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

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2 3 4	1	Title Page
5 6	2	Sexual and reproductive health knowledge, attitude and practices among adolescents in rural,
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25 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.

33 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 (\Box 5.13; 95% CI 1.34, 8.91), and father's occupation (\Box 3.41, 95% CI 0.90, 5.93) were associated with knowledge. Marital status (\Box 1.34; 95% CI 0.82, 1.86), household income (\Box -2.36; 95% CI -4.64, -0.07), father's occupation (\Box -1.42; 95% CI -2.52, -0.33), and mother's education (\Box -1.41; 95% CI -2.71, -0.11) were associated with attitude. *Page 3 of 25*

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47	Moreover, marital status (\Box 0.24; 95% CI 0.06, 0.41), and mother's occupation (\Box 0.64; 95% CI
48	0.38, 0.90) were associated with practice.
49	Conclusion
50	No gender disparity in knowledge and attitude between male and females was found. These
51	findings suggest that community awareness programs should be implemented to improve SRH
52	KAP for both male and female adolescents in Thatta.
53	
54	Key Message
55	What is already known to this topic?
56	• Adolescent pregnancy is a widespread issue globally. Approximately 16 million adolescent
57	girls give birth every year.
58	• HIV prevalence among adolescents remains a significant concern globally, particularly
59	affecting girls.
60	• In Low-and Middle-Income Countries (LMICs), adolescent's faces difficulties due to cultural
61	restrictions, limited information, and restricted access to health services, especially in rural
62	areas
63	What this study adds?
64	• This study highlights the importance of various socio-demographic factors on adolescents
65	SRH knowledge, attitudes, and practices.
66	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.

74 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).

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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

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- 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.
- 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

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

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> 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 Lich 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.

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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.

184 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.

⁹ 189 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.

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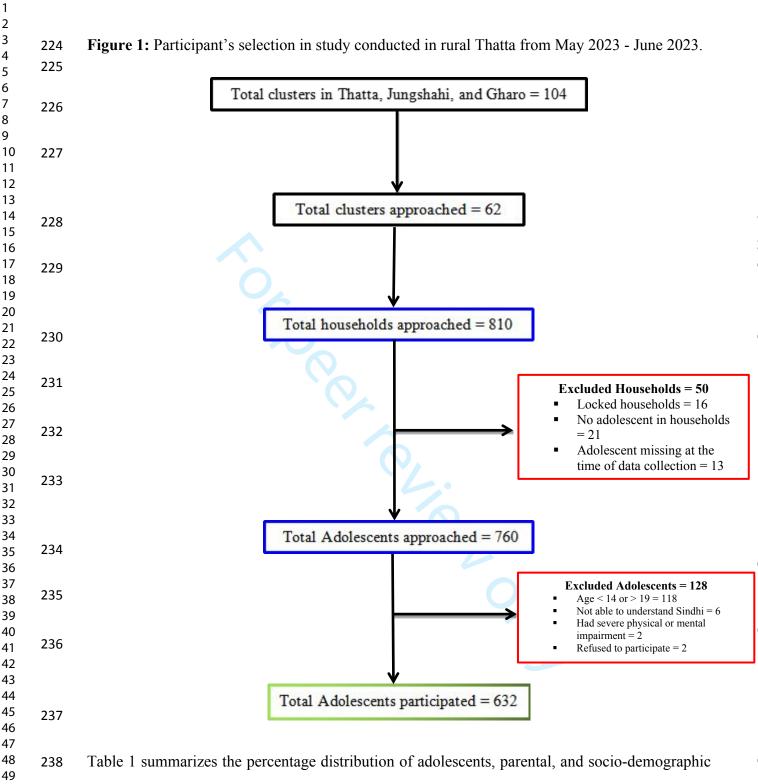
Adjusted β coefficients along with 95% CIs were reported using multivariable analysis. *P*-value of less than 0.05 was treated as statistically significant. Interaction between gender and education level of adolescent was checked at p value < 0.10. All analysis was carried out in STATA version 15.0.

205 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).

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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,

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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	3.8	4.6	3.6	
above				
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

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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.

254 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).

261 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.

12			
13		Factors	Adjusted β coefficient (95% CI)
14		Marital status	
15		Single	Ref
16		Married	5.13 (1.34 8.91)
17 18		Fathers occupation	
19		Labor	Ref
20		Agriculture and fishery	0.34 (-2.28 2.96)
21		Driver	0.84 (-2.93 4.61)
22		Skilled worker	-2.98 (-5.54 -0.43)
23 24		Service provider	3.41 (0.90 5.93)
24 25		Business	-1.02 (-2.97 0.93)
26		Professional	-1.34 (-3.51 0.82)
27		Other	0.12 (-2.66 2.89)
28		Age	0.20 (-0.21 0.61)
29			
30 31		Gender and Education level of adolescent	
32		Female with no formal education	Ref
33		Female with Primary education	-1.04 (-2.90 0.81)
34		Female with Middle education	-1.13 (-3.08 0.82)
35		Female with Secondary education	-1.64 (-3.95 0.67)
36		Female with Higher secondary & above	2.40 (-0.55 5.36)
37		Male with no formal education	-1.35 (-3.50 0.81)
38		Male with Primary education	1.98 (-2.08 6.04)
39 40		Male with Middle education	4.66 (0.12 9.20)
40		Male with Secondary education	6.89 (2.23 11.54)
42		Male with Higher secondary & above	3.48 (-2.67 9.63)
43	272	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

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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)

