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Title Page

Sexual and reproductive health knowledge, attitude and practices among adolescents in rural, Thatta, Pakistan

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Abstract

Introduction:

Adolescent Sexual and Reproductive Health (ASRH) encompasses their physical and emotional wellbeing, including their ability to avoid unwanted pregnancies, unsafe abortions, Sexually Transmitted Infections (STI's), and any type of sexual violence and coercion. However, all these risks can be effectively prevented by adequate knowledge, positive attitude and practices. Therefore, study aims to identify the factors associated with knowledge, attitude, and practices (KAP) related to HIV, STI, family planning and, pregnancy among adolescents residing in rural Thatta**.**

Methods:

An analytical cross-sectional study was conducted using multistage cluster sampling, involving 632 adolescents aged 14-19 years from Thatta, Gharo, and, Jungshahi. In this study, association between socio-demographic factors and knowledge, attitude and practice were assessed using a modified version of "Asking Young People about Sexual and Reproductive Behaviors" tool. Statistical analysis was performed on Stata 15.0 using multiple linear regression.

Results:

Among 632 adolescents, 82.7% were females and 17.2% were males. No significant difference was found in mean scores of knowledge and attitude between males and females. However a difference of 0.13 (0.005 0.24) in practices scores was observed. In design based multivariable analysis, adolescents marital status (□ 5.13; 95% CI 1.34, 8.91), and father's occupation (□ 3.41, 95% CI 0.90, 5.93) were associated with knowledge. Marital status (□ 1.34; 95% CI 0.82, 1.86), household income (□ -2.36; 95% CI -4.64, -0.07), father's occupation (□ -1.42; 95% CI -2.52, -0.33), and mother's education (□ -1.41; 95% CI -2.71, -0.11) were associated with attitude.

Moreover, marital status (0.24; 95% CI 0.06, 0.41), and mother's occupation (0.64; 95% CI 0.38, 0.90) were associated with practice.

Conclusion

No gender disparity in knowledge and attitude between male and females was found. These findings suggest that community awareness programs should be implemented to improve SRH KAP for both male and female adolescents in Thatta.

Key Message

What is already known to this topic?

- Adolescent pregnancy is a widespread issue globally. Approximately 16 million adolescent girls give birth every year.
- HIV prevalence among adolescents remains a significant concern globally, particularly affecting girls.
- In Low-and Middle-Income Countries (LMICs), adolescent's faces difficulties due to cultural restrictions, limited information, and restricted access to health services, especially in rural areas

What this study adds?

- This study highlights the importance of various socio-demographic factors on adolescents SRH knowledge, attitudes, and practices.

How this study might affect research, practices or policy?

- This study underlines the importance of implementing awareness programs within communities and parent-adolescents communication that empower and educate adolescents, ensuring a healthier and more informed future for them and for their community.
- Further longitudinal research is essential to access the impact of community-based interventions and educational programs on adolescent KAP. Such studies could provide valuable insights to shape more efficient and specifically targeted initiatives.

Introduction

The Sustainable Development Goals (SDG) are directed towards uplifting the global health of population and one of these goals focuses on enhancing Adolescent's Sexual and Reproductive Health (ASRH) (1). ASRH refers to "physical and emotional wellbeing of adolescents. This includes their ability to remain free from unwanted pregnancy, unsafe abortion, Sexually Transmitted Infections (STIs) including Human Immunodeficiency Virus (HIV), and all forms of sexual violence and coercion" (2, 3). Neglecting ASRH presents a substantial public health concerns worldwide (4).

Adolescent pregnancy, which occurs in girls aged 10-19 years, is a widespread issue globally. Approximately 16 million girls in this age group give birth every year (5). Despite advancements in maternal health on a global scale (6), adolescent pregnancy remains a prevalent public health concern, especially in developing countries where approximately 19% of women experience pregnancy before their 18th birthday (7). In addition to the challenges of teenage pregnancy, the burden of HIV among adolescents remains significant. In 2022, approximately 1.65 million adolescents aged 10-19 were living with HIV. Moreover, gender disparities play a significant role in HIV prevalence with 71% of affected adolescents being girls (8).

In Pakistan, like many Low and Middle Income Countries (LMICs), adolescent's faces difficulties due to cultural restrictions, limited information, and restricted access to health services, especially in rural areas (9). The lack of comprehensive sex education and cultural norms hinder discussions on ASRH between parents and adolescents, leading to misconceptions and limited access to reliable information (10). Thus, Addressing ASRH requires understanding socio-demographic factors influencing adolescent knowledge, attitudes, and practices. Factors such as parental education, gender norms, and limited reliable information sources significantly impact ASRH (11). Cultural norms, religious beliefs, and parents' lack of information about Sexual and Reproductive Health (SRH) further hinder open discussions about ASRH, exacerbating these challenges (12). Addressing these challenges necessitates a foundation of adequate and accurate knowledge, fostering a favorable attitude, and promoting safe practices, which will contribute to significant improvement in ASRH and enhancing overall well-being of adolescents.

It's very important to target adolescents between 14-19 years because they need extra care and vigilance in terms of SRH. Evidence suggested that adolescents aged 14-19 years have high incidence of STIs, early pregnancies, and abortions. In addition to this, adolescents residing in the rural areas are more vulnerable to indulge in unsafe practices related to SRH, and neglect their reproductive needs (14). The disparity gets amplified when gender differences are taken into consideration (15). These gender disparities directly affect the empowerment of adolescent in making effective decisions (15). The foremost step to make the adolescent population of rural areas empowered, it is important to uplift their knowledge related to SRH which will subsequently affect their attitudes and practices towards ASRH. Thus, this study aimed to identify the mean score and factors associated with knowledge, attitude, and practices related to

HIV, STI, family planning, and pregnancy among adolescent in rural areas of district Thatta, Sindh. This study serves the purpose of identifying the knowledge gaps related to ASRH. It provided valuable evidence for proposing educational interventions to enhance adolescent's knowledge and empower them to make informed decisions.

Methodology

Study design and setting

The study was an analytical cross-sectional study and population-based representative sample was drawn from selected villages registered under Global Network Maternal and Newborn Health Registry (MNHR) in Thatta, Pakistan. The study conforms to the Reporting of Observational Studies in Epidemiology (STROBE) Statement.

Study participants and eligibility

Adolescent between 14-19 years residing in households of selected villages registered under MNHR, were included in the study. However, adolescents with cognitive or intellectual impairments, those below 18 years whose parents were deaf, blind, or had any psychiatric illness were excluded. Additionally, households that were locked or households where eligible adolescents were not present at the time of initial visit were revisited on the same day before excluding from study.

Sampling strategy

A multistage cluster sampling method was employed. There were total 104 clusters (villages) within Thatta, Jungshahi, and Gharo regions. Through systematic sampling, 62 clusters were selected based on a calculated kth value of 2 (104/62), and served as a primary sampling unit. Each cluster comprised a minimum of 58 households. Through systematic sampling, approximately ten households from each cluster were selected based on the calculated kth value

of 6 (58 households per cluster /10 households) and selected households served as a secondary unit. The survey began at the village center, determining the first street's direction with a spun bottle. If the end of the street was reached, survey team turned right, adhering to the right-hand rule, and continued into the next street or lane. Adolescents within households served as elements or tertiary sampling units in our study. If there were more than one adolescent between 14-19 years in one house, only one adolescent was chosen randomly through lottery method. The data collection was carried out from May to June 2023.

Data collection

In this study, knowledge, attitude, and practices were considered as outcome variables which were measured with the help of asking young people about sexual and reproductive behavior tool (16), with participant's responses treated as continuous variables. A modified version of this tool was used, comprising total 35 questions, and had 4 sections as follows;

Section 1: Socio-demographic information

Section 2: Knowledge related to HIV, STI, family planning, and adolescent pregnancy

This section consisted of 27 questions. Among these, eight had "yes" or "no" choice, with one score for the correct answer. Six questions were in a "true" or "false" format; two of these required reverse coding, and a correct answer was scored as one. Additionally, two questions used a likert scale with scores ranging from 0 to 3. Six more questions used a likert scale, but with scores ranging from 0 to 2. The remaining five questions were in an "agree" or "disagree" format, with one score given for the correct response.

Section 3: Attitude related to HIV, STI, family planning, and adolescent pregnancy

There were total 7 questions in attitude section. Two questions were in the form of likert scale, where the score ranged from 0 to 5. Another two questions used a likert scale with a score range from 0 to 2. For the remaining three questions, each correct answer was assigned a score of 1.

Section 4: Practices related to HIV, STI, family planning, and adolescent pregnancy

In this section, there were total 5 questions. Four were in "yes" or "no" format, where a score of 1 was assigned for a correct response. The remaining question used a likert scale with score range from 1 to 4.

The modified tool underwent content validation by experts, demonstrated high relevance (0.97) and clarity (0.96) based on Content Validity Index for Scale (S-CVI/Ave) method. The Universal Agreement (S-CVI/UA) method revealed a relevance of 0.90, and clarity 0.82. Face validation using S-CVI/Ave and S-CVI/UA method also confirmed the questionnaires high clarity at a score of 1.

Operational definitions:

Knowledge

Knowledge referred to adolescents' awareness and understanding of HIV, STIs, family planning, and pregnancy. There were total 27 items and scores ranged from 0 to 35. As adolescent's scores in knowledge increases, their understanding of HIV, STIs, family planning, and adolescent pregnancy improves.

Attitude

Attitude referred to adolescent's feelings, and behavioral intentions regarding HIV, STIs, family planning, and adolescent pregnancy. It consisted of 7 items, and scores ranged from 0 to 17. As the adolescent's score in the attitude increases, their attitude improves.

Practices

Practices referred to actions and activities that adolescents engage in SRH wellbeing including STI screening, contraceptive use, and parent adolescent's communication. It consisted of 5 questions, with scores ranging from 0 to 6 where a higher score indicates better practices related to ASRH.

Sample size

A total 632 adolescents participated in the study. The sample size was calculated using OpenEpi to achieve 80% power, for detecting a mean difference of 2, with a standard deviation of 6.11 for females and 6.12 for males, significance level of 5% and a design effect of 1.25 was assumed. The final sample was adjusted to account 10% non-response rate.

Statistical analysis

A complex data analysis approach was employed after using sampling weights and clusters. The weights were computed using formula;

$$W = NM / nm$$

For age, mean and standard deviation were computed and for adolescent's level of education, mother's education level, father's education level, household income, mother's occupation, and father's occupation, percentages were computed. T-test for two independent samples was used to compute mean difference of knowledge, attitude, and practice scores, along with 95% Confidence Interval (CI), stratified on gender. Design based univariate analysis was conducted for all the independent variables, using simple linear regression to compute unadjusted β coefficients along with 95% CIs. The cutoff for the univariate analysis was 0.25 (17). All the independent variables that were eligible at univariate level were checked for multicollinearity.

Adjusted β coefficients along with 95% CIs were reported using multivariable analysis. *P*-value of less than 0.05 was treated as statistically significant. Interaction between gender and education level of adolescent was checked at p value < 0.10. All analysis was carried out in STATA version 15.0.

Results

In this study, a total 62 villages were included. Out of these villages, 810 households were approached. However, 50 of these households were subsequently excluded (Figure 1). After excluding, a total 760 adolescents were approached and among these 760 adolescents, assessed for eligibility, 15.5% did not meet the age criteria of 14-19 years, 0.8% were unable to understand Sindhi, 0.3% refused to participate, and 0.3% had either severe physical or mental impairment. After excluding these refusals and non-eligible participants, a total 632 adolescents participated in study. Within this sample, 82.7% were females. (Figure 1).

Figure 1: Participant's selection in study conducted in rural Thatta from May 2023 - June 2023.

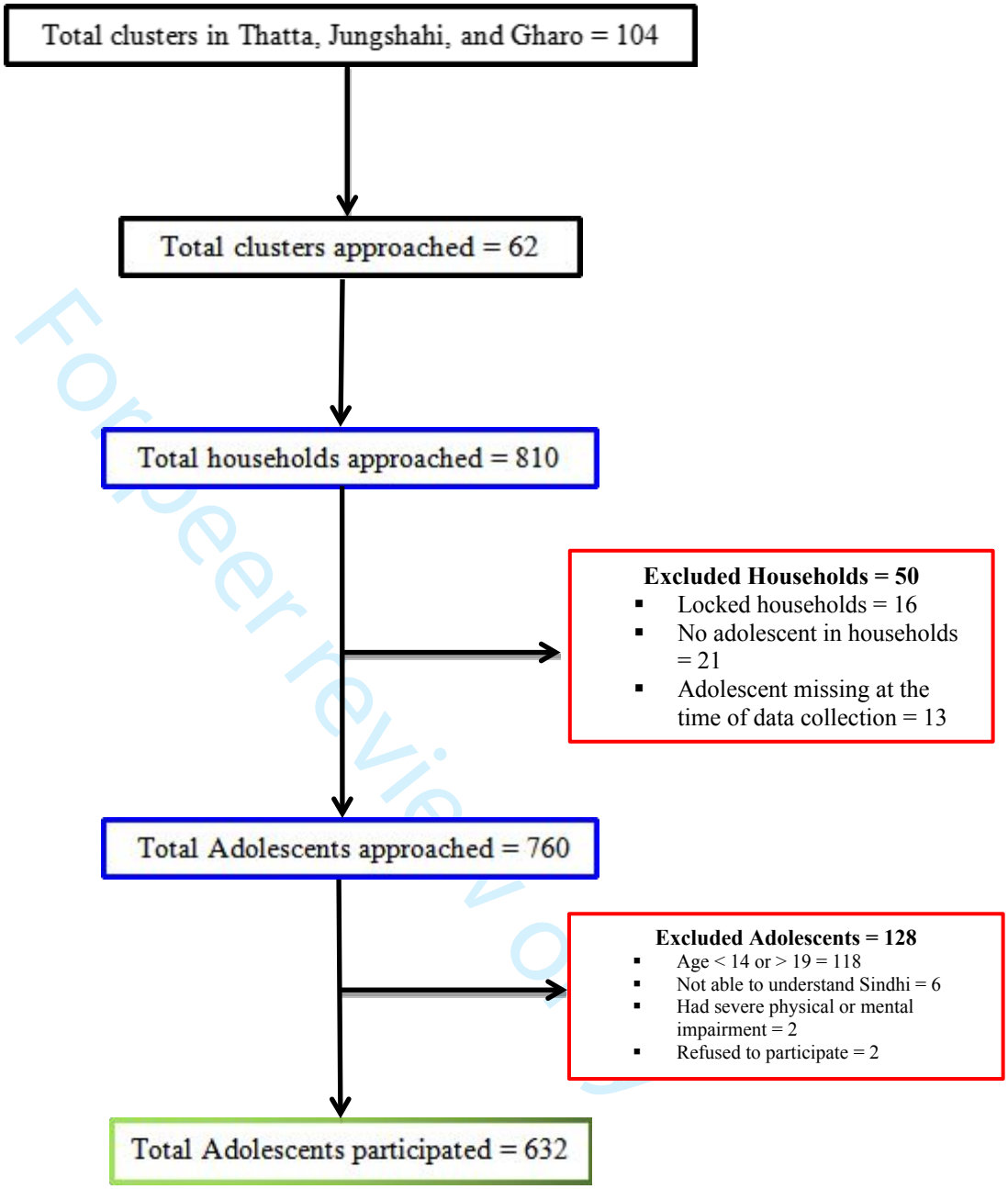

Table 1 summarizes the percentage distribution of adolescents, parental, and socio-demographic characteristics by gender. Among male adolescents, 96.3% were single, and among females, 87.4% were single. The mean age of adolescents enrolled in this study was 17.3 ± 1.7. Among the total male adolescents surveyed, more than half, 54.1%, had attended school. In contrast,

among total female participants, only 40.5% attended school, indicating a lower attendance rate than their male counterparts. A total 92.4% of adolescents mother had no formal education, 4.3% had primary education, while 3.3% had secondary education and above. In fathers education level, a total 66.3% of adolescents fathers had no formal education, 11.4% had primary education, 4.8% had middle education, 10.4% of participants fathers attained secondary education and 7.1% had higher education and above. There were 95.4% adolescents who spoke Sindhi, followed by 3.0% Urdu speaking, 1.4% Punjabi, and 0.2% others.

Table 1: Percentage distribution of adolescents, parental and socio-demographic characteristics stratified by gender in rural Thatta from May 2023 - June 2023

Characteristics	Overall %	Male %	Female %	*P value*
Age				
Mean (SD)	17.3 (1.7)	17.5 (1.6)	17.2 (1.7)	0.08
Educational level of adolescent				
No education	57.1	45.9	59.5	
Primary	18.3	19.3	18.1	0.08
Middle education	9.2	11.0	8.8	
Secondary education	11.5	19.3	9.9	
Higher secondary education and above	3.8	4.6	3.6	
Type of school				
Government	96.3	94.9	96.7	0.40
Private	3.7	5.1	3.3	
Working status of adolescent				
Yes	9.8	43.1	2.9	<0.001
No	90.2	56.8	97.1	
Adolescents occupation				
Labor and fishery	40.3	48.9	13.3	
Protective services	3.2	4.3	0	
Skilled	24.2	4.3	86.7	<0.001
Business	32.3	42.6	0	
Mother's occupation				
House maker	87.0	90.8	86.2	0.26
Sanitation worker	2.5	0.9	2.9	
Skilled worker	5.9	2.8	6.5	
Others	4.6	5.5	4.4	
Father's occupation				
Labor	54.9	62.4	53.4	0.28

Agriculture and fishery	6.8	4.6	7.3	
Driver	6.0	4.6	6.3	
Skilled worker	5.9	1.8	6.7	
Service provider	5.4	4.6	5.5	
Business	6.5	4.6	6.9	
Professional	12.5	16.5	11.7	
Others	2.1	0.9	2.3	
Family system				
Nuclear family	97.3	95.4	97.7	0.20
Extended family	2.7	4.6	2.3	
Household income				
5,000-20,000	70.6	66.9	71.3	0.32
21,000-40,000	28.2	33.0	27.2	
41,000 and above	1.3	0	1.5	

*P value < 0.05. Categorical variables were tested using Pearson's chi², and continuous variable was tested using t-test for two independent samples.

Difference in mean scores of knowledge, attitude, and practices

There was no significant difference in mean scores of knowledge (Mean difference 0.51; 95% CI -1.06, 2.11) and attitude (Mean difference 0.29; 95% CI -0.19, 0.79) between the gender groups. Both males and females demonstrated similar levels of knowledge and attitude. However, a mean difference of 0.13 (95% CI 0.005, 0.24) was observed in practice which showed that males had slightly higher mean practice scores (Mean 1.35; 95% CI 1.22, 1.48) compared to females (Mean 1.22; 95% CI 1.18, 1.27).

Factors associated with knowledge

Marital status and father's occupation were significant predictors of knowledge related to HIV, STI, family planning, and adolescent pregnancy. Age and education level of adolescent were included in the model even though they were statistically insignificant, because of their potential impact on knowledge (Table 2). A significant interaction was found between gender and education level of adolescents, which indicated that male adolescents who had secondary education, the estimated mean knowledge score related to HIV, STI, family planning, and

adolescent pregnancy was 6.89 units higher compared to female adolescents with no formal education.

Table 2: Adjusted β coefficients with 95% CI for factors predicting knowledge related to HIV, STI, family planning and pregnancy among adolescents (aged 14-19 years) in rural, Thatta.

Factors	Adjusted β coefficient (95% CI)
Marital status	
Single	Ref
Married	5.13 (1.34 8.91)
Fathers occupation	
Labor	Ref
Agriculture and fishery	0.34 (-2.28 2.96)
Driver	0.84 (-2.93 4.61)
Skilled worker	-2.98 (-5.54 -0.43)
Service provider	3.41 (0.90 5.93)
Business	-1.02 (-2.97 0.93)
Professional	-1.34 (-3.51 0.82)
Other	0.12 (-2.66 2.89)
Age	0.20 (-0.21 0.61)
Gender and Education level of adolescent	
Female with no formal education	Ref
Female with Primary education	-1.04 (-2.90 0.81)
Female with Middle education	-1.13 (-3.08 0.82)
Female with Secondary education	-1.64 (-3.95 0.67)
Female with Higher secondary & above	2.40 (-0.55 5.36)
Male with no formal education	-1.35 (-3.50 0.81)
Male with Primary education	1.98 (-2.08 6.04)
Male with Middle education	4.66 (0.12 9.20)
Male with Secondary education	6.89 (2.23 11.54)
Male with Higher secondary & above	3.48 (-2.67 9.63)

P value < 0.05 was used.

Factors associated with attitude

Household income, marital status, father's occupation, and mother's education were significant factors for predicting adolescent's attitude. Despite age and education level of the adolescent were statistically insignificant, they were kept in the model, due to their potential impact on attitude, as shown in table 3. A significant interaction was also found between gender and

education level of adolescent which indicated that among male adolescents who had primary education, the estimated mean attitude score related to HIV, STI, family planning, and adolescent pregnancy was 1.60 units lesser compared to female adolescent with no formal education.

