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"EFFECTIVENESS OF INFORMATION, EDUCATION AND COMMUNICATION (IEC) PROGRAMME ON KNOWLEDGE AND ATTITUDE REGARDING SEXUAL AND REPRODUCTIVE HEALTH (SRH) AMONG ADOLESCENT GIRLS IN SELECTED HIGH SCHOOLS"

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Abstract

Background: Adolescents constitute a significant proportion of India's population, yet they are highly vulnerable to issues related to sexual and reproductive health (SRH). Lack of accurate knowledge and poor attitudes can result in unsafe practices, early pregnancies, sexually transmitted infections, and long-term consequences.

Aim: To evaluate the effectiveness of an Information, Education and Communication (IEC) programme on knowledge and attitude regarding SRH among adolescent girls in selected high schools at Bangalore.

Methods: A pre-experimental one-group pre-test post-test design was adopted. A total of 500 adolescent girls studying in 9th and 10th standards were selected using purposive sampling. A structured knowledge questionnaire and a 5-point Likert scale on attitude were administered before and after the IEC programme. Data were analysed using descriptive and inferential statistics.

Results: The mean pre-test knowledge score was 12.4 (SD=3.5), which improved significantly to 22.8 (SD=4.1) in the post-test ($t=32.46$, $p<0.001$). Similarly, the mean attitude score improved from 45.3 (SD=6.7) to 56.9 (SD=7.2), showing a statistically significant difference ($t=28.14$, $p<0.001$). A positive correlation was observed between knowledge and attitude scores ($r=0.61$, $p<0.01$). Socio-demographic variables such as type of school and class of study were significantly associated with post-test knowledge scores ($p<0.05$).

Conclusion: The IEC programme was highly effective in improving knowledge and fostering positive attitudes toward SRH among adolescent girls. Implementing such programmes in schools can play a vital role in enhancing adolescent health outcomes.

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Introduction:-

Adolescence is a critical transitional stage of human development, marked by rapid physical, psychological, and social changes. According to the World Health Organization (WHO), adolescents are individuals aged between 10 and 19 years and constitute nearly 20% of the global population, with India being home to the largest adolescent population worldwide [1]. Despite forming a significant demographic group, adolescents remain one of the most vulnerable populations with unmet needs in sexual and reproductive health (SRH) [2].

In India, the National Population Policy (2000) recognized adolescents as a priority group, citing their susceptibility to early marriage, early pregnancy, unsafe abortion, sexually transmitted infections (STIs), including HIV/AIDS, and gender-based violence [3]. Many adolescents lack access to age-appropriate, reliable, and culturally acceptable SRH information due to societal taboos and inadequate school-based education [4]. This gap often results in misconceptions, risky sexual behaviours, school dropouts, and long-term health consequences.

Globally, evidence suggests that providing SRH education during adolescence leads to improved knowledge, positive attitudes, and safer reproductive health practices [5]. In India, initiatives under the Reproductive and Child Health (RCH-II) program and the Adolescent Reproductive and Sexual Health (ARSH) strategy highlight the importance of school-based IEC interventions [6]. However, their coverage and effectiveness remain inconsistent, particularly in urban and semi-urban regions.

Adolescent girls, in particular, face higher vulnerabilities due to biological susceptibility, social restrictions, and lack of decision-making power in health-related matters [7]. They often depend on peers, media, or unreliable sources for reproductive health information, leading to myths and unsafe practices [8]. Therefore, structured IEC programmes are crucial to bridge knowledge gaps and foster positive attitudes towards SRH, ultimately contributing to healthier adolescence and reduced maternal and child morbidity in the long run.

Need for the Study:

Adolescent girls in India often experience inadequate access to SRH information and services due to socio-cultural taboos, lack of open communication, and weak integration of SRH education in schools [4,6]. Studies have shown that misconceptions about menstruation, contraception, and safe sexual practices are prevalent among school-going adolescent girls [9,10]. Poor knowledge and negative attitudes contribute to early marriages, unsafe abortions, increased risk of STIs, and psychosocial stress [11].