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3 4			-1.66 (-4.63 1.31)
5	284	P value < 0.05 was used.	
6			
7 8	285	Factors associated with practices	
9 10	286	Marital status and mother's occupation were	significant factors associated with adolescent
11 12 13	287	practice. Although age and education level of	the adolescent were not statistically significant,
14 15	288	they were kept in the multivariable model due to	o their potential influence on practices, shown in
16 17	289	table 4. A significant interaction was also ident	ified between gender and education level of the
18 19 20	290	adolescent, which indicated that, among male	adolescents who had secondary education, the
20 21 22	291	estimated mean practice score related to HIV,	STI, family planning, and adolescent pregnancy
23 24	292	was 0.52 units higher compared to female adoles	cents with no formal education.
25			
26 27	293	Table 4: Adjusted β coefficients with 95% CI	for factors predicting practices related to HIV
28	294		
29	294	STI, family planning and pregnancy among adol	
29 30 31	294		
29 30 31 32	294	STI, family planning and pregnancy among adol	escents (aged 14-19 years) in rural, Thatta.
29 30 31 32 33	294	STI, family planning and pregnancy among adol Factors Marital status	escents (aged 14-19 years) in rural, Thatta.
29 30 31 32 33 34	294	STI, family planning and pregnancy among adol Factors	escents (aged 14-19 years) in rural, Thatta. Adjusted β coefficient (95% CI) Ref
29 30 31 32 33 34 35	294	STI, family planning and pregnancy among adol Factors Marital status Single Married	escents (aged 14-19 years) in rural, Thatta. Adjusted β coefficient (95% CI)
29 30 31 32 33 34	294	STI, family planning and pregnancy among adol Factors Marital status Single Married Mothers occupation	escents (aged 14-19 years) in rural, Thatta. Adjusted β coefficient (95% CI) Ref 0.24 (0.06 0.41)
29 30 31 32 33 34 35 36 37 38	294	STI, family planning and pregnancy among adol Factors Marital status Single Married Mothers occupation Home maker	escents (aged 14-19 years) in rural, Thatta. Adjusted β coefficient (95% CI) Ref 0.24 (0.06 0.41) Ref
29 30 31 32 33 34 35 36 37 38 39	294	STI, family planning and pregnancy among adol Factors Marital status Single Married Mothers occupation Home maker Sanitation worker	escents (aged 14-19 years) in rural, Thatta. Adjusted β coefficient (95% CI) Ref 0.24 (0.06 0.41) Ref 0.64 (0.38 0.90)
29 30 31 32 33 34 35 36 37 38 39 40	294	STI, family planning and pregnancy among adol Factors Marital status Single Married Mothers occupation Home maker Sanitation worker Skilled worker	escents (aged 14-19 years) in rural, Thatta. Adjusted β coefficient (95% CI) Ref 0.24 (0.06 0.41) Ref 0.64 (0.38 0.90) -0.06 (-0.22 0.08)
29 30 31 32 33 34 35 36 37 38 39 40 41	294	STI, family planning and pregnancy among adol Factors Marital status Single Married Mothers occupation Home maker Sanitation worker Skilled worker Other	Adjusted β coefficient (95% CI) Ref 0.24 (0.06 0.41) Ref 0.64 (0.38 0.90) -0.06 (-0.22 0.08) -0.09 (-0.34 0.15)
29 30 31 32 33 34 35 36 37 38 39 40 41 42	294	STI, family planning and pregnancy among adol Factors Marital status Single Married Mothers occupation Home maker Sanitation worker Skilled worker Other Age	escents (aged 14-19 years) in rural, Thatta. Adjusted β coefficient (95% CI) Ref 0.24 (0.06 0.41) Ref 0.64 (0.38 0.90) -0.06 (-0.22 0.08)
29 30 31 32 33 34 35 36 37 38 39 40 41	294	STI, family planning and pregnancy among adol Factors Marital status Single Married Mothers occupation Home maker Sanitation worker Skilled worker Other Age Gender and Education level of adolescent	Adjusted β coefficient (95% CI) Ref 0.24 (0.06 0.41) Ref 0.64 (0.38 0.90) -0.06 (-0.22 0.08) -0.09 (-0.34 0.15)
29 30 31 32 33 34 35 36 37 38 39 40 41 42 43	294	STI, family planning and pregnancy among adol Factors Marital status Single Married Mothers occupation Home maker Sanitation worker Skilled worker Other Age Gender and Education level of adolescent Female with no formal education	Adjusted β coefficient (95% CI) Ref 0.24 (0.06 0.41) Ref 0.64 (0.38 0.90) -0.06 (-0.22 0.08) -0.09 (-0.34 0.15) 0.002 (-0.02 0.03) 0.03)
29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46	294	STI, family planning and pregnancy among adol Factors Marital status Single Married Mothers occupation Home maker Sanitation worker Skilled worker Other Age Gender and Education level of adolescent Female with no formal education Female with Primary education	Adjusted β coefficient (95% CI) Ref 0.24 (0.06 0.41) Ref 0.64 (0.38 0.90) -0.06 (-0.22 0.08) -0.09 (-0.34 0.15) 0.002 (-0.02 0.03) Ref Ref
29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47	294	STI, family planning and pregnancy among adol Factors Marital status Single Married Mothers occupation Home maker Sanitation worker Skilled worker Other Age Gender and Education level of adolescent Female with no formal education Female with Primary education Female with Middle education	Adjusted β coefficient (95% CI) Ref 0.24 (0.06 0.41) Ref 0.64 (0.38 0.90) -0.06 (-0.22 0.08) -0.09 (-0.34 0.15) 0.002 (-0.02 0.03) Ref -0.12 (-0.25 0.02)
29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48	294	STI, family planning and pregnancy among adol Factors Marital status Single Married Mothers occupation Home maker Sanitation worker Skilled worker Other Age Gender and Education level of adolescent Female with no formal education Female with Primary education Female with Middle education Female with Secondary education Female with	In the function of the second secon
29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49	294	STI, family planning and pregnancy among adol Factors Marital status Single Married Mothers occupation Home maker Sanitation worker Skilled worker Other Age Gender and Education level of adolescent Female with no formal education Female with Primary education Female with Middle education Female with Secondary education Female with Higher secondary & above	In the function of the second secon
29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50	294	STI, family planning and pregnancy among adol Factors Marital status Single Married Mothers occupation Home maker Sanitation worker Skilled worker Other Age Gender and Education level of adolescent Female with no formal education Female with Primary education Female with Primary education Female with Middle education Female with Secondary education Female with Higher secondary & above Male with no formal education	In the function of the second secon
29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51	294	STI, family planning and pregnancy among adol Factors Marital status Single Married Mothers occupation Home maker Sanitation worker Skilled worker Other Age Gender and Education level of adolescent Female with no formal education Female with Primary education Female with Middle education Female with Secondary education Female with Higher secondary & above	In the function of the second secon
29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50	294	STI, family planning and pregnancy among adol Factors Marital status Single Married Mothers occupation Home maker Sanitation worker Skilled worker Other Age Gender and Education level of adolescent Female with no formal education Female with Primary education Female with Primary education Female with Middle education Female with Secondary education Female with Higher secondary & above Male with no formal education	In the function of the second secon

Male with Secondary education

Male with Higher secondary & above

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-0.34 (-0.68 0.01)

0.82)

0.52 (0.22

	0.52 (-0.48 1.51)
205	P value < 0.05 was used.
295	P value < 0.05 was used.
296	Discussion
297	This study identified factors associated with knowledge, attitudes, and practices (KAP) related to
298	HIV, STI, family planning, and pregnancy among adolescents aged 14-19 years in rural Thatta
299	The main finding of this study included no significant difference in the mean scores o
300	knowledge and attitude between males and females. This finding is consistent with a previou
301	study conducted among adolescents attending secondary schools in Asmara, Eritrea, where ne
302	significant gender disparity in knowledge was observed (18). However, our results are contrary
303	to Muhammad SA masood et al., where males exhibited higher scores of knowledge that
304	females (19). Similarly, a study conducted in 20 villages of Lahore reported that males had
305	relatively higher knowledge than females regarding pregnancy (M = 55%, F = 43%), family
306	planning (M = 62%, F = 50%) and, STI's (M = 56%, F = 44%) (20). This variation in knowledge
307	could be attributed to differences in the gender composition of our study population. In ou
308	study, female participants were more compared to males. This imbalance gender representation
309	may have influenced the findings.
310	In this study we observed a difference in practices between male and female participants. Male
311	demonstrated slightly higher mean practice scores compared to females. This finding aligns with
312	a cross-sectional survey of 11,651 unmarried adolescent boys and girls aged 15-19 years in two
313	large states of India, which revealed a significant association between boys and seeking
314	treatment compared to girls (21). One possible explanation to this disparity in practices could be
315	due to social stigma. Adolescent girls, in particular, face social stigma when seeking healthcare

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services, especially related to reproductive health if they are unmarried. These stigmas

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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 Page 21 of 25

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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

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> 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.

382 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

1 2		
3 4	386	adolescents KAP. By understanding and addressing these factors, we can improve adolescents
5 6 7	387	KAP pertinent to SRH.
8 9 10	388	Acknowledgment
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13 14	390	We would like to thank Ameerjan, Nasreen, and Raheela for collecting data, Maya for
15 16	391	facilitating Sindhi translation and back translation and MNHR registry Thatta, for providing the
17 18 19	392	sampling frame and essential resources. We are also grateful to the participants of this study for
20 21	393	their valuable contribution.
22 23		
24 25	394	Contributors
26 27	395	Conceptualization of study was undertaken by AI. AI primarily handled the formal analysis and
28 29 30	396	methodology. Investigation and supervision was carried out by AI, SS, and SST. Validation and
31 32	397	visualization was executed by AI. IA made significant contribution to data interpretation. Initial
33 34	398	draft was written by AI and manuscript was critically revised by all the authors before
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46 47 48	403	Competing interests
49 50 51	404	None declared.
52 53 54	405	Patient and public involvement
55 56	406	Public involvement was involved in the recruitment and conduct of this study.
57 58 59		Page 22 of 25
59 60		For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

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407 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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412 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

416 was obtained.

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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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2		
3 4	1	Title Page
5 6	2	Sexual and reproductive health knowledge, attitudes and practices among adolescents in rural,
7 8 9	3	Thatta, Pakistan: a cross-sectional study.
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57 58 59		Page 1 of 24

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2 3 4 5	22	Abstract
6 7	23	Objectives: Adolescent Sexual and Reproductive Health (ASRH) encompasses their physical and
8 9	24	emotional wellbeing, including their ability to avoid unwanted pregnancies, unsafe abortions,
10 11 12	25	Sexually Transmitted Infections (STI's), and any type of sexual violence and coercion. However,
13 14	26	these risks can be significantly reduced with adequate knowledge, positive attitudes and practices.
15 16	27	This study aimed to identify the factors associated with knowledge, attitudes, and practices (KAP)
17 18 19	28	related to HIV, STI, family planning, and pregnancy among adolescents residing in rural Thatta.
20 21 22	29	Design: A cross-sectional study
23 24 25	30	Setting: 62 villages from Thatta, Gharo, and Jungshahi registered under Global Network
26 27	31	Maternal and Newborn Health Registry (MNHR) in Thatta, Pakistan.
28 29 30 31	32	Participants: 632 adolescents aged 14-19 years.
32 33	33	Outcome measures: The association between socio demographic factors and knowledge,
34 35 36	34	attitudes, and practices was assessed using a modified version of "Asking Young People about
37 38	35	Sexual and Reproductive Behaviors" tool. Statistical analysis was performed on Stata 15.0 using
39 40 41	36	multiple linear regression.
42 43	37	Results:
44 45 46	38	Among 632 adolescents, 82.7% were females. No significant difference was found in mean scores
47 48	39	of knowledge and attitudes between males and females. However, a difference of 0.13 (0.005 0.24)
49 50	40	in practices scores was observed. In design based multivariable analysis, adolescents marital status
51 52 53	41	(□ 5.13; 95% CI 1.34, 8.91), and father's occupation (□ 3.41, 95% CI 0.90, 5.93) were associated
53 54 55 56	42	with knowledge. Marital status (\Box 1.34; 95% CI 0.82, 1.86), household income (\Box -2.36; 95% CI

