Background: Marriage of girls just after graduation is common in Western Maharashtra. This study was planned to know the views of final year graduation student towards reproductive carrier. Aim: To interact with final year girl students of various streams to know their preferences on various aspects of reproductive carrier and contraceptive awareness. Material and Methods: Study-design: Cross-sectional. Study-setting: Academic institutes of Sangli-Miraj-Kupwad Corporation area. Study-subject: All willing final year Girl students. Exclusion Criteria: Married girls. Sample size: All final year girl students Sampling Technique: Cluster sample Study-Duration: 7 months. Study-tool: Pretested questionnaire. Statistical Analysis: Percentages, Chi-square test. Results: All girls who have responded prefer marrying and having first child at right age. All feel spacing is needed, at least of 2 years. Two children was the most common choice (52.3%). Forty-three percent girls feel male child is must and 52.3% of total girls will like to have sex determination done if required. Total 47.24% girls were unaware about any contraceptive methods but 88.2% girls knew the place of its availability. Most common source of information about contraceptive was school and friends. E-pill was known to 41.5% of girls. All girls felt the need for more information about reproductive health and according to 81.3% right age for it is 15-18 years. Conclusion: Girls have correct reproductive preferences except sex of child. Sex preference and Low contraceptive awareness needs strong intervention.

Key words: Prenatal sex determination, reproductive carrier preferences, sex selective abortion

Introduction

Family planning is a way of thinking and living that is adopted voluntarily and it depends upon the basis of knowledge, attitudes and responsible decisions by individuals and couples. The aim of family planning is to promote health and welfare of family and ultimately contribute to the social development of a community.[1] The United Nations Conference on Human Rights at Tehran in 1968 recognized family planning as a basic human right. The same view was endorsed in Bucharest Conference on the World Population held in 1974. In the next year itself in 1975, the World Conference of the International Women’s year declared that it is the right of women to decide freely and responsibly on the number and spacing of their children and for that they should have access to the information and means to enable them to exercise that right.[2]

India is the first country to launch a nation-wide family planning program in 1952. Even though the role of women in society is still considered to be secondary, Indian constitution has given equal status and rights to women. Opportunities for education are provided for girls, which show improvement in female literacy status. In this given situation are the girls really taking free and responsible decisions regarding family planning? This question is really important when it comes to prenatal sex determination and non-medical sex selected abortion.

To know the opinions of girls regarding the desired number of children, their sex and about spacing this study was planned. Marriage just after graduation among girls is common in Western Maharashtra. This study was planned to know the views towards reproductive career of final year graduation girl students. This part of Maharashtra is facing the problem of adverse sex ratio for females.

That is why this study was planned with the aim of interacting with final year graduation girl students of various streams with following objectives.
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1. To know their view on preferable age of marriage.
2. To identify the age at which they are willing to have first pregnancy.
3. To find out their preference for the sex of child and family size.
4. To assess their awareness regarding various contraceptives.
5. To know their need for reproductive health education.

Materials and Methods

This was a cross-sectional study conducted in various academic institutes having graduation courses in different fields. Study subject were final year girl students. All the graduation courses available in the Sangli, Miraj and Kupwad Corporation area were enlisted. Then colleges were grouped according to courses they are providing. The courses included were Arts, Commerce, Science, BBA, BCA, Ayurved (BAMS), Homeopath (BHMS), MBBS, Pharmacy, Engineering and Law. One college of each course was chosen. When more than one college providing the same degree course was available then the college was selected by random selection. All final year girl students from selected colleges were included in the study. Data was collected from July to December 2010. A proforma suitable for the study was prepared with the help of experts’ guidance and reviewing published studies. A pilot study was conducted for pretesting proforma. With appropriate changes, proforma was finalized and then final study was conducted. Principals of all the selected colleges were contacted personally. They were provided with information regarding aim and objective of the study along with proforma and permission was sought. With prior appointment a meeting was arranged with the girls in the room provided by college management. Girls were first introduced to study and were assured about its confidentiality. They were told that participation in the study is voluntary and there is no need to write the name on the proforma. Investigator explained the questionnaire in detail and also the need of unbiased answer. Girls were provided with the questionnaire and asked to answer appropriately. Statistical analysis was performed by using percentages and Chi-square test.

Institutional Ethical Committee Clearance was obtained.

