Introduction

Adolescence is a significant period of one's life, the students or children at this age should be taught about sex education in order to lead a healthy reproductive life, to prevent sexually transmitted disease and to avoid unwanted pregnancies. 

Aims and Objectives: To evaluate the current knowledge of school going adolescents on reproductive health and its association with their socio demographic profile and determining their behaviour and understanding of school sex education. 

Methodology: A cross sectional analysis was carried out in 2 private schools at Chennai among the students of 9th to 12th standard. A sample of 346 was taken and a structured questionnaire was used to evaluate. The data was analysed by SPSS software version 22. Chi square test was used (<0.05 is significant).

Results: Out of 346, 44.2% were males and 55.8% were females. 85.9% of students from nuclear family responded True for the statement 'Male hormone is called as Testosterone'. Females had better knowledge on sex education than Males which was significant. XII standard students had better and positive attitude towards sex education than IX standard students. Only 5% responded to have sex-related information from Parents than others who responded friends, doctors and teachers.

Conclusion: It is seen that among school going adolescents there is lack of knowledge and varied perceptions towards sex education. So, sex education should be implemented more efficiently in the developing countries and so it can lead to a healthy reproductive life and sexual health among the adolescents.

Keywords: Adolescents, pregnancy, reproduction, sex education, STDs
based on WHO/MOHFW data knowledge on reproductive and sexual health among school going adolescents in India which was 35%. Using formula \( 4pq/d^2 \) considering 5% allowable error and 5% non – response rate the sample size was calculated as 380 (190 students from each school). The Principals of both the schools were contacted and requested for permission after informing the nature of the study. The students whose parents gave the written informed assent for their children were included in the study and those who were not available to fill the questionnaire after visiting thrice were excluded. Ethical clearance from Institutional ethics committee (IEC) clearance was applied for and obtained on 17.03.2020. A pre tested, pre-validated, self-administered questionnaire was used to assess the current knowledge on reproductive health (STDs, reproductive physiology and other complications), their attitude on providing sexual health in school and their perceptions regarding reasons and topics for sex education. To measure student knowledge, 12 items were selected from a wide range of sexuality-related topics, 6 items measured reproductive physiology information, 3 items measured contraceptive information, and 3 items evaluated STD/ HIV knowledge. The research assessed attitudes with 7 items in which some of the issues were taken from the National Health Survey of Adolescents Students and adapted to local social cultural expectations. The study measured perception about sex education with 5 items. The questionnaires were distributed in a separate classroom designated by the school authorities and the students were given sufficient privacy. Data was entered and analysed with SPSS version 22. Frequencies and percentages were calculated, Chi square test was used to find association (\( p < 0.05 \) considered significant).

### Results

Out of 380 responses 364 responses were included the remaining 16 responses were dropped due to missing data. Of all participants 44.2% (161) were male and 55.8% (203) were female. The majority of the participants 83.8% belong to Hindu religion, 82.7% were living in a nuclear family, 68.7% of students’ monthly family income was less than Rs. 25,000 and the mothers of maximum students (76.7%) were home makers. The significant findings of the study are as follows:

### Knowledge

About 85.9% of students from nuclear family responded True for the statement ‘Male hormone is called as Testosterone’ than 23.6% and 33.3% of students from joint family who responded false and don’t know respectively and this finding was significant (\( p = 0.009 \)). 72.6% of the students whose mother was a housewife responded True for the statement ‘Pregnancy is a result of sperm fertilizing the ovum’ compared to 33.3% of the students whose mother is a professional who responded don’t know, which was significant (\( p = 0.000 \)). Table 1, shows the gender-based responses received from the students shows statistically significant relationship with knowledge among them. It is evident from the table that majority of female responded correctly to the knowledge-based questions than males except the statement ‘Semen contains Sperm’ for which 27% males responded true than 21.8% of females. For the question ‘Is Douching, a method of birth control?’, 21.7% of females have correctly responded as false than 18.4% of males who responded true. Table 2 shows that there is significant association between the knowledge and the standard of students as the students from XII standard responded correctly compared to IX standard students which was all significant except for the statement ‘Urinating after intercourse prevents pregnancy’ 9.3% and 5.5% of students from X and IX class respectively responded correctly as false compared to 3% of XII students which was significant.