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2 3	43	-4.64, -0.07), father's occupation (-1.42; 95% CI -2.52, -0.33), and mother's education (-1.41;
4 5	44	95% CI -2.71, -0.11) were associated with attitude. Moreover, marital status (\Box 0.24; 95% CI 0.06,
6 7		
8 9	45	0.41), and mother's occupation (\Box 0.64; 95% CI 0.38, 0.90) were associated with practice.
10 11 12	46	Conclusion
13 14	47	No differences in knowledge and attitude between male and female adolescents were found. These
15 16	48	findings suggest that community awareness programs should be implemented to improve SRH
17 18	49	KAP for both male and female adolescents in Thatta.
19 20 21	50	
22 23	51	Strengths and Limitations of this Study
24 25		
26 27	52	• The study's questionnaire underwent content validation to assess its appropriateness,
27 28 29	53	relevance, and clarity.
30 31	54	• Face validation was carried out to assess clarity of questionnaire.
32 33	55	• The use of multistage cluster sampling enabled the study to capture a wide range of
34 35	56	characteristics.
36 37	57	• Reliance on self-reported data may have led to underreporting, especially on sensitive
38 39 40	58	topics like sexual and reproductive health.
40 41 42	59	• The study had an imbalance, with a higher proportion of female participants due to the
43 44		
45	60	timing of data collection.
46 47	61	
48 49	62	Introduction
50 51	63	The Sustainable Development Goals (SDG) are directed towards uplifting the global health of
52 53 54	64	population and one of these goals focuses on enhancing Adolescent's Sexual and Reproductive
55 56	65	Health (ASRH) [1]. ASRH refers to "physical and emotional wellbeing of adolescents. This
57 58		Page 3 of 24
59		r uge 5 0j 24

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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].

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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

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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.

145 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;

- 153 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

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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

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2		
3 4	179	scores in knowledge increase, their understanding of HIV, STIs, family planning, and adolescent
5 6 7	180	pregnancy improves.
8 9	181	Attitude
10 11 12	182	Attitude referred to adolescent's feelings, and behavioral intentions regarding HIV, STIs, family
13 14	183	planning, and adolescent pregnancy. It consisted of 7 items, and scores ranged from 0 to 17. As
15 16	184	the adolescent's score in the attitude increases, their attitude improves.
17 18 19 20	185	Practices
20 21 22	186	Practices referred to actions and activities that adolescents engage in SRH wellbeing including STI
23 24	187	screening, contraceptive use, and parent adolescent's communication. It consisted of 5 questions,
25 26 27	188	with scores ranging from 0 to 6 where a higher score indicates better practices related to ASRH.
28 29 30	189	Sample size
31 32	190	A total 632 adolescents participated in the study. The sample size was calculated using OpenEpi
33 34 35	191	to achieve 80% power, for detecting a mean difference of 2, with a standard deviation of 6.11 for
36 37	192	females and 6.12 for males, significance level of 5% and a design effect of 1.25 was assumed.
38 39	193	The final sample was adjusted to account 10% non-response rate.
40 41 42		
43	194	Statistical analysis
44 45	195	A complex data analysis approach was employed after using sampling weights and clusters. The
46 47	196	weights were computed using formula.
48 49 50	197	W = NM / nm
51 52 53	198	For age, mean and standard deviation were computed and for adolescent's level of education,
54 55 56	199	mother's education level, father's education level, household income, mother's occupation, and
57 58		Page 9 of 24
59 60		For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml
50		

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.

210 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.

- 216 Patient and public involvement
- 217 None.
- **Results**

A total of 632 (83.15%) adolescents out of 760 participated in this study. Within this sample,

220 82.7% were females and 17.2% were males (See figure 1).

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221	
222	Table 1 summarizes the percentage distribution of adolescents, parental, and socio-demographic
223	characteristics by sex. Among male adolescents, 96.3% were single, and among females, 87.4%
224	were single. The mean age of adolescents enrolled in this study was 17.3 ± 1.7 . Among the total
225	male adolescents surveyed, more than half, 54.1%, had attended school. In contrast, among total
226	female participants, only 40.5% attended school, indicating a lower attendance rate than their male
227	counterparts. A total 92.4% of adolescents mother had no formal education, 4.3% had primary
228	education, while 3.3% had secondary education and above. In father's education level, a total
229	66.3% of adolescents fathers had no formal education, 11.4% had primary education, 4.8% had
230	middle education, 10.4% of participants fathers attained secondary education and 7.1% had higher
231	education and above. There were 95.4% adolescents who spoke Sindhi, followed by 3.0% Urdu
232	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	3.8	4.6	3.6	
above				
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	

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	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	0			
	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	
235	* <i>P</i> value < 0.05 . Categorical vari	ables were tested u	ising Pearson's c	hi ² , and continu	ous variabl
236	was tested using t-test for two ind	lependent samples.			
237	ç				
238	Difference in mean scores of kn	owledge, attitudes	, and practices		
				1:00	51 050/ C
239	There was no significant difference	ce in mean scores o	of knowledge (Me	ean difference 0	.51; 95% C
240	10(211) and attitudes (Maan d	liffanan an 0 2 0, 050	(CL 0 10 0 70)		and formala
240	-1.06, 2.11) and attitudes (Mean d	interence 0.29, 95%	⁶ CI -0.19, 0.79)	between males a	and remaies
241	Both males and females demonstr	rated similar lavals	of knowledge an	d attitude Howe	war a maa
241	Both males and remaies demonstr		of knowledge an	u attitude. 110we	ver, a mea
242	difference of 0.13 (95% CI 0.005	5 0 24) was observ	ved in practice w	hich showed the	it males ha
242		, 0.24) was observ	ed in practice w		ii maies na
243	slightly higher mean practice sco	res (Mean 1 35· 95)	% CI 1 22 1 48)	compared to fer	nales (Mea
243	slightly higher mean practice scores (Mean 1.35; 95% CI 1.22, 1.48) compared to females (Mean				
244	1.22; 95% CI 1.18, 1.27).				
	1.22, <i>ye</i> / <i>e</i> / <i>i</i> 1.10, 1.2 / <i>j</i> .				
					Dec. 19 (1
				I	Page 12 of 2

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245 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	4
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)

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255 P value < (0.05 was used.
-------------------	----------------

256 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	100
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	

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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)

267 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	

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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.

278 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 to a 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.

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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

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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].

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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

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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.

371 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

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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.

389 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.

398 Acknowledgment

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sampling frame and essential resources. We are also grateful to the participants of this study for
their valuable contribution.