Table 3: Adjusted β coefficients with 95% CI for factors predicting attitude related to HIV, STI, family planning and pregnancy among adolescents (aged 14-19 years) in rural, Thatta.

Factors	Adjusted β coefficient (95% CI)
Household income	
5000 - 20,000	Ref
21,000 - 40, 000	-1.01 (-1.74 -0.29)
41,000 and above	-2.36 (-4.64 -0.07)
Marital status	
Single	Ref
Married	1.34 (0.82 1.86)
Fathers occupation	
Labor	Ref
Agriculture and fishery	-0.95 (-1.54 -0.35)
Driver	-0.004 (-1.22 1.21)
Skilled worker	-1.42 (-2.52 -0.33)
Service provider	-1.24 (-2.64 0.15)
Business	-0.07 (-0.76 0.61)
Professional	0.77 (-0.07 1.62)
Other	-0.44 (-1.77 0.89)
Mothers education level	
No education	Ref
Primary education	0.02 (-0.71 0.75)
Secondary education	-1.41 (-2.71 -0.11)
Age	0.03 (-0.11 0.16)
Gender and Education level of adolescent	
Female with no formal education	
Female with Primary education	Ref
Female with Middle education	0.63 (0.07 1.18)
Female with Secondary education	0.36 (-0.46 1.19)
Female with Higher secondary & above	0.49 (-0.35 1.33)
Male with no formal education	0.55 (-0.69 1.79)
Male with Primary education	0.69 (0.04 1.35)
Male with Middle education	-1.60 (-3.08 -0.13)
Male with Secondary education	0.44 (-0.89 1.77)
Male with Higher secondary & above	-0.71 (-2.19 0.77)

	-1.66 (-4.63 1.31)

P value < 0.05 was used.

Factors associated with practices

Marital status and mother's occupation were significant factors associated with adolescent practice. Although age and education level of the adolescent were not statistically significant, they were kept in the multivariable model due to their potential influence on practices, shown in table 4. A significant interaction was also identified between gender and education level of the adolescent, which indicated that, among male adolescents who had secondary education, the estimated mean practice score related to HIV, STI, family planning, and adolescent pregnancy was 0.52 units higher compared to female adolescents with no formal education.

Table 4: Adjusted β coefficients with 95% CI for factors predicting practices related to HIV, STI, family planning and pregnancy among adolescents (aged 14-19 years) in rural, Thatta.

Factors	Adjusted β coefficient (95% CI)
Marital status	
Single	Ref
Married	0.24 (0.06 0.41)
Mothers occupation	
Home maker	Ref
Sanitation worker	0.64 (0.38 0.90)
Skilled worker	-0.06 (-0.22 0.08)
Other	-0.09 (-0.34 0.15)
Age	0.002 (-0.02 0.03)
Gender and Education level of adolescent	
Female with no formal education	
Female with Primary education	Ref
Female with Middle education	-0.12 (-0.25 0.02)
Female with Secondary education Female with	0.18 (-0.05 0.42)
Higher secondary & above	-0.19 (-0.33 -0.05)
Male with no formal education	0.07 (-0.22 0.37)
Male with Primary education	0.04 (-0.14 0.22)
Male with Middle education	0.22 (-0.29 0.73)
Male with Secondary education	-0.34 (-0.68 0.01)
Male with Higher secondary & above	0.52 (0.22 0.82)

	0.52 (-0.48 1.51)

P value < 0.05 was used.

Discussion

This study identified factors associated with knowledge, attitudes, and practices (KAP) related to HIV, STI, family planning, and pregnancy among adolescents aged 14-19 years in rural Thatta. The main finding of this study included no significant difference in the mean scores of knowledge and attitude between males and females. This finding is consistent with a previous study conducted among adolescents attending secondary schools in Asmara, Eritrea, where no significant gender disparity in knowledge was observed (18). However, our results are contrary to Muhammad SA masood et al., where males exhibited higher scores of knowledge than females (19). Similarly, a study conducted in 20 villages of Lahore reported that males had relatively higher knowledge than females regarding pregnancy (M = 55%, F = 43%), family planning (M = 62%, F = 50%) and, STI's (M = 56%, F = 44%) (20). This variation in knowledge could be attributed to differences in the gender composition of our study population. In our study, female participants were more compared to males. This imbalance gender representation may have influenced the findings.

In this study we observed a difference in practices between male and female participants. Males demonstrated slightly higher mean practice scores compared to females. This finding aligns with a cross-sectional survey of 11,651 unmarried adolescent boys and girls aged 15-19 years in two large states of India, which revealed a significant association between boys and seeking treatment compared to girls (21). One possible explanation to this disparity in practices could be due to social stigma. Adolescent girls, in particular, face social stigma when seeking healthcare services, especially related to reproductive health if they are unmarried. These stigmas

discourage them from accessing services independently. Moreover, economic factors and limited resources can further exacerbate gender disparities. In Pakistan, access to finances and independent decision making differs between males and females particularly in rural areas (22), impacting the ability to seek timely and appropriate healthcare services, which creates a significant barrier for female adolescents in rural areas.

In our study marital status of the adolescent was significantly associated with knowledge, attitude, and practice. Our finding contrasts with a community-based study on knowledge and attitudes of reproductive health, conducted in Jimma town, Southwest Ethiopia, among adolescents aged 15-19 years. That study revealed an inverse association with marital status, where never-married adolescents had a higher mean score of knowledge and attitude than ever-married adolescents (23). However our findings were consistent with a study conducted in Yemen which reported that married adolescents had more knowledge about family planning methods than singles (19). Additionally another study conducted among college students in Northwest Ethiopia, reported that married adolescents were 1.34 times more knowledgeable compared to singles (24). The possible explanation of our finding could be that marital status influences the level of exposure and access to reproductive health information and services without social stigma and constraints. Married adolescents may have greater access to family planning services and educational resources related to sexual health, which could contribute to their improved knowledge, more positive attitudes, and better practices.

In our study household income was negatively associated with adolescent's attitude. This contradicts with results reported in a study conducted in Dhaka South City, where male adolescents aged 13-19 years showed a significant positive association between monthly family income and attitudes related SRH (25). The contrasting association between household income

and adolescent attitude could be due to difference in study setting and cultural contexts. In rural areas, higher household income might not necessarily lead to open discussions or progressive attitudes related to SRH. In addition to this, higher household incomes often have easier access to various forms of media, including internet and mobile phones. In today's digital era, adolescents from high income families are more likely to have personal mobile phones and unrestricted internet access which not only provide valuable information but also exposes them to a wide range of content which might portray SRH in an unfavorable manner thus affecting their attitudes (25).

Interestingly, our study highlighted effect modification between gender and education level of adolescent in knowledge, attitude and practice. It revealed that males with secondary education level had more knowledge and positive practice compared to females with no formal education. The possible reason for this finding could be gender disparity in education opportunities and resources. In rural areas access to formal education and educational resources significantly differs between males and females. families often constrained by limited resources, prioritize the education of male children due to perceived future economic contributions (26). This increased educational access enhances their knowledge subsequently leading to more positive practices. However in our study, male with primary education level exhibited lower mean scores of attitude compared to females with no formal education. This unique finding could be attributed to role of chance or to the nature of the questions in attitude section where a significant portion of the items were on communication with parents, and preferred group for discussing SRH matters. It is likely that male adolescents in the rural areas discuss less with their parents due to cultural and societal norms leading to their negative attitudes. Whereas, females, despite lacking formal education, often feel more comfortable discussing SRH matters with their mothers (27, 28). This

finding highlights the importance of having open discussions about SRH matters with parents and emphasizes the need for creating a comfortable environment within families where adolescents feel safe to share their concerns.

We strengthened our study by conducting content validation, to identify the appropriateness, relevance, and clarity of the study's questionnaire. Additionally, face validation was performed which was tailored to 14-19 year age bracket to assess clarity of questionnaire. Subsequently, pretesting of the study's questionnaire was conducted in order to identify and clarify any unclear question. These steps were taken to ensure that the tool was culturally appropriate and could effectively capture the necessary insights. We also used multistage cluster sampling which allowed us to capture a wide range of characteristics in this study. This approach enables us to apply our findings to adolescents between 14-19 years in rural areas of Sindh. Additionally, our study's large sample size increases the reliability of our results, and also increases the study's statistical power. Besides these strengths, our study had also few limitations. Majority of our participants were females, resulted from our data collection timing. Most male adolescents were at work during the data collection hours. To address this limitation in future studies, correcting the data collection timings or implementing stratified techniques could ensure a more balanced gender representation. Relying on self-reported data was also a limitation as it might lead to under reporting, particularly regarding sensitive topics like SRH. To address this, we ensured participant anonymity and privacy to encourage open and honest responses.

Conclusion

Our study sheds light on KAP related to SRH among rural Thatta adolescents. We found no gender disparity in mean scores of knowledge and attitude, and only small difference in mean score of practice. Our study also identified association of socio-demographic factors with

adolescents KAP. By understanding and addressing these factors, we can improve adolescents KAP pertinent to SRH.

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Contributors

Conceptualization of study was undertaken by AI. AI primarily handled the formal analysis and methodology. Investigation and supervision was carried out by AI, SS, and SST. Validation and visualization was executed by AI. IA made significant contribution to data interpretation. Initial draft was written by AI and manuscript was critically revised by all the authors before submitting.

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Competing interests

None declared.

Patient and public involvement

Public involvement was involved in the recruitment and conduct of this study.

Data availability statement

The data will be available on reasonable request from the corresponding author, AI. The data is not publicly available due to some personal information that could compromise the privacy of research participants.

Ethical Approval

The study was approved by Ethical Review Committee of Aga Khan University Hospital, Karachi (2023-8488-24511). All adolescents provided assent and informed consent for themselves before participation and for adolescents below 18 years, parental informed consent was obtained.

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References

1. Zakaria M, Karim F, Mazumder S, Cheng F, Xu J. Knowledge on, Attitude towards, and Practice of Sexual and Reproductive Health among Older Adolescent Girls in Bangladesh: An Institution-Based Cross-Sectional Study. Int J Environ Res Public Health. 2020;17(21).
2. WHO. 2022 [Available from: https://www.who.int/news room/events/detail/2023/02/10/default-calendar/global-model-who-2023.
3. WHO. Sexual and Reproductive Health and Research (SRH) 2022 [Available from: https://www.who.int/teams/sexual-and-reproductive-health-and-research/key-areas-of-work/sexual-health/defining-sexual-health.
4. UNFPA. Girlhood, Not Motherhood 2015 [Available from: https://www.unfpa.org/publications/girlhood-not-motherhood.
5. Asmamaw DB, Tafere TZ, Negash WD. Prevalence of teenage pregnancy and its associated factors in high fertility sub-Saharan Africa countries: a multilevel analysis. BMC Women's Health. 2023;23(1):23.
6. Ahinkorah BO, Kang M, Perry L, Brooks F, Hayen A. Prevalence of first adolescent pregnancy and its associated factors in sub-Saharan Africa: A multi-country analysis. PLoS One. 2021;16(2):e0246308.

7. UNFPA. Motherhood in Childhood 2013 [Available from: https://www.unfpa.org/sites/default/files/pub-pdf/EN-SWOP2013.pdf.
8. UNICEF. Adolescents HIV prevention 2023 [Available from: https://data.unicef.org/topic/hivaids/adolescents-young-people/#:~:text=HIV%20in%20adolescents,of%20new%20adult%20HIV%20infections.
9. Adolescents in Pakistan 2006 [Available from: https://www.aidsdatahub.org/sites/default/files/resource/adolescence-pakistan-sex-marriage-reproductive-health.pdf.
10. Hennink M, Rana I, Iqbal R. Knowledge of personal and sexual development amongst young people in Pakistan. Culture, Health & Sexuality. 2005;7(4):319-32.
11. Zhang D, Bi Y, Maddock JE, Li S. Sexual and Reproductive Health Knowledge Among Female College Students in Wuhan, China. Asia Pacific Journal of Public Health. 2010;22(1):118-26.
12. Taffa N, Bjune G, Sundby J, Gaustad P, Alestrøm A. Prevalence of gonococcal and chlamydial infections and sexual risk behavior among youth in Addis Ababa, Ethiopia. Sex Transm Dis. 2002;29(12):828-33.
13. Abdurahman C, LO, SHaMMM. Sexual and reproductive healthservices utilization and associated factors among adolescents attending secondary schools. 2022.
14. Parida SP, Gajjala A, Giri PP. Empowering adolescent girls, is sexual and reproductive health education a solution? J Family Med Prim Care. 2021;10(1):66-71.
15. Thin Zaw PP, Liabsuetrakul T, McNeil E, Htay TT. Gender differences in exposure to SRH information and risky sexual debut among poor Myanmar youths. BMC Public Health. 2013;13(1):1122.
16. John Cleland RI, Nicole Stone. Asking Young People About Sexual ands Reproductive Health Behaviours 2014
17. David W.Hosmer Jr. SL RXS. Applied Logistic Regression 2013.
18. al. AYe. Reproductive Health Knowledge, Attitude and Practice Among Adolescents Attending Secondary Schools in Asmara, Eritrea. 2021.
19. al. MSAMe. Knowledge and Attitude about Reproductive Health and Family Planning among Young Adults in Yemen. 2017.
20. Shaikh BT, Rahim ST. Assessing knowledge, exploring needs: A reproductive health survey of adolescents and young adults in Pakistan. The European Journal of Contraception & Reproductive Health Care. 2006;11(2):132-7.
21. Desai S, Pandey N, Singh RJ, Bhasin S. Gender inequities in treatment-seeking for sexual and reproductive health amongst adolescents: Findings from a cross-sectional survey in India. SSM - Population Health. 2021;14:100777.
22. Ali TS, Ali SS, Nadeem S, Memon Z, Soofi S, Madhani F, et al. Perpetuation of gender discrimination in Pakistani society: results from a scoping review and qualitative study conducted in three provinces of Pakistan. BMC Women's Health. 2022;22(1):540.
23. Tegegn A, Yazachew M, Birhanu Y. Reproductive Health Knowledge and Attitude among Adolescents: A community based study in Jimma Town, Southwest Ethiopia. Ethiopian Journal of Health developmet. 2008;22:243-51.

24. Ayalew M, Nigatu D, Sitotaw G, Debie A. Knowledge and attitude towards sexual and reproductive health rights and associated factors among Adet Tana Haik College students, Northwest Ethiopia: a cross-sectional study. BMC Research Notes. 2019;12(1):80.
25. Jony HA, Hossain SB, BakiBillah AH, Shahjahan M, Chowdhury ABMA, Khan S. Knowledge, attitudes, and practices on comprehensive sexuality education among adolescent males and influential factors: A Cross-sectional study. Research Square; 2022.
26. Pasha HK. Gender Differences in Education: Are Girls Neglected in Pakistani Society? Journal of the Knowledge Economy. 2023.
27. Mekonen MT, Dagnew HA, Yimam TA, Yimam HN, Reta MA. Adolescent-parent communication on sexual and reproductive health issues and associated factors among high school students in Woldia town, Northeastern Ethiopia. Pan Afr Med J. 2018;31:35.
28. Mataraarachchi D, A PTE, Buddhika PKM, C V. Mother-daughter communication of sexual and reproductive health (SRH) matters and associated factors among sinhalese adolescent girls aged 14-19 years, in Sri Lanka. BMC Womens Health. 2023;23(1):461.

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Title Page

Sexual and reproductive health knowledge, attitudes and practices among adolescents in rural, Thatta, Pakistan: a cross-sectional study.

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Abstract

Objectives: Adolescent Sexual and Reproductive Health (ASRH) encompasses their physical and emotional wellbeing, including their ability to avoid unwanted pregnancies, unsafe abortions, Sexually Transmitted Infections (STI's), and any type of sexual violence and coercion. However, these risks can be significantly reduced with adequate knowledge, positive attitudes and practices. This study aimed to identify the factors associated with knowledge, attitudes, and practices (KAP) related to HIV, STI, family planning, and pregnancy among adolescents residing in rural Thatta**.**

Design: A cross-sectional study

Setting: 62 villages from Thatta, Gharo, and Jungshahi registered under Global Network Maternal and Newborn Health Registry (MNHR) in Thatta, Pakistan.

Participants: 632 adolescents aged 14-19 years.

Outcome measures: The association between socio demographic factors and knowledge, attitudes, and practices was assessed using a modified version of "Asking Young People about Sexual and Reproductive Behaviors" tool. Statistical analysis was performed on Stata 15.0 using multiple linear regression.

Results:

Among 632 adolescents, 82.7% were females. No significant difference was found in mean scores of knowledge and attitudes between males and females. However, a difference of 0.13 (0.005 0.24) in practices scores was observed. In design based multivariable analysis, adolescents marital status (□ 5.13; 95% CI 1.34, 8.91), and father's occupation (□ 3.41, 95% CI 0.90, 5.93) were associated with knowledge. Marital status (□ 1.34; 95% CI 0.82, 1.86), household income (□ -2.36; 95% CI

-4.64, -0.07), father's occupation (-1.42; 95% CI -2.52, -0.33), and mother's education (-1.41; 95% CI -2.71, -0.11) were associated with attitude. Moreover, marital status (0.24; 95% CI 0.06, 0.41), and mother's occupation (0.64; 95% CI 0.38, 0.90) were associated with practice.

Conclusion

No differences in knowledge and attitude between male and female adolescents were found. These findings suggest that community awareness programs should be implemented to improve SRH KAP for both male and female adolescents in Thatta.

Strengths and Limitations of this Study

- The study's questionnaire underwent content validation to assess its appropriateness, relevance, and clarity.
- Face validation was carried out to assess clarity of questionnaire.
- The use of multistage cluster sampling enabled the study to capture a wide range of characteristics.
- Reliance on self-reported data may have led to underreporting, especially on sensitive topics like sexual and reproductive health.
- The study had an imbalance, with a higher proportion of female participants due to the timing of data collection.

Introduction

The Sustainable Development Goals (SDG) are directed towards uplifting the global health of population and one of these goals focuses on enhancing Adolescent's Sexual and Reproductive Health (ASRH) [1]. ASRH refers to "physical and emotional wellbeing of adolescents. This

includes their ability to remain free from unwanted pregnancy, unsafe abortion, Sexually Transmitted Infections (STIs) including Human Immunodeficiency Virus (HIV), and all forms of sexual violence and coercion" [2,3]. Neglecting ASRH presents substantial public health concerns worldwide [4]. Adolescents face various challenges, including early pregnancies, unsafe abortions, STIs, and HIV [3]. Therefore, addressing these issues is important to safeguard the overall health and wellbeing of adolescents.

Pregnancy, which occurs in adolescent girls aged 10-19 years, is a widespread issue globally. Approximately 16 million girls in this age group give birth every year [5]. Despite advancements in maternal health on a global scale [6], adolescent pregnancy remains a prevalent public health concern, especially in developing countries where approximately 19% of women experience pregnancy before their 18th birthday [7]. In addition to the challenges of teenage pregnancy, the burden of HIV among adolescents remains significant. In 2022, approximately 1.65 million adolescents aged 10-19 were living with HIV. Moreover, gender disparities play a significant role in HIV prevalence with 71% of affected adolescents being girls [8].

In Pakistan, like many Low and Middle Income Countries (LMICs), adolescent's faces difficulties due to cultural restrictions, limited information, and restricted access to health services, especially in rural areas [9]. The lack of comprehensive sex education and cultural norms hinder discussions on ASRH between parents and adolescents, leading to misconceptions and limited access to reliable information [10]. Thus, Addressing ASRH requires understanding socio-demographic factors influencing adolescent knowledge, attitudes, and practices. Factors such as parental education, sex , and limited reliable information sources significantly impact ASRH [11]. Cultural norms, religious beliefs, and parents' lack of information about Sexual and Reproductive Health (SRH) further hinder open discussions about ASRH, exacerbating these challenges [12].

Addressing these challenges necessitates a foundation of adequate and accurate knowledge, fostering a favorable attitude, and promoting safe practices, which will contribute to significant improvement in ASRH and enhancing overall well-being of adolescents.

It's very important to target adolescents between 14-19 years because they need extra care and vigilance in terms of SRH. Evidence suggested that adolescents aged 14-19 years have high incidence of STIs, early pregnancies, and abortions. Literature suggests that adolescents in Pakistan have a limited understanding of SRH [13]. In Pakistan, there is generally little to no teaching in schools regarding SRH-related issues. Young people primarily acquire information from media, peers, and, to some extent, parents, with girls, often receiving information from their mothers. However, parents are typically uncomfortable discussing topics related to sexuality and biological changes due to their own limited knowledge [14]. Approximately 44% of young women from middle-income families in Karachi reported a lack of information about reproductive organs and normal physiology [15]. Additionally, young people have also been found to be critical of the quality of information they receive [16] and reported health staff as 'unwelcoming' and 'not competent' when addressing their concerns related to SRH [17]. A study conducted in Pakistan on life skill based education, indicated that one of the major challenges in providing SRH education in Pakistan include strong cultural and religious resistance against discussing and teaching matters related to sexuality and bodily development. These factors play a significant role in shaping adolescents' knowledge and attitudes towards SRH [14]. In addition to this, adolescents residing in the rural areas are more vulnerable to indulge in unsafe practices related to SRH, and neglect their reproductive needs [18]. The disparity becomes more pronounced when considering differences between males and females [19]. These disparities directly affect the empowerment of adolescents in making effective decisions [19]. The foremost step to make the adolescent

population of rural areas empowered, it is important to uplift their knowledge related to SRH which will subsequently affect their attitudes and practices towards ASRH. Thus, this study aimed to identify the mean score and factors associated with knowledge, attitude, and practices related to HIV, STI, family planning, and pregnancy among adolescents in rural areas of district Thatta, Sindh. This study serves the purpose of identifying the knowledge gaps related to ASRH. It provided valuable evidence for proposing educational interventions to enhance adolescent's knowledge and empower them to make informed decisions.

