

**KNOWLEDGE, ATTITUDE AND PRACTICES REGARDING TEENAGE PREGNANCY AMONG STUDENTS OF PANJAB UNIVERSITY, CHANDIGARH: A CROSS-SECTIONAL STUDY**

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ABSTRACT Background: Teenage pregnancy is considered to be a phenomenon of global level concern as it is the outcome of several unfavourable factors particularly those pertaining to lower literacy, poor socioeconomic status, practices related to child marriage and the presence of higher risk of child sexual abuse among adolescent girls, thus leading to serious health, social, economic, emotional and psychological consequences. Methods: A cross-sectional study was conducted among 220 full-time students aged between 18-30 years old at Panjab University, Chandigarh by administering a structured questionnaire that assessed knowledge, attitude and practices related to reproductive health. Stratified random sampling with proportional allocation was employed. Results: The mean knowledge score was calculated as $15.70 \pm 2.25/18$. The outcome further indicated that 55.9% of participants had adequate knowledge, whereas 35% and 9.1% showed moderate and inadequate levels of knowledge respectively. The mean attitude score was $33.2 \pm 5.1/40$, suggestive of 84.1% of participants showing a positive attitude, whereas 72.7% opined that satisfactory reproductive health practices were followed. Knowledge was significantly associated with attitude ($P < 0.001$) and practices ($P < 0.001$). Correlations were positive for knowledge–attitude, knowledge–practices and attitude–practices (all $P < 0.001$).

KEYWORDS : Adolescent Health; Attitude; Contraception; Knowledge; Reproductive Health; Teenage Pregnancy

INTRODUCTION

According to the World Health Organization, the phenomenon of teenage pregnancy, also referred to as adolescent pregnancy, is defined as the occurrence of pregnancy among girls belonging to the age group of 10–19 years old, and it remains a public health concern of international significance that exerts a serious impact on the health, social and economic aspects of individuals, their families and communities. (World Health Organization [WHO], 2020) Annually, an estimated 21 million girls aged 15-19 years old in developing countries of the world become pregnant, and approximately 12 million of these give birth. (United Nations Children's Fund [UNICEF], 2019, 2023)

The scope of the problem of teenage pregnancy at a global level, as of 2019, is such that adolescents aged 15-19 years, particularly those belonging to middle- and low-income countries, had an estimated 21 million pregnancies each year, of which 50% were unintended, resulting in around 12 million births. (UNICEF, 2019; WHO, 2020) As per a report by the World Health Organization published in 2024, childbirths among girls aged 10-14 years are becoming more widely documented, with the adolescent birth rate for girls aged 10-14 years in 2023 standing at 1.5 per 1000 women, with higher rates reported in Sub-Saharan Africa (4.4) and Latin America and the Caribbean (2.3). (WHO, 2024)

It is highly associated with unfavourable factors such as poor socioeconomic status and lower levels of literacy among adolescent girls. Additionally, girls who are victim of child sexual abuse and child marriage are at an increased risk of pregnancy which is often unintended. (Raj & Boehmer, 2013; Santhya et al., 2010) Pregnancy and childbirth during adolescence is not only a risk factor for adverse birth outcomes, but is also associated with various maternal and perinatal complications including maternal mortality. (Ganchimeg et al., 2014) This further leads to derailment of the adolescent female's otherwise healthy development into adulthood, and also negatively impacts her health, education and livelihood opportunities. Early childbearing forces the adolescent female to drop out of school, thus hindering her from achieving literacy and knowledge, and also pressurizes her into getting married at a comparatively younger age.

Taking the Indian scenario into consideration, according to the Census of India 2011 report on adolescents and youth, adolescents (10-19 years) and youth (15-24 years) constitute 19.6% and 19% respectively of India's total population, making every fifth person in India an

adolescent and every third person a youth. (Government of India, 2011) Therefore, due to its large adolescent population, the persistence of early marriage and prevailing sociocultural norms in India, it becomes even more significant to recognize the risk factors, causes and consequences related to unwanted pregnancy during the teenage years and to accordingly design preventive measures. (Srinivasan, 2024)

Additionally, the increasing morbidity associated with sexual ignorance and poor decision making in India has also led to an increase in the risk of sex-related public health problems such as STD/HIV infections, teenage pregnancies and abortions which remain consistently high among University students. (International Institute for Population Sciences [IIPS] & ICF, 2021) To curb the issue of teenage pregnancy and childbearing, it is pivotal to create awareness among the vulnerable population regarding healthy sexual practices and contraception utilization, provide them with accurate reproductive health information, create supportive social norms, build effective communication systems and ensure access to appropriate services.