Results

A total of 597 girls of ages between 19 and 33 years participated in the study. Most common age group was 20-21 (63.7%) years. There were total 12 (2.01%) girls with age more than 25 years. 94.1% were from the urban area and 72.5% were staying at home. Out of 597, 313 (52.43%) girls were doing basic graduation which includes Arts, Commerce, Science, BBA and BCA streams. There were 52 (8.7%) girls from BAMS and BHMS colleges combined together under the heading of Ayurveda, Unani, Siddha and Homeopathy (AYUSH). The distribution of remaining girls was as follows: 146 (24.5%) girls from engineering, 24 (4%) from Dental, 23 (3.9%) girls from MBBS, 19 (3.2%) girls from Law college and 20 (3.4%) from Pharmacy.

While answering to the preference for the age of marriage, 77.40% girls mentioned that they will like to marry after 21 years of age. Range for the age of marriage was 18-29 years. Majority of engineering, MBBS and Dental girls’ preference for age of marriage was 24-25 years. Observed difference for the age of marriage in the various streams was statistically significant (χ² = 54.676, df = 6, P = 0.00). Four (1.3%) girls didn’t answer this question. As per the preferences provided by study subjects range for the age to have a first child varies from 20 to 30 years. According to 52.80% girls, they would like to have a first child before 25 years of age. However, the preference of majority of MBBS and Dental (82.60% and 83.30% respectively) girls to have a first child was after 25 years of age. The observed difference in the age at which to have a first child in different streams was statistically significant. Two girls did not respond for this question [Table 1].

For the family size most common preference was to have two children (52.30%), followed by a single child. Single child preference was most common in basic graduation students (46%), but none of the MBBS student had given this preference. Preference for two children was most common in Law students. There were 29 (4.90%) girls who want to have three children and this preference was seen more commonly in MBBS students (5, 25.7%). But none of students from AYUSH, Law and Pharmacy were inclined for three children. This question was not answered by 26 (4.40%) girls, in them girls from basic graduation were more common [Table 1].

About 62.3% girls feel that spacing has to be up to 3 years. Preference for less than 3 years spacing was given by all MBBS girls. Preference for spacing more than 3 years was most commonly given by basic graduation girls (48.2%) [Table 1].

Nearly, 2% girls didn’t answer for importance or reasons for spacing. According to 98% girls spacing is important for mother’s health and/or child’s health. The most common answer given (95%) was spacing is important for mother’s health.

Out of 597 girls 315 (52.76%) had awareness regarding at least one spacing method. However, there were 199 (33.33%) girls, who have not answered for the question “do you know any contraceptive method?” Out of these 199 girls, 111 girls were from basic graduation stream, 74 from engineering and 12 from Law. A negative reply was given by 83 (13.90%) girls. Out of these 83 girls, 80 were basic graduation students and three were engineering students. It means 47.24% of girls were either unaware about any contraceptive method or reluctant to answer. Most known contraceptive was copper T (Cu-T) followed by oral contraceptive pills and then condom. Some of them...
have mentioned about terminal methods also, like tubectomy. Except the students of MBBS or AYUSH, all students of other streams were ignorant about the mode of action of various contraceptives.

Recent inclusion in the list of contraceptives is e-pill. About 41.5% of girls were aware about this contraceptive, but very few girls were aware about its advantage. Remaining girls either not answered or they were not aware. Percentage of unawareness was high among AYUSH students followed by engineering while all MBBS students were aware about emergency pill [Table 2].

Most common answer for the place to get contraceptive was the pharmacy (336, 56.28%) followed by government hospitals (182, 30.48%) and private clinics (95, 15.91%). However, 70 (11.8%) girls were unaware about it.

Schools and colleges were the source of information about contraceptive for 275 (46%) girls, while 255 (42.71%) obtained information from mass media such as TV, radio, magazines and newspaper. Friends were one more source mentioned by them.