Methodology

Study design and setting

The study was an analytical cross-sectional study and population-based representative sample was drawn from selected villages registered under Global Network Maternal and Newborn Health Registry (MNHR) in Thatta, Pakistan. The study is reported in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE).

Study participants and eligibility

Adolescents between 14-19 years residing in households of selected villages registered under MNHR, were included in the study. However, adolescents with cognitive or intellectual impairments, those below 18 years whose parents were deaf, blind, or had any psychiatric illness were excluded. Additionally, households that were locked or households where eligible adolescents were not present at the time of initial visit were revisited on the same day before excluding from study.

Sampling strategy

A multistage cluster sampling method was employed. There were a total of 104 clusters (villages) within Thatta, Jungshahi, and Gharo regions. Through systematic sampling, 62 clusters were

selected based on a calculated kth value of 2 (104/62) and served as a primary sampling unit. Each cluster comprised a minimum of 58 households. Through systematic sampling, approximately ten households from each cluster were selected based on the calculated kth value of 6 (58 households per cluster /10 households) and selected households served as a secondary unit. The survey began at the village center, determining the first street's direction with a spun bottle. If the end of the street was reached, survey team turned right, adhering to the right-hand rule, and continued into the next street or lane. Adolescents within households served as elements or tertiary sampling units in our study. If there were more than one adolescent between 14-19 years in one house, only one adolescent was chosen randomly through lottery method. The data collection was carried out from May to June 2023.

Data collection

In this study, knowledge, attitude, and practices were considered as outcome variables which were measured with the help of asking young people about sexual and reproductive behavior tool [20], with participant's responses treated as continuous variables. The English questionnaire was carefully translated into Sindhi to maintain the accuracy of conceptual questions, and an expert reviewed the translation for accuracy. Additionally, back translation was conducted to ensure the original meaning and intent were preserved. Modified version of the tool (Supplementary file 1) comprised a total of 35 questions, and had 4 sections as follows;

Section 1: Socio-demographic information

Section 2: Knowledge related to HIV, STI, family planning, and adolescent pregnancy

This section consisted of 27 questions. Among these, eight had "yes" or "no" choice, with one score for the correct answer. Six questions were in a "true" or "false" format; two of these required reverse coding, and a correct answer was scored as one. Additionally, two questions used a likert

scale with scores ranging from 0 to 3. Six more questions used a likert scale, but with scores ranging from 0 to 2. The remaining five questions were in an "agree" or "disagree" format, with one score given for the correct response.

Section 3: Attitude related to HIV, STI, family planning, and adolescent pregnancy

There were a total of 7 questions in the attitude section. Two questions were in the form of likert scale, where the score ranged from 0 to 5. Another two questions used a likert scale with a score range from 0 to 2. For the remaining three questions, each correct answer was assigned a score of 1.

Section 4: Practices related to HIV, STI, family planning, and adolescent pregnancy

In this section, there were a total of 5 questions. Four were in "yes" or "no" format, where a score of 1 was assigned for a correct response. The remaining question used a likert scale with score range from 1 to 4.

The modified tool underwent content validation by panel of eight experts including subject matter experts, epidemiologists, and biostatisticians, and demonstrated high relevance (0.97) and clarity (0.96) based on Content Validity Index for Scale (S-CVI/Ave) method. The Universal Agreement (S-CVI/UA) method revealed a relevance of 0.90, and clarity 0.82. Face validation using S-CVI/Ave and S-CVI/UA method also confirmed the questionnaires high clarity at a score of 1.

Operational definitions:

Knowledge

Knowledge referred to adolescents' awareness and understanding of HIV, STIs, family planning, and pregnancy. There were a total of 27 items and scores ranged from 0 to 35. As adolescent's

scores in knowledge increase, their understanding of HIV, STIs, family planning, and adolescent pregnancy improves.

Attitude

Attitude referred to adolescent's feelings, and behavioral intentions regarding HIV, STIs, family planning, and adolescent pregnancy. It consisted of 7 items, and scores ranged from 0 to 17. As the adolescent's score in the attitude increases, their attitude improves.

Practices

Practices referred to actions and activities that adolescents engage in SRH wellbeing including STI screening, contraceptive use, and parent adolescent's communication. It consisted of 5 questions, with scores ranging from 0 to 6 where a higher score indicates better practices related to ASRH.

Sample size

A total 632 adolescents participated in the study. The sample size was calculated using OpenEpi to achieve 80% power, for detecting a mean difference of 2, with a standard deviation of 6.11 for females and 6.12 for males, significance level of 5% and a design effect of 1.25 was assumed. The final sample was adjusted to account 10% non-response rate.

Statistical analysis

A complex data analysis approach was employed after using sampling weights and clusters. The weights were computed using formula.

$$W = NM / nm$$

For age, mean and standard deviation were computed and for adolescent's level of education, mother's education level, father's education level, household income, mother's occupation, and

father's occupation, percentages were computed. T-test for two independent samples was used to compute mean difference of knowledge, attitude, and practice scores, along with 95% Confidence Interval (CI), stratified on sex. Design based univariate analysis was conducted for all the independent variables, using simple linear regression to compute unadjusted β coefficients along with 95% CIs. The cutoff for the univariate analysis was 0.25 [21]. All the independent variables that were eligible at univariate level were checked for multicollinearity. Adjusted β coefficients along with 95% CIs were reported using multivariable analysis. *P*-value of less than 0.05 was treated as statistically significant. Interaction between sex and education level of adolescent was checked at p value < 0.10. All analysis was carried out in STATA version 15.0.

Ethical Approval

The study was approved by the Ethical Review Committee (ERC) of Aga Khan University Hospital, Karachi (2023-8488-24511). All adolescents provided written assent and informed consent for themselves before participation and for adolescents below 18 years, written parental informed consent was obtained.

Patient and public involvement

None.

Results

A total of 632 (83.15%) adolescents out of 760 participated in this study. Within this sample, 82.7% were females and 17.2% were males (See figure 1).

Table 1 summarizes the percentage distribution of adolescents, parental, and socio-demographic characteristics by sex. Among male adolescents, 96.3% were single, and among females, 87.4% were single. The mean age of adolescents enrolled in this study was 17.3 ± 1.7. Among the total male adolescents surveyed, more than half, 54.1%, had attended school. In contrast, among total female participants, only 40.5% attended school, indicating a lower attendance rate than their male counterparts. A total 92.4% of adolescents mother had no formal education, 4.3% had primary education, while 3.3% had secondary education and above. In father's education level, a total 66.3% of adolescents fathers had no formal education, 11.4% had primary education, 4.8% had middle education, 10.4% of participants fathers attained secondary education and 7.1% had higher education and above. There were 95.4% adolescents who spoke Sindhi, followed by 3.0% Urdu speaking, 1.4% Punjabi, and 0.2% others.

Table 1: Percentage distribution of adolescents, parental and socio-demographic characteristics stratified by sex in rural Thatta from May 2023 - June 2023

Characteristics	Overall %	Male %	Female %	*P value*
Age				
Mean (SD)	17.3 (1.7)	17.5 (1.6)	17.2 (1.7)	0.08
Educational level of adolescent				
No education	57.1	45.9	59.5	
Primary	18.3	19.3	18.1	0.08
Middle education	9.2	11.0	8.8	
Secondary education	11.5	19.3	9.9	
Higher secondary education and above	3.8	4.6	3.6	
Type of school				
Government	96.3	94.9	96.7	0.40
Private	3.7	5.1	3.3	
Working status of adolescent				
Yes	9.8	43.1	2.9	<0.001
No	90.2	56.8	97.1	
Adolescents occupation				
Labor and fishery	40.3	48.9	13.3	

Protective services	3.2	4.3	0	
Skilled	24.2	4.3	86.7	<0.001
Business	32.3	42.6	0	
Mother's occupation				
House maker	87.0	90.8	86.2	0.26
Sanitation worker	2.5	0.9	2.9	
Skilled worker	5.9	2.8	6.5	
Others	4.6	5.5	4.4	
Father's occupation				
Labor	54.9	62.4	53.4	0.28
Agriculture and fishery	6.8	4.6	7.3	
Driver	6.0	4.6	6.3	
Skilled worker	5.9	1.8	6.7	
Service provider	5.4	4.6	5.5	
Business	6.5	4.6	6.9	
Professional	12.5	16.5	11.7	
Others	2.1	0.9	2.3	
Family system				
Nuclear family	97.3	95.4	97.7	0.20
Extended family	2.7	4.6	2.3	
Household income				
5,000-20,000	70.6	66.9	71.3	0.32
21,000-40,000	28.2	33.0	27.2	
41,000 and above	1.3	0	1.5	

*P value < 0.05. Categorical variables were tested using Pearson's chi², and continuous variable was tested using t-test for two independent samples.

Difference in mean scores of knowledge, attitudes, and practices

There was no significant difference in mean scores of knowledge (Mean difference 0.51; 95% CI -1.06, 2.11) and attitudes (Mean difference 0.29; 95% CI -0.19, 0.79) between males and females. Both males and females demonstrated similar levels of knowledge and attitude. However, a mean difference of 0.13 (95% CI 0.005, 0.24) was observed in practice which showed that males had slightly higher mean practice scores (Mean 1.35; 95% CI 1.22, 1.48) compared to females (Mean 1.22; 95% CI 1.18, 1.27).

Factors associated with knowledge

Marital status and father's occupation were significant predictors of knowledge related to HIV, STI, family planning, and adolescent pregnancy. Age and education level of adolescents were included in the model even though they were not statistically significant., because of their potential impact on knowledge (see table 2). A significant interaction was found between sex and education level of adolescents, which indicated that male adolescents who had secondary education, the estimated mean knowledge score related to HIV, STI, family planning, and adolescent pregnancy was 6.89 units higher compared to female adolescents with no formal education.

Table 2: Adjusted β coefficients with 95% CI for factors predicting knowledge related to HIV, STI, family planning and pregnancy among adolescents (aged 14-19 years) in rural, Thatta.

Factors	Adjusted β coefficient (95% CI)
Marital status	
Single	Ref
Married	5.13 (1.34 8.91)
Father's occupation	
Labor	Ref
Agriculture and fishery	0.34 (-2.28 2.96)
Driver	0.84 (-2.93 4.61)
Skilled worker	-2.98 (-5.54 -0.43)
Service provider	3.41 (0.90 5.93)
Business	-1.02 (-2.97 0.93)
Professional	-1.34 (-3.51 0.82)
Other	0.12 (-2.66 2.89)
Age	0.20 (-0.21 0.61)
Sex and Education level of adolescent	
Female with no formal education	
Female with Primary education	Ref
Female with Middle education	-1.04 (-2.90 0.81)
Female with Secondary education	-1.13 (-3.08 0.82)
Female with Higher secondary & above	-1.64 (-3.95 0.67)
Male with no formal education	2.40 (-0.55 5.36)
Male with Primary education	-1.35 (-3.50 0.81)
Male with Middle education	1.98 (-2.08 6.04)
Male with Secondary education	4.66 (0.12 9.20)
Male with Higher secondary & above	6.89 (2.23 11.54)
	3.48 (-2.67 9.63)

P value < 0.05 was used.

Factors associated with attitude

Household income, marital status, father's occupation, and mother's education were significant factors for predicting adolescent's attitude. Despite the age and education level of adolescents were not statistically significant, they were kept in the model, due to their potential impact on attitude, as shown in table 3. A significant interaction was also found between sex and education level of adolescent which indicated that among male adolescents who had primary education, the estimated mean attitude score related to HIV, STI, family planning, and adolescent pregnancy was 1.60 units lesser compared to female adolescent with no formal education.

Table 3: Adjusted β coefficients with 95% CI for factors predicting attitude related to HIV, STI, family planning and pregnancy among adolescents (aged 14-19 years) in rural, Thatta.

Factors	Adjusted β coefficient (95% CI)
Household income	
5000 - 20,000	Ref
21,000 - 40, 000	-1.01 (-1.74 -0.29)
41,000 and above	-2.36 (-4.64 -0.07)
Marital status	
Single	Ref
Married	1.34 (0.82 1.86)
Fathers occupation	
Labor	Ref
Agriculture and fishery	-0.95 (-1.54 -0.35)
Driver	-0.004 (-1.22 1.21)
Skilled worker	-1.42 (-2.52 -0.33)
Service provider	-1.24 (-2.64 0.15)
Business	-0.07 (-0.76 0.61)
Professional	0.77 (-0.07 1.62)
Other	-0.44 (-1.77 0.89)
Mothers education level	
No education	Ref
Primary education	0.02 (-0.71 0.75)
Secondary education	-1.41 (-2.71 -0.11)
Age	0.03 (-0.11 0.16)
Sex and Education level of adolescent	

Female with no formal education	
Female with Primary education	Ref
Female with Middle education	0.63 (0.07 1.18)
Female with Secondary education	0.36 (-0.46 1.19)
Female with Higher secondary & above	0.49 (-0.35 1.33)
Male with no formal education	0.55 (-0.69 1.79)
Male with Primary education	0.69 (0.04 1.35)
Male with Middle education	-1.60 (-3.08 -0.13)
Male with Secondary education	0.44 (-0.89 1.77)
Male with Higher secondary & above	-0.71 (-2.19 0.77)
	-1.66 (-4.63 1.31)

P value < 0.05 was used.

Factors associated with practices

Marital status and mother's occupation were significant factors associated with adolescent practice. Although age and education level of the adolescent were not statistically significant, they were kept in the multivariable model due to their potential influence on practices, shown in table 4. A significant interaction was also identified between sex and education level of the adolescent, which indicated that, among male adolescents who had secondary education, the estimated mean practice score related to HIV, STI, family planning, and adolescent pregnancy was 0.52 units higher compared to female adolescents with no formal education.

Table 4: Adjusted β coefficients with 95% CI for factors predicting practices related to HIV, STI, family planning and pregnancy among adolescents (aged 14-19 years) in rural, Thatta.

Factors	Adjusted β coefficient (95% CI)
Marital status	
Single	Ref
Married	0.24 (0.06 0.41)
Mothers occupation	
Home maker	Ref
Sanitation worker	0.64 (0.38 0.90)
Skilled worker	-0.06 (-0.22 0.08)
Other	-0.09 (-0.34 0.15)
Age	0.002 (-0.02 0.03)
Sex and Education level of adolescent	
Female with no formal education	

Female with Primary education	Ref
Female with Middle education	-0.12 (-0.25 0.02)
Female with Secondary education Female with	0.18 (-0.05 0.42)
Higher secondary & above	-0.19 (-0.33 -0.05)
Male with no formal education	0.07 (-0.22 0.37)
Male with Primary education	0.04 (-0.14 0.22)
Male with Middle education	0.22 (-0.29 0.73)
Male with Secondary education	-0.34 (-0.68 0.01)
Male with Higher secondary & above	0.52 (0.22 0.82)
	0.52 (-0.48 1.51)

P value < 0.05 was used.

Discussion

This study identified factors associated with knowledge, attitudes, and practices (KAP) related to HIV, STI, family planning, and pregnancy among adolescents aged 14-19 years in rural Thatta. The main finding of this study included no significant difference in the mean scores of knowledge and attitudes between males and females. This finding is consistent with a previous study conducted among adolescents attending secondary schools in Asmara, Eritrea, where no significant disparity in knowledge was observed between males and females [22]. However, our results are contrary toa study conducted in Yemen, where males exhibited higher scores of knowledge than females [23]. Similarly, a study conducted in 20 villages of Lahore reported that males had relatively higher knowledge than females regarding pregnancy (M = 55%, F = 43%), family planning (M = 62%, F = 50%) and, STI's (M = 56%, F = 44%) [24].) In addition to this, a study conducted in eight Columbian schools found that females generally have more knowledge regarding contraceptive methods, while males believes that family planning is solely their partner's responsibility [25]. This variation in knowledge could be attributed to distribution of male and female participants in this study. In our study, female participants were more compared to males. This imbalanced sex representation may have influenced the findings.

In this study we observed a difference in practices between male and female participants. Males demonstrated slightly higher mean practice scores compared to females. This finding aligns with a cross-sectional survey of 11,651 unmarried adolescent boys and girls aged 15-19 years in two large states of India, which revealed a significant association between boys and seeking treatment compared to girls [26]. One possible explanation to this disparity in practices could be due to social stigma. Adolescent girls face social stigma when seeking healthcare services, especially related to reproductive health if they are unmarried. These stigmas discourage them from accessing services independently. Moreover, limited knowledge about healthcare services and their accessibility, barriers to obtaining information, minimal family support, and significant economic barriers hinder the acquisition of family planning [24]. Economic factors and limited resources can further exacerbate gender disparities. In Pakistan, access to finances and independent decision making differs between males and females particularly in rural areas [27], impacting the ability to seek timely and appropriate healthcare services, which creates a significant barrier for female adolescents in rural areas.

In our study marital status of adolescents was significantly associated with knowledge, attitude, and practice. Our finding contrasts with a community-based study on knowledge and attitudes of reproductive health, conducted in Jimma town, Southwest Ethiopia, among adolescents aged 15-19 years. That study revealed an inverse association with marital status, where never-married adolescents had a higher mean score of knowledge and attitude than ever-married adolescents [28]. However, our findings were consistent with a study conducted in Yemen which reported that married adolescents had more knowledge about family planning methods than singles [23]. Additionally, another study conducted among college students in Northwest Ethiopia, reported that married adolescents were 1.34 times more knowledgeable compared to singles [29]. The possible explanation of our findings could be that marital status influences the level of exposure

and access to reproductive health information and services without social stigma and constraints. Married adolescents may have greater access to family planning services and educational resources related to sexual health, which could contribute to their improved knowledge, more positive attitudes, and better practices. In contrast, unmarried adolescents face significant societal, religious, parental, and cultural barriers that hinder open discussions about their sexual and reproductive health rights (SRHR) [30]. In many rural communities of Pakistan, discussions surrounding SRH are considered taboo, especially for unmarried individuals, reflecting deeply rooted cultural norms. Additionally, there are prevalent misconceptions among LMIC's that unmarried adolescents are too young to seek or benefit from SRH-related information and services [31]. Such misconceptions, combined with cultural stigma, play a crucial role in shaping adolescents SRH knowledge, attitudes, and practices in Pakistan.

In our study household income was negatively associated with adolescent's attitude. This contradicts with results reported in a study conducted in Dhaka South City, where male adolescents aged 13-19 years showed a significant positive association between monthly family income and attitudes related SRH [32]. The contrasting association between household income and adolescent attitude could be due to difference in study setting and cultural contexts. In rural areas, higher household income might not necessarily lead to open discussions or progressive attitudes related to SRH. In addition to this, higher household incomes often have easier access to various forms of media, including internet and mobile phones. In today's digital era, adolescents from high income families are more likely to have personal mobile phones and unrestricted internet access which not only provide valuable information but also exposes them to a wide range of content which might portray SRH in an unfavorable manner thus affecting their attitudes [32].

Interestingly, our study highlighted effect modification between sex and education level of adolescent in knowledge, attitude and practice. It revealed that males with secondary education level had more knowledge and positive practice compared to females with no formal education. The possible reason for this finding could be sex disparity in education opportunities and resources. In rural areas access to formal education and educational resources significantly differs between males and females. Families often constrained by limited resources, prioritize the education of male children due to perceived future economic contributions [33]. This increased educational access enhances their knowledge subsequently leading to more positive practices. However, in our study, male with primary education level exhibited lower mean scores of attitudes compared to females with no formal education. This unique finding could be attributed to role of chance or to the nature of the questions in attitude section where a significant portion of the items were on communication with parents, and preferred group for discussing SRH matters. It is likely that male adolescents in the rural areas discuss less with their parents due to cultural and societal norms leading to their negative attitudes. Whereas, females, despite lacking formal education, often feel more comfortable discussing SRH matters with their mothers [34, 35]. Supporting this, a mixed-method study conducted in eight Colombian schools found that parent-child dialogue about sex education was associated with adequate knowledge or attitudes towards family planning [25].Thus, our findings highlight the critical need to create a supportive and non-judgmental environment at home where adolescents both males and females feel secure to express their concerns and seek guidance, ultimately empowering them to make informed decisions regarding their SRH. .Literature suggests that there is a taboo where the population largely believes that sex education should exclusively be provided by health professionals, as they are perceived to be more knowledgeable and qualified on these topics [25]. This belief often leads to delays in introducing

sex education, resulting in adolescents beginning their sexual life with many uncertainties and misconceptions. Additionally, In the context of Pakistan especially rural areas, the role of parents in providing sexual education is often minimal due to prevailing cultural and societal norms. There exists a significant taboo where sex education is viewed as a sensitive topic, and discussions about it are often avoided within families. Our findings highlight the urgent need for empowering parents to engage in open and comprehensive discussions with their adolescents about SRH. By addressing these cultural barriers and fostering dialogue, parents can help bridge critical gaps in knowledge, reduce stigma, and create an environment where adolescents feel supported and better equipped to make informed decisions about their SRH.