Hence, the University students are an important target population for the implementation of health-promoting interventions. They are exposed to formal education, peers, various digital media channels and ever-dynamic social environments, but information obtained through informal sources may be inadequate, inaccurate or unreliable. Due to the availability of inadequate or limited studies and data on the problem of teenage pregnancy in the Indian subcontinent, particularly the Northern part of India with special attention to the Chandigarh region, the objective of the present study is to fill the gaps in the existing knowledge of this domain. Therefore, the objective of our study had aimed to assess the domains of knowledge, attitude and practices pertaining to reproductive health, with the main focus of attention on the problem of teenage pregnancy among students of Panjab University in Chandigarh.

MATERIALS AND METHODS**Study Design and Setting**

A cross-sectional, descriptive, questionnaire-based survey was conducted at Panjab University, Chandigarh, India.

Study Population

Participants enrolled in Panjab University, Chandigarh comprised the target population of the current study.

The inclusion criteria was as follows: Subjects from both genders who

were full-time students belonging to the age group of 18–30 years who were married and unmarried were included in the study.

The exclusion criteria was as follows: Subjects who had any chronic or psychiatric illness were excluded from our study.

Sample Size and Sampling

The sample size was calculated using $n=4PQ/d^2$ with $P=50\%$ and $d=10\%$, yielding 100; the sample was doubled to 200 and increased by 10%, resulting in 220 participants. Stratified random sampling with proportional allocation and computerized random selection was used.

Data Collection Tool

A pre-designed structured questionnaire was developed in English, Hindi and Punjabi, reviewed by public-health experts and pilot tested. It included sociodemographic, knowledge, attitude and practices sections.

Scoring

The domain of knowledge consisted of nine items having 18 as the maximum score wherein a score of ≥ 13 indicates adequate, 9–12 moderate and ≤ 8 inadequate. Attitude consisted of eight Likert items having a maximum rating of 40 out of which a rating of ≥ 24 denotes positive and < 24 neutral/negative attitude. Practices consisted of eight items having a maximum score of 8 wherein a score of ≥ 5 signifies satisfactory and < 5 unsatisfactory practices. (Kaliyaperumal, 2004)

Statistical Analysis

Descriptive statistics, chi-square tests and Pearson correlation was used when appropriate. $P < 0.05$ was considered statistically significant.

Participation was voluntary and informed consent was obtained.

RESULTS

Out of a total of 220 participants, females constituted 53.2% (117) and males were 46.8% (103). Participants who were aged 18–20 years comprised 51.8% (114), followed by 35.9% (79) who were 21–23 years old, and the remaining 12.3% (27) was made up of those who were 24–26 years old. Undergraduates constituted 69.5% (153), whereas postgraduates made up 30.5% (67). Urban residents comprised 78.6% (173) and rural residents were 21.4% (47). The mean knowledge score was found as $15.70 \pm 2.25/18$. Participants having adequate knowledge were 55.9% (123), followed by 35% (77) and 9.1% (20) with moderate and inadequate levels of knowledge respectively. The mean attitude score was found as $33.2 \pm 5.1/40$, suggesting a prevalence of positive attitude among 84.1% (185) of participants. Around 72.7% (160) of participants opined that they followed satisfactory reproductive health practices.

Table 1. Key Study Findings:- Classification of Participants' Knowledge, Attitude and Practice Levels Using a Scoring Scheme, Cut-offs for Which are Based on Number of Relevant Questionnaire Items and Nature of Responses

Indicator	Finding
Sample size	220
Positive attitude	185 (84.1%)
Satisfactory practice	160 (72.7%)
Adequate knowledge	123 (55.9%)
Moderate knowledge	77 (35.0%)
Inadequate knowledge	20 (9.1%)

Table 2. Key Study Findings :- Association Between Knowledge Category and Attitude/Practice Categories, and Pearson Correlation (N=220)

Indicator	Finding
Sample size	220
Knowledge-attitude correlation	$r=0.695, P<0.001$
Knowledge-practices correlation	$r=0.639, P<0.001$
Attitude-practices correlation	$r=0.542, P<0.001$

There was a significant association between knowledge & attitude ($P < 0.001$) & practices ($P < 0.001$). Pearson correlations were positive between knowledge & attitude, knowledge & practices, and attitude & practices (all $P < 0.001$).