Contributors

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

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2		
3 4	407	visualization were executed by AI. IA made a significant contribution to data interpretation. First
5 6	408	draft of this manuscript was written by AI, and the manuscript was critically revised by all the
7 8 9	409	authors before submitting. AI is responsible for overall content as a guarantor.
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13 14	411	The authors did not disclose receiving a grant for this research from any funding agency, whether
15 16 17	412	public, commercial, or not-for-profit.
18 19 20	413	Competing interests
20 21 22 23	414	None declared.
24 25	415	Data availability statement
26 27	416	The data will be available on reasonable request from the corresponding author, AI. The data is
28 29 30	417	not publicly available due to some personal information that could compromise the privacy of
31 32	418	research participants.
33 34	419	
35 36 37	420	ORCID ID
38 39 40 41	421	Alijaan Inayat Ali https://orcid.org/0009-0006-3567-3768
41 42 43	422	References
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10https://www.researchgate.net/publication/313046030 Knowledge of personal and sexual de velopment amongst young people in Pakistan https://pubmed.ncbi.nlm.nih.gov/12466727/ 12. 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 Association 56 (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 https://pubmed.ncbi.nlm.nih.gov/34017705/ Scholar18. 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=bRoxOBIZRd4C&oi=fnd&pg=PR13&dg=D avid+W.Hosmer+Jr.+SL+RXS.+Applied+Logistic+Regression+2013&ots=kM4Lwm7Pj5&sig= 1epHGt9EPK-Qc GkkJoAFaz6uq4#v=onepage&g&f=false. 22.https://www.researchgate.net/publication/355402264 Reproductive Health Knowledge Attit ude and Practice Among Adolescents Attending Secondary Schools in Asmara Eritrea https://onlinelibrary.wiley.com/doi/10.1155/2017/1895472 23. https://pubmed.ncbi.nlm.nih.gov/16854688/ 24. 25. https://www.thelancet.com/action/showPdf?pii=S2667-193X%2824%2900005-X https://pubmed.ncbi.nlm.nih.gov/33997240/ 26. https://bmcwomenshealth.biomedcentral.com/articles/10.1186/s12905-022-02011-6 27. 28https://www.researchgate.net/publication/210342087 Reproductive Health Knowledge and Attitude among Adolescents A community based study in Jimma Town Southwest Ethiopi а https://bmcresnotes.biomedcentral.com/articles/10.1186/s13104-019-4116-4 29. 30. https://bmiopen.bmi.com/content/15/2/e093894#ref-19 31. https://pubmed.ncbi.nlm.nih.gov/25043387/ https://europepmc.org/article/ppr/ppr585007 32. 33. https://link.springer.com/article/10.1007/s13132-023-01222-y 34. https://pubmed.ncbi.nlm.nih.gov/30918561/ https://bmcwomenshealth.biomedcentral.com/articles/10.1186/s12905-023-02617-4 35. Page 23 of 24 For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1 2 3 4 5 6 7 8	477	Figure 1: Participant's selection in study conducted in rural Thatta from May 2023	- June 2023.
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19 20 21 22 23 24 25 26 27 28			
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39 40 41 42 43 44 45 46 47			
48 49 50 51 52 53 54 55 56 57			
58 59 60		For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml	Page 24 of 24

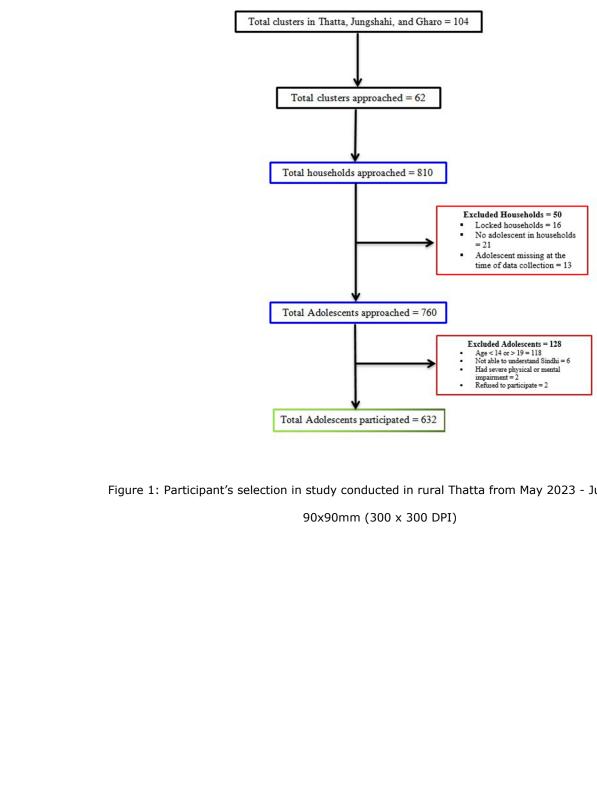


Figure 1: Participant's selection in study conducted in rural Thatta from May 2023 - June 2023.

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

2. I 3. in	nformed consent should b	lled for each subject. blain purpose of your intervie e obtained from participants btained from the participant	parent before	
F		ру:	Date: Date:	y/ Month/ Ye // // //
S	SECTION 1: SO			
Q	Variable	CIO-DEMOGRAPHIC INFO Code	Skip	Respons
<u>v</u> 1.0	Name (optional)		БКІр	Kespons
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	 No education Primary education (completing grade 1	If NO education, Skip Q1.8	

1.8	Is the school, college or university that you Attend(ed) a government or private institution?	education (grade 11 - 12)/A level 6. Above higher secondary (grade 13 and above) 1. Government 2. Private		
	government or private institution?			
1.9	Which language do you speak?	 Sindhi Urdu Pashto Punjabi Other (specify): 		
1.10	What is your family system?	 Nuclear family 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?	 No education Primary education (completing grade 1		
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	

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1.17	What's your mother's	1. No education		
	level of education?	2. Primary education		
		(completing grade 1 -5)		
		3. Middle education		
		(completing grade 6		
		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		
	1	occupation		
1.19	Are you currently	1. Yes	If NO , skip	
	working to earn?	2. No	Q1.20	
1.20	What type of work do			
	(did) you do?	Write actual response		
1.21	What is your family	1. 5000-20,000		
	monthly income?	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	0. Above 100,000		
	have any of the	Specify amount.		
	following:	1 2		
	[RECORD ALL THAT			
	APPLY]	1 V		
	1. Electricity	1. Yes		
	2. Electric fan	2. No		
		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	How many?	
motor 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?	

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S/no	Questions	Code	Skip	Response
2.1	Have you heard of HIV or AIDS (<i>use local</i>	1. Yes 2. No		
I am no		atements about HIV/AIDS. Platter atements about HIV/AIDS. Platter atements about HIV/AIDS. Platter		ther you thin
2.2	It is possible to cure AIDS	 True False Don't know 		
2.3	A person with HIV always looks emaciated or unhealthy in some way	 True False Don't know 		
2.4	People can take a simple test to find out whether they have HIV	 True False 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)	 Discharge from penis Pain during urination Ulcer/sores in genital area Other Don't know any signs 		
2.7	And what are the signs or symptoms when a women is infected?	 Vaginal discharge Pain during urination Ulcer/sores in genital area Other Don't know any signs 	2	
2.8	Pill Women can take a pill every day	 Yes (spont.) Yes (prompted) 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.	 Yes (spont.) Yes (prompted) No 	If NO , skip Q2.9b	

2.9b	Do you know any place or personwhere young people could obtain this	1. Yes 2. No	
2.10	method?" <u>Condom</u> A man can put a rubber deviceon his penis before intercourse.	 Yes (spont.) Yes (prompted) 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 soonafter intercourse.	 Yes (spont.) Yes (prompted) 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.	 Yes (spont.) Yes (prompted) No 	
2.13	PeriodicAbstinence/RhythmA couple can avoid sexon days whenpregnancy is mostlikely tooccur.	 Yes (spont.) Yes (prompted) No 	
2.14	Have you ever seen a condom?	1. Yes 2. No	2/
1	1	t condoms. I will readout some ee or disagree, or whether you	
2.15	Condoms are an effective method of preventing pregnancy.	 Agree Don't know/not sure Disagree 	
2.16	Condoms can be used more than once.	 Agree 96. Don't know/not sure Disagree 	
2.17	Condoms are an effective way of protecting against HIV/AIDS	 Agree 96. Don't know/not sure Disagree 	

2.18	Condoms reduce sexual pleasure	 Agree Don't know/not sure Disagree
2.19	Condoms are an effective way of protecting against sexually transmitted diseases	 Agree 96. Don't know/not sure Disagree
		adolescent pregnancy. I will read you some statements. 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.	 True False Don't know/not sure
2.22	Masturbation causes serious damage to health.	1. True2. False96. 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
2.24	(Ask this question if his/her father is alive and living in same household)	Attitude 1. Very easy 2. Easy 3. Average
	Do you find it difficult or easy to talk with your father about things that are important to you?	4. Difficult5. Very difficult6. Do not see him
2.25	Have you ever discussed sex-related matters with your father? If YES often or occasionally?	 Often Occasionally Never
2.26	(Ask this question if his/her mother is alive	 Very easy Easy

	and living in same household)	3. Average 4. Difficult
	Do you find it difficult or easy to talk with your mother about things that are important to you?	5. Very difficult6. Do not see him
2.27	Have you ever discussed sex-related matters with your mother? If YES often or occasionally?	 Often Occasionally Never
2.28	If a friend of yours needed treatment for a sexuallytransmitted disease, where could he or she obtainsuch treatment? (CIRCLE EACH MENTIONED)	 Shop Pharmacy Govt. hospitals/health centre/clinic Private doctor/nurse/clinic 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.	 Agree Don't know/not sure 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