Strengths and Limitations

We strengthened our study by conducting content validation, to identify the appropriateness, relevance, and clarity of the study's questionnaire. Additionally, face validation was performed which was tailored to 14-19 year age bracket to assess clarity of questionnaire. Subsequently, pretesting of the study's questionnaire was conducted to identify and clarify any unclear question. These steps were taken to ensure that the tool was culturally appropriate and could effectively capture the necessary insights. We also used multistage cluster sampling which allowed us to capture a wide range of characteristics in this study. This approach enables us to apply our findings to adolescents between 14-19 years in rural areas of Sindh. Additionally, our study's large sample size increases the reliability of our results and increases the study's statistical power. Besides these strengths, our study had also few limitations. Majority of our participants were females, resulted from our data collection timing. Most male adolescents were at work during the data collection hours. To address this limitation in future studies, correcting the data collection timings or implementing stratified techniques could ensure a more balanced sex representation. Relying on

self-reported data was also a limitation as it might lead to under reporting, particularly regarding sensitive topics like SRH. To address this, we ensured participant anonymity and privacy to encourage open and honest responses. In terms of generalizability, the study findings are primarily limited to areas that share similar characteristics to rural Thatta district.

Conclusion

Our study sheds light on KAP related to SRH among rural Thatta adolescents. We found no disparity in mean scores of knowledge and attitudes between males and females, and only small difference in mean score of practice. Our study also identified association of socio-demographic factors with adolescents KAP. By understanding and addressing the identified factors, health professionals and policymakers can develop culturally sensitive and context-specific educational programs for adolescents. Our findings underscore the importance of tailored SRH education for schools and communities to address gender norms, overcome social stigma, improve healthcare access, and empower adolescents to make informed decisions.

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Contributors

Conceptualization of study was undertaken by AI. AI primarily handled formal analysis and methodology. Investigation and supervision were carried out by AI, SS, and SST. Validation and

visualization were executed by AI. IA made a significant contribution to data interpretation. First draft of this manuscript was written by AI, and the manuscript was critically revised by all the authors before submitting. AI is responsible for overall content as a guarantor.

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Competing interests

None declared.

Data availability statement

The data will be available on reasonable request from the corresponding author, AI. The data is not publicly available due to some personal information that could compromise the privacy of research participants.

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References

1. https://pmc.ncbi.nlm.nih.gov/articles/PMC7672593/
2. https://www.who.int/teams/sexual-and-reproductive-health-and-research/key-areas-of-work/sexual-health/defining-sexual-health..
4. https://www.unfpa.org/publications/girlhood-not-motherhood
5. https://bmcwomenshealth.biomedcentral.com/articles/10.1186/s12905-023-02169-7
6. https://pmc.ncbi.nlm.nih.gov/articles/PMC7861528/
7. https://www.unfpa.org/sites/default/files/pub-pdf/EN-SWOP2013.pdf.
8. https://data.unicef.org/topic/hivaids/adolescents-young-people/
9. https://www.aidsdatahub.org/sites/default/files/resource/adolescence-pakistan-sex-marriage-reproductive-health.pdf

10https://www.researchgate.net/publication/313046030_Knowledge_of_personal_and_sexual_development_amongst_young_people_in_Pakistan

12. https://pubmed.ncbi.nlm.nih.gov/12466727/

13. https://bmcinthealthhumrights.biomedcentral.com/articles/10.1186/s12914-017-0113-7

14. https://www.tandfonline.com/doi/full/10.1080/14681811.2014.1000454#d1e136

15. Ali, Tazeen Saeed, ParveenAzam Ali, HumairaWaheed, and Azam AliMemon. 2006. "Understanding of Puberty and Related Health Problems among Female Adolescents in Karachi, Pakistan." Journal of the Pakistan Medical Association56 (2): 68–72. (Open in a new window)PubMed(Open in a new window)Google Scholar

16. Hennink, Monique, ImranRana, and RobinaIqbal. 2005. "Knowledge of Personal and Sexual Development amongst Young People in Pakistan." Culture, Health & Sexuality7 (4): 319–332. View (Open in a new window)PubMed (Open in a new window)Web of Science ®(Open in a new window)Google Scholar

17. Talpur, Ashfaque Ahmed, and Asif RazaKhowaja. 2012. "Awareness and Attitude towards Sex Health Education and Sexual Health Services among Youngsters in Rural and Urban Settings of Sindh, Pakistan." The Journal of the Pakistan Medical Association62 (7): 708–712. (Open in a new window)PubMed (Open in a new window)Web of Science ®(Open in a new window)Google Scholar18. https://pubmed.ncbi.nlm.nih.gov/34017705/

19.. https://bmcpublichealth.biomedcentral.com/articles/10.1186/1471-2458-13-1122

20. https://www.who.int/news/item/08-05-2014-asking-young-people-about-sexual-and-reproductive-behaviours

21.https://books.google.com/books?hl=en&lr=&id=bRoxQBIZRd4C&oi=fnd&pg=PR13&dq=David+W.Hosmer+Jr.+SL+RXS.+Applied+Logistic+Regression+2013&ots=kM4Lwm7Pj5&sig=1epHGt9EPK-Qc_GkkJoAFaz6uq4#v=onepage&q&f=false.

22.https://www.researchgate.net/publication/355402264_Reproductive_Health_Knowledge_Attitude_and_Practice_Among_Adolescents_Attending_Secondary_Schools_in_Asmara_Eritrea

23. https://onlinelibrary.wiley.com/doi/10.1155/2017/1895472

24. https://pubmed.ncbi.nlm.nih.gov/16854688/

25. https://www.thelancet.com/action/showPdf?pii=S2667-193X%2824%2900005-X

26. https://pubmed.ncbi.nlm.nih.gov/33997240/

27. https://bmcwomenshealth.biomedcentral.com/articles/10.1186/s12905-022-02011-6

28https://www.researchgate.net/publication/210342087_Reproductive_Health_Knowledge_and_Attitude_among_Adolescents_A_community_based_study_in_Jimma_Town_Southwest_Ethiopia

29. https://bmcresnotes.biomedcentral.com/articles/10.1186/s13104-019-4116-4

30. https://bmjopen.bmj.com/content/15/2/e093894#ref-19

31. https://pubmed.ncbi.nlm.nih.gov/25043387/

32. https://europepmc.org/article/ppr/ppr585007

33. https://link.springer.com/article/10.1007/s13132-023-01222-y

34. https://pubmed.ncbi.nlm.nih.gov/30918561/

35. https://bmcwomenshealth.biomedcentral.com/articles/10.1186/s12905-023-02617-4

Figure 1: Participant's selection in study conducted in rural Thatta from May 2023 - June 2023.

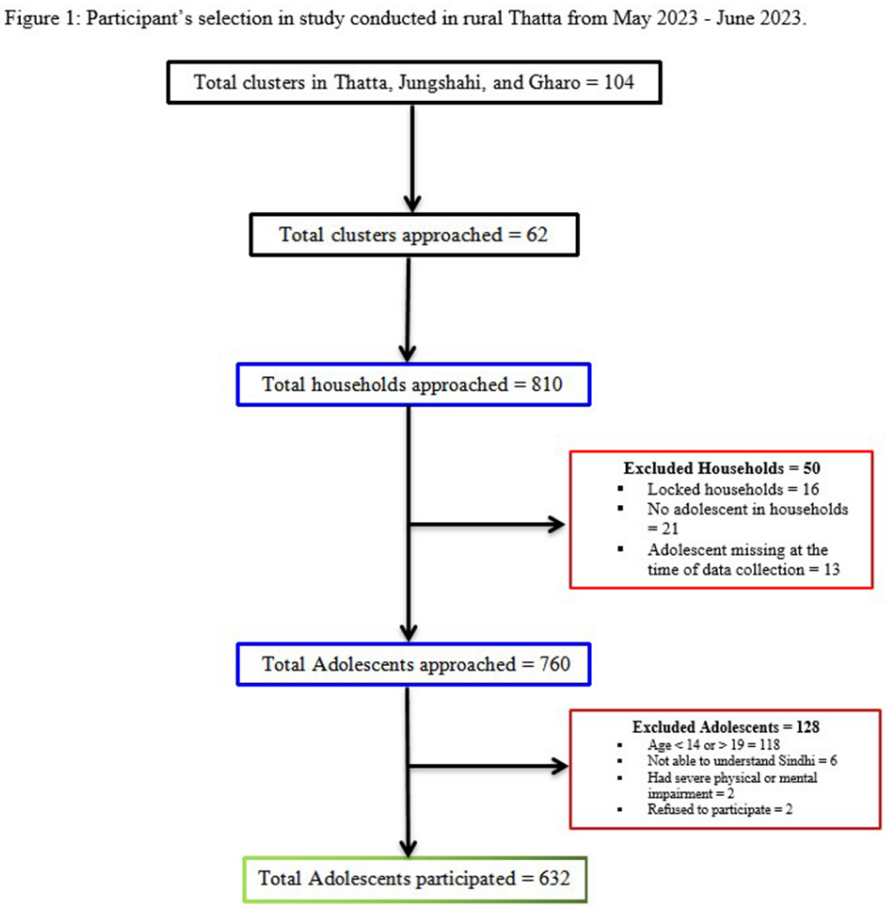

Figure 1: Participant's selection in study conducted in rural Thatta from May 2023 - June 2023.

90x90mm (300 x 300 DPI)

INSTRUCTIONS:

1. **Separate form should be filled for each subject.**
2. **Introduce yourself and explain purpose of your interview**
3. **informed consent should be obtained from participants parent before the interview**
4. **Written assent should be obtained from the participant once agree for participation.**

Day/ Month/ Year

Form filled by:_____Date: _ _/_ _/_ _ _ _
Form checked and edited by: _____Date: _ _/_ _/_ _ _ _
Form entered by: _____ Date: _ _/_ _/_ _ _ _

Study ID: _____

SECTION 1: SOCIO-DEMOGRAPHIC INFORMATION

Q	Variable	Code	Skip	Response
1.0	Name (optional)			_____
1.1	Gender	1. Female 2. Male		_____
1.2	How old are you? (in years)	Write completed age in years		___ ___ Years
1.3	How old were you at your last birthday?	Write response in years (CROSS-CHECK WITH DATE OF BIRTH)		_____
1.4	What is your Marital status?	1. Single 2. Married 3.Divorced 4.Widowed 5. Separated		_____
1.5	Can you read, for example, a newspaper?	1. Yes 2. No		_____
1.6	Have you ever-attended school?	1. Yes 2. No		_____
1.7	Education status of participant	1. No education 2. Primary education (completing grade 1 – 5) 3. Middle education (completing grade 6 – 8) 4. Secondary education (grade 9 – 10)/O level 5. Higher secondary	If **NO** education, Skip Q1.8	_____

		education (grade 11 - 12)/A level 6. Above higher secondary (grade 13 and above)		
1.8	Is the school, college or university that you Attend(ed) a government or private institution?	1. Government 2. Private		_____
1.9	Which language do you speak?	1. Sindhi 2. Urdu 3. Pashto 4. Punjabi 99.Other (specify):_____		_____
1.10	What is your family system?	1. Nuclear family 2. Extended family		_____
1.11	Is your father alive?	1. Yes 2. No	If **NO**, skip Q.1.12, 2.24 and 2.25	_____
1.12	Does he live in the same household as you?	1. Yes 2. No	If **NO**, skip Q.2.24 and 2.25	_____
1.13	What's your father's level of education?	1. No education 2. Primary education (completing grade 1 – 5) 3. Middle education (completing grade 6 – 8) 4. Secondary education (grade 9 – 10)/O level 5. Higher secondary education (grade 11 - 12)/A level 6. Above higher secondary (grade 13 and above)		_____
1.14	What is/was your father's occupation?	Write name of his occupation		_____
1.15	Is your mother alive?	1. Yes 2. No	If **NO**, skip Q1.16, 2.26 and 2.27	_____
1.16	Does she live in the same household as you?	1. Yes 2. No	If **NO**, skipQ.2.26 and 2.27	_____

1.17	What's your mother's level of education?	1. No education 2. Primary education (completing grade 1 – 5) 3. Middle education (completing grade 6 – 8) 4. Secondary education (grade 9 – 10)/O level 5. Higher secondary education (grade 11 - 12)/A level 6. Above higher secondary (grade 13 and above)		_____
1.18	What's your mother's occupation?	Write name of her occupation		_____
1.19	Are you currently working to earn?	1. Yes 2. No	If **NO**, skip Q1.20	_____
1.20	What type of work do (did) you do?	Write actual response		_____
1.21	What is your family monthly income?	1. 5000-20,000 2. 21,000-40,000 3. 41,000-60,000 4. 61,000-80,000 5. 81,000-100,000 6. Above 100,000		_____
1.22	Does your household have any of the following: [RECORD ALL THAT APPLY]	Specify amount.		
	1. Electricity	1. Yes 2. No		_____
	2. Electric fan	How many?		_____
	3. Color television	How many?		_____
	4. Refrigerator	How many?		_____
	5. Radio/transistor	How many?		_____

	6. Mobile phone	How many?		_____
	7. Computer/laptop	How many?		_____
	8. Washing machine	How many?		_____
	9. Sewing machine	How many?		_____
	10. Air cooler	How many?		_____
	11. Air conditioner	How many?		_____
	12. Animal-drawn cart	How many?		_____
	13. Bicycle	How many?		_____
	14. Tractor/boat with motor	How many?		_____
	15. Car/truck	How many?		_____
	16. Motorcycle/scooter	How many?		_____
	17. Rickshaw/van	How many?		_____
	18. Chair	How many?		_____
	19. Cot/bed	How many?		_____
	20. Mattress	How many?		_____
	21. Sofa	How many?		_____
	22. Table	How many?		_____
	23. Almirah/cabinet	How many?		_____
	24. Livestock	How many?		_____
	25. Poultry	How many?		_____

SECTION 2: KNOWLEDGE, ATTIUDE, AND PRACTICES

S/no	Questions	Code	Skip	Response
2.1	Have you heard of HIV or AIDS (*use local terms*)?	1. Yes 2. No		
I am now going to read you some statements about HIV/AIDS. Please tell me whether you think the statement is true, or false, or whether you don't know.				
2.2	It is possible to cure AIDS	1. True 2. False 96. Don't know		
2.3	A person with HIV always looks emaciated or unhealthy in some way	1. True 2. False 96. Don't know		
2.4	People can take a simple test to find out whether they have HIV	1. True 2. False 96. Don't know		
2.5	Apart from HIV/AIDS, there are other diseases that men and women can catch by having sexual intercourse. Have you heard of any of these diseases?	1. Yes 2. No		
2.6	What are the signs and symptoms of a sexually transmitted disease in men? (CIRCLE EACH MENTIONED)	1. Discharge from penis 2. Pain during urination 3. Ulcer/sores in genital area 99. Other _____ 96. Don't know any signs		
2.7	And what are the signs or symptoms when a women is infected?	1. Vaginal discharge 2. Pain during urination 3. Ulcer/sores in genital area 99. Other _____ 96. Don't know any signs		
2.8	<u>Pill</u> Women can take a pill every day	1. Yes (spont.) 2. Yes (prompted) 3. No	If **NO**, skip Q2.8b	
2.8b	Do you know any place or person where young people could obtain this method?	1. Yes 2. No		
2.9	<u>Injection</u> Women can have an injection every 2 or every 3 months.	1. Yes (spont.) 2. Yes (prompted) 3. No	If **NO**, skip Q2.9b	

2.9b	Do you know any place or person where young people could obtain this method?"	1. Yes 2. No		
2.10	Condom A man can put a rubber device on his penis before intercourse.	1. Yes (spont.) 2. Yes (prompted) 3. No	If **NO**, skip Q2.10b	
2.10b	Do you know any place or person where young people could obtain this method?	1. Yes 2. No		
2.11	Emergency Contraceptive Pills A woman can take pills soon after intercourse.	1. Yes (spont.) 2. Yes (prompted) 3. No	If **NO**, skip Q2.11b	
2.11b	Do you know any place or person where young people could obtain this method?	1. Yes 2. No		
2.12	Withdrawal A man can pull out of a woman before climax.	1. Yes (spont.) 2. Yes (prompted) 3. No		
2.13	Periodic Abstinence/Rhythm A couple can avoid sex on days when pregnancy is most likely to occur.	1. Yes (spont.) 2. Yes (prompted) 3. No		
2.14	Have you ever seen a condom?	1. Yes 2. No		
People have different opinions about condoms. I will read out some opinions. For each one, I want you to tell me whether you agree or disagree, or whether you don't know.				
2.15	Condoms are an effective method of preventing pregnancy.	1. Agree 96. Don't know/not sure 2. Disagree		
2.16	Condoms can be used more than once.	1. Agree 96. Don't know/not sure 2. Disagree		
2.17	Condoms are an effective way of protecting against HIV/AIDS	1. Agree 96. Don't know/not sure 2. Disagree		

2.18	Condoms reduce sexual pleasure	1. Agree 96. Don't know/not sure 2. Disagree		
2.19	Condoms are an effective way of protecting against sexually transmitted diseases	1. Agree 96. Don't know/not sure 2. Disagree		
Now I have some other questions on adolescent pregnancy. I will read you some statements. Please tell me whether you think the statement is true, or false, or whether you don't know.				
2.20	A woman can get pregnant on the very first time that she has sexual intercourse.	1. True 2. False 96. Don't know/not sure		
2.21	A woman stops growing after she has had sexual intercourse for the first time.	1. True 2. False 96. Don't know/not sure		
2.22	Masturbation causes serious damage to health.	1. True 2. False 96. Don't know/not sure		
2.23	A woman is most likely to get pregnant if she has sexual intercourse half way between her periods.	1. True 2. False 96. Don't know/not sure		
	Attitude			
2.24	**(Ask this question if his/her father is alive and living in same household)** Do you find it difficult or easy to talk with your father about things that are important to you?	1. Very easy 2. Easy 3. Average 4. Difficult 5. Very difficult 6. Do not see him		
2.25	Have you ever discussed sex-related matters with your father? If **YES** often or occasionally?	1. Often 2. Occasionally 3. Never		
2.26	**(Ask this question if his/her mother is alive**	1. Very easy 2. Easy		

	and living in same household) Do you find it difficult or easy to talk with your mother about things that are important to you?	3. Average 4. Difficult 5. Very difficult 6. Do not see him		
2.27	Have you ever discussed sex-related matters with your mother? If **YES** often or occasionally?	1. Often 2. Occasionally 3. Never		
2.28	If a friend of yours needed treatment for a sexuallytransmitted disease, where could he or she obtainsuch treatment? (CIRCLE EACH MENTIONED)	1. Shop 2. Pharmacy 3. Govt. hospitals/health centre/clinic 4. Private doctor/nurse/clinic 99. Other (please specify) _____		
2.29	It would be too embarrassing for someone like me to buy or obtain condoms.	1. Agree 96. Don't know/not sure 2. Disagree		
2.30	If unmarried couples want to have sexual intercourse before marriage, they should use condoms.	1. Agree 96. Don't know/not sure 2. Disagree		
		Practices		
2.31	Ever utilized any SRH services?	1. Yes 2. No		
2.32	Ever tested for HIV	1. Yes 2. No		
2.33	Intention of having an HIV Test	1. Yes 2. No		
2.34	Practice of parent-adolescent communication	1. Yes 2. No		

2.35	Preferred group for SRH issue discussion? (CIRCLE YOUR RESPONSE)	1. Friends 2. Parents 3. Siblings 4. Partner 5. Health Professionals 6. Other (please specify)		

هدايتون

1.هر مضمون لاءِ الڳ فارم پريو وڃي.

2.پنهنجو تعارف ڪريو ۽ پنهنجي انٽرويو جو مقصد بيان ڪريو.

3.انٽرويو کان اڳ شرڪت ڪندڙن جي والدين کان ڄاڻايل رضامندي حاصل ڪئي وڃي.

4.هڪ پيرو شرڪت لاءِ راضي ٿيڻ کان پوءِ شرڪت ڪندڙ کان لکت واري منظوري حاصل ڪئي وڃي.