### Attitude

76.1% of students from nuclear family wanted sex education to be included in their syllabus than 23.9% who did not want it which was significant (\( p = 0.001 \)). Majority of 96.6% of students from nuclear family felt it better to know about sex education through friends with 50% of Joint family students who felt watching videos is better, which was significant (\( p = 0.001 \)). From Table 1, it was observed that a negative attitude of thinking ‘It’s cool to have sexual intercourse at adolescent age’ was observed maximum (9.6%) among the males than females (2.5%) which was found to be significant and from Table 2, for the same statement it was observed that 28.6% of students from XII standard disagreed compared to 13.5% of IX standard students which was significant and it also showed as age increases the attitude among the adolescents also gets refined.

### Perception

Table 1 shows that there was mixed opinions on sex education based on their gender, for the reasons to know sex education when majority of 16.2% of males responded to prevent AIDS, 11.75% of females responded to prevent STDs and only 2.7% of both males and females felt its needed at this age which was significant (\( p = 0.000 \)). 28% of females had better perception for sex education by knowing what sex education is all about than 14.6% of males which was also significant (\( p = 0.000 \)). Table 2, shows that 20.1% and 19.5% of X and XII, respectively believe that sexual offences can be prevented by sex education which was significant (\( p = 0.000 \)).

### Discussion

In 2019, UNICEF reported that approximately 1.7 million [1.1 million-2.4 million] adolescents between the ages of 10 and 19 are living with HIV worldwide, with about 5% of all people living with HIV and about 10% of new adult HIV infections among adolescents. There is also a higher rate of teenage pregnancies across the country. To prevent all these, sex education is the best way. In certain countries due to the government rules and legislative measures against sexual education, the adolescents are not aware and does not have adequate knowledge about healthy sexual behaviour. And though many countries have implemented sex education, the topic or the subject does not have any clear methods regarding the way of approach, content or depth of the
subject[1] and along with social taboo and cultural disparity it has lost its significance[8] which may lead to poor knowledge about sexual health to the adolescents across the country. Many medical institutions and primary health care have introduced STDs clinic, counselling centres and programmes related to sex education. As a physician it is important to deal with the practical and broader aspect of sexuality development to the adolescents especially to the child patients visiting the health care and also it is the duty of the physician to clear the doubts of the adolescents regarding sexual development and to educate the adolescents living in a residential treatment centres and those living on the street. This research was therefore carried out with the intention of evaluating the current knowledge of school going adolescents on reproductive health and its association with their socio demographic profile and to determine their attitude and perception on sex education at schools in an urban part of Chennai.

Table 1: Gender Based Association with Knowledge, Attitude and Perception on Sex Education Among Study Participants (n=346)

| Variables | Gender | *P* (<0.05) |
|-----------|--------|-------------|
| KNOWLEDGE | Male n (%) | Female n (%) | |
| Fertilisation of the egg occurs in the uterus | | | |
| True | 94 (25.8%) | 161 (44.2%) | 0.000 |
| False | 43 (11.8%) | 27 (7.4%) | |
| Don’t know | 24 (6.6%) | 15 (4.1%) | |
| Semen contains Sperms | | | |
| True | 98 (27.0%) | 79 (21.8%) | 0.000 |
| False | 23 (6.3%) | 49 (13.5%) | |
| Don’t know | 39 (10.17%) | 75 (20.7%) | |
| Male hormone is called testosterone | | | |
| True | 107 (29.4%) | 169 (46.4%) | 0.001 |
| False | 35 (9.6%) | 20 (5.5%) | |
| Don’t know | 19 (5.2%) | 14 (3.8%) | |
| Pregnancy is the result of fertilization | | | |
| True | 112 (30.8%) | 174 (47.8%) | 0.000 |
| False | 23 (6.3%) | 18 (4.9%) | |
| Don’t know | 26 (7.1%) | 11 (3.0%) | |
| Is Douching, a method of birth control? | | | |
| True | 67 (18.4%) | 48 (13.2%) | 0.000 |
| False | 31 (8.5%) | 79 (21.7%) | |
| Don’t know | 63 (17.3%) | 76 (20.9%) | |
| ATTITUDE | | | |
| Is it “cool” to have sex at adolescent age? | | | |
| Strongly agree | 35 (9.6%) | 10 (2.7%) | 0.000 |
| Agree | 33 (9.1%) | 32 (8.8%) | |
| Disagree | 93 (25.5%) | 161 (44.2%) | |
| Can your syllabus include sex education? | | | |
| Strongly agree | 114 (31.3%) | 91 (25.0%) | 0.000 |
| Agree | 44 (12.1%) | 112 (30.8%) | |
| Disagree | 3 (0.8%) | 0 (0.0%) | |
| How do you prefer to know about sex education? | | | |
| Through Teachers | 56 (15.4%) | 86 (23.6%) | 0.000 |
| Through Doctors | 33 (9.1%) | 47 (12.9%) | |
| Through Friends | 61 (16.8%) | 24 (6.6%) | |
| Through Parents | 11 (3.0%) | 46 (12.6%) | |
| PERCEPTION | | | |
| Reasons to know about sex education | | | |
| Prevent AIDS | 59 (16.2%) | 36 (9.9%) | |
| Prevent other STDs | 28 (7.7%) | 42 (11.5%) | 0.000 |
| Remove myth | 10 (2.7%) | 10 (2.7%) | |
| Needed at this age | 31 (8.5%) | 34 (9.3%) | |
| Not stated | 33 (9.1%) | 81 (22.3%) | |
| Meaning of sex education (It’s about?) | | | |
| Puberty | 46 (12.6%) | 48 (13.2%) | |
| STDs | 15 (4.1%) | 2 (0.5%) | 0.000 |
| Reproductive health | 16 (4.4%) | 14 (3.8%) | |
| Effects of sexual risk behaviour | 31 (8.5%) | 35 (9.6%) | |
| All the above | 53 (14.6%) | 102 (28.0%) | |
| Don’t know | 0 (0.0%) | 2 (0.5%) | |