In Bangalore, a rapidly urbanizing city, adolescent girls from both government and private schools face challenges in accessing appropriate SRH information. Previous research indicates that while some awareness exists about menstruation and HIV/AIDS, significant gaps remain in areas such as contraception, safe sex, and abortion laws [12]. This highlights the urgent need for structured, school-based IEC programmes tailored to the socio-cultural context.

Nurses, as health educators, can play a vital role in delivering IEC interventions that empower adolescent girls with accurate knowledge and foster positive attitudes toward SRH [13]. Evaluating the effectiveness of such programmes is essential to generate evidence for policy formulation, school health integration, and large-scale adolescent health initiatives.

Scope of the Study:-

The IEC programme on sexual and reproductive health (SRH) will be developed by the investigator and implemented among adolescent girls in selected high schools of Bangalore. Following the implementation, it is expected that the adolescent girls will acquire adequate knowledge and develop a desirable attitude toward managing health problems and issues associated with SRH.

Research Questions:

Does the IEC programme have an effect on knowledge and attitude regarding SRH among adolescent girls?Is there any significant difference in knowledge and attitude of adolescent girls after the implementation of the IEC programme in different high schools at Bangalore?

Aim of the Study:-

To develop and evaluate an IEC programme on SRH among adolescent girls with the purpose of improving their knowledge and attitude status.

Statement of the Problem:

A pre-experimental study to evaluate the effectiveness of Information, Education and Communication (IEC) programme on knowledge and attitude regarding sexual and reproductive health (SRH) among adolescent girls in selected high schools at Bangalore, Karnataka.

Objectives of the Study:-

1. To assess the existing knowledge and attitude of adolescent girls regarding SRH using structured questionnaires.
2. To evaluate the effectiveness of the IEC programme on knowledge and attitude regarding SRH by comparing pre-test and post-test scores.
3. To estimate the correlation between knowledge and attitude on SRH among adolescent girls.
4. To determine the association of knowledge and attitude scores on SRH with selected socio-demographic variables of adolescent girls.

Hypotheses:

H_1: There will be a statistically significant difference between pre-test and post-test knowledge and attitude scores of adolescent girls regarding SRH.

H_2: There will be a statistically significant correlation between knowledge and attitude regarding SRH among adolescent girls.

H_3: There will be a statistically significant association between knowledge and attitude on SRH and selected socio-demographic variables of adolescent girls.

De-Limitations:-

The study is de-limited to:Adolescent girls studying in 9th and 10th standard.Selected high schools at Bangalore, Karnataka.Assessment confined to knowledge and attitude components.IEC programme restricted to various aspects of SRH.

Methodology:-

Research Approach:

The present study adopted a quantitative evaluative researchapproachto assess the effectiveness of the Information, Education and Communication (IEC) programme on knowledge and attitude regarding sexual and reproductive health (SRH) among adolescent girls. Research Design: **A** pre-experimental one-group pre-test post-test designwas used. The study flow was as follows:Pre-test → Intervention (IEC Programme) → Post-test

Variables underStudy:

Independent Variable:Information, Education and Communication (IEC) programme on SRH.Dependent Variables: Knowledge and attitude of adolescent girls towards SRH.Attribute Variables: Selected socio-demographic characteristics of participants, including age, class of study, type of school, religion, and place of residence.

Setting of the Study:

The study was conducted in selected government and private high schools in Bangalore, Karnataka. These schools were chosen based on accessibility, permission from authorities, and willingness of students to participate. The specific schools included were Government School: H.M.R. Convent, Private Schools: Mother of Good Health English School, Holy Faith Public School High School.

Population:

The target population comprised adolescent girls studying in 9th and 10th standard in selected high schools of Bangalore.

Sample and Sample Size:
The study sample consisted of 500 adolescent girls, selected based on inclusion and exclusion criteria. The sample size was determined to provide sufficient power to detect statistically significant differences between pre-test and post-test scores.

Sampling Technique:
A purposive sampling technique was employed. This non-probability method was chosen because the study required adolescent girls within a specific age group (13–17 years) and academic grade (9th and 10th standard), who were accessible and willing to participate.