| Reproductive preferences | Basic graduation (%) | AYUSH (%) | Engineering (%) | Dental (%) | MBBS (%) | Law (%) | Pharmacy (%) | Total (%) |
|--------------------------|----------------------|----------|-----------------|------------|----------|---------|-------------|-----------|
| Age of marriage          |                      |          |                 |            |          |         |             |           |
| <21 years                | 97 (31.40)           | 17 (32.70) | 6 (4.10)        | 2 (8.30)   | 1 (4.30) | 7 (36.80)| 4 (20.00)    | 134 (22.60) |
| >21 years                | 212 (68.60)          | 35 (67.30)| 140 (95.90)     | 22 (91.70) | 22 (95.70)| 12 (63.20)| 16 (80.00)   | 459 (77.40)  |
| Total                    | 309 (100.00)         | 52 (100.00)| 146 (100.00)    | 24 (100.00)| 23 (100.00)| 19 (100.00)| 20 (100.00)  | 593 (100.00) |
| Age to have first child  |                      |          |                 |            |          |         |             |           |
| <25 years                | 190 (61.10)          | 36 (60.20)| 59 (40.40)      | 4 (16.70)  | 4 (17.40)| 12 (63.20)| 9 (45.00)    | 314 (52.80)  |
| ≥25 years                | 121 (38.90)          | 16 (30.80)| 87 (59.60)      | 20 (83.30) | 19 (82.60)| 7 (36.80) | 11 (55.00)   | 281 (47.20)  |
| Total                    | 311 (100.00)         | 52 (100.00)| 146 (100.00)    | 24 (100.00)| 23 (100.00)| 19 (100.00)| 20 (100.00)  | 591 (100.00) |
| Preference for total number of children |          |          |                 |            |          |         |             |           |
| One child                | 144 (46.00)          | 17 (32.70)| 51 (34.90)      | 6 (25.00)  | 0 (0.00) | 2 (10.50)| 10 (50.00)   | 230 (38.50)  |
| Two children             | 147 (47.00)          | 32 (61.50)| 73 (50.00)      | 17 (70.80) | 18 (78.30)| 17 (89.50)| 8 (40.00)    | 312 (52.30)  |
| Three children           | 1 (0.30)             | 0 (0.00) | 22 (15.10)      | 1 (4.20)   | 5 (21.70) | 0 (0.00) | 0 (0.00)     | 29 (4.90)    |
| Not answered             | 21 (6.70)            | 3 (5.80) | 0 (0.00)        | 0 (0.00)   | 0 (0.00) | 0 (0.00) | 2 (10.00)    | 26 (4.40)    |
| Total                    | 313 (100.00)         | 52 (100.00)| 146 (100.00)    | 24 (100.00)| 23 (100.00)| 19 (100.00)| 20 (100.00)  | 597 (100.00) |
| To have male child is must |                    |          |                 |            |          |         |             |           |
| No                       | 162 (51.80)          | 14 (26.90)| 127 (87.00)     | 5 (20.80)  | 20 (87.00)| 3 (15.80)| 0 (0.00)    | 331 (55.40)  |
| Yes                      | 144 (46.00)          | 37 (71.20)| 18 (12.30)      | 19 (79.20) | 3 (13.00)| 16 (84.20)| 20 (100.00)  | 257 (43.00)  |
| Not answered             | 7 (2.20)             | 1 (1.90) | 1 (0.70)        | 0 (0.00)   | 0 (0.00) | 0 (0.00) | 0 (0.00)     | 9 (1.50)     |
| Total                    | 313 (100.00)         | 52 (100.00)| 146 (100.00)    | 24 (100.00)| 23 (100.00)| 19 (100.00)| 20 (100.00)  | 597 (100.00) |
| Duration of spacing      |                      |          |                 |            |          |         |             |           |
| <3 years                 | 146 (49.20)          | 41 (78.80)| 125 (86.20)     | 19 (79.20) | 23 (100.00)| 5 (26.30)| 13 (65.00)  | 372 (64.10)  |
| >3 years                 | 151 (50.80)          | 11 (21.20)| 20 (13.80)      | 5 (20.80)  | 0 (0.00) | 14 (73.70)| 7 (35.00)    | 208 (35.90)  |
| Total                    | 297 (100.00)         | 52 (100.00)| 145 (100.00)    | 24 (100.00)| 23 (100.00)| 19 (100.00)| 20 (100.00)  | 580 (100.00) |
| Willingness for sex determination |          |          |                 |            |          |         |             |           |
| No                       | 157 (53.60)          | 20 (38.50)| 59 (40.70)      | 6 (25.00)  | 21 (91.30)| 3 (17.60)| 8 (40.00)    | 274 (47.70)  |
| Yes                      | 136 (46.40)          | 32 (61.50)| 86 (59.30)      | 18 (75.00) | 2 (8.70) | 14 (82.40)| 12 (60.00)   | 300 (52.30)  |
| Total                    | 293 (100.00)         | 52 (100.00)| 145 (100.00)    | 24 (100.00)| 23 (100.00)| 17 (100.00)| 20 (100.00)  | 574 (100.00) |