*Chi square test*
In our study 24.4% males and 32.4% females had knowledge related to sexual health, STDs and reproduction. On comparing with the study done by Deepanjali D, et al. and Gupta et al.\textsuperscript{10,14} boys had good knowledge about sexual health compared to girls. This may be due to the difference in the socio-cultural factors in both the locations. In our study, the question ‘Is douching a method of birth control?’, 68.4% of the students did not have any opinion which was similar to a study conducted in Tamil Nadu\textsuperscript{11} in which 59% did not have any idea about the term Douching. This striking similarity shows the similarity in the location as well.
11th and 12th standard, a similar relation was found in the study conducted by Deepanjali D[10] which states that the knowledge about sexual health increases with grades.

In our study 51.3% of the students had positive attitude towards introduction of Sex education in syllabus of which 31.3% were males which was similar to the study conducted by Randhir K[12] in which 97.1% of the boys preferred sex education. In this study, 42.6% of the participants perceived correct meaning for the sex education which was similar with the study conducted by Mueller TE, et al[13] in which to avoid STDs, HIV, adverse effects of sexual activity and unplanned pregnancy, the majority of adolescents required sex education. In the current study for the question ‘How do you prefer to know about sex education’ 15.6% told parents and majority of 39.0% told teachers which was in relation to the study conducted by Nenaka Gabriel Job et al.[14] in which 74% of the students chose sex education based on school, and in a study conducted by Jaideep K, et al.[15] in Chandigarh found that the teacher was the best provider of sex education for 76.74% of students. In a study conducted by Sharan ram et al.[16] it is concluded that parents themselves chose teachers as the best source to deliver comprehensive sexual education and it also stated that main decrease in the percentage of parents as the source is due to poor knowledge about the topic, social taboos about sex education and cultural disparity. In our study it was seen that the students favoured school-based sex education than other methods and this finding was similar to a study conducted by Me Craig Khun et al.[17] in which 85.7% of the participants had a positive response towards institution-based sex education.

The study had certain limitations such as small size which might have caused few discrepancies in the results. We were not completely sure if all the students were able to comprehend the questions or statement in the questionnaire and as it is done in only two private English medium schools at Chennai, the study results cannot be generalised.

Conclusion
Overall, sexual and reproductive health awareness among the research population was low. Though the knowledge level was inadequate the attitude and perception towards sex education had a positive response. There is, therefore, a need to provide teenagers with more knowledge about sex education.

The study
1. Boys were found to have less knowledge compared to Girls
2. Knowledge about sexual health increases with grades
3. The majority of teenagers need sex education to prevent STDs, HIV, adverse effects of sexual activity, unplanned pregnancy and sexual offences.
4. Parents need to have sufficient contact with their adolescents on sex-related subjects, as parents have been found to be among the least popular sources of knowledge on the topic; however, it is equally important to provide them with the correct information with an open-minded approach when talking about these matters to their children.
5. The most common source of information on the subject was teachers; thus, school plays an important role in providing adolescents with knowledge of the same.

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Key Messages
Reproductive health awareness among teenagers living in a urban metropolitan city itself is lacking. Thus, more awareness and promotion of sex education must be inculcated in all the schools all over India.

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Conflicts of interest
There are no conflicts of interest.

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