فارم پريو_____تاريخ_____ڏينهن_مهينو_ سال

فارم چيڪ ۽ ايڊٽ ڪيو_____تاريخ_____ ڏينهن_مهينو_ سال

فارم داخل ڪيو_____تاريخ_____ ڏينهن_مهينو_ سال

مطالعي جي سڃاڻپ_____

سيڪشن 1.سماجي ڊيموگرافڪ ڄاڻ

سوال نمبر			پپ	
1.0	نالو(آپشنل)			
Question# 1.1	جنس Variable سوال	1.عورت Code ڪوڊ 2.مرد	skipاسڪ	Response جواب
1.2	توهان گهٽن سالن جا آهيو؟ سالن ۾ لکو	سالن ۾ مڪمل عمر لکو		_____سال
1.3	توهان جي آخري سالگره تي توهان جي عمر ڪيتري هئي؟	سالن ۾ جواب لکو(ڪراس چيڪ جمڻ جي تاريخ سان ڪريو)		
1.4	توهان جي ازدواجي حيثيت ڇا آهي؟	1.غير شادي شده 2.شادي شده 3.طلاق شده 4.بيواه 5.الڳ ٿيل		

1.5	توهان پڑهي سگهو ٿا ؟مثال اخبار	1. ها 2.نہ		
1.6	توهان ڪڏهن اسڪول ۾ شرڪت ڪئي؟	1. ها 2.نہ		
1.7	شرڪت ڪندڙ جي تعليمي حيثيت	1.آڻ پڙهيل 2.پرئمري تعليم(گريڊ 1 کان 5) 3.مڈل تعليم(گريڊ 6 کان 8) 4.سيڪنڈري تعليم(گريڊ 9 کان 10) او ليول 5.اعلا ثانوي تعليم(گريڊ 11 کان 12) اي ليول 6.اعلا ثانوي تعليم کان مٿي تعليم (گريڊ 13 کان مٿي)		
1.8	اهو اسڪول،ڪاليج يا يونيورسٽي جنهن ۾ توهان شرڪت ڪندا آهيو يا ڪئي هئي اهو سرڪاري يا پرائيويٽ ادارو آهي؟	1. سرڪاري 2.پرائيويٽ		
1.9	توهان ڪهڙي ٻولي ڳالهايو ٿا؟	1. سنڌي 2.اردو 3.پشتو 4.پنجابي 99.ٻي ڪا_____		
1.10	توهان جو خاندائي نظام ڇا آهي؟	1.انفرادي خاندان 2.وسيع خاندان		
1.11	ڇا توهان جو پيءُ زنده آهي؟	1.ها 2.نہ	اگر نہ تہ اسڪپ سوال نمبر 1.12،2.24ء 1.25ع	
1.12	ڇا توهان وانگر ساڻئي گهر ۾ رهي ٿو؟	1.ها 2.نہ	اگر نہ تہ اسڪپ سوال نمبر 2.25ع2.24	
1.13	توهان جي پيءُ جي تعليم ڪيتري آهي؟	1.آڻ پڙهيل 2.پرئمري تعليم(گريڊ 1 کان 5) 3.مڈل تعليم(گريڊ 6 کان 8) 4.سيڪنڈري تعليم(گريڊ 9 کان 10) او ليول		

		5.اعلا ثانوي تعليم(گريڊ 11 کان 12)اي ليول 6.اعلا ثانوي تعليم کان مٿي تعليم (گريڊ 13 کان مٿي)		
1.14	توهان جي پيءُ جو ڏنڊو چا هو يا آهي؟	سندس پيشي جو نالو لکو		
1.15	چا توهان جي ماءُ زنده آهي؟	1.ها 2.نہ	اگر نہ تہ اسکپ سوال نمبر1.16، 26 2.27ع.	
1.16	چا هوءَ توهان وانگر ساڳئي گھر ۾ رهي ٿي؟	1.ها 2.نہ	اگر نہ تہ اسکپ سوال نمبر2،1.16 26. ع2.27	
1.17	توهان جو ماءُ جي تعليم ڪيتري آهي؟	1.اڻ پڙهيل 2.پرائمري تعليم(گريڊ 1 کان 5) 3.مڈل تعليم(گريڊ 6 کان 8) 4.سيڪنڈري تعليم(گريڊ 9 کان 10) او ليول 5.اعلا ثانوي تعليم(گريڊ 11 کان 12)اي ليول 6.اعلا ثانوي تعليم کان مٿي تعليم (گريڊ 13 کان مٿي)		
1.18	توهان جي ماءُ جو ڪاروبار چا آهي؟	سندس پيشي جو نالو لکو		
1.19	چا توهان في الحال ڪمائڻ جي ڪم ڪري رهيا آهيو؟	1.ها 2.نہ	اگر نہ اسکيپ سوال1.20	
1.20	توهان ڪهڙي قسم جو ڪم ڪندا هئا يا آهيو؟	حقيقي جواب لکو		
1.21	توهان جي خاندان جي مهيني جي آمدني چا آهي؟	1. 5000 کان 20000 2. 21،000- کان 40،000 3. 41،000 کان 60،000 4. 61،000 کان 80،000 5. 81،000 کان 100،000 6. 100،000 کان مٿي		
1.22	چا توهان جي گھر وارن وٽ هيٺ ڏنل چيزون موجود آهن (جيڪي لاڳو ٿين تا انهن کي رڪارڊ ڪريو)	مقرره رقم		
	1.بجلي	1. ها 2. نہ		

	2. بجلي وار پنکا	ڪيترا؟		
	3.رنگين ٽيليويزن	ڪيترا؟		
	4.فرج	ڪيترا؟		
	5. ريڊيو ٽرانسميٽر	ڪيترا؟		
	6. موبائل فون	ڪيترا؟		
	7.ڪمپيوٽر ،ليپ ٽاپ	ڪيترا؟		
	8.ڪپڑن ڌوئڻ واري مشين	ڪيترا؟		
	9. سلائي مشين	ڪيترا؟		
	10.ايئر ڪولر	ڪيترا؟		
	11.ايئر ڪنڊيشنر (اي سي)	ڪيترا؟		
	12.جانورن جي ٽهيل گاڏي	ڪيترا؟		
	13.سائيڪل	ڪيترا؟		
	14.ٽريڪٽر ،موٽر واري ٻيڑي	ڪيترا؟		
	15.ڪار، ٽرڪ	ڪيترا؟		
	16.موٽر سائيڪل، اسڪوٽر	ڪيترا؟		
	17. رڪشا، وين	ڪيترا؟		
	18،ڪرسي	ڪيترا؟		
	19بستر، پلنگھ	ڪيترا؟		
	20. ڪدو	ڪيترا؟		
	21. سوفا	ڪيترا؟		
	22.ٽيبل	ڪيترا؟		
	23.الميراه،ڪابينا، الماڙي	ڪيترا؟		
	24.ڊور	ڪيترا؟		
	25. مرغي	ڪيترا؟		

سيڪشن 2. جاڻ،رويو ۽ عمل

2.1	چا توهان ايڇ،آءِ ، وي ۽ ايڊس جي باري ۾ ٻڌو آهي؟	1. ها 2. نہ		

مان توهان لاءِ ايڇ آءِ وي ۽ ايڊس جي بابت ڪجھ بيان پڙھڻ وارو،واري آهيان مهرباني ڪري مون کي ٻڌايو ته توهان چا ٿا سمجھو ته اهو بيان صحيح آهي غلط آهي يا توهان کي خبر نہ آهي.

2.2	AIDSجو علاج ممڪن آهي ؟	1.صحيح 2.غلط 96.خبر نہ آهي		
2.3	ايڇ آءِ وي سان متاثر شخص هميشہ ڪنهن نہ ڪنهن طريقي سان ڪمزور يا غير صحتمند نظر اچي ٿو؟	1.صحيح 2.غلط 96.خبر نہ آهي		
2.4	ماڻهو هڪ سادي ٽيسٽ وٹي سگھن ٿا هي معلوم ڪرڻ لاءِ ته چا هن کي ايڇ آءِ وي آهي	1.صحيح 2.غلط 96.خبر نہ آهي		

2.5	ايڇ آءِ وي ،ايڊس کان علاوا ٻيون به ڪيتريون ئي بيماريون آهن جيڪي مرد ۽ عورت کي جنسي ميلاپ ڪرڻ سان ٿي سگهن ٿيون.ڇا توهان انهن بيمارين مان ڪنهن جي باري ۾ پڌو آهي؟	1.ها 2.نہ		
2.6	۾ جنسي طور منتقل ٿيندڙ بيماريان جون نشانيون ۽ علامتون ڪهڙيون آهن؟(ذڪر ڪيل تي دائرو ڪيو)	1.عضون تناسل مان خارج ٿيڻ 2.پيشاب دوران درد 3. السر،زخم جينياتي جڳهه تي 99.ٻيا 96.خبر نہ آهي		
2.7	۽ ڇا نشانيون يا علامتون اهن جڏهن هڪ عورت متاثر ٿئي ٿي؟	1.ويجينا مان خارج ٿيڻ 2. پيشاب دوران درد 3.السر،زخم جينياتي جڳهه تي 99.ٻيا 96. خبر نہ آهي		
2.8(a)	**گوري** عورتون روزانو هڪ گوري وٺي سگهن ٿيون.	1.ها (فوري جواب) 2.ها (سوچي جواب) 3.نہ	اگر (نہ) اسڪيپ سوال 2.8 ٻي	
2.8(b)	ڇا توهان ڪنهن جڳهه يا شخص کي سڃاڻو ٿا جتي نوجوان ماڻهو هي طريقو حاصل ڪري سگهن ٿا	1. ها 2.نہ		
2.9	انجيڪشن عورتون هر ٻئين يا ٽئين مهيني انجيڪشن لڳائي سگهن ٿيون	1.ها (فوري جواب) 2.ها (سوچي جواب) 3.نہ	اگر (نہ) اسڪيپ سوال 2.9 ٻي	
2.9(b)	ڇا توهان ڪنهن جڳهه يا شخص کي سڃاڻو ٿا جتي نوجوان ماڻهو هي طريقو حاصل ڪري سگهن ٿا	1. ها 2.نہ		
2.10	ڪنڈوم(رٻڙ وارو ڦوڪڻو) مرد جماع ڪرڻ کان اڳ پنهنجي عضوي تي رٻڙ وجهي سگهي ٿو؟	1.ها (فوري جواب) 2.ها (سوچي جواب) 3.نہ	اگر (نہ) اسڪيپ سوال 2.10 ٻي	
2.10(b)	ڇا توهان ڪنهن جڳهه يا شخص کي سڃاڻو ٿا جتي نوجوان ماڻهو هي طريقو حاصل ڪري سگهن ٿا	1. ها 2.نہ		
2.11	ايمرجنسي مانع حمل جي گوري	1.ها (فوري جواب) 2.ها (سوچي جواب) 3.نہ	اگر (نہ) اسڪيپ	

	عورتون جماع ڪرڻ کان پوءِ جلد گوريون وٺي سگھن ٿيون		سوال 2.11 بي	
2.11(b)	ڇا توهان ڪنهن جڳھ يا شخص کي سڃاڻو ٿا جتي نوجوان ماڻھو هي طريقو حاصل ڪري سگھن ٿا	1. ها 2.نہ		
2.12	واپس وڃڻ هڪ مرد هڪ عورت کي ڪلائيمڪس کان اڳ ڪيڏي سگھي ٿو	1.ها (فوري جواب) 2.ها (سوچي جواب) 3.نہ		
2.13	وقتي پابندي ،تال هڪ جوڑو انهن ڏينهن تي جنسي ميلاپ کان پاسو ڪري سگھي ٿو جڏهن حمل ٿيڻ جو تمام گھٽو امڪان آهي؟	1.ها (فوري جواب) 2.ها (سوچي جواب) 3.نہ		
2.14	ڇا توهان ڪڏهن ڪنڊوم (ربڙ وارو ڦوڪڻو) ڏٺو آهي؟	1. ها 2.نہ		

ڪنڊوم بابت ماڻھن جا مختلف رايا آهن .مان ڪجھ رايا پڙهندس .هر هن لاءِ مان چاهيان ٿو ته توهان مون کي ٻڌايو ته توهان متفق آهيو يا غير متفق آهيو يا توهان نٿا ڄاڻو

2.15	ڪنڊوم حمل کي روڪڻ جو هڪ موثر طريقو آهي	1.متفق آهيان 2.غير متفص آهيان 96.خبر نہ آهي،پڪ نہ آهي		
2.16	ڪنڊوم هڪ کان وڌيڪ پيرا سگھجي ٿو	1.متفق آهيان 2.غير متفص آهيان 96.خبر نہ آهي،پڪ نہ آهي		
2.17	ڪنڊوم ايڊز ،ايڇ آءِ وي کان بچاءَ جو هڪ مئوثر طريقو آهي	1.متفق آهيان 2.غير متفص آهيان 96.خبر نہ آهي،پڪ نہ آهي		
2.18	ڪنڊوم جنسي خوشي کي گھٽائي ٿو	1.متفق آهيان 2.غير متفص آهيان 96.خبر نہ آهي،پڪ نہ آهي		
2.19	ڪنڊوم جنسي طور منتقل ٿيندڙ بيمارين کان بچاءَ جو هڪ مئوثر طريقو آهي	1.متفق آهيان 2.غير متفص آهيان 96.خبر نہ آهي،پڪ نہ آهي		

هاڻي مون وٽ نوجوانن جي حمل تي ڪجھ پيا سوال آهن .مان توهان کا ڪجھ پيا بيان پڙهي ڏيندس. مهرباني ڪري مون کي ٻڌايو ته توهان ڇا ٿا سمجھو ته هي بيان صحيح آهن غلط آهن يا توهان کي خبر نہ آهي.

2.20	ٿي سگھي ٿي جڏهن پهريون پيرو جنسي تعلق رکي ٿي	1.صحيح 2.غلط 96.خبر نہ آهي، پڪ نہ آهي		

2.21	هڪ عورت پهريون پيرو جنسي ميلاپ ڪرڻ کان پوءِ وڏيءَ بند ٿئي ٿي	1.صحيح 2.غلط 96.خبر نہ آهي، پڪ نہ آهي		
2.22	مشترني صحت کي سخت نقصان پهچائي ٿي	1.صحيح 2.غلط 96.خبر نہ آهي، پڪ نہ آهي		
2.23	هڪ عورت جو حامل ٿيڻ جو گهٽو امڪان آهي جڏهن هو پنهنجي ماهواري جي وچين تاريخن ۾ جنسي ميلاپ ڪري ٿي	1.صحيح 2.غلط 96.خبر نہ آهي، پڪ نہ آهي		

رويو

2.24	(اهو سوال تڏهن پڇو جڏهن هن جو پيءُ جيرو آهي ۽هڪ ئي گهر ۾ رهن ٿا) چا توهان کي پنهنجي پيءُ سان انهن شين جي باري ۾ گالهائڻ ڏکيو يا آسان آهي جيڪي توهان لاءِ اهم آهن)	1.تمام آسان آهي 2.آسان آهي 3.سراسري آهي 4مشڪل آهي 5.تمام ڏکيو آهي 6.هن کي نہ ڏس		
2.25	چا توهان ڪڏهن پنهنجي پيءَ سان جنسي تعلق جي معاملي تي گالهايو آهي ؟ (جيڪڏهن (ها) اڪثر يا ڪڏهن ڪڏهن	1. اڪثر 2.ڪڏهن ڪڏهن 3.ڪڏهن به نہ		
2.26	(اهو سوال تڏهن پڇو جڏهن هن جو ماءُ جيري آهي ۽هڪ ئي گهر ۾ رهن ٿا) چا توهان کي پنهنجي ماءُ سان انهن شين جي باري ۾ گالهائڻ ڏکيو يا آسان آهي جيڪي توهان لاءِ اهم آهن)	1.تمام آسان آهي 2.آسان آهي 3.سراسري آهي 4مشڪل آهي 5.تمام ڏکيو آهي 6.هن کي نہ ڏس		
2.27	چا توهان ڪڏهن پنهنجي ماءَ سان جنسي تعلق جي معاملي تي گالهايو آهي ؟ (جيڪڏهن (ها) اڪثر يا ڪڏهن ڪڏهن	1. اڪثر 2.ڪڏهن ڪڏهن 3.ڪڏهن به نہ		
2.28	جيڪڏهن توهان جي ڪنهن دوست کي جنسي طور منتقل ٿيندڙ بيمارين جي علاج جي	1.دڪان 2.دوا سازي(ميڊيڪل اسٽور		

	ضرورت آهي ته هو اهو علاج ڪٽان حاصل ڪري سگهي ٿو،ٿي؟(دائرو ڪيو)	3.سرڪاري اسپتال، هيلٿ سينٽر،ڪلينڪ 4.پرائيويٽ ڊاڪٽر، نرس، ڪلينڪ 5. ٻيا_____		
2.29	مون جهڙي ڪنهن لاءِ ڪنڊوم خريد ڪرڻ يا حاصل ڪرڻ ڏاڍوشرمناڪ هوندو	1.متفق آهيان 2.غير متفص آهيان 96.خبر نه آهي،پڪ نه آهي		
2.30	جيڪڏهن غير شادي شده جوڙا شادي ڪرڻ کان اڳ جنسي ميلاپ ڪرڻ چاهين ته انهن کي ڪنڊوم استعمال ڪرڻ گهرجي	1.متفق آهيان 2.غير متفص آهيان 96.خبر نه آهي،پڪ نه آهي		

عمل

2.31	ڪڏهن به ڪنهن جنسي ءِ پيداواري صحت جون خدمتون استعمال ڪيون آهن	1. ها 2. نه		
2.32	ڪڏهن ايڇ آءِ وي ٽيسٽ ڪيو آهي	1. ها 2. نه		
2.33	ايڇ آءِ وي ٽيسٽ ڪرائڻ جو ارادو	1. ها 2. نه		
2.34	والدين نوجوان رابطي جي مشق	1. ها 2. نه		
2.35	SRHمسئلي جي لاءِ ترجيح گروپ (توهان جي جواب تي دائرو ڪريو)	1.دوست 2.والدين 3.پائر ،پيئر 4.ساڻي،همسفر 5صحت جاماهر 6.ٻيا_____		

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Sexual and reproductive health knowledge, attitudes and practices among adolescents in rural, Thatta, Pakistan: a cross-sectional study.

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Title Page

Sexual and reproductive health knowledge, attitudes and practices among adolescents in rural, Thatta, Pakistan: a cross-sectional study.

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Abstract

Objectives: Adolescent Sexual and Reproductive Health (ASRH) encompasses their physical and emotional wellbeing, including their ability to avoid unwanted pregnancies, unsafe abortions, Sexually Transmitted Infections (STI's), and any type of sexual violence and coercion. However, these risks can be mitigated through improved knowledge, encouraging positive attitudes, and adopting better practices. This study aimed to identify the factors associated with knowledge, attitudes, and practices (KAP) related to HIV, STI, family planning, and pregnancy among adolescents residing in rural Thatta**.**

Design: A cross-sectional study

Setting: 62 villages from Thatta, Gharo, and Jungshahi registered under Global Network Maternal and Newborn Health Registry (MNHR) in Thatta, Pakistan.

Participants: 632 adolescents aged 14-19 years.

Outcome measures: The association between socio demographic factors and knowledge, attitudes, and practices was assessed using a modified version of "Asking Young People about Sexual and Reproductive Behaviors" tool. Statistical analysis was performed on Stata 15.0 using multiple linear regression.

Results:

Among 632 adolescents, 82.7% were females. No significant differences were found in mean scores of knowledge and attitudes between males and females. However, a difference of 0.13 (0.005 0.24) in practices scores was observed. In design based multivariable analysis, adolescent's marital status (5.13; 95% CI 1.34, 8.91), and father's occupation (3.41, 95% CI 0.90, 5.93)

were associated with knowledge. Marital status (□ 1.34; 95% CI 0.82, 1.86), household income (□ -2.36; 95% CI -4.64, -0.07), father's occupation (□ -1.42; 95% CI -2.52, -0.33), and mother's education (□ -1.41; 95% CI -2.71, -0.11) were associated with attitudes. Moreover, marital status (□ 0.24; 95% CI 0.06, 0.41), and mother's occupation (□ 0.64; 95% CI 0.38, 0.90) were associated with practices.

Conclusion

No differences in knowledge and attitudes between male and female adolescents were found. These findings suggest that community awareness programs should be implemented to improve SRH KAP for both male and female adolescents in Thatta.

Strengths and Limitations of this Study

- The study's questionnaire underwent content validation to assess its appropriateness, relevance, and clarity.
- Face validation was performed to assess the clarity of the questionnaire.
- The use of multistage cluster sampling enabled the study to capture a wide range of characteristics.
- Reliance on self-reported data may have led to underreporting, especially on sensitive topics like sexual and reproductive health.
- The study had an imbalance, with a higher proportion of female participants due to the timing of data collection.

Introduction

The Sustainable Development Goals (SDG) are directed towards uplifting the global health of population and one of these goals focuses on enhancing Adolescent's Sexual and Reproductive Health (ASRH) [1]. ASRH refers to "physical and emotional wellbeing of adolescents. This includes their ability to remain free from unwanted pregnancy, unsafe abortion, Sexually Transmitted Infections (STIs) including Human Immunodeficiency Virus (HIV), and all forms of sexual violence and coercion" [2,3]. Neglecting ASRH presents substantial public health concerns worldwide [4]. Adolescents face various challenges, including early pregnancies, unsafe abortions, STIs, and HIV [3]. Therefore, addressing these issues is important to safeguard the overall health and wellbeing of adolescents.