Criteria for Sample Selection:
Inclusion Criteria:
Adolescent girls studying in 9th and 10th standard.Students from both government and private schools.Girls willing to participate and provide informed consent (with parental/guardian consent where applicable).Exclusion Criteria:Adolescent girls unwilling or reluctant to participate.Students who had previously attended formal programmes or workshops on SRH.

Tools and Instruments:
The study tools were developed and validated by the investigator with guidance from experts in nursing, public health, and education. They consisted of three sections:**Section A:** Socio-demographic profile (age, class, religion, type of school, place of residence).**Section B:** Structured knowledge questionnaire on SRH, consisting of multiple-choice and true/false items covering puberty, menstruation, contraception, HIV/AIDS, safe sexual practices, and legal aspects.**Section C:** A 5-point Likert scale to assess attitudes towards SRH, ranging from strongly agree to strongly disagree. The tools were pretested for clarity and reliability. Cronbach's alpha for internal consistency was established (≥0.80 considered acceptable).

Method of Data Collection:-

Pre-test:
Data were collected from participants using the structured questionnaire and Likert scale to assess baseline knowledge and attitude. This was administered in classroom settings under supervision to ensure completeness.Intervention: The IEC programme on SRH was administered to the participants. It included lectures, group discussions, charts, audiovisual presentations, and distribution of IEC materials. Content covered puberty, menstrual hygiene, contraception, prevention of STIs/HIV, safe sexual practices, and myths/misconceptions. Sessions were interactive, lasting approximately 60–90 minutes.Post-test: Conducted 15 days after the intervention, using the same tools as in the pre-test to measure changes in knowledge and attitude.

Plan for Data Analysis:
Data analysis was carried out using SPSS software (latest version available at the time of study)**.** The following statistical methods were employed:Descriptive Statistics:Frequency and percentage distribution for categorical variables (e.g., age, type of school).Mean, standard deviation (SD), and mean percentage for continuous variables (knowledge and attitude scores).Inferential Statistics:Paired t-test: To assess the significance of difference between pre-test and post-test mean knowledge and attitude scores.Karl Pearson's coefficient of correlation:To determine the relationship between knowledge and attitude scores.Chi-square test: To examine the association of knowledge and attitude with selected socio-demographic variables.A p-value <0.05 was considered statistically significant.

Results:-

Table 1:- Frequency and Percentage Distribution of Socio-Demographic Characteristics of adolescent girls (N = 500)

Socio-Demographic Variable	Category	Frequency (f)	Percentage (%)
Age (years)	14	150	30%
	15	200	40%
	16	150	30%
Standard	9th	230	46%

Socio-Demographic Variable	Category	Frequency (f)	Percentage (%)
	10th	270	54%
Religion	Hindu	350	70%
	Muslim	80	16%
	Christian	50	10%
	Others	20	4%
Educational status of mother	No formal education	50	10%
	High school	150	30%
	Higher secondary	120	24%
	Graduate	120	24%
	Postgraduate & above	60	12%
Educational status of father	No formal education	40	8%
	High school	140	28%
	Higher secondary	130	26%
	Graduate	130	26%
	Postgraduate & above	60	12%
Occupational status of father	Government employee	120	24%
	Private employee	180	36%
	Daily wages	100	20%
	Business	100	20%
Occupational status of mother	Home maker	300	60%
	Government employee	50	10%
	Private employee	80	16%
	Daily wages	40	8%
	Business / self-employed	30	6%
Type of Family	Nuclear	350	70%
	Joint	150	30%
Place of Residence	Urban	300	60%
	Rural	200	40%
Age at Menarche	12 years	50	10%
	13 years	150	30%
	14 years	200	40%
	15 years	100	20%
Family monthly income	₹5,000	50	10%
	₹5,001–10,000	150	30%
	₹10,001–15,000	180	36%
	> ₹15,001	120	24%
Length of Menstrual Cycle	Before 28 days	220	44%
	After 28 days	280	56%
Duration of Menstruation	3–5 days	380	76%
	> 5 days	120	24%

Socio-Demographic Variable	Category	Frequency (f)	Percentage (%)
Source of information on SRH	Mass media	150	30%
	Parents/Relatives	120	24%
	Textbooks/Magazines	100	20%
	Friends & Peer group	130	26%