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	اخبار	2.نہ	
1.6	توهان ڪڏهن اسڪول ۾	. ها	
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1.8	اهو اسڪول،ڪاليج يا	1. سرڪاري	
	يونيورسٽي جنھن ۾ توھان	2.پرائيويٽ	
	شرڪت ڪندا آهيو يا ڪئي		
	هئي اهو سرڪاري يا		
	پرائيويٽ ادارو آهي؟		
1.9	توهان ڪهڙي ٻولي ڳالهايو ٿا؟		
		2. ار دو	
		3.پ شتو	
		4.پنجابي 99.ٻي ڪا	
1.10	توهان جو خاندانی نظام چا	رور ېږي <u>ت</u> ۱.انفر ادی خاندان	
1.10	تونين جو <i>عندي ڪ</i> ئر ۽	2.وسيع خاندان	
1.11	ے۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔	د ی <u></u> ا	اگر نہ تہ
		2.نې	ا سڪپ
			سوال [*]
			ا نمبر
			,1.12,2.24
			۽ 1.25 ۾
1.12	ڇا توهان وانگر ساڳئي گهر ۾	1.ها	اگر نہ تہ
	رهي ٿو؟	2. نه	اسڪپ
			سوال
			نمبر
			2.24 c 2.25
1.13	توهان جي پيءُ جي تعليم	1.اڻ پڙھيل	
	ڪيتري آهي؟	2. پرئمري تعليم (گريڊ 1 کان 5)	
		3.مدل تعليم (گريد 6 کان 8)	
		4.سيڪنڊري تعليم(گريڊ 9 کان 10)	
		او ليول	

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		5. اعلا ثانوي تعليم (گريڊ 11 کان		
		12)ای لیول		
		6.اعلا ثانوي تعليم کان مٿي تعليم		
		(گريڊ 13 کان مٿي)		
1.14	توهان جي پيءُ جو ڌنڌو ڇا هو	سندس پيشي جو نالو لکو		
	يا آهي؟			
1.15	 ڇا توهان جي ماءَ زنده آهي؟	1.ها	اگر نہ تہ	
		2. نه	اسڪپ	
			سوال	
			سوس نمبر1.16.	
			2.27 e .2 26	
1.16	 ڇا هوءَ توهان وانگر ساڳئي		اگر نہ تہ	
1.10	م موج توهان والکر سابني گهر ۾ رهي ٿي؟	۲.عا 2. نہ	بير ۾ <u>۾</u> اسڪڀ	
	ڪھر ۾ رسي ٿي.	2. تم	اسڪپ سوال	
			سوال نمبر 1.16،2	
			ىمبر 1.16,2 .26 ۽ 26.	
1 1 -	1." / .1. "		2.27 5 20.	
1.17	توهان جو ماءَ جي تعليم	۱.اڻ پڙهيل 2.پرئمري تعليم(گريڊ ۱ کان 5)		
	ڪيتري آهي؟			
		3.مدل تعليم (گريد 6 کان 8)		
		4.سيڪنڊري تعليم(گريڊ 9 کان 10)		
		او ليول		
		5.اعلا ثانوي تعليم(گريڊ 11 کان مينا مار		
		12) اي ليول مامالا ثانية المكامية بترا		
		اعلا ثانوي تعليم كان مٿي تعليم. (گريڊ 13 كان مٿي)		
1.18	۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔	رىزىد دا ئان مىنى) سندس پيشى جو نالو لكو		
1.10	تونيان جي ماء جو ڪروڊر ڀ	متلكاس پيشي جو فاتو فاتو		
1.19	بعي . ڇا توهان في الحال ڪمائڻ جي	. ها	اگر نہ	
1.15	ڇا ٿوهان ٿي آلڪان ڪمائڻ جي ڪر ڪري رهيا آهيو؟	۲. ۵ 2.نہ	اسڪيپ	
	ڪر ڪري رهي آهيو :	2.2	استيپ سوال1.20	
1.20		<1.1. 	n.200	
1.20	توهان ڪهڙي قسم جو ڪم ڪندا هئا يا آهيو ؟	حقيقي جواب لكو		
1.01	• • • •	1. 5000 کان 20000		
1.21				
	جي آمدني ڇا آهي؟	2. 21,000- کان 40,000 2.		
		 60,000 کان 60,000 کان 		
		4. 61,000 کان 800,000		
		5. 81,000 کان 100,000		
		6. 100,000 کان مٿي 	_	
1.22	ڇا توهان جي گھر وارن وٽ برين	مقرره رقمر		
	هيٺ ڏنل چيزون موجود آهن			
	(جيڪي لاڳو ٿين ٿا انهن کي			
	رڪارڊ ڪريو) ١.بجلي			
	1.بجلي	1. ها		
		2. نه		

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	ڪيترا؟	2. بجلي وار پنکا	
	ڪيترا؟	3.رنگين ٽيليويزن	
	کيترا؟	4.فر ج	
	ڪيترا؟	5. ريڊيو ٽرانسميٽر	
	ڪيترا؟	6. موبائل فون	
	ڪيترا؟	7.كمپيوٽر ،ليپ ٽاپ	
	ڪيترا؟	8.ڪپڙن ڌوئڻ واري مشين	
	ڪيترا؟	9. سلائی مشین	
	ڪيترا؟	 10.ايئر ڪولر	
	کيترا؟	11.ايئر ڪنڊيشنر (اي.سي)	
	کيترا؟	12.جانورن جي ٺهيل گاڏي	
	کيترا؟	13.سائيڪل	
	ڪيترا؟	14.ٽريڪٽر ،موٽر واري ٻيڙي	
	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،كابينا، الماڙي	
	ڪيترا؟	24.يور	
	ڪيترا؟	25. مرغي	

سيڪشن 2. ڄاڻ,رويو ۽ عمل

	1. ها	با توهان ايچ،آء ، وي ۽ ايڊس ١. ها جي باري ۾ ٻڌو آهي؟ ٢. نہ	
	2. نہ	جي باري ۾ ٻڌو آهي؟	
ې مون کي ٻڌايو تہ توهان ڇا ٿا	بيان پڙهڻ وارو،واري آهيان مهرباني ڪري	ٻڇ آءِ وي ۽ ايڊس جي بابت ڪجھ ا	ان توهان لاءِ اب
	، کي خبر نہ آهي.	بيان صحيح آهي غلط آهي يا توهان	سمجھو تہ اہو ب

ا.صحيح	AIDSجو علاج ممڪن آهي ؟	2.2
2.غلط		
96.خبر نہ آھي		
ا.صحيح	ايڇ آءِ وي سان متاثر شخص	2.3
2.غلط	هميشہ ڪنهن نہ ڪنهن طريقي	
96.خبر نہ آھي	سان ڪمزور يا غير صحتمند	
	نطر اچي ٿو؟	
1. صحيح	ماڻهو هڪ سادي ٽيسٽ وٺي	2.4
2.غلط	سگهن ٿا هي معلوم ڪرڻ لاءِ	
96.خبر نہ آھي	تہ ڇا هن کي ايڇ آءِ وي آهي	