Pregnancy, which occurs in adolescent girls aged 10-19 years, is a widespread issue globally. Approximately 16 million girls in this age group give birth every year [5]. Despite advancements in maternal health on a global scale [6], adolescent pregnancy remains a prevalent public health concern, especially in developing countries where approximately 19% of women experience pregnancy before their 18th birthday [7]. In addition to the challenges of teenage pregnancy, the burden of HIV among adolescents remains significant. In 2022, approximately 1.65 million adolescents aged 10-19 were living with HIV. Moreover, gender disparities play a significant role in HIV prevalence with 71% of affected adolescents being girls [8].

In Pakistan, like many Low and Middle Income Countries (LMICs), adolescent's faces difficulties due to cultural restrictions, limited information, and restricted access to health services, especially in rural areas [9]. The lack of comprehensive sex education and cultural norms hinder discussions on ASRH between parents and adolescents, leading to misconceptions and limited access to reliable information [10]. Thus, Addressing ASRH requires understanding socio-demographic

factors influencing adolescent knowledge, attitudes, and practices. Factors such as parental education, sex, and limited reliable information sources significantly impact ASRH [11]. Cultural norms, religious beliefs, and parents' lack of information about Sexual and Reproductive Health (SRH) further hinder open discussions about ASRH, exacerbating these challenges [12]. Addressing these challenges necessitates a foundation of adequate and accurate knowledge, fostering a favorable attitude, and promoting safe practices, which will contribute to significant improvements in ASRH and enhancing overall well-being of adolescents.

It's very important to target adolescents between 14-19 years because they need extra care and vigilance in terms of SRH. Evidence suggested that adolescents aged 14-19 years have high incidence of STIs, early pregnancies, and abortions. Literature suggests that adolescents in Pakistan have a limited understanding of SRH [13]. In Pakistan, there is generally little to no teaching in schools regarding SRH-related issues. Young people primarily acquire information from media, peers, and, to some extent, parents, with girls, often receiving information from their mothers. However, parents are typically uncomfortable discussing topics related to sexuality and biological changes due to their own limited knowledge [14]. Approximately 44% of young women from middle-income families in Karachi reported a lack of information about reproductive organs and normal physiology [15]. Additionally, young people have also been found to be critical of the quality of information they receive [16] and reported health staff as 'unwelcoming' and 'not competent' when addressing their concerns related to SRH [17]. A study conducted in Pakistan on life skill based education, indicated that one of the major challenges in providing SRH education in Pakistan include strong cultural and religious resistance against discussing and teaching matters related to sexuality and bodily development. These factors play a significant role in shaping adolescents' knowledge and attitudes towards SRH [14]. In addition to this, adolescents residing

in the rural areas are more vulnerable to indulge in unsafe practices related to SRH, and neglect their reproductive needs [18]. The disparity becomes more pronounced when considering differences between males and females [19]. These disparities directly affect the empowerment of adolescents in making effective decisions [19]. The foremost step to make adolescent population of rural areas empowered, it is important to uplift their knowledge related to SRH which will subsequently affect their attitudes and practices towards ASRH. Thus, this study aimed to identify the mean score and factors associated with knowledge, attitudes, and practices related to HIV, STI, family planning, and pregnancy among adolescents in rural areas of district Thatta, Sindh. This study serves the purpose of identifying the knowledge gaps related to ASRH. It provided valuable evidence for proposing educational interventions to enhance adolescent's knowledge and empower them to make informed decisions.

Methodology

Study design and setting

The study was an analytical cross-sectional study and population-based representative sample was drawn from selected villages registered under Global Network Maternal and Newborn Health Registry (MNHR) in Thatta, Pakistan. Thatta is a district located in the Sindh province of Pakistan and consists of several subdivisions or regions. For this study, we included only three subdivisions - Thatta, Gharo, and Jungshahi - within the Thatta district. The term "rural" is used because all three regions included in our study are classified as rural areas within the Thatta district. The study is reported in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE).

Study participants and eligibility

Adolescents between 14-19 years residing in households of selected villages registered under MNHR, were included in the study. However, adolescents with cognitive or intellectual impairments, those below 18 years whose parents were deaf, blind, or had any psychiatric illness were excluded. Additionally, households that were locked or households where eligible adolescents were not present at the time of initial visit were revisited on the same day before excluding from study.

Sampling strategy

A multistage cluster sampling method was employed. There were a total of 104 clusters (villages) within Thatta, Jungshahi, and Gharo regions. Through systematic sampling, 62 clusters were selected based on a calculated kth value of 2 (104/62) and served as a primary sampling unit. Each cluster comprised a minimum of 58 households. Through systematic sampling, approximately ten households from each cluster were selected based on the calculated kth value of 6 (58 households per cluster /10 households) and selected households served as a secondary unit. The survey began at the village center, determining the first street's direction with a spun bottle. If the end of the street was reached, survey team turned right, adhering to the right-hand rule, and continued into the next street or lane. Adolescents within households served as elements or tertiary sampling units in our study. If there were more than one adolescent between 14-19 years in one house, only one adolescent was chosen randomly through lottery method. The data collection was carried out from May to June 2023.

Data collection

In this study, knowledge, attitudes, and practices were considered as outcome variables which were measured with the help of asking young people about sexual and reproductive behavior tool [20],

with participant's responses treated as continuous variables. The English questionnaire was carefully translated into Sindhi to maintain the accuracy of conceptual questions, and an expert reviewed the translation for accuracy. Additionally, back translation was conducted to ensure the original meaning and intent were preserved. Modified version of the tool (Supplementary file 1) comprised a total of 35 questions, and had 4 sections as follows;

Section 1: Socio-demographic information

Section 2: Knowledge related to HIV, STI, family planning, and adolescent pregnancy

This section consisted of 27 questions. Among these, eight had "yes" or "no" choice, with one score for the correct answer. Six questions were in a "true" or "false" format; two of these required reverse coding, and a correct answer was scored as one. Additionally, two questions used a likert scale with scores ranging from 0 to 3. Six more questions used a likert scale, but with scores ranging from 0 to 2. The remaining five questions were in an "agree" or "disagree" format, with one score given for the correct response.

Section 3: Attitude related to HIV, STI, family planning, and adolescent pregnancy

There were a total of 7 questions in the attitude section. Two questions were in the form of likert scale, where the score ranged from 0 to 5. Another two questions used a likert scale with a score range from 0 to 2. For the remaining three questions, each correct answer was assigned a score of 1.

Section 4: Practices related to HIV, STI, family planning, and adolescent pregnancy

In this section, there were a total of 5 questions. Four were in "yes" or "no" format, where a score of 1 was assigned for a correct response. The remaining question used a likert scale with score range from 1 to 4.

The modified tool underwent content validation by panel of eight experts including subject matter experts, epidemiologists, and biostatisticians, and demonstrated high relevance (0.97) and clarity (0.96) based on Content Validity Index for Scale (S-CVI/Ave) method. The Universal Agreement (S-CVI/UA) method revealed a relevance of 0.90, and clarity 0.82. Face validation using S-CVI/Ave and S-CVI/UA method also confirmed the questionnaires high clarity at a score of 1.

Operational definitions:

Knowledge

Knowledge referred to adolescents' awareness and understanding of HIV, STIs, family planning, and pregnancy. There were a total of 27 items and scores ranged from 0 to 35. As adolescent's scores in knowledge increase, their understanding of HIV, STIs, family planning, and adolescent pregnancy improves.

Attitudes

Attitude referred to adolescent's feelings, and behavioral intentions regarding HIV, STIs, family planning, and adolescent pregnancy. It consisted of 7 items, and scores ranged from 0 to 17. As the adolescent's score in the attitudes increases, their attitudes improve.

Practices

Practices referred to actions and activities that adolescents engage in SRH wellbeing including STI screening, contraceptive use, and parent adolescent's communication. It consisted of 5 questions, with scores ranging from 0 to 6 where a higher score indicates better practices related to ASRH.

Sample size

A total 632 adolescents participated in the study. The sample size was calculated using OpenEpi to achieve 80% power, for detecting a mean difference of 2, with a standard deviation of 6.11 for

females and 6.12 for males, significance level of 5% and a design effect of 1.25 was assumed. The final sample was adjusted to account 10% non-response rate.

Statistical analysis

A complex data analysis approach was employed after using sampling weights and clusters. The weights were computed using formula.

$$W = NM / nm$$

For age, mean and standard deviation were computed and for adolescent's level of education, mother's education level, father's education level, household income, mother's occupation, and father's occupation, percentages were computed. T-test for two independent samples was used to compute mean difference of knowledge, attitude, and practice scores, along with 95% Confidence Interval (CI), stratified on sex. Design based univariate analysis was conducted for all the independent variables, using simple linear regression to compute unadjusted β coefficients along with 95% CIs. The cutoff for the univariate analysis was 0.25 [21]. All the independent variables that were eligible at univariate level were checked for multicollinearity. Adjusted β coefficients along with 95% CIs were reported using multivariable analysis. *P*-value of less than 0.05 was treated as statistically significant. Interaction between sex and education level of adolescent was checked at p value < 0.10. All analysis was carried out in STATA version 15.0.

Ethical Approval

The study was approved by the Ethical Review Committee (ERC) of Aga Khan University Hospital, Karachi (2023-8488-24511). All adolescents provided written assent and informed

consent before participation. For participants below 18 years of age, written parental consent was also obtained.

Patient and public involvement

None.

Results

Out of the 760 adolescents approached to participate in the study, 632 completed the survey, resulting in a response rate of 83.15%. Within this sample, 82.7% were female, and 17.2% were male (see Figure 1).

Table 1 summarizes the percentage distribution of adolescents, parental, and socio-demographic characteristics by sex. Among male adolescents, 96.3% were single, and among females, 87.4% were single. The mean age of adolescents enrolled in this study was 17.3 ± 1.7. Among the total male adolescents surveyed, more than half, 54.1%, had attended school. In contrast, among total female participants, only 40.5% attended school, indicating a lower attendance rate than their male counterparts. A total 92.4% of adolescents mother had no formal education, 4.3% had primary education, while 3.3% had secondary education and above. In father's education level, a total 66.3% of adolescent's fathers had no formal education, 11.4% had primary education, 4.8% had middle education, 10.4% of participants fathers attained secondary education and 7.1% had higher education and above. There were 95.4% adolescents who spoke Sindhi, followed by 3.0% Urdu speaking, 1.4% Punjabi, and 0.2% others.

Table 1: Percentage distribution of adolescents, parental and socio-demographic characteristics stratified by sex in rural Thatta from May 2023 - June 2023

Characteristics	Overall %	Male %	Female %	*P value*
Age				
Mean (SD)	17.3 (1.7)	17.5 (1.6)	17.2 (1.7)	0.08
Educational level of adolescent				
No education	57.1	45.9	59.5	
Primary	18.3	19.3	18.1	0.08
Middle education	9.2	11.0	8.8	
Secondary education	11.5	19.3	9.9	
Higher secondary education and above	3.8	4.6	3.6	
Type of school				
Government	96.3	94.9	96.7	0.40
Private	3.7	5.1	3.3	
Working status of adolescent				
Yes	9.8	43.1	2.9	<0.001
No	90.2	56.8	97.1	
Adolescent's occupation				
Labor and fishery	40.3	48.9	13.3	
Protective services	3.2	4.3	0	
Skilled	24.2	4.3	86.7	<0.001
Business	32.3	42.6	0	
Mother's occupation				
House maker	87.0	90.8	86.2	0.26
Sanitation worker	2.5	0.9	2.9	
Skilled worker	5.9	2.8	6.5	
Others	4.6	5.5	4.4	
Father's occupation				
Labor	54.9	62.4	53.4	0.28
Agriculture and fishery	6.8	4.6	7.3	
Driver	6.0	4.6	6.3	
Skilled worker	5.9	1.8	6.7	
Service provider	5.4	4.6	5.5	
Business	6.5	4.6	6.9	
Professional	12.5	16.5	11.7	
Others	2.1	0.9	2.3	
Family system				
Nuclear family	97.3	95.4	97.7	0.20
Extended family	2.7	4.6	2.3	
Household income				
5,000-20,000	70.6	66.9	71.3	0.32
21,000-40,000	28.2	33.0	27.2	
41,000 and above	1.3	0	1.5	

*P value < 0.05. Categorical variables were tested using Pearson's chi², and continuous variable was tested using t-test for two independent samples.

Difference in mean scores of knowledge, attitudes, and practices

There was no significant difference in mean scores of knowledge (Mean difference 0.51; 95% CI -1.06, 2.11) and attitudes (Mean difference 0.29; 95% CI -0.19, 0.79) between males and females. Both males and females demonstrated similar levels of knowledge and attitudes. However, a mean difference of 0.13 (95% CI 0.005, 0.24) was observed in practice which showed that males had slightly higher mean practice scores (Mean 1.35; 95% CI 1.22, 1.48) compared to females (Mean 1.22; 95% CI 1.18, 1.27).

Factors associated with knowledge

Marital status and father's occupation were significant predictors of knowledge related to HIV, STI, family planning, and adolescent pregnancy. Age and education level of adolescents were included in the model even though they were not statistically significant, because of their potential impact on knowledge (see table 2). A significant interaction was found between sex and education level of adolescents, which indicated that male adolescents who had secondary education, the estimated mean knowledge score related to HIV, STI, family planning, and adolescent pregnancy was 6.89 units higher compared to female adolescents with no formal education.

Table 2: Adjusted β coefficients with 95% CI for factors predicting knowledge related to HIV, STI, family planning and pregnancy among adolescents (aged 14-19 years) in rural, Thatta.

Factors	Adjusted β coefficient (95% CI)
Marital status	
Single	Ref
Married	5.13 (1.34 8.91)
Father's occupation	
Labor	Ref
Agriculture and fishery	0.34 (-2.28 2.96)

Driver	0.84 (-2.93 4.61)
Skilled worker	-2.98 (-5.54 -0.43)
Service provider	3.41 (0.90 5.93)
Business	-1.02 (-2.97 0.93)
Professional	-1.34 (-3.51 0.82)
Other	0.12 (-2.66 2.89)
Age	0.20 (-0.21 0.61)
Sex and Education level of adolescent	
Female with no formal education	Ref
Female with Primary education	-1.04 (-2.90 0.81)
Female with Middle education	-1.13 (-3.08 0.82)
Female with Secondary education	-1.64 (-3.95 0.67)
Female with Higher secondary & above	2.40 (-0.55 5.36)
Male with no formal education	-1.35 (-3.50 0.81)
Male with Primary education	1.98 (-2.08 6.04)
Male with Middle education	4.66 (0.12 9.20)
Male with Secondary education	6.89 (2.23 11.54)
Male with Higher secondary & above	3.48 (-2.67 9.63)

P value < 0.05 was used.

Factors associated with attitudes

Household income, marital status, father's occupation, and mother's education were significant factors for predicting adolescent's attitude. Despite the age and education level of adolescents were not statistically significant, they were kept in the model, due to their potential impact on attitudes, as shown in table 3. A significant interaction was also found between sex and education level of adolescent which indicated that among male adolescents who had primary education, the estimated mean attitude score related to HIV, STI, family planning, and adolescent pregnancy was 1.60 units lesser compared to female adolescent with no formal education.

Table 3: Adjusted β coefficients with 95% CI for factors predicting attitude related to HIV, STI, family planning and pregnancy among adolescents (aged 14-19 years) in rural, Thatta.

Factors	Adjusted β coefficient (95% CI)
Household income	
5000 - 20,000	Ref
21,000 - 40, 000	-1.01 (-1.74 -0.29)
41,000 and above	-2.36 (-4.64 -0.07)
Marital status	
Single	Ref
Married	1.34 (0.82 1.86)
Father's occupation	
Labor	Ref
Agriculture and fishery	-0.95 (-1.54 -0.35)
Driver	-0.004 (-1.22 1.21)
Skilled worker	-1.42 (-2.52 -0.33)
Service provider	-1.24 (-2.64 0.15)
Business	-0.07 (-0.76 0.61)
Professional	0.77 (-0.07 1.62)
Other	-0.44 (-1.77 0.89)
Mother's education level	
No education	Ref
Primary education	0.02 (-0.71 0.75)
Secondary education	-1.41 (-2.71 -0.11)
Age	0.03 (-0.11 0.16)
Sex and Education level of adolescent	
Female with no formal education	
Female with Primary education	Ref
Female with Middle education	0.63 (0.07 1.18)
Female with Secondary education	0.36 (-0.46 1.19)
Female with Higher secondary & above	0.49 (-0.35 1.33)
Male with no formal education	0.55 (-0.69 1.79)
Male with Primary education	0.69 (0.04 1.35)
Male with Middle education	-1.60 (-3.08 -0.13)
Male with Secondary education	0.44 (-0.89 1.77)
Male with Higher secondary & above	-0.71 (-2.19 0.77)
	-1.66 (-4.63 1.31)

P value < 0.05 was used.

Factors associated with practices

Marital status and mother's occupation were significant factors associated with adolescent's practice. Although age and education level of the adolescent were not statistically significant, they

were kept in the multivariable model due to their potential influence on practices, shown in table 4. A significant interaction was also identified between sex and education level of the adolescent, which indicated that, among male adolescents who had secondary education, the estimated mean practice score related to HIV, STI, family planning, and adolescent pregnancy was 0.52 units higher compared to female adolescents with no formal education.

Table 4: Adjusted β coefficients with 95% CI for factors predicting practices related to HIV, STI, family planning and pregnancy among adolescents (aged 14-19 years) in rural, Thatta.

Factors	Adjusted β coefficient (95% CI)
Marital status	
Single	Ref
Married	0.24 (0.06 0.41)
Mother's occupation	
Home maker	Ref
Sanitation worker	0.64 (0.38 0.90)
Skilled worker	-0.06 (-0.22 0.08)
Other	-0.09 (-0.34 0.15)
Age	0.002 (-0.02 0.03)
Sex and Education level of adolescent	
Female with no formal education	
Female with Primary education	Ref
Female with Middle education	-0.12 (-0.25 0.02)
Female with Secondary education Female with	0.18 (-0.05 0.42)
Higher secondary & above	-0.19 (-0.33 -0.05)
Male with no formal education	0.07 (-0.22 0.37)
Male with Primary education	0.04 (-0.14 0.22)
Male with Middle education	0.22 (-0.29 0.73)
Male with Secondary education	-0.34 (-0.68 0.01)
Male with Higher secondary & above	0.52 (0.22 0.82)
	0.52 (-0.48 1.51)

P value < 0.05 was used.

Discussion

This study identified factors associated with knowledge, attitudes, and practices (KAP) related to HIV, STI, family planning, and pregnancy among adolescents aged 14-19 years in rural Thatta.

The main finding of this study included no significant difference in the mean scores of knowledge and attitudes between males and females. This finding is consistent with a previous study conducted among adolescents attending secondary schools in Asmara, Eritrea, where no significant disparity in knowledge was observed between males and females [22]. However, our results are contrary toa study conducted in Yemen, where males exhibited higher scores of knowledge than females [23]. Similarly, a study conducted in 20 villages of Lahore reported that males had relatively higher knowledge than females regarding pregnancy (M = 55%, F = 43%), family planning (M = 62%, F = 50%) and, STI's (M = 56%, F = 44%) [24].) In addition to this, a study conducted in eight Columbian schools found that females generally have more knowledge regarding contraceptive methods, while males believes that family planning is solely their partner's responsibility [25]. This variation in knowledge could be attributed to distribution of male and female participants in this study. In our study, female participants were more compared to males. This imbalanced sex representation may have influenced the findings.

In this study we observed a difference in practices between male and female participants. Males demonstrated slightly higher mean practice scores compared to females. This finding aligns with a cross-sectional survey of 11,651 unmarried adolescent boys and girls aged 15-19 years in two large states of India, which revealed a significant association between boys and seeking treatment compared to girls [26]. One possible explanation to this disparity in practices could be due to social stigma. Adolescent girls face social stigma when seeking healthcare services, especially related to reproductive health if they are unmarried. These stigmas discourage them from accessing services independently. Moreover, limited knowledge about healthcare services and their accessibility, barriers to obtaining information, minimal family support, and significant economic barriers hinder the acquisition of family planning [24]. Economic factors and limited resources can further exacerbate gender

disparities. In Pakistan, access to finances and independent decision making differs between males and females particularly in rural areas [27], impacting the ability to seek timely and appropriate healthcare services, which creates a significant barrier for female adolescents in rural areas.