AYUSH: Ayurveda, Unani, Siddha and Homoeopathy

Table 2: Stream wise distribution of girls having awareness of E-Pill

| Stream | No. of girls having awareness of E-pills | Total |
|--------|----------------------------------------|-------|
|        | No | Yes | Not answered |
| Basic graduation | 142 | 120 | 51 | 313 |
| AYUSH   | 43 | 9 | 0 | 52 |
| Engineering | 69 | 76 | 1 | 146 |
| Dental  | 19 | 5 | 0 | 24 |
| MBBS    | 0 | 23 | 0 | 23 |
| Law     | 6 | 10 | 3 | 19 |
| Pharmacy | 12 | 5 | 3 | 20 |
| Total   | 291 | 248 | 58 | 597 |

AYUSH: Ayurveda, Unani, Siddha and Homoeopathy
While answering for the preference for the sex of child, 55.40% girls mentioned that they did not feel that the male child is must. However, according to 43% girls at least one male child is must. All girls learning pharmacy mentioned they want at least one male child. For this question, nine girls have not answered [Table 1].

Girls were asked about their willingness for undergoing sex determination. For this question, 23 girls did not answered. Out of these 23, 20 were from basic graduation. Out of remaining 574, 300 (52.30%) have mentioned that they will like to have prenatal sex determination done if required. Highest percentage of girls from Law stream had shown a willingness for sex determination if required. Willingness for sex determination was lowest in MBBS girls. The observed difference was statistically significant ($\chi^2 = 37.815, df = 6, P = 0.00$) [Table 1].

Across all the streams, with the exception of engineering field, the number of girls ready for sex determination was less than those preferring at least one male child.

All girls, including MBBS students feel there is a need of more information about reproductive health and according to 81.3% right age for it is 15-18 years.

**Discussion**

Girl entering in the marital life must be able to take correct decisions regarding her reproductive carrier, family size and its sex composition. It is very interesting to know whether positive changes in preferences for reproductive carrier has happened or not as literacy status of girls is improving. A total of 597 girls of 11 streams of varying colleges from corporation area were studied.

All girls were in favor of marriage after 18 years. One study mentions that awareness about age of marriage of 18 years was 75%. However, this study was conducted in adolescent girls from slums. Majority of girls want marriage after 21 years of age may be as they remain busy in education until that age. Higher age of marriage, i.e., more than 21 years is preferred by 90-95% girls from professional colleges like Engineering, MBBS and Dental. The reason may be the more years are spent in education by them.

Women need the ability to decide when to start and finish child bearing, how long to wait after the birth of one child before becoming pregnant with the next and how many children to have. To assess that girls were asked about their preference for age at which they would like to have a first child, total number of children, duration of spacing, etc. None of the girl wanted first child before 20. But more than 50% of girls wanted first child before 25 years of age. Girls from MBBS and Dental colleges preferred to have a first child at higher age, i.e., >25 years. Engineering students even though want to marry after 21 years of age prefer to have a first child before 25. All the girls from professional colleges except the law had given preference for spacing less than 3 years. As these courses are lengthy and most of them apt for careers immediately thereafter, it is a general trend to marry late and complete the family as early as possible.

For the family size most commonly given preference (52.30%) was “two children.” Other studies have also mentioned similar type of findings like National Family Health Survey (NFHS3) study mentions 69% and Dey Pal and Chaudhuri found 47%. None of the MBBS student wanted to have one child.