Reproductive-health practice was significantly associated with age ($P=0.009$), gender ($P=0.025$), education ($P=0.002$) and residence ($P=0.014$). Additionally, attitude scores differed significantly by age,

gender, education and residence. Lack of sex education was the leading perceived contributor to teenage pregnancy, accounting for 81%, followed by cultural/religious norms (35%), peer pressure (33%) and social media influence (30%). Approximately 74% of participants reported having been taught regarding sexual and reproductive health, about 85% had awareness regarding different contraceptive methods, and the internet/social media was the most predominant information source (90%).

DISCUSSION

In the present study, 220 students of Panjab University, Chandigarh participated and the results produced were quite reassuring, with 55.9% reported to have adequate knowledge about teenage pregnancy, 84.1% of subjects held a positive attitude towards its prevention and 72.7% opined that they following a satisfactory level of reproductive healthcare practices. Taking all three domains together, knowledge correlated strongly with attitude and with practices, and attitude correlated with practices somewhat more moderately (all with $P < 0.001$). This reasonably fits well with the KAP model. (Kaliyaperumal, K. 2004) However, the averages conceal real unevenness, as male students, postgraduates and students from rural backgrounds consistently lagged behind in one domain or another. This serves as a reminder that being a University student does not by itself equate to being literate about reproductive health.

This study estimated an overall knowledge mean of 15.70 ± 2.25 of 18, which sits well above what has been reported previously among school-going adolescents elsewhere in India. Pounraj et al.'s survey, conducted during the post-COVID period among 548 school girls in Theni, Tamil Nadu, estimated adequate knowledge among only 22.6% of respondents. (Pounraj, G. et al., 2025) Several factors, such as a more structured educational curriculum and greater peer exposure among University students compared to school students, may explain this difference. Additionally, Chandigarh, being an urban area, has relatively lower teenage pregnancy rates and better access to health information. (Kumar, R. et al., 2017) However, different studies use different tools, and therefore the difference should be considered suggestive rather than exact. The majority of participants (91%) were aware of the correct age band for teenage pregnancy and were also able to name its major health risks, such as complications during delivery (79%), low birth weight (75%) and maternal death (57%), a pattern broadly consistent with knowledge levels reported among adolescent girls elsewhere in India. (Augustin et al., 2021) Three-quarters had heard of the POCSO Act, of which only 77% could name it correctly, suggesting a lack of detailed knowledge if compared with existing studies that have evaluated higher levels of knowledge about the POCSO among the medical/nursing students and teachers/teacher trainees while limited data is available that can demonstrate whether adequate knowledge is present among the non-medical educational background of students. (Austin & Jose, 2022; Kaur et al., 2023; Kotturesha et al., 2023)

The results of the study identified lack of sex education (86%) and early marriage (76%) as the leading causes, drawing a parallel with a recent scoping review of Indian evidence that identified these as the major drivers of adolescent pregnancy. (A. Panda et al., 2023) Despite a broad understanding of causes and consequences remaining reasonably intact, knowledge regarding contraceptive methods still remains undermined. (Gupta et al., 2015)

Attitudes were even more favourable than knowledge, with 84.1% positive against a mean score of 33.2 ± 5.1 on an 8–40 scale, which is well above the 30.9% favourable rate reported among schoolgirls in Tamil Nadu as found in another study. (Pounraj, G. et al., 2025) A study from Iran offers a contrasting phenomenon, where 94% of adolescent girls disapproved of pregnancy before 18 years of age despite having poor factual knowledge (5.2/9), and lower knowledge corresponded to more permissive attitude. (Naghizadeh & Mirghafourvand, 2022) In the present findings, where knowledge and attitude move alongside strongly, this suggests that disapproving of teenage pregnancy in the abstract is not the same as having a sufficient understanding of it to act on that disapproval.