In our study marital status of adolescents was significantly associated with knowledge, attitudes, and practices. Our finding contrasts with a community-based study on knowledge and attitudes of reproductive health, conducted in Jimma town, Southwest Ethiopia, among adolescents aged 15-19 years. That study revealed an inverse association with marital status, where never-married adolescents had a higher mean score of knowledge and attitude than ever-married adolescents [28]. However, our findings were consistent with a study conducted in Yemen which reported that married adolescents had more knowledge about family planning methods than singles [23]. Additionally, another study conducted among college students in Northwest Ethiopia, reported that married adolescents were 1.34 times more knowledgeable compared to singles [29]. The possible explanation of our findings could be that marital status influences the level of exposure and access to reproductive health information and services without social stigma and constraints. Married adolescents may have greater access to family planning services and educational resources related to sexual health, which could contribute to their improved knowledge, more positive attitudes, and better practices. In contrast, unmarried adolescents face significant societal, religious, parental, and cultural barriers that hinder open discussions about their sexual and reproductive health rights (SRHR) [30]. In many rural communities of Pakistan, discussions surrounding SRH are considered taboo, especially for unmarried individuals, reflecting deeply rooted cultural norms. Additionally, there are prevalent misconceptions among LMIC's that unmarried adolescents are too young to seek or benefit from SRH-related information and services

[31]. Such misconceptions, combined with cultural stigma, play a crucial role in shaping adolescents SRH knowledge, attitudes, and practices in Pakistan.

In our study household income was negatively associated with adolescent's attitude. This contradicts with results reported in a study conducted in Dhaka South City, where male adolescents aged 13-19 years showed a significant positive association between monthly family income and attitudes related SRH [32]. The contrasting association between household income and adolescent attitude could be due to difference in study setting and cultural contexts. In rural areas, higher household income might not necessarily lead to open discussions or progressive attitudes related to SRH. In addition to this, higher household incomes often have easier access to various forms of media, including internet and mobile phones. In today's digital era, adolescents from high income families are more likely to have personal mobile phones and unrestricted internet access which not only provide valuable information but also exposes them to a wide range of content which might portray SRH in an unfavorable manner thus affecting their attitudes [32].

Interestingly, our study highlighted effect modification between sex and education level of adolescent in knowledge, attitude and practice. It revealed that males with secondary education level had more knowledge and positive practice compared to females with no formal education. The possible reason for this finding could be sex disparity in education opportunities and resources. In rural areas access to formal education and educational resources significantly differs between males and females. Families often constrained by limited resources, prioritize the education of male children due to perceived future economic contributions [33]. This increased educational access enhances their knowledge subsequently leading to more positive practices. However, in our study, male with primary education level exhibited lower mean scores of attitudes compared to females with no formal education. This unique finding could be attributed to role of chance or to

the nature of the questions in attitude section where a significant portion of the items were on communication with parents, and preferred group for discussing SRH matters. It is likely that male adolescents in the rural areas discuss less with their parents due to cultural and societal norms leading to their negative attitudes. Whereas, females, despite lacking formal education, often feel more comfortable discussing SRH matters with their mothers [34, 35]. Supporting this, a mixed-method study conducted in eight Colombian schools found that parent-child dialogue about sex education was associated with adequate knowledge or attitudes towards family planning [25].Thus, our findings highlight the critical need to create a supportive and non-judgmental environment at home where adolescents both males and females feel secure to express their concerns and seek guidance, ultimately empowering them to make informed decisions regarding their SRH. . Literature suggests that there is a taboo where the population largely believes that sex education should exclusively be provided by health professionals, as they are perceived to be more knowledgeable and qualified on these topics [25]. This belief often leads to delays in introducing sex education, resulting in adolescents beginning their sexual life with many uncertainties and misconceptions. Additionally, In the context of Pakistan especially rural areas, the role of parents in providing sexual education is often minimal due to prevailing cultural and societal norms. There exists a significant taboo where sex education is viewed as a sensitive topic, and discussions about it are often avoided within families. Our findings highlight the urgent need for empowering parents to engage in open and comprehensive discussions with their adolescents about SRH. By addressing these cultural barriers and fostering dialogue, parents can help bridge critical gaps in knowledge, reduce stigma, and create an environment where adolescents feel supported and better equipped to make informed decisions about their SRH.

Strengths and Limitations

We strengthened our study by conducting content validation, to identify the appropriateness, relevance, and clarity of the study's questionnaire. Additionally, face validation was performed which was tailored to 14-19 year age bracket to assess clarity of questionnaire. Subsequently, pretesting of the study's questionnaire was conducted to identify and clarify any unclear questions. These steps were taken to ensure that the tool was culturally appropriate and could effectively capture the necessary insights. We also used multistage cluster sampling which allowed us to capture a wide range of characteristics in this study. This approach enables us to apply our findings to adolescents between 14-19 years in rural areas of Sindh. Additionally, our study's large sample size increases the reliability of our results and increases the study's statistical power Besides these strengths, our study also had a few limitations. Most of our participants were female, which was attributed to the timing of data collection. Most male adolescents were at work during the data collection hours. To address this limitation in future studies, adjusting the data collection timings or implementing stratified techniques could ensure a more balanced sex representation. Relying on self-reported data was also a limitation as it might lead to under reporting, particularly regarding sensitive topics like SRH. To address this, we ensured participant anonymity and privacy to encourage open and honest responses. In terms of generalizability, the study findings are primarily limited to areas that share similar characteristics to rural Thatta district.

Conclusion

Our study sheds light on KAP related to SRH among rural Thatta adolescents. We found no disparity in mean scores of knowledge and attitudes between males and females, and only small difference in mean score of practice. Our study also identified association of socio-demographic factors with adolescents KAP. By understanding and addressing the identified factors, health professionals and policymakers can develop culturally sensitive and context-specific educational

programs for adolescents. Our findings underscore the importance of tailored SRH education for schools and communities to address gender norms, overcome social stigma, improve healthcare access, and empower adolescents to make informed decisions.

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Contributors

Conceptualization of study was undertaken by AI. AI primarily handled formal analysis and methodology. Investigation and supervision were carried out by AI, SS, and SST. Validation and visualization were executed by AI. IA made a significant contribution to data interpretation. First draft of this manuscript was written by AI, and the manuscript was critically revised by all the authors before submitting. AI is responsible for overall content as a guarantor.

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Competing interests

None declared.

Data availability statement

The data will be available on reasonable request from the corresponding author, AI. The data is not publicly available due to some personal information that could compromise the privacy of research participants.

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References

1. https://pmc.ncbi.nlm.nih.gov/articles/PMC7672593/
2. https://www.who.int/teams/sexual-and-reproductive-health-and-research/key-areas-of-work/sexual-health/defining-sexual-health..
4. https://www.unfpa.org/publications/girlhood-not-motherhood
5. https://bmcwomenshealth.biomedcentral.com/articles/10.1186/s12905-023-02169-7
6. https://pmc.ncbi.nlm.nih.gov/articles/PMC7861528/
7. https://www.unfpa.org/sites/default/files/pub-pdf/EN-SWOP2013.pdf.
8. https://data.unicef.org/topic/hivaids/adolescents-young-people/
9. https://www.aidsdatahub.org/sites/default/files/resource/adolescence-pakistan-sex-marriage-reproductive-health.pdf

10https://www.researchgate.net/publication/313046030_Knowledge_of_personal_and_sexual_development_amongst_young_people_in_Pakistan

12. https://pubmed.ncbi.nlm.nih.gov/12466727/
13. https://bmcinthealthhumrights.biomedcentral.com/articles/10.1186/s12914-017-0113-7
14. https://www.tandfonline.com/doi/full/10.1080/14681811.2014.1000454#d1e136
15. Ali, Tazeen Saeed, ParveenAzam Ali, HumairaWaheed, and Azam AliMemon. 2006. "Understanding of Puberty and Related Health Problems among Female Adolescents in Karachi, Pakistan." Journal of the Pakistan Medical Association56 (2): 68–72. (Open in a new window)PubMed(Open in a new window)Google Scholar
16. Hennink, Monique, ImranRana, and RobinaIqbal. 2005. "Knowledge of Personal and Sexual Development amongst Young People in Pakistan." Culture, Health & Sexuality7 (4): 319–332. View (Open in a new window)PubMed (Open in a new window)Web of Science ®(Open in a new window)Google Scholar
17. Talpur, Ashfaque Ahmed, and Asif RazaKhowaja. 2012. "Awareness and Attitude towards Sex Health Education and Sexual Health Services among Youngsters in Rural and Urban Settings of Sindh, Pakistan." The Journal of the Pakistan Medical Association62 (7): 708–712. (Open in a

new window)PubMed (Open in a new window)Web of Science ®(Open in a new window)Google Scholar18. https://pubmed.ncbi.nlm.nih.gov/34017705/
19.. https://bmcpublichealth.biomedcentral.com/articles/10.1186/1471-2458-13-1122
20. https://www.who.int/news/item/08-05-2014-asking-young-people-about-sexual-and-reproductive-behaviours
21.https://books.google.com/books?hl=en&lr=&id=bRoxQBIZRd4C&oi=fnd&pg=PR13&dq=David+W.Hosmer+Jr.+SL+RXS.+Applied+Logistic+Regression+2013&ots=kM4Lwm7Pj5&sig=1epHGt9EPK-Qc_GkkJoAFaz6uq4#v=onepage&q&f=false.
22.https://www.researchgate.net/publication/355402264_Reproductive_Health_Knowledge_Attitude_and_Practice_Among_Adolescents_Attending_Secondary_Schools_in_Asmara_Eritrea
23. https://onlinelibrary.wiley.com/doi/10.1155/2017/1895472
24. https://pubmed.ncbi.nlm.nih.gov/16854688/
25. https://www.thelancet.com/action/showPdf?pii=S2667-193X%2824%2900005-X
26. https://pubmed.ncbi.nlm.nih.gov/33997240/
27. https://bmcwomenshealth.biomedcentral.com/articles/10.1186/s12905-022-02011-6
28https://www.researchgate.net/publication/210342087_Reproductive_Health_Knowledge_and_Attitude_among_Adolescents_A_community_based_study_in_Jimma_Town_Southwest_Ethiopia
29. https://bmcresnotes.biomedcentral.com/articles/10.1186/s13104-019-4116-4
30. https://bmjopen.bmj.com/content/15/2/e093894#ref-19
31. https://pubmed.ncbi.nlm.nih.gov/25043387/
32. https://europepmc.org/article/ppr/ppr585007
33. https://link.springer.com/article/10.1007/s13132-023-01222-y
34. https://pubmed.ncbi.nlm.nih.gov/30918561/
35. https://bmcwomenshealth.biomedcentral.com/articles/10.1186/s12905-023-02617-4

Figure 1: Participant's selection in study conducted in rural Thatta from May 2023 - June 2023.

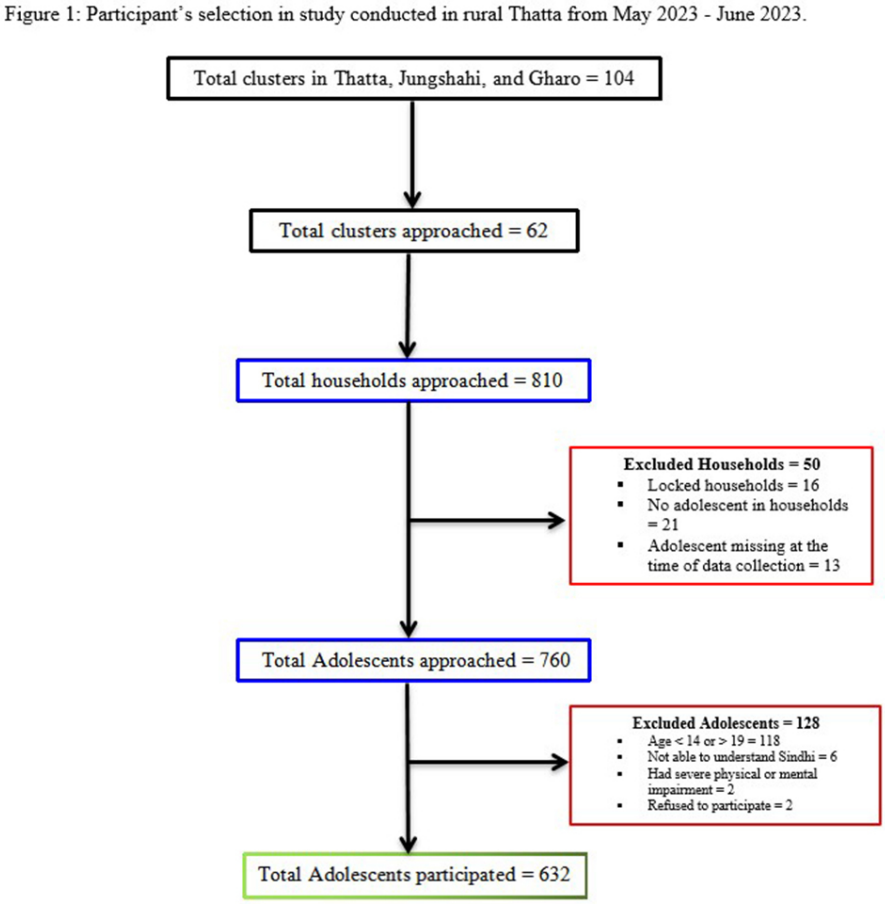

Figure 1: Participant's selection in study conducted in rural Thatta from May 2023 - June 2023.

90x90mm (300 x 300 DPI)

INSTRUCTIONS:

1. **Separate form should be filled for each subject.**
2. **Introduce yourself and explain purpose of your interview**
3. **informed consent should be obtained from participants parent before the interview**
4. **Written assent should be obtained from the participant once agree for participation.**

Day/ Month/ Year

Form filled by:_____ Date: _ _/_ _/_ _ _ _
Form checked and edited by: _____ Date: _ _/_ _/_ _ _ _
Form entered by: _____ Date: _ _/_ _/_ _ _ _

Study ID: _____

SECTION 1: SOCIO-DEMOGRAPHIC INFORMATION

Q	Variable	Code	Skip	Response
1.0	Name (optional)			_____
1.1	Gender	1. Female 2. Male		_____
1.2	How old are you? (in years)	Write completed age in years		___ ___ Years
1.3	How old were you at your last birthday?	Write response in years (CROSS-CHECK WITH DATE OF BIRTH)		_____
1.4	What is your Marital status?	1. Single 2. Married 3.Divorced 4.Widowed 5. Separated		_____
1.5	Can you read, for example, a newspaper?	1. Yes 2. No		_____
1.6	Have you ever-attended school?	1. Yes 2. No		_____
1.7	Education status of participant	1. No education 2. Primary education (completing grade 1 – 5) 3. Middle education (completing grade 6 – 8) 4. Secondary education (grade 9 – 10)/O level 5. Higher secondary	If **NO** education, Skip Q1.8	_____

		education (grade 11 - 12)/A level 6. Above higher secondary (grade 13 and above)		
1.8	Is the school, college or university that you Attend(ed) a government or private institution?	1. Government 2. Private		_____
1.9	Which language do you speak?	1. Sindhi 2. Urdu 3. Pashto 4. Punjabi 99.Other (specify):_____		_____
1.10	What is your family system?	1. Nuclear family 2. Extended family		_____
1.11	Is your father alive?	1. Yes 2. No	If **NO**, skip Q.1.12, 2.24 and 2.25	_____
1.12	Does he live in the same household as you?	1. Yes 2. No	If **NO**, skip Q.2.24 and 2.25	_____
1.13	What's your father's level of education?	1. No education 2. Primary education (completing grade 1 – 5) 3. Middle education (completing grade 6 – 8) 4. Secondary education (grade 9 – 10)/O level 5. Higher secondary education (grade 11 - 12)/A level 6. Above higher secondary (grade 13 and above)		_____
1.14	What is/was your father's occupation?	Write name of his occupation		_____
1.15	Is your mother alive?	1. Yes 2. No	If **NO**, skip Q1.16, 2.26 and 2.27	_____
1.16	Does she live in the same household as you?	1. Yes 2. No	If **NO**, skipQ.2.26 and 2.27	_____

1.17	What's your mother's level of education?	1. No education 2. Primary education (completing grade 1 – 5) 3. Middle education (completing grade 6 – 8) 4. Secondary education (grade 9 – 10)/O level 5. Higher secondary education (grade 11 - 12)/A level 6. Above higher secondary (grade 13 and above)		_____
1.18	What's your mother's occupation?	Write name of her occupation		_____
1.19	Are you currently working to earn?	1. Yes 2. No	If **NO**, skip Q1.20	_____
1.20	What type of work do (did) you do?	Write actual response		_____
1.21	What is your family monthly income?	1. 5000-20,000 2. 21,000-40,000 3. 41,000-60,000 4. 61,000-80,000 5. 81,000-100,000 6. Above 100,000		_____
1.22	Does your household have any of the following: [RECORD ALL THAT APPLY]	Specify amount.		
	1. Electricity	1. Yes 2. No		_____
	2. Electric fan	How many?		_____
	3. Color television	How many?		_____
	4. Refrigerator	How many?		_____
	5. Radio/transistor	How many?		_____

	6. Mobile phone	How many?		_____
	7. Computer/laptop	How many?		_____
	8. Washing machine	How many?		_____
	9. Sewing machine	How many?		_____
	10. Air cooler	How many?		_____
	11. Air conditioner	How many?		_____
	12. Animal-drawn cart	How many?		_____
	13. Bicycle	How many?		_____
	14. Tractor/boat with motor	How many?		_____
	15. Car/truck	How many?		_____
	16. Motorcycle/scooter	How many?		_____
	17. Rickshaw/van	How many?		_____
	18. Chair	How many?		_____
	19. Cot/bed	How many?		_____
	20. Mattress	How many?		_____
	21. Sofa	How many?		_____
	22. Table	How many?		_____
	23. Almirah/cabinet	How many?		_____
	24. Livestock	How many?		_____
	25. Poultry	How many?		_____

SECTION 2: KNOWLEDGE, ATTIUDE, AND PRACTICES

S/no	Questions	Code	Skip	Response
2.1	Have you heard of HIV or AIDS (*use local terms*)?	1. Yes 2. No		
I am now going to read you some statements about HIV/AIDS. Please tell me whether you think the statement is true, or false, or whether you don't know.				
2.2	It is possible to cure AIDS	1. True 2. False 96. Don't know		
2.3	A person with HIV always looks emaciated or unhealthy in some way	1. True 2. False 96. Don't know		
2.4	People can take a simple test to find out whether they have HIV	1. True 2. False 96. Don't know		
2.5	Apart from HIV/AIDS, there are other diseases that men and women can catch by having sexual intercourse. Have you heard of any of these diseases?	1. Yes 2. No		
2.6	What are the signs and symptoms of a sexually transmitted disease in men? (CIRCLE EACH MENTIONED)	1. Discharge from penis 2. Pain during urination 3. Ulcer/sores in genital area 99. Other _____ 96. Don't know any signs		
2.7	And what are the signs or symptoms when a women is infected?	1. Vaginal discharge 2. Pain during urination 3. Ulcer/sores in genital area 99. Other _____ 96. Don't know any signs		
2.8	Pill Women can take a pill every day	1. Yes (spont.) 2. Yes (prompted) 3. No	If **NO**, skip Q2.8b	
2.8b	Do you know any place or person where young people could obtain this method?	1. Yes 2. No		
2.9	Injection Women can have an injection every 2 or every 3 months.	1. Yes (spont.) 2. Yes (prompted) 3. No	If **NO**, skip Q2.9b	

2.9b	Do you know any place or personwhere young people could obtain this method?"	1. Yes 2. No		
2.10	Condom A man can put a rubber deviceon his penis before intercourse.	1. Yes (spont.) 2. Yes (prompted) 3. No	If **NO**, skip Q2.10b	
2.10b	Do you know any place or personwhere young people could obtain this method?	1. Yes 2. No		
2.11	Emergency Contraceptive Pills A woman can take pills soonafter intercourse.	1. Yes (spont.) 2. Yes (prompted) 3. No	If **NO**, skip Q2.11b	
2.11b	Do you know any place or person where young people could obtain this method?	1. Yes 2. No		
2.12	Withdrawal A man can pull out of a woman before climax.	1. Yes (spont.) 2. Yes (prompted) 3. No		
2.13	Periodic Abstinence/Rhythm A couple can avoid sex on days when pregnancy is most likely tooccur.	1. Yes (spont.) 2. Yes (prompted) 3. No		
2.14	Have you ever seen a condom?	1. Yes 2. No		
People have different opinions about condoms. I will readout some opinions. For each one, I want you to tell me whether you agree or disagree, or whether you don't know.				
2.15	Condoms are an effective method of preventing pregnancy.	1. Agree 96. Don't know/not sure 2. Disagree		
2.16	Condoms can be used more than once.	1. Agree 96. Don't know/not sure 2. Disagree		
2.17	Condoms are an effective way of protecting against HIV/AIDS	1. Agree 96. Don't know/not sure 2. Disagree		

2.18	Condoms reduce sexual pleasure	1. Agree 96. Don't know/not sure 2. Disagree		
2.19	Condoms are an effective way of protecting against sexually transmitted diseases	1. Agree 96. Don't know/not sure 2. Disagree		
Now I have some other questions on adolescent pregnancy. I will read you some statements. Please tell me whether you think the statement is true, or false, or whether you don't know.				
2.20	A woman can get pregnant on the very first time that she has sexual intercourse.	1. True 2. False 96. Don't know/not sure		
2.21	A woman stops growing after she has had sexual intercourse for the first time.	1. True 2. False 96. Don't know/not sure		
2.22	Masturbation causes serious damage to health.	1. True 2. False 96. Don't know/not sure		
2.23	A woman is most likely to get pregnant if she has sexual intercourse half way between her periods.	1. True 2. False 96. Don't know/not sure		
	Attitude			
2.24	**(Ask this question if his/her father is alive and living in same household)** Do you find it difficult or easy to talk with your father about things that are important to you?	1. Very easy 2. Easy 3. Average 4. Difficult 5. Very difficult 6. Do not see him		
2.25	Have you ever discussed sex-related matters with your father? If **YES** often or occasionally?	1. Often 2. Occasionally 3. Never		
2.26	**(Ask this question if his/her mother is alive**	1. Very easy 2. Easy		

	and living in same household) Do you find it difficult or easy to talk with your mother about things that are important to you?	3. Average 4. Difficult 5. Very difficult 6. Do not see him		
2.27	Have you ever discussed sex-related matters with your mother? If **YES** often or occasionally?	1. Often 2. Occasionally 3. Never		
2.28	If a friend of yours needed treatment for a sexuallytransmitted disease, where could he or she obtainsuch treatment? (CIRCLE EACH MENTIONED)	1. Shop 2. Pharmacy 3. Govt. hospitals/health centre/clinic 4. Private doctor/nurse/clinic 99. Other (please specify) _____		
2.29	It would be too embarrassing for someone like me to buy or obtain condoms.	1. Agree 96. Don't know/not sure 2. Disagree		
2.30	If unmarried couples want to have sexual intercourse before marriage, they should use condoms.	1. Agree 96. Don't know/not sure 2. Disagree		
		Practices		
2.31	Ever utilized any SRH services?	1. Yes 2. No		
2.32	Ever tested for HIV	1. Yes 2. No		
2.33	Intention of having an HIV Test	1. Yes 2. No		
2.34	Practice of parent-adolescent communication	1. Yes 2. No		

2.35	Preferred group for SRH issue discussion? (CIRCLE YOUR RESPONSE)	1. Friends 2. Parents 3. Siblings 4. Partner 5. Health Professionals 6. Other (please specify)		

هدايتون

1.هر مضمون لاءِ الڳ فارم پريو وڃي.