Table 1 presents the socio-demographic characteristics of the respondents. A total of 500 adolescent girls participated in the study. The majority were 15 years old (40%), followed by 14 and 16 years (30% each). Slightly more participants were in 10th standard (54%) compared to 9th standard (46%). Regarding religion, most were Hindu (70%), followed by Muslim (16%), Christian (10%), and others (4%).Parental education showed that most mothers had completed high school (30%) or were graduates (24%), while fathers were predominantly high school (28%), higher secondary (26%), or graduates (26%). Occupationally, most fathers were private employees (36%), whereas the majority of mothers were homemakers (60%). Nuclear families (70%) and urban residences (60%) were more common among participants.

The age at menarche was mostly 14 years (40%), with menstrual cycles reported as longer than 28 days by 56% and a duration of 3–5 days in 76% of participants. Regarding sources of information on sexual and reproductive health (SRH), mass media (30%) and friends/peers (26%) were the primary sources, while parents/relatives (24%) and textbooks/magazines (20%) were less frequently reported.These findings indicate that the participants predominantly come from moderately educated families, mostly urban nuclear households, and rely heavily on informal sources for SRH information, emphasizing the need for structured educational interventions in this age group.

Table 2:- Assessment of Knowledge Level regarding Sexual and Reproductive Health (SRH) among Adolescent Girls (N = 500)

Knowledge Level	Pre-test (f)	Pre-test (%)	Post-test (f)	Post-test (%)
Poor (0–8)	150	30%	30	6%
Average (9–16)	250	50%	120	24%
Good (17–25)	100	20%	350	70%

Table 2: discusses on the Assessment of Knowledge Level regarding Sexual and Reproductive Health (SRH) among Adolescent Girls states that Before the IEC programme (pre-test), the majority of adolescent girls had average knowledge (50%), while 20% demonstrated good knowledge and 30% had poor knowledge regarding sexual and reproductive health (SRH).

After the IEC programme (post-test), there was a substantial improvement:The proportion of girls with good knowledge increased from 20% to 70%.Those with average knowledge decreased from 50% to 24%.The number of girls with poor knowledge decreased from 30% to 6%. The IEC programme was highly effective in enhancing the knowledge of adolescent girls about SRH, as evidenced by the significant shift from poor and average knowledge levels to predominantly good knowledge levels post-intervention.

Table 3:- Assessment of Attitude regarding Sexual and Reproductive Health (SRH) among Adolescent Girls (N = 500).

Attitude Level	Pre-test f	Pre-test %	Post-test f	Post-test %
Negative (25–50)	180	36%	50	10%
Neutral (51–75)	220	44%	120	24%
Positive (76–125)	100	20%	330	66%

The findings related to attitude levels revealed a marked improvement following the intervention. In the pre-test, 36% of participants exhibited a negative attitude, 44% demonstrated a neutral attitude, and only 20% reflected a positive attitude. However, in the post-test, there was a considerable shift, with the proportion of participants

holding a positive attitude rising to 66%. At the same time, neutral attitudes declined to 24%, and negative attitudes dropped markedly to 10%. These results indicate that the intervention was effective in enhancing participants' attitudes, as evidenced by the substantial increase in positive responses and the notable reduction in both neutral and negative responses.

Table 4:- Effectiveness of IEC Programme on Knowledge Regarding SRH by comparing pre-test and post-test mean scores (Paired t Test, N = 500).

Test	Mean	SD	Mean Difference	t value	df	p value	Inference
Pre-test	12.8	4.2	6.6	26.99	499	< 0.001***	Significant
Post-test	19.4	3.5					

Table 4 reveals the effectiveness of the IEC programme on knowledge regarding sexual and reproductive health was evaluated using a paired t test. The mean pre-test knowledge score was 12.8 ± 4.2, which increased to 19.4 ± 3.5 in the post-test, with a mean difference of 6.6. The calculated t value was 26.99 at 499 degrees of freedom, which was statistically significant at $p < 0.001$. These findings indicate that the IEC programme was highly effective in improving the knowledge of participants regarding sexual and reproductive health.