For having desired number of children and duration of spacing between two births, contraceptive use is must. That is why girls must have information regarding contraceptives, i.e., names, place of availability etc. Cu-T, oral contraceptive pills were the most commonly known contraceptive. Similar types of findings are given by one study by Mahawar et al, even though it was carried on mothers of infants. It has been observed that there is a significant association between contraceptive acceptance and literacy status. About 53.33% of girls have maintained silence on the name of available contraceptive. It can be interpreted as either they are unaware or they do not want to communicate about the same. However, 88.2% of girls answered correctly for the place to get contraceptive. If this is so, this silence indicates girls don’t feel free or had inhibitions even to mention the names of contraceptive methods. In this case, they had inhibition seems to be correct because girls who have either not answered or unaware about contraceptive methods were mainly from basic graduation, engineering or law where they are not taught about it in college. While in other streams contraceptive methods are taught in the colleges as part of the curriculum. If these would be mothers have to adopt contraceptive methods in the future they have to be equipped with the knowledge so that they can use contraceptives or feel free to enquire and use them. It indicates the need of inclusion of contraception awareness in formal education system. Similar type of view had been expressed by Guria et al.

Awareness about e-pill was better than the study conducted in West Bengal. It may be as this study was conducted on students of 11th and 12th standard girls and was conducted in 2009 and a lot of mass media is in use for the awareness of e-pill.

Use of contraceptives makes it possible to control the fertility and then the question of how many children are desired or preferred arises. This becomes an increasingly important factor in population growth. Measurement of such preferences is correspondingly important. The preference for more than two children was lesser in the present study when compared to other. The reason for this might be that those studies were conducted on married women and also the educational background of the subjects was also dissimilar to the current study. According to NFHS3 desire for having at least one son was given by 71% of women of 15-49 years of age irrespective of educational status. Findings of this study are lower than this report. In spite of good educational status 43% of girls were having a desire for a male child. Similar findings are reported by Khandelwal et al.
This study was conducted on married women of reproductive age group. Among them students of Pharmacy, Law, Dental and Ayush were most common. It indicates education is not the only determinant of attitude or desire for sex. When majority of these girls were in favor of small family norm and want male child this may lead to prenatal sex determination and non-medical sex selective abortion. When next question was asked regarding use of sex determination, percentage of girls saying yes was 52.3% that means 9.30% of girls have not disclosed their desire for male child. This percentage was remarkably high in engineering girls. Girls from all streams had shown willingness for sex determination. Even though percentage was less, MBBS girls also feel male child is must to complete the family and would prefer sex determination and non-medical sex selective abortion if required. The law students who have studied the Prenatal diagnostics techniques PNDT act were also in favor of a male child and sex determination. Effect of female literacy and education has been studied and discussed widely. About half of the effect of female literacy on fertility is direct and half indirect, chiefly through literacy’s effect on reducing child mortality. Women who can read and write generate more surviving children, because they are more aware of good health and nutrition practices and live in better circumstances with more surviving children, couples need fewer births to attain their desired family size. Female literacy also has an indirect effect on fertility through the age at marriage (literate women tend to marry later). Editor Robey mentions further that higher literacy is likely to increase the demand for family planning services because literate women respond better to appeals to limit family size. However, it seems that attitude toward sex composition of family is independent of education and awareness about hazards of sex selective abortions. There may be some other factors like culture, religion may be playing an important role in developing male preference attitude as mentioned by some studies. A study by Bhardwaj et al. found prenatal sex determination and non-medical abortion more evident in elite area than urban slums. In the present study, it has been observed that girls have shown a preference for a small family norm, but when they feel male child is must, they can go for sex determination, which will lead to non-medical sex selective abortions. One of the most significant features of 20th century has been the dramatic decline in fertility and explicit preference for smaller families in most parts of East and South Asia. This change rather than reducing has exacerbated the preference for son. Economist and social philosopher Dr. Amartya Sen wrote an article “more than 100 million women are missing” nearly 20 years ago. Feminist philosopher Marry Anne Waren describes it as “gendericide,” while “The Economist” calls it as “the world wide war on baby girls.” Since then phenomenon of missing girls has been widely researched and publicized.

Similar types of activities are also conducted in Maharashtra. In spite of it, views regarding sex preference have not changed. This may indicate that sex preference can determine family size and when girls want to limit the family size they will prefer sex determination and sex selective abortion.

Conclusion

There is need to provide education regarding contraception, reproductive health especially in non-medical streams. Formal education and awareness campaigns regarding male child preference and non-medical sex selective abortion preference has not affected traditional attitude. As this study includes unmarried girls it suggests that female feticides will continue to happen unless stringent interventions are not implemented. This study has focused mainly on awareness and attitude of girls, but not for its reasons. For the planning of preventive strategies, there is a need of in depth sociological investigations to find out solutions.

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