2.پنهنجو تعارف ڪريو ۽ پنهنجي انٽرويو جو مقصد بيان ڪريو.

3.انٽرويو کان اڳ شرڪت ڪندڙن جي والدين کان ڄاڻايل رضامندي حاصل ڪئي وڃي.

4.هڪ پيرو شرڪت لاءِ راضي ٿيڻ کان پوءِ شرڪت ڪندڙ کان لکت واري منظوري حاصل ڪئي وڃي.

فارم پريو_____تاريخ_____ڏينهن_مهينو_ سال

فارم چيڪ ۽ ايڊٽ ڪيو_____تاريخ_____ ڏينهن_مهينو_ سال

فارم داخل ڪيو_____تاريخ_____ ڏينهن_مهينو_ سال

مطالعي جي سڃاڻپ_____

سيڪشن 1.سماجي ڊيموگرافڪ ڄاڻ

سوال نمبر			پپ	
1.0	نالو(آپشنل)			
Question# 1.1	جنس Variable سوال	1.عورت Code ڪوڊ 2.مرد	skipاسڪ	Response جواب
1.2	توهان گهٽن سالن جا آهيو؟ سالن ۾ لکو	سالن ۾ مڪمل عمر لکو		_____سال
1.3	توهان جي آخري سالگره تي توهان جي عمر ڪيتري هئي؟	سالن ۾ جواب لکو(ڪراس چيڪ جمڻ جي تاريخ سان ڪريو)		
1.4	توهان جي ازدواجي حيثيت ڇا آهي؟	1.غير شادي شده 2.شادي شده 3.طلاق شده 4.بيواه 5.الڳ ٿيل		

1.5	توهان پڑهي سگهو ٿا ؟مثال اخبار	1. ها 2.نہ		
1.6	توهان ڪڏهن اسڪول ۾ شرڪت ڪئي؟	1. ها 2.نہ		
1.7	شرڪت ڪندڙ جي تعليمي حيثيت	1.آڻ پڙهيل 2.پرئمري تعليم(گريڊ 1 کان 5) 3.مڈل تعليم(گريڊ 6 کان 8) 4.سيڪنڈري تعليم(گريڊ 9 کان 10) او ليول 5.اعلا ثانوي تعليم(گريڊ 11 کان 12) اي ليول 6.اعلا ثانوي تعليم کان مٿي تعليم (گريڊ 13 کان مٿي)		
1.8	اهو اسڪول،ڪاليج يا يونيورسٽي جنهن ۾ توهان شرڪت ڪندا آهيو يا ڪئي هئي اهو سرڪاري يا پرائيويٽ ادارو آهي؟	1. سرڪاري 2.پرائيويٽ		
1.9	توهان ڪهڙي ٻولي ڳالهايو ٿا؟	1. سنڌي 2.اردو 3.پشتو 4.پنجابي 99.ٻي ڪا_____		
1.10	توهان جو خاندائي نظام ڇا آهي؟	1.انفرادي خاندان 2.وسيع خاندان		
1.11	ڇا توهان جو پيءُ زنده آهي؟	1.ها 2.نہ	اگر نہ تہ اسڪپ سوال نمبر 1.12،2.24ء 1.25ع	
1.12	ڇا توهان وانگر ساڻئي گهر ۾ رهي ٿو؟	1.ها 2.نہ	اگر نہ تہ اسڪپ سوال نمبر 2.25ع2.24	
1.13	توهان جي پيءُ جي تعليم ڪيتري آهي؟	1.آڻ پڙهيل 2.پرئمري تعليم(گريڊ 1 کان 5) 3.مڈل تعليم(گريڊ 6 کان 8) 4.سيڪنڈري تعليم(گريڊ 9 کان 10) او ليول		

		5.اعلا ثانوي تعليم(گريڊ 11 کان 12)اي ليول 6.اعلا ثانوي تعليم کان مٿي تعليم (گريڊ 13 کان مٿي)		
1.14	توهان جي پيءُ جو ڏنڏو چا هو يا آهي؟	سندس پيشي جو نالو لکو		
1.15	چا توهان جي ماءُ زنده آهي؟	1.ها 2.نہ	اگر نہ تہ اسڪپ سوال نمبر1.16، 26 2.27ء.	
1.16	چا هوءَ توهان وانگر ساڳئي گھر ۾ رهي ٿي؟	1.ها 2.نہ	اگر نہ تہ اسڪپ سوال نمبر1.16،2 26. 2.27ء	
1.17	توهان جو ماءُ جي تعليم ڪيتري آهي؟	1.اڻ پڙهيل 2.پرائمري تعليم(گريڊ 1 کان 5) 3.مڈل تعليم(گريڊ 6 کان 8) 4.سيڪنڈري تعليم(گريڊ 9 کان 10) او ليول 5.اعلا ثانوي تعليم(گريڊ 11 کان 12)اي ليول 6.اعلا ثانوي تعليم کان مٿي تعليم (گريڊ 13 کان مٿي)		
1.18	توهان جي ماءُ جو ڪاروبار چا آهي؟	سندس پيشي جو نالو لکو		
1.19	چا توهان في الحال ڪمائڻ جي ڪم ڪري رهيا آهيو؟	1.ها 2.نہ	اگر نہ اسڪيپ سوال1.20	
1.20	توهان ڪهڙي قسم جو ڪم ڪندا هئا يا آهيو؟	حقيقي جواب لکو		
1.21	توهان جي خاندان جي مهيني جي آمدني چا آهي؟	1. 5000 کان 20000 2. 21،000- کان 40،000 3. 41،000 کان 60،000 4. 61،000 کان 80،000 5. 81،000 کان 100،000 6. 100،000 کان مٿي		
1.22	چا توهان جي گھر وارن وٽ هيٺ ڏنل چيزون موجود آهن (جيڪي لاڳو ٿين تا انهن کي رڪارڊ ڪريو)	مقرره رقم		
	1.بجلي	1. ها 2. نہ		

	2. بجلي وار پنکا	ڪيترا؟		
	3.رنگين ٽيليويزن	ڪيترا؟		
	4.فرج	ڪيترا؟		
	5. ريڊيو ٽرانسميٽر	ڪيترا؟		
	6. موبائل فون	ڪيترا؟		
	7.ڪمپيوٽر ،ليپ ٽاپ	ڪيترا؟		
	8.ڪپڑن ڌوئڻ واري مشين	ڪيترا؟		
	9. سلائي مشين	ڪيترا؟		
	10.ايئر ڪولر	ڪيترا؟		
	11.ايئر ڪنڊيشنر (اي سي)	ڪيترا؟		
	12.جانورن جي ڇهيل گاڏي	ڪيترا؟		
	13.سائيڪل	ڪيترا؟		
	14.ٽريڪٽر ،موٽر واري ٻيڑي	ڪيترا؟		
	15.ڪار، ٽرڪ	ڪيترا؟		
	16.موٽر سائيڪل، اسڪوٽر	ڪيترا؟		
	17. رڪشا، وين	ڪيترا؟		
	18،ڪرسي	ڪيترا؟		
	19بسترو، پلنگھ	ڪيترا؟		
	20. گدو	ڪيترا؟		
	21. سوفا	ڪيترا؟		
	22.ٽيبل	ڪيترا؟		
	23.الميراه،ڪابينا، الماڙي	ڪيترا؟		
	24.ڊور	ڪيترا؟		
	25. مرغي	ڪيترا؟		

سيڪشن 2. ڄاڻ،رويو ۽ عمل

2.1	چا توهان ايڇ،آءِ ، وي ۽ ايڊس جي باري ۾ ٻڌو آهي؟	1. ها 2. نہ		

مان توهان لاءِ ايڇ آءِ وي ۽ ايڊس جي بابت ڪجھ بيان پڙھڻ وارو،واري آهيان مهرباني ڪري مون کي ٻڌايو ته توهان چا ٿا سمجھو ته اهو بيان صحيح آهي غلط آهي يا توهان کي خبر نہ آهي.

2.2	AIDSجو علاج ممڪن آهي ؟	1.صحيح 2.غلط 96.خبر نہ آهي		
2.3	ايڇ آءِ وي سان متاثر شخص هميشہ ڪنهن نہ ڪنهن طريقي سان ڪمزور يا غير صحتمند نظر اچي ٿو؟	1.صحيح 2.غلط 96.خبر نہ آهي		
2.4	ماڻهو هڪ سادي ٽيسٽ وٹي سگھن ٿا هي معلوم ڪرڻ لاءِ ته چا هن کي ايڇ آءِ وي آهي	1.صحيح 2.غلط 96.خبر نہ آهي		

2.5	ايڇ آءِ وي ،ايڊس کان علاوا ٻيون به ڪيترين ئي بيمارين آهن جيڪي مرد ۽ عورت کي جنسي ميلاپ ڪرڻ سان ٿي سگهن ٿيون.ڇا توهان انهن بيمارين مان ڪنهن جي باري ۾ پڌو آهي؟	1.ها 2.نہ		
2.6	۾ جنسي طور منتقل ٿيندڙ بيماريان جون نشانيون ۽ علامتون ڪهڙيون آهن؟(ذڪر ڪيل تي دائرو ڪيو)	1.عضون تناسل مان خارج ٿيڻ 2.پيشاب دوران درد 3. السر،زخم جينياتي جڳهه تي 99.ٻيا 96.خبر نہ آهي		
2.7	۽ ڇا نشانيون يا علامتون اهن جڏهن هڪ عورت متاثر ٿئي ٿي؟	1.ويجينا مان خارج ٿيڻ 2. پيشاب دوران درد 3.السر،زخم جينياتي جڳهه تي 99.ٻيا 96. خبر نہ آهي		
2.8(a)	**گوري** عورتون روزانو هڪ گوري وٺي سگهن ٿيون.	1.ها (فوري جواب) 2.ها (سوچي جواب) 3.نہ	اگر (نہ) اسڪيپ سوال 2.8 ٻي	
2.8(b)	ڇا توهان ڪنهن جڳهه يا شخص کي سڃاڻو ٿا جتي نوجوان ماڻهو هي طريقو حاصل ڪري سگهن ٿا	1. ها 2.نہ		
2.9	**انجيڪشن** عورتون هر ٻئين يا ٽئين مهيني انجيڪشن لڳائي سگهن ٿيون	1.ها (فوري جواب) 2.ها (سوچي جواب) 3.نہ	اگر (نہ) اسڪيپ سوال 2.9 ٻي	
2.9(b)	ڇا توهان ڪنهن جڳهه يا شخص کي سڃاڻو ٿا جتي نوجوان ماڻهو هي طريقو حاصل ڪري سگهن ٿا	1. ها 2.نہ		
2.10	ڪنڈوم(رٻڙ وارو ڦوڪڻو) مرد جماع ڪرڻ کان اڳ پنهنجي عضوي تي رٻڙ وجهي سگهي ٿو؟	1.ها (فوري جواب) 2.ها (سوچي جواب) 3.نہ	اگر (نہ) اسڪيپ سوال 2.10 ٻي	
2.10(b)	ڇا توهان ڪنهن جڳهه يا شخص کي سڃاڻو ٿا جتي نوجوان ماڻهو هي طريقو حاصل ڪري سگهن ٿا	1. ها 2.نہ		
2.11	ايمرجنسي مانع حمل جي گوري	1.ها (فوري جواب) 2.ها (سوچي جواب) 3.نہ	اگر (نہ) اسڪيپ	

	عورتون جماع ڪرڻ کان پوءِ جلد گوريون وٺي سگھن ٿيون		سوال 2.11 بي	
2.11(b)	ڇا توهان ڪنهن جڳھ يا شخص کي سڃاڻو ٿا جتي نوجوان ماڻھو هي طريقو حاصل ڪري سگھن ٿا	1. ها 2.نہ		
2.12	واپس وڃڻ هڪ مرد هڪ عورت کي ڪلائيمڪس کان اڳ ڪيڏي سگھي ٿو	1.ها (فوري جواب) 2.ها (سوچي جواب) 3.نہ		
2.13	وقتي پابندي ،تال هڪ جوڙو انهن ڏينهن تي جنسي ميلاپ کان پاسو ڪري سگھي ٿو جڏهن حمل ٿيڻ جو تمام گھٽو امڪان آهي؟	1.ها (فوري جواب) 2.ها (سوچي جواب) 3.نہ		
2.14	ڇا توهان ڪڏهن ڪنڊوم (ربڙ وارو ڦوڪڻو) ڏٺو آهي؟	1. ها 2.نہ		

ڪنڊوم بابت ماڻھن جا مختلف رايا آهن .مان ڪجھ رايا پڙهندس .هر هن لاءِ مان چاهيان ٿو تہ توهان مون کي ٻڌايو تہ توهان متفق آهيو يا غير متفق آهيو يا توهان نٿا ڄاڻو

2.15	ڪنڊوم حمل کي روڪڻ جو هڪ موثر طريقو آهي	1.متفق آهيان 2.غير متفص آهيان 96.خبر نہ آهي،پڪ نہ آهي		
2.16	ڪنڊوم هڪ کان وڌيڪ پيرا سگھجي ٿو	1.متفق آهيان 2.غير متفص آهيان 96.خبر نہ آهي،پڪ نہ آهي		
2.17	ڪنڊوم ايڊز ،ايڇ آءِ وي کان بچاءَ جو هڪ مئوثر طريقو آهي	1.متفق آهيان 2.غير متفص آهيان 96.خبر نہ آهي،پڪ نہ آهي		
2.18	ڪنڊوم جنسي خوشي کي گھٽائي ٿو	1.متفق آهيان 2.غير متفص آهيان 96.خبر نہ آهي،پڪ نہ آهي		
2.19	ڪنڊوم جنسي طور منتقل ٿيندڙ بيمارين کان بچاءَ جو هڪ مئوثر طريقو آهي	1.متفق آهيان 2.غير متفص آهيان 96.خبر نہ آهي،پڪ نہ آهي		

هاڻي مون وٽ نوجوانن جي حمل تي ڪجھ پيا سوال آهن .مان توهان کا ڪجھ پيا بيان پڙهي ڏيندس. مهرباني ڪري مون کي ٻڌايو تہ توهان ڇا ٿا سمجھو تہ هي بيان صحيح آهن غلط آهن يا توهان کي خبر نہ آهي.

2.20	ٿي سگھي ٿي جڏهن پهريون پيرو جنسي تعلق رکي ٿي	1.صحيح 2.غلط 96.خبر نہ آهي، پڪ نہ آهي		

2.21	هڪ عورت پهريون پيرو جنسي ميلاپ ڪرڻ کان پوءِ وڏيءَ بند ٿئي ٿي	.1صحيح .2غلط .96خبر نہ آهي، پڪ نہ آهي		
2.22	مشترني صحت کي سخت نقصان پهچائي ٿي	.1صحيح .2غلط .96خبر نہ آهي، پڪ نہ آهي		
2.23	هڪ عورت جو حامل ٿيڻ جو گهٽو امڪان آهي جڏهن هو پنهنجي ماهواري جي وچين تاريخن ۾ جنسي ميلاپ ڪري ٿي	.1صحيح .2غلط .96خبر نہ آهي، پڪ نہ آهي		

رويو

2.24	(اهو سوال تڏهن پڇو جڏهن هن جو پيءُ جيرو آهي ۽هڪ ئي گهر ۾ رهن ٿا) چا توهان کي پنهنجي پيءُ سان انهن شين جي باري ۾ گالهائڻ ڏکيو يا آسان آهي جيڪي توهان لاءِ اهم آهن)	.1تمام آسان آهي .2آسان آهي .3سراسري آهي .4مشڪل آهي .5تمام ڏکيو آهي .6هن کي نہ ڏس		
2.25	چا توهان ڪڏهن پنهنجي پيءَ سان جنسي تعلق جي معاملي تي گالهايو آهي ؟ (جيڪڏهن (ها) اڪثر يا ڪڏهن ڪڏهن	.1 اڪثر .2ڪڏهن ڪڏهن .3ڪڏهن به نہ		
2.26	(اهو سوال تڏهن پڇو جڏهن هن جو ماءُ جيري آهي ۽هڪ ئي گهر ۾ رهن ٿا) چا توهان کي پنهنجي ماءُ سان انهن شين جي باري ۾ گالهائڻ ڏکيو يا آسان آهي جيڪي توهان لاءِ اهم آهن)	.1تمام آسان آهي .2آسان آهي .3سراسري آهي .4مشڪل آهي .5تمام ڏکيو آهي .6هن کي نہ ڏس		
2.27	چا توهان ڪڏهن پنهنجي ماءَ سان جنسي تعلق جي معاملي تي گالهايو آهي ؟ (جيڪڏهن (ها) اڪثر يا ڪڏهن ڪڏهن	.1 اڪثر .2ڪڏهن ڪڏهن .3ڪڏهن به نہ		
2.28	جيڪڏهن توهان جي ڪنهن دوست کي جنسي طور منتقل ٿيندڙ بيمارين جي علاج جي	.1دڪان .2دوا سازي(ميڊيڪل اسٽور		

	ضرورت آهي ته هو اهو علاج ڪٽان حاصل ڪري سگهي ٿو،ٽي؟(دائرو ڪيو)	3.سرڪاري اسپتال، هيلٿ سينٽر،ڪلينڪ 4.پرائيويٽ ڊاڪٽر، نرس، ڪلينڪ 5. ٻيا_____		
2.29	مون جهڙي ڪنهن لاءِ ڪنڊوم خريد ڪرڻ يا حاصل ڪرڻ ڏاڍوشرمناڪ هوندو	1.متفق آهيان 2.غير متفص آهيان 96.خبر نه آهي،پڪ نه آهي		
2.30	جيڪڏهن غير شادي شده جوڙا شادي ڪرڻ کان اڳ جنسي ميلاپ ڪرڻ چاهين ته انهن کي ڪنڊوم استعمال ڪرڻ گهرجي	1.متفق آهيان 2.غير متفص آهيان 96.خبر نه آهي،پڪ نه آهي		

عمل

2.31	ڪڏهن به ڪنهن جنسي ءِ پيداواري صحت جون خدمتون استعمال ڪيون آهن	1. ها 2. نه		
2.32	ڪڏهن ايڇ آءِ وي ٽيسٽ ڪيو آهي	1. ها 2. نه		
2.33	ايڇ آءِ وي ٽيسٽ ڪرائڻ جو ارادو	1. ها 2. نه		
2.34	والدين نوجوان رابطي جي مشق	1. ها 2. نه		
2.35	SRHمسئلي جي لاءِ ترجيح گروپ (توهان جي جواب تي دائرو ڪريو)	1.دوست 2.والدين 3.پائر ،پيئر 4.ساٿي،همسفر 5صحت جاماهر 6.ٻيا_____		