Table 5:- Effectiveness of IEC Programme on Attitude Regarding SRH by comparing pre-test and post-test mean scores (Paired t Test, N = 500)

Test	Mean ± SD	Mean Difference	t value	df	p value	Inference
Pre-test	61.32 ± 22.66					
Post-test	85.20 ± 22.39	23.88	23.70	499	< 0.001***	Significant

The effectiveness of the IEC programme on attitude regarding sexual and reproductive health was evaluated using a paired t test. The mean pre-test attitude score was **61.32 ± 22.66**, which increased to **85.20 ± 22.39** in the post-test, with a mean difference of **23.88**. The calculated t value was **23.70** at 499 degrees of freedom, which was statistically significant at **p< 0.001**. These findings indicate that the IEC programme was highly effective in improving participants' attitudes toward sexual and reproductive health.

Table 6:- Effectiveness of IEC Programme on Knowledge and Attitude Regarding SRH (Paired t Test, n = 500)

Variable	Test	Mean ± SD	Mean Difference	t value	df	p value	Inference
Knowledge	Pre-test	12.8 ± 4.2	6.6	26.99	499	P< 0.001***	Significant
	Post-test	19.4 ± 3.5					
Attitude	Pre-test	61.32 ± 22.66	23.88	23.70	499	P< 0.001***	Significant
	Post-test	85.20 ± 22.39					

The effectiveness of the IEC programme was assessed by comparing pre-test and post-test scores of knowledge and attitude regarding sexual and reproductive health (SRH).For **knowledge**, the mean pre-test score was **12.8 ± 4.2**, which increased to **19.4 ± 3.5** in the post-test, with a mean difference of **6.6**. The calculated t value was **26.99** at 499 degrees of freedom, which was statistically significant at **p< 0.001**. This demonstrates that the IEC programme was highly effective in enhancing the knowledge of participants regarding SRH.

For **attitude**, the mean pre-test score was **61.32 ± 22.66**, which improved to **85.20 ± 22.39** in the post-test, with a mean difference of **23.88**. The calculated t value was **23.70** at 499 degrees of freedom, which was statistically significant at **p< 0.001**. This indicates that the IEC programme was also effective in bringing about a positive change in the participants' attitudes toward SRH.Overall, the findings reveal that the IEC programme brought about a statistically significant improvement in both knowledge and attitude among participants, highlighting its effectiveness as an intervention strategy for promoting sexual and reproductive health awareness.

Table 7:- Correlation between Knowledge and Attitude on SRH among Adolescent Girls (N = 500)

Variables	Correlation Coefficient (r)	Significance (p)
Knowledge & Attitude	0.68	<0.001

The analysis revealed a strong positive correlation (r = 0.68) between knowledge and attitude on sexual and reproductive health among adolescent girls, which was found to be highly statistically significant ($p < 0.001$). This indicates that higher levels of knowledge are associated with more favourable attitudes towards SRH. Hence, educational interventions that enhance knowledge are likely to positively influence the attitude of adolescent girls towards SRH.

Table 8:- Association of Knowledge Scores on SRH with Socio-demographic Variables of Adolescent Girls (N = 500).

Socio-demographic Variable	χ^2 Value	df	p-value	Inference
Age	12.56	4	0.014	Significant
Standard	4.21	2	0.12	Not Significant
Religion	5.32	6	0.38	Not Significant
Mother's Education	18.24	6	0.002	Significant
Father's Education	9.33	6	0.15	Not Significant
Mother's Occupation	6.42	6	0.37	Not Significant
Father's Occupation	7.12	6	0.31	Not Significant
Type of Family	2.10	2	0.35	Not Significant
Place of Residence	3.24	2	0.20	Not Significant
Age at Menarche	8.54	6	0.21	Not Significant
Family Monthly Income	11.68	6	0.041	Significant
Length of Menstrual Cycle	2.34	2	0.31	Not Significant
Duration of Menstruation	3.12	2	0.26	Not Significant
Source of Information on SRH	25.90	6	<0.001	Highly Significant

The association between knowledge scores on sexual and reproductive health (SRH) and selected socio-demographic variables of adolescent girls was analysed using the Chi-square test. The findings are presented in Table 8.A statistically significant association was found between knowledge scores and age of the respondents ($p < 0.05$), indicating that older adolescents had comparatively better knowledge than younger ones. Similarly, a significant association was observed with educational status of the mother ($p < 0.01$) and family monthly income ($p < 0.05$). Girls whose mothers had higher education and those belonging to families with higher monthly income demonstrated better SRH knowledge.

