.

Twenty two (61%) of the comparison group compared with only 15 (15%) of the study group (excluding terminations) had planned the pregnancy.

Table 6 *Number of partners up to interview according to age at first intercourse*

	Age at first intercourse			
	Study group		Comparison group	
	No (%)		No (%)	
	<16	≥16	<16	≥16
Number of partners	<i>n</i> =76	<i>n</i> =23	<i>n</i> =7	<i>n</i> =29
1	40 (53)	16 (70)	1 (14)	14 (48)
2	13 (17)	3 (13)	0	5 (17)
≥3	23 (30)	4 (17)	6 (86)	10 (34)

n=Number with data for this question.

Table 7 *Use of contraceptives according to age at first intercourse*

	Age at first intercourse			
	Study group		Comparison group	
	No (%)		No (%)	
	<16	≥16	<16	≥16
Contraceptive used on first occasion*	<i>n</i> =76	<i>n</i> =24	<i>n</i> =7	<i>n</i> =29
	35 (46)	15 (62)	6 (86)	24 (83)
Contraceptive always used*	18 (24)	12 (50)	5 (71)	18 (62)

*Study and comparison groups significantly different ($p < 0.01$).
n=Number with data for this question.

Six of the latter had already had one child, of which two had been placed for adoption, four had had their first child at 14 or 15 years of age and wanted their next child within two years, and one girl had married before conception. Of those with unplanned pregnancies, most had not used contraception at the time that they conceived (table 8). Contraception was used unsuccessfully in a significant proportion of both the study and comparison groups.

Ten of the girls had been undecided whether the babies would be adopted after the pregnancy, but after the delivery most decided to keep them. Ethical committee approval was not sought for any follow up of the girls and therefore the number of babies that were finally adopted is unknown.

REGRETS

In the study group of those who had had more than one partner half definitely regretted this and a third had some regrets but felt it was all part of a learning process; a third of the comparison group also had definite regrets at the number of partners that they had had. Most of the study group felt they had been too young when they first had intercourse and wished they had delayed intimate sexual activity until they were older.

DISCRIMINANT ANALYSIS

Discriminant analysis identified the three main variables that best discriminated between the study and comparison groups, and it provided confirmation of our initial analyses. These variables were: girl's mother divorced, mother's own first child born out of wedlock, and early menarche. The estimated discriminant function can be used to form the basis of a classification analysis for any new cases, and as a check on the adequacy of the derived function the original cases (that is, the data from the study and comparison groups) can be classified to see how

many are correctly allocated by the variables defined in the function. In our analysis roughly 70% of the original cases were correctly classified to their group.

Discussion

In contrast to much of the published data on teenage pregnancy, this study has been undertaken in what is considered to be a privileged part of rural England where inner city deprivation and delinquency are quantitatively less and the effect of ethnic and religious variables are largely insignificant. The rate of teenage conception to girls under 16 years of age for the South West (7.6 per 1000) is, however, similar to the national average (8.6 per 1000).¹ The lack of variation in the local population makes interpretation of the data simpler and may also make any health education initiatives easier to initiate.

The problem of selecting a suitable set of 'controls' for comparison with the study group was difficult, as it was not felt to be ethical to ask specific sexual questions of teenagers who might not yet be sexually active. The comparison population is one which consists of women who have avoided what we hypothesised to be a disadvantage: that of becoming pregnant while a teenager. The sample is further biased by not including women experiencing a first pregnancy for which they requested termination. These constraints upon the sample selection may have accentuated differences between the study group and the comparison group, the members of which are on average seven years older than those in the study group and memory of their teenage years is likely to be both less accurate and to some extent biased by subsequent experience. The data thus provide a useful comparison rather than a control population.

The previously reported excess of families of lower socioeconomic state with large numbers of children has not been found in these data.^{10 11 12 14} There were no significant differences between the social class distribution of the pregnant teenagers and either the comparison group or the local population, but there was a significant difference within the study group, with more of those who were having terminations coming from the non-manual sector. An explanation for this could be that those from the lower social classes are more accepting of the pregnancy whereas for those from the higher social classes the pregnancy would be viewed as causing disruption to both the family and, importantly, to the girl's education. The size of the families is similar for the study and comparison groups and in particular there was no excess of large families

Table 8 Reason given for conception

	Study group No (%)		Comparison group No (%)
	Delivery	Termination	
Planned pregnancy*	n=66 10 (15)	n=34 0	n=36 22 (61)
Unplanned pregnancy:	n=56	n=34	n=14
No contraceptive used	43 (77)	23 (68)	9 (64)
Contraceptive used unsuccessfully	12 (21)	11 (32)	4 (29)
Other reasons	1 (2)	0	1 (7)

*Delivery and termination subgroups and the combined study group were all significantly different from comparison group ($p < 0.01$).

n=Number with data for this question.