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		1.ها	ايڇ آءِ وي ،ايڊس کان علاوا	2.5
		2. نه	ے۔ ٻيون بہ ڪيتريون ئي بيماريون	
			۔ آهن جيڪي مرد ۽ عورت کي	
			جنسي ميلاَپ ڪرڻ سان ٿي ّ	
			سگهن ٿيون.ڇا توهان انهن	
			بيمارين مان ڪنهن جي باري	
			۾ ٻڌو آهي؟	
		ı.عضون تناسل مان خارج ٿيڻ		2.6
		2.پیشاب دوران درد		
		3. السر،زخم جينياتي جڳهہ تي	علامتون ڪهڙيون آهن؟(ذڪر	
		99.ہیا	ڪيل تي دائرو ڪيو)	
		.96 خبر نہ آھي		2.7
		1.ويجينا مان خارج ٿيڻ 2. مشاهيد سان در	۽ ڇا نشانيون يا علامتون آهن	2.7
		2. پیشاب دوران درد ۱۱۰۰ منف مینات مگورت	÷	
		3.السر،زخر جينياتي جڳهہ تي 99.بيا	ٿي؟	
		99. پي 96. خبر نہ آھي		
	اگر (نہ)	ا.ها (فوري جواب)	گورى	2.8(a)
	ا سڪيپ	2.ها (سوچی جواب)	عوري عورتون روزانو هڪ گوري	2.0(u)
	سوال 2.8	ع، بي (ميلو پي جو ج) 3. نه	وٺي سگهن ٿيون.	
	بي			
	<u> </u>	. ا ها	ڃا توهان ڪنهن جڳهہ يا	2.8(b)
		2. نېر	شخص کی سیجاٹو تا جتی	
			نوجوان ماڻهو هي طريقو	
			حاصل ڪري سگهن ٿا	
	اگر (نہ)	ı.ها (فوري جواب)	انجيڪشن	2.9
	ا سڪيپ	2.ها (سوچي جواب)	عورتون هر ٻئين يا ٽئين	
2	سوال 2.9	3.نه	مهيني انجيڪشن لڳائي	
	بي		سگھن ٿيون	
		1. ها	ڇا توهان ڪنهن جڳهہ يا	2.9(b)
		2. نې	شخص کي سڃاڻو ٿا جتي	
			نوجوان ماڻھو ھي طريقو	
			حاصل ڪري سگهن ٿا	
	اگر (نہ)	۱.ها (فوري ج واب)	کنڊوم(رېڙ وارو ڦوڪڻو)	2.10
	اسڪيپ	2.ها (سوچي جواب)	مرد جماع ڪرڻ کان اڳ	
2.	سوال 10	3.نه	پنهنجي عضوي تي رٻڙ وجهي ڪ	
	بي	1. 1	سگھي ٿو؟ چا توهان ڪنھن جڳھہ يا	2 10(1)
		1. ها د :		2.10(b)
		2. نې	شخص کي سڃاڻو ٿا جتي نوجوان ماڻهو هي طريقو	
			توجوان مانھو ھي طريقو حاصل ڪري سگھن ٿا	
	اگر (نہ)	۱.ها (فوري جواب)	ايمرجنسي مانع حمل جي	2.11
	اسکير کې	۲.ها (هوري بورب) 2.ها (سوچی جواب)	ايمرجنسي مالع حمل جي گوري	2.11
	• •	2.لغا (سوچي جنو)ب) 3.نه	لوري	
	[~		

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	1		
	عورتون جماع ڪرڻ کان پوءِ		سوال 2.11
	جلد گوريون وٺي سگھن ٿيون		بي
2.11(b)	ڇا توهان ڪنهن جڳهہ يا	۱. ها	
	شخص کي سڃاڻو ٿا جتي	2.نه	
	نوجوان ماڻھو ھي طريقو		
	حاصل ڪري سگهن ٿا		
2.12	واپس وٺڻ	1.ها (فوري جواب)	
	هڪ مرد هڪ عورت کي	2. ها (سوچي جواب)	
	ڪلائيمڪس کان اڳ ڪڍي	.:	
	سگھي ٿو		
2.13	وقتي پابندي ،تال	1.ها (فوري جواب)	
	هڪ جوڙو انهن ڏينهن تي	2.ها (سوچي جواب)	
	جنسي ميلاپ کان پاسو ڪري	3.نہ	
	سگهي ٿو جڏهن حمل ٿيڻ جو		
	تمام گهڻو امڪان آهي؟		
2.14	ڇا توهان ڪڏهن ڪنڊوم(رٻڙ	1. ها	
	وارو ڦوڪڻو) ڏٺو آهي؟	2. نه	

ڪنڊو ۾ بابت ماڻهن جا مختلف رايا آهن .مان ڪجھہ 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

	1.متفق آهيان	ڪنڊوم حمل کي روڪڻ جو	2.15
	2.غير متفص آهيان	هڪ موثر طريقو آهي	
	96.خبر نہ آهي،پڪ نہ آهي		
	1.متفق آهيان	ڪنڊوم هڪ کان وڌيڪ ڀيرا	2.16
	2.غير متفص آهيان	سگهجي ٿو	
	96.خبر نہ آهي،پڪ نہ آهي		
	1.متفق آهيان	ڪنڊوم ايڊز ،ايڇ آءِ وي کان	2.17
	2.غير متفص آهيان	بچاءَ جو هڪ مئوثر طريقو	
	96.خبر نہ آهي،پڪ نہ آهي	آهي	
	1.متفق آهيان	ڪنڊوم جنسي خوشي کي	2.18
	2.غير متفص آهيان	گھٽائي ٿو	
	96.خبر نہ آهي،پڪ نہ آهي		
	١.متفق آهيان	كنڊوم جنسي طور منتقل	2.19
	2.غير متفص آهيان	ٿيندڙ بيمارين کان بچاءُ جو	
	96.خبر نہ آهي،پڪ نہ آهي	هڪ مئوثر طريقو آهي	
4 .4	×	1 4 5 1 51 5	

هاڻي مون وٽ نوجوانن جي حمل تي ڪجهہ ٻيا سوال آهن .مان توهان کا ڪجھہ ٻيا 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.

ا.صحيح	ٿي سگهي	2.20
2.غلط	ٿي جڏهن پهريون ڀيرو جنسي	
96.خبر نہ آهي، پڪ نہ آهي	تعلق رکي ٿي	

ا.صحيح	هڪ عورت پهريون ڀيرو	2.21
2.غلط	جنسي ميلاپ ڪرڻ کان پوءِ	
96.خبر نہ آهي، پڪ نہ آهي	وڌئڻ بند ٿئي ٿي	
ا.صحيح	مشتزني صحت کي سخت	2.22
2.غلط	نقصان پهچائي ٿي	
96.خبر نہ آهي، پڪ نہ آهي		
ا.صحيح	هڪ عورت جو حاملہ ٿيڻ جو	2.23
2.غلط	گهڻو امڪان آهي جڏهن هو	
96.خبر نہ آهي، پڪ نہ آهي	پنهنجي ماهواري جي وچين	
	تاريخن ۾ جنسي ميلاپ ڪري	
	ٿي	

2.24 (اهو سوال تڏهن پڇو جڏهن 1.تمام آسان آهي هن جو پيءُ جيرو آهي ۽هڪ 2.آسان آهي هن جو پيءُ جيرو آهي ۽هڪ 3.سراسري آهي ئي گهر ۾ رهن ٿا) 3.سراسري آهي ڇا توهان کي پنهنجي پيءُ سان 4مشڪل آهي انهن شين جي باري ۾ ڳالهائڻ 5.تمام ڏکيو آهي ڏکيو يا آسان آهي جيڪي 6.هن کي نہ ڏس
ئي گهر َ مِ رهن ٿا) آ ڇا توهان کي پنهنجي پيءُ سان لمشڪل آهي انهن شين جي باري ۾ ڳالهائڻ 5.تمام ڏکيو آهي ڏکيو يا آسان آهي جيڪي 6.هن کي نہ ڏس
ڇا توهان کي پنهنجي پيءُ سان للمشڪل آهي آ انهن شين جي باري ۾ ڳالهائڻ 5.تمام ڏکيو آهي ڏکيو يا آسان آهي جيڪي 6.هن کي نہ ڏس
اُنهن شين جَي باري ۾ ڳالهائڻ 5.تمام ڏکيو آهي ڏکيو يا آسان آهي جيڪي 6.هن کي نہ ڏس
ڏکيو يا آسان آهي جيڪي 🔰 6.هن کي نہ ڏس
توهان لاءِ اهم آهن)
2.25 🔰 ڇا توهان ڪڏهن پنهنجي پيءَ 🛛 ا. اڪثر
سان جنسي تعلق جي معاملي 🛛 2.ڪڏهن ڪڏهن
تي ڳالهايو آهي ؟ [3.ڪڏهن بہ نہ
(جيڪڏهن (ها) اڪثر يا ڪڏهن
ڪڏهن
2.26 (اهو سوال تڏهن پڇو جڏهن 1.تمام آسان آهي
هن جو ماءُ جيري آهي ۽هڪ [2.آسان آهي
ئي گهر ۾ رهن ٿا)
چا توهان کي پنهنجي ما ³ سان
انهن شين جي باري ۾ ڳالهائڻ 🛛 5.تمام ڏکيو آهي
ڏکيو يا آسان آهي جيڪي 🛛 6.هن کي نہ ڏس
توهان لاءِ اهمر آهن)
2.27 🔰 ڇا توهان ڪڏهن پنهنجي ماءَ 🛛 ا. اڪثر
سان جنسي تعلق جي معاملي 2.ڪڏهن ڪڏهن
تي ڳالهايو آهي ؟ [3.كڏهن بہ نہ
(جيڪڏهن (ها) اڪثر يا ڪڏهن
ڪڏهن
2.28 جيڪڏهن توهان جي ڪنھن 1.دڪان
دوست کي جنسي طُور منتقل 🛛 2.دوا سازي(ميڊيڪل اسٽر
ٿيندڙ بيمارين جي علاج جي