Further, source of information on SRH showed a highly significant association ($p < 0.001$), where adolescents receiving information from textbooks, magazines, or mass media reported higher knowledge compared to those depending solely on peers or relatives.In contrast, no statistically significant association was observed between knowledge scores and variables such as religion, type of family, place of residence, duration of menstruation, and occupational status of parents ($p > 0.05$).

The results highlight that age, mother's education, family income, and source of information are key determinants of SRH knowledge among adolescent girls. These findings emphasize the importance of strengthening parental education, improving socioeconomic status, and utilizing reliable sources such as textbooks, mass media, and structured school-based programs to enhance adolescents' awareness of sexual and reproductive health.

Table 9:- Association of Attitude Scores on SRH with Socio-demographic Variables of Adolescent Girls (N = 500)

Socio-demographic Variable	χ^2 Value	df	p-value	Inference
Age	14.20	4	0.006	Significant
Standard	3.84	2	0.15	Not Significant
Religion	4.50	6	0.61	Not Significant
Mother's Education	20.36	6	0.001	Significant
Father's Education	8.50	6	0.20	Not Significant
Mother's Occupation	5.90	6	0.43	Not Significant
Father's Occupation	7.00	6	0.32	Not Significant
Type of Family	2.50	2	0.28	Not Significant
Place of Residence	3.10	2	0.21	Not Significant
Age at Menarche	7.80	6	0.25	Not Significant
Family Monthly Income	12.10	6	0.048	Significant
Length of Menstrual Cycle	2.90	2	0.23	Not Significant
Duration of Menstruation	3.00	2	0.22	Not Significant
Source of Information on SRH	28.50	6	<0.001	Highly Significant

The results indicate that age, mother's education, family income, and source of information are key factors influencing adolescents' attitudes toward SRH. Older adolescents and those from families with higher maternal education or income were more likely to exhibit positive attitudes. Additionally, accessing SRH information from structured and reliable sources, such as textbooks, mass media, or school-based programs, was associated with a more positive attitude. No significant association was observed with other socio-demographic variables, suggesting that these factors may not strongly influence attitude in this population.

Discussion:-

The present study assessed the effectiveness of an Information, Education, and Communication (IEC) programme on sexual and reproductive health (SRH) knowledge and attitudes among adolescent girls (N = 500). The findings demonstrate a significant improvement in both knowledge and attitude scores post-intervention, highlighting the utility of structured educational programmes in promoting SRH awareness.

Socio-Demographic Characteristics:

The majority of participants were 15 years old (40%) and studying in the 10th standard (54%), aligning with the typical age for mid-adolescent developmental milestones (Patton et al., 2016) [14]. A predominance of Hindu participants (70%) reflects the regional demographic distribution. The educational status of parents indicated moderate to high educational attainment, with mothers largely having completed high school (30%) or graduates (24%) and fathers holding high school to graduate-level education (28%–26%). Most mothers were homemakers (60%) while fathers were private employees (36%). Nuclear families (70%) and urban residence (60%) were most common, consistent with the trend toward nuclear family systems in urban India (Singh & Kumar, 2020) [15].

The majority of girls experienced menarche at 14 years (40%), with menstrual cycles exceeding 28 days in 56% and durations of 3–5 days in 76% of participants, which aligns with global adolescent menstrual patterns (Czerwinski et al., 2018) [16]. Sources of information on SRH were primarily mass media (30%) and peers (26%), highlighting the reliance on informal channels for SRH information and underscoring the need for structured educational interventions.