(five or more children) as has been previously reported.^{10 11 12 14}

A significantly greater number of the pregnant girls' mothers were divorced or separated, had had their own first child conceived out of wedlock, and had married young, giving weight to the hypothesis that a 'cycle of disadvantage' argument applies to these girls. In almost 90% of cases in the study group and 40% in the comparison group the pregnancy had been the unplanned result of a sexual relationship.

The fact that intercourse occurred most often in a parental home suggests that parents were aware, or were in a position to guess, that intercourse was likely. This is supported by the fact that a relatively high proportion of the girls who were asked thought that their parents were aware that they were having intercourse with their boyfriend.

Most of the study group and a quarter of the comparison group claimed that they had been unprepared for the possibility of intercourse and had not been made aware of the possible disadvantages. Clearly, the event was more often planned by their partners as half of them had available and made use of contraceptives on this first occasion.

Nearly four fifths of the girls pregnant before their 18th birthday had had intercourse before their 16th birthday, and one fifth of the comparison group who had avoided pregnancy had also had first intercourse before they were 16 years of age. The comparison group was drawn from a population five times larger than that from which the study group was drawn, therefore, it can be extrapolated that a significant proportion of teenagers are sexually active in their midteens and before the age of consent. The data suggest that girls who mature physically early are at greater risk of unplanned intercourse and pregnancy. Not only has this been previously reported,¹⁵ but a rational explanation can be proposed. The psychological maturation of the girl is unlikely to match her physical development and she will be attractive to older boys while at an age where she is less able to resist personal and peer pressure. Boyfriends tended, as expected, to be older than the girls, but while there was no greater age differential in years for the younger girls we suggest that the difference between a 14 and 18 year old are greater than between a 17 and 21 year old. Younger girls were more likely to have intercourse earlier in their relationships, a possible explanation being that a 14 year old regards a two to three month relationship as serious where for the older girl this definition may not be used until the relationship has lasted for six or more months. Having had a relationship involving intercourse most girls had intercourse with subsequent partners, particularly those girls younger at first

intercourse in both the study and comparison groups.

Previous work has concentrated on describing the characteristics of pregnant teenagers and Wilson attempted to develop scores to identify high risk populations.^{11 14} In this study though there are sociological and physical demographic characteristics that distinguish them as a group from the general population, the pregnant teenagers are not separable from the general population with any degree of specificity or precision. In our data the process would result in a large target group that would contain only about two thirds of those likely to become pregnant.

A substantial proportion of girls in their midteens are sexually active and at risk of becoming pregnant, and this may be relatively greater in those from particular family backgrounds and those who begin such relationships in their early teens.

Sexual intercourse between teenagers is often justified as being appropriate behaviour in a 'stable relationship'.¹⁶ The girls, by their own report, said first intercourse was more likely to happen in default of any considered merit or demerit than as a planned progression of a serious relationship. Once having experienced a relationship with intercourse (and despite the fact that the first occasion of intercourse is often reported as not enjoyable) girls are likely to be sexually active with subsequent partners and this happens earlier in these later relationships.

Early teenage intercourse exposes the girls to risks not only of pregnancy, but also to those areas of medical concern associated with multiple partners—namely, sexually transmitted diseases, infertility, and cervical carcinoma. We, therefore, suggest there needs to be a radical reappraisal of sex education in school, which in the past has mainly been to inform as to biology and physiology of reproduction and only more recently to inform as to the avoidance of unplanned pregnancy and, in a few instances, to discuss the responsibilities of relationships and parenthood. There is a good medical case to include the avoidance of early intercourse. This is further supported by the fact that most wished they had delayed first intercourse until they were older and that 80% of the study group who had had more than one partner had some regrets and even in the comparison group one third regretted having had multiple partners.

The data from our research suggest that at least one in five teenage girls are sexually active before the age of consent. Paediatricians need to be aware of this possibility when prescribing because of potential drug interactions, for counselling of girls with chronic illness, and for diagnosis. At least a substantial minority of girls in their midteens expose

themselves to risks associated with teenage intercourse, multiple partners, and pregnancy, each of which they may later regret.

We suggest that there should be a much greater emphasis on personal relationships and the implications of intercourse in these relationships in the content of health and sex education material in schools and by the media.

Further information is needed about the teenage population as a whole and studies are in progress in this area.

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