Practices lagged a little behind attitude, at 72.7% satisfactory against 84.1% positive attitude, a familiar KAP pattern in which good intentions do not necessarily convert into behaviour or action. The gap in the current study is far smaller in comparison to another study which was conducted among the among first-year Sikkim college students, that reported 86% to 98% of participants had awareness about

contraception, yet only 11% had ever used any method and 7% were current users. (Renjhen et al., 2010) Furthermore, this study also measured specifically about the contraceptive use, which is more relevant to the sexually active population, whereas the present study's 8-item practice score covers a wider set of behaviours, ranging from discussing sexual health with a trusted adult to seeking information and general preventive conduct across the whole sample, including the 68% of respondents who reported to never had intercourse. Additionally, for 90% of respondents the internet or social media was the major source of information, followed by school (58%), friends (47%), family (19%) and health workers as cited by just 2%. More than a decade ago, a pilot study conducted at the same University similarly found reliance on informal sources and dissatisfaction among students with what they actually knew. (Kumar, J. 2012) The persistence of this pattern, even after a decade of expanding internet access, suggests that formal channels such as schools, Universities and health workers are still not filling the gap in existing knowledge. The near-total absence of health workers as a named source of information appears to be a missed opportunity.

A significant finding of this study is the tightness of the KAP relationships with one another. The knowledge category shared a strong link with both attitude ($P < 0.001$) and practice ($P < 0.001$), and correlations across all three domains were significant, with knowledge-attitude and knowledge-practices both showing strong association. None of the comparison studies reported a matching correlation coefficient, so benchmarking the strength of these relationships against other Indian University populations is not possible. However, the study from Iran points in the same direction without providing a number. But the data from the Sikkim study also implies a considerably weaker knowledge-practice link than found in our study. (Renjhen et al., 2010) It is also worth noting that a cross-sectional design has inherent limitations, as it reveals associations at a single point in time rather than evidence that knowledge has a causal role in shaping attitude or practices. The reverse is just as plausible; while students demonstrating a favourable attitude may make an effort to seek out more information, this study cannot distinguish between the two directions.

As far as context is concerned, about three-quarters of participants reported that premarital sex is culturally unacceptable in their community, whereas 82% believed that pregnant teenagers face stigma and isolation from society. (Santhya et al., 2010) This suggests that conservative norms persist even in the urban and educated setting. This also explains why only 54% had ever discussed matters related to sexual health with a trusted adult, despite having generally strong knowledge and attitude. In both the knowledge and practices domains, female students outperformed male students, a finding consistent with the idea that reproductive health means more personal to young females. (D. Kumar et al., 2017) In the urban-rural comparison, urban students more often crossed the threshold of adequate knowledge compared to their rural counterparts, who had a slightly higher mean score overall — probably reflecting a zone where scores cluster around the cut-off value rather than a genuine rural disadvantage. This also serves as a useful reminder not to depend too heavily on categorical cut-offs alone.

Recommendations

The results of the current study constitute a reasonable case for using Universities as a base for promoting reproductive health education among students. The lacunae that remain in existing knowledge, particularly found among male, postgraduate, and students with a rural background, call for targeted rather than blanket interventions. As per our findings, students rely heavily on internet sources and very little on health professionals, introducing campus-based peer education, developing digital health communication, and incorporating reproductive health content into orientation or wellness programming are all reasonable next steps. As knowledge tracks closely with both attitude and practices, sharpening students' knowledge about contraception specifically, about the law, and about where to seek help could plausibly move the other two domains in the right direction.

Strengths and Limitations

Strengths

The strengths of our study include that it has a relatively large sample size, use of a structured questionnaire, assessment of multiple KAP domains with the help of inferential analyses.

Limitations

Being cross-sectional in design, it cannot establish causality or

sequence between the three domains. Several practice- and attitude-related items enquired about sensitive behaviour related to sexual intercourse and romantic relationships, and self-report on such questions is prone to social desirability bias, which may have inflated the satisfactory practice figures somewhat. Since the sample is drawn from a single urban university, it remains unclear how well it generalizes elsewhere. Additionally, the comparison studies differed from the current study in terms of the questionnaires used, item counts and cut-off values; the numerical gaps discussed above are best considered broadly indicative rather than precise.

CONCLUSION

Overall, the current study provides insightful information regarding the reasonably good awareness that University students exhibit pertaining to the causes, consequences and preventive measures related to teenage pregnancy, along with an understanding of its impact on the health, educational and livelihood prospects of an individual. The study emphasizes on the need to strengthen reproductive healthcare education, carry out awareness campaigns and provide adolescent-friendly counselling services within University settings. Continuous educational interventions, if carried out, can further enhance knowledge, foster positive attitude and encourage healthy sexual practices, thereby contributing to the prevention of adolescent pregnancy and the promotion of overall wellbeing among adolescents and young adults.

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