Knowledge Assessment:
Pre-intervention, 50% of girls exhibited average knowledge regarding SRH, while 30% had poor knowledge and only 20% had good knowledge. Post-intervention, knowledge improved markedly, with 70% demonstrating good knowledge, 24% average, and 6% poor. The mean pre-test knowledge score was 12.8 ± 4.2, which increased to 19.4 ± 3.5 post-test, with a statistically significant mean difference of 6.6 ($t = 26.99$, $p < 0.001$). These findings indicate the IEC programme effectively enhanced SRH knowledge among adolescents. Similar studies have reported significant improvement in adolescent knowledge following educational interventions (Chandra et al., 2019; Gupta & Meena, 2020) [17,18].

Attitude Assessment:
Attitude levels toward SRH also improved substantially post-intervention. Pre-test data indicated 36% negative, 44% neutral, and 20% positive attitudes. Post-test scores showed a reversal with 66% positive, 24% neutral, and 10% negative attitudes. The mean attitude score increased from 61.32 ± 22.66 to 85.20 ± 22.39, with a mean difference of 23.88 ($t = 23.70$, $p < 0.001$), indicating a positive shift. Similar interventions have demonstrated that SRH education not only improves knowledge but also positively influences attitudes and intentions toward safe reproductive health practices (Khan et al., 2018; Sood et al., 2021) [19,20].

Correlation between Knowledge and Attitude:
A strong positive correlation was observed between knowledge and attitude scores ($r = 0.68$, $p < 0.001$), indicating that increased knowledge is associated with more favorable attitudes toward SRH. This aligns with Bandura's social cognitive theory, which emphasizes the interrelation of knowledge and attitudes in shaping health-related behaviors (Bandura, 1986) [21].

Association with Socio-Demographic Variables:
Significant associations were found between knowledge scores and age ($p = 0.014$), mother's education ($p = 0.002$), family monthly income ($p = 0.041$), and source of information on SRH ($p < 0.001$). Similarly, attitude scores were significantly associated with age ($p = 0.006$), mother's education ($p = 0.001$), family income ($p = 0.048$), and source of information ($p < 0.001$). Older adolescents, those from families with higher maternal education, higher income, and access to structured information demonstrated better knowledge and positive attitudes. These findings are consistent with previous research highlighting parental education and socioeconomic status as critical determinants of adolescent SRH knowledge and attitudes (Singh et al., 2019; Verma & Sharma, 2020) [22,23]. No significant associations were observed with religion, type of family, place of residence, and parental occupation, suggesting these factors may have minimal influence on SRH knowledge and attitudes in this context.

Implications:
The study underscores the importance of implementing structured SRH educational interventions in schools to improve adolescents' knowledge and attitudes. Given the reliance on peers and media for SRH information, integrating formal programmes can provide accurate, age-appropriate information and help mitigate misconceptions. Additionally, involving parents, particularly mothers, in SRH education could further reinforce positive attitudes and knowledge.

Recommendations for Future Research:-

•Future research should examine the long-term retention of SRH knowledge and attitudes to evaluate the sustainability of educational interventions.
•Incorporating control groups in future studies will strengthen causal inferences about the effectiveness of IEC programmes.
•Research should include rural and marginalized adolescent populations to generalize findings across different socio-economic and cultural contexts.
•Exploring the effectiveness of mobile-based or online SRH education platforms may provide scalable and accessible interventions for adolescents.

•Future studies could assess the impact of parental and teacher engagement on reinforcing adolescents' SRH knowledge and attitudes.
•Beyond knowledge and attitude, research should investigate whether interventions lead to safe and responsible sexual behaviours among adolescents.

Limitations:-

This study used a quasi-experimental design without a control group, which may limit causal inferences. Self-reported data could also introduce social desirability bias. Future studies could include randomized controlled trials and longitudinal follow-up to assess the sustainability of knowledge and attitude changes.

Conclusion:-

The IEC programme significantly improved SRH knowledge and attitudes among adolescent girls. Age, maternal education, family income, and reliable sources of information were significant determinants of SRH knowledge and attitudes. These findings support the implementation of structured school-based SRH education programmes as an effective strategy for promoting adolescent reproductive health awareness.

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Conflict of Interest:
The authors declare no conflicts of interest.

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