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	ضرورت آهي تہ هو اهو علاج	3.سرڪاري اسپتال، هيلٿ
	ڪٿان حاصل ڪري سگهي	سينٽر، ڪلينڪ
	ٿو،ٿي؟(دائرو ڪيو)	4.پرائيويٽ ڊاڪٽر، نرس، ڪلينڪ
		5. ٻيا
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2.30	جيڪڏهن غير شادي شده جوڙا	1.متفق آهيان
	شادي ڪرڻ کان اڳ جنسي	2.غير متفص آهيان
	ميلاپ ڪرڻ چاهين تہ انهن کي	96.خبر نہ آهي،پڪ نہ آهي
	۔ کنڊوم استعمال ڪرڻ	
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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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1 2		
2 3 4	1	Title Page
5 6	2	Sexual and reproductive health knowledge, attitudes and practices among adolescents in rural,
7 8	3	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 (\Box 5.13; 95% CI 1.34, 8.91), and father's occupation (\Box 3.41, 95% CI 0.90, 5.93)

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were associated with knowledge. Marital status (\Box 1.34; 95% CI 0.82, 1.86), household income

 $(\Box -2.36; 95\% \text{ CI} -4.64, -0.07)$, father's occupation $(\Box -1.42; 95\% \text{ CI} -2.52, -0.33)$, and mother's education (\Box -1.41; 95% CI -2.71, -0.11) were associated with attitudes. Moreover, marital status $(\Box 0.24; 95\% \text{ CI } 0.06, 0.41)$, and mother's occupation $(\Box 0.64; 95\% \text{ CI } 0.38, 0.90)$ 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. Page 3 of 25

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64	Introduction
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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

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> 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

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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.

121 Methodology

122 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).

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132 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.

139 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.

152 Data collection

153 In this study, knowledge, attitudes, and practices were considered as outcome variables which were 154 measured with the help of asking young people about sexual and reproductive behavior tool [20], Page 9 of 43

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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.

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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:

183 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.

188 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.

196 Sample size

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

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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.

201 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.

217 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.

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Characteristics	Overall %	Male %	Female %	P valı
Age				
Mean (SD)	17.3 (1.7)	17.5 (1.6)	17.2 (1.7)	0.0
Educational level of adolesc	````			
No education	57.1	45.9	59.5	
Primary	18.3	19.3	18.1	0.0
Middle education	9.2	11.0	8.8	0.0
Secondary education	11.5	19.3	9.9	
Higher secondary education		4.6	3.6	
above	and 5.0	ч.0	5.0	
Type of school Government	96.3	94.9	96.7	0.4
				0.4
Private	3.7	5.1	3.3	
Working status of adolescer				
Yes	9.8	43.1	2.9	< 0.0
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	< 0.0
Business	32.3	42.6	0	
Mother's occupation				
House maker	87.0	90.8	86.2	0.20
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	0.2
Agriculture and fishery	6.8	4.6	7.3	0.2
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	2.1	0.7	4.3	
Nuclear family	97.3	95.4	97.7	0.2
-				0.20
Extended family	2.7	4.6	2.3	
Household income			71.0	
5,000-20,000	70.6	66.9	71.3	0.3
21,000-40,000 41,000 and above	28.2	33.0	27.2	

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*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)

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2			
3		Driver	0.84 (-2.93 4.61)
4		Skilled worker	-2.98 (-5.54 -0.43)
5 6		Service provider	3.41 (0.90 5.93)
7		Business	-1.02 (-2.97 0.93)
8		Professional	-1.34 (-3.51 0.82)
9		Other	0.12 (-2.66 2.89)
10		Age	0.20 (-0.21 0.61)
11			0.20 (0.21 0.01)
12		Sex and Education level of adolescent	
13		Female with no formal education	
14		Female with Primary education	Ref
15		Female with Middle education	-1.04 (-2.90 0.81)
16			
17		Female with Secondary education	-1.13 (-3.08 0.82)
18		Female with Higher secondary & above	-1.64 (-3.95 0.67)
19		Male with no formal education	2.40 (-0.55 5.36)
20		Male with Primary education	-1.35 (-3.50 0.81)
21		Male with Middle education	1.98 (-2.08 6.04)
22		Male with Secondary education	4.66 (0.12 9.20)
23		Male with Higher secondary & above	6.89(2.23 11.54)
24		Wate with Higher secondary & above	· · · · · · · · · · · · · · · · · · ·
25			3.48 (-2.67 9.63)
26	263	P value < 0.05 was used.	
27			

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.

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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.

21,000 - 40,000-41,000 and above-Marital statusSingleSingleRMarried1Father's occupationILaborRAgriculture and fishery-Driver-Skilled worker-Service provider-Business-Professional0Other-Mother's education level0No educationRPrimary education-Age0Sex and Education level of adolescentFemale with no formal educationFemale with Primary educationRFemale with Primary educationRFemale with Primary educationRRService with Primary educationRService holdescentService hol	Ref 1.01 $(-1.74 - 0.29)$ 2.36 $(-4.64 - 0.07)$ Ref .34 $(0.82 - 1.86)$ Ref 0.95 $(-1.54 - 0.35)$ 0.004 $(-1.22 - 1.21)$ 1.42 $(-2.52 - 0.33)$ 1.24 $(-2.64 - 0.15)$ 0.07 $(-0.76 - 0.61)$ 0.77 $(-0.07 - 1.62)$ 0.44 $(-1.77 - 0.89)$ Ref 0.02 $(-0.71 - 0.75)$ 1.41 $(-2.71 - 0.11)$ 0.22 $(-0.11 - 0.16)$
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Driver-4Skilled worker-Service provider-Business-4Professional0Other-4Mother's education level0No educationRPrimary education0Secondary education-Age0Sex and Education level of adolescent-Female with no formal educationRFemale with Primary education-Render0Secondary education-Secondary education	1.42 (-2.52 -0.33) 1.24 (-2.64 0.15) 0.07 (-0.76 0.61) 0.77 (-0.07 1.62) 0.44 (-1.77 0.89) Ref 0.02 (-0.71 0.75) 1.41 (-2.71 -0.11)
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OtherMother's education levelRNo education0Primary education0Secondary educationAge0Sex and Education level of adolescentFemale with no formal educationFemale with Primary educationReducationReducationReducationSex and EducationFemale with no formal educationFemale with Primary education	0.44 (-1.77 0.89) Ref 0.02 (-0.71 0.75) 1.41 (-2.71 -0.11)
Mother's education levelNo educationPrimary educationSecondary educationAgeOSex and Education level of adolescentFemale with no formal educationFemale with Primary educationR	Ref 0.02 (-0.71 0.75) 1.41 (-2.71 -0.11)
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Female with no formal educationFemale with Primary educationR	.03 (-0.11 0.16)
Female with no formal educationFemale with Primary educationR	$\overline{\mathbf{N}}_{\mathbf{r}}$
Female with Primary education R	
5	Ref
	0.63 (0.07 1.18)
Female with Secondary education 0	0.36 (-0.46 1.19)
•	.49 (-0.35 1.33)
	0.55 (-0.69 1.79)
	0.69 (0.04 1.35)
-	1.60 (-3.08 -0.13)
	0.44 (-0.89 1.77)
5	0.71 (-2.19 0.77)
e ,	1.66 (-4.63 1.31)
P value < 0.05 was used.	
varae - 0.02 was abou.	

280 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.

Ref 0.24 (0.06 0.41) Ref 0.64 (0.38 0.90) -0.06 (-0.22 0.08) -0.09 (-0.34 0.15) 0.002 (-0.02 0.03)
0.24 (0.06 0.41) Ref 0.64 (0.38 0.90) -0.06 (-0.22 0.08) -0.09 (-0.34 0.15)
Ref 0.64 (0.38 0.90) -0.06 (-0.22 0.08) -0.09 (-0.34 0.15)
0.64 (0.38 0.90) -0.06 (-0.22 0.08) -0.09 (-0.34 0.15)
0.64 (0.38 0.90) -0.06 (-0.22 0.08) -0.09 (-0.34 0.15)
-0.06 (-0.22 0.08) -0.09 (-0.34 0.15)
-0.09 (-0.34 0.15)
0.002(-0.02 - 0.03)
0.002 (0.02)
Ref
-0.12 (-0.25 0.02)
0.18 (-0.05 0.42)
-0.19 (-0.33 -0.05)
0.07 (-0.22 0.37)
0.04 (-0.14 0.22)
0.22 (-0.29 0.73)
-0.34 (-0.68 0.01)
0.52 (0.22 0.82)
0.52 (-0.48 1.51)

50 289 **Discussion**

290 This study identified factors associated with knowledge, attitudes, and practices (KAP) related to

⁵⁴ 291 HIV, STI, family planning, and pregnancy among adolescents aged 14-19 years in rural Thatta.

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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 to a 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

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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

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337 [31]. Such misconceptions, combined with cultural stigma, play a crucial role in shaping338 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

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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.

382 Strengths and Limitations

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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.

400 Conclusion

401 Our study sheds light on KAP related to SRH among rural Thatta adolescents. We found no 402 disparity in mean scores of knowledge and attitudes between males and females, and only small 403 difference in mean score of practice. Our study also identified association of socio-demographic 404 factors with adolescents KAP. By understanding and addressing the identified factors, health 405 professionals and policymakers can develop culturally sensitive and context-specific educational

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None declared.

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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. Acknowledgment We appreciate the contribution of Zahid Somro, who offered invaluable assistance in fieldwork. We would like to thank Ameerian, Nasreen, and Raheela for collecting data, Maya for facilitating Sindhi translation and back translation and MNHR registry Thatta, for providing the sampling frame and essential resources. We are also grateful to the participants of this study for their valuable contribution. This study is dedicated to my mother, Zahida Inayat Ali, and my late father, Inayat Ali. **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. Funding The authors did not disclose receiving a grant for this research from any funding agency, whether public, commercial, or not-for-profit. **Competing interests**

3 4	427	Data availability statement
5 6	428	The data will be available on reasonable request from the corresponding author, AI. The data is
7 8 9	429	not publicly available due to some personal information that could compromise the privacy of
9 10 11	430	research participants.
12 13	431	
14 15 16	432	ORCID ID
17 18	433	Alijaan Inayat Ali https://orcid.org/0009-0006-3567-3768
19 20	434	Shiyam Sunder Tikmani https://orcid.org/0000-0001-8828-8325
21 22 23	435	Sarah Saleem https://orcid.org/0000-0002-6797-8631
23 24 25		
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38	446	marriage-reproductive-health.pdf
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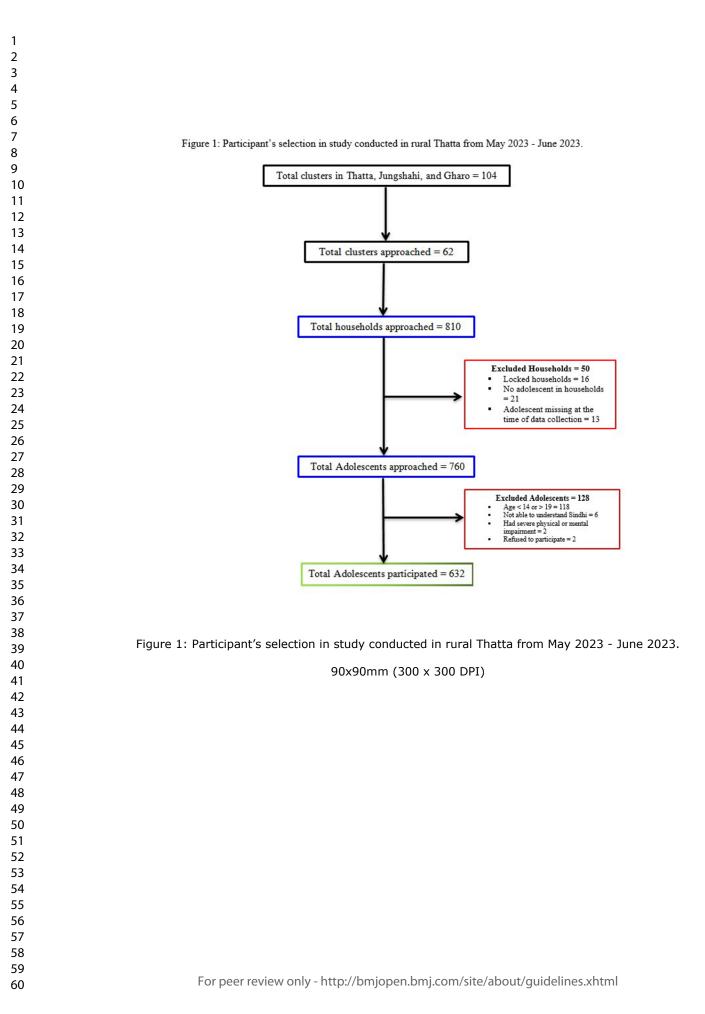
1 2

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8	467	reproductive-behaviours
9	468	21.https://books.google.com/books?hl=en&lr=&id=bRoxQBIZRd4C&oi=fnd&pg=PR13&dq=D
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11	470	1epHGt9EPK-Qc_GkkJoAFaz6uq4#v=onepage&q&f=false.
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20	478	28https://www.researchgate.net/publication/210342087 Reproductive Health Knowledge and
21	479	Attitude_among_Adolescents_A_community_based_study_in_Jimma_Town_Southwest_Ethiopi
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23 24	480 481	29. https://bmcresnotes.biomedcentral.com/articles/10.1186/s13104-019-4116-4
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34	400	
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58 59		Page 24 of 25
59 60		For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1 2 2		
3 4	500	Figure 1: Participant's selection in study conducted in rural Thatta from May 2023 - June 2023.
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59 60		For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml
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INSTRUCTIONS:

2. In 3. in	nformed consent should b	lled for each subject. Jain purpose of your intervie e obtained from participants btained from the participant	parent before	
F F	Yorm filled by: Yorm checked and edited by Yorm entered by: tudy ID:	oy:	Date: Date:	y/ Month/ Year // // //
	SECTION 1: SO	CIO-DEMOGRAPHIC INFC	RMATION	
Q	Variable	Code	Skip	Response
1.0	Name (optional)			
1.1	Gender	 Female 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?	 Single Married Divorced Widowed 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	 No education Primary education (completing grade 1	If NO education, Skip Q1.8	

1.8	Is the school, college or	education (grade 11 - 12)/A level 6. Above higher secondary (grade 13 and above) 1. Government		
	Is the school, college or university that you Attend(ed) a government or private institution?	2. Private		
1.9	Which language do you speak?	 Sindhi Urdu Pashto Punjabi 99.Other (specify): 		
1.10	What is your family system?	 Nuclear family 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? What is/was your	 No education Primary education (completing grade 1		
	father's occupation?	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	

BM

1.17	What's your mother's level of education?	 No education Primary education (completing grade 1		
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] 1. Electricity	Specify amount.		
	2. Electric fan	2. No 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?	

S/no	Questions	Code	Skip	Response
2.1	Have you heard of HIV or AIDS (<i>use local</i> <i>terms</i>)?	1. Yes 2. No		
I am no		atements about HIV/AIDS. Ple true, or false, or whether you de		ether you thin
2.2	It is possible to cure AIDS	 True False Don't know 		
2.3	A person with HIV always looks emaciated or unhealthy in some way	 True False Don't know 		
2.4	People can take a simple test to find out whether they have HIV	 True False 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)	 Discharge from penis Pain during urination Ulcer/sores in genital area Other Don't know any signs 		
2.7	And what are the signs or symptoms when a women is infected?	 Vaginal discharge Pain during urination Ulcer/sores in genital area Other Don't know any signs 	2	
2.8	<u>Pill</u> Women can take a pill every day	 Yes (spont.) Yes (prompted) 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.	 Yes (spont.) Yes (prompted) No 	lf NO , skip Q2.9b	

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	Do you know any place	1. Yes	
2.9b	or personwhere young	2. No	
	people could obtain this		
	method?"		
	Condom	1. Yes (spont.)	If NO , skip
2.10	A man can put a rubber	2. Yes (prompted)	Q2.10b
	deviceon his penis	3. No	Q2.100
	before intercourse.		
	Do you know any place	1. Yes	
2.10b	or personwhere young	2. No	
	people could obtain this		
	method?		
2.11	Emergency	1. Yes (spont.)	
	Contraceptive Pills	2. Yes (prompted)	If NO, skip
	A woman can take pills	3. No	Q2.11b
	soonafter intercourse.		
2.11b	Do you know any place	1. Yes	
	or person where young	2. No	
	people could obtain this		
	method?		
2.12	Withdrawal	1. Yes (spont.)	
	A man can pull out of a	2. Yes (prompted)	
	woman before climax.	3. No	
		5. 110	
2.13	Periodic	1. Yes (spont.)	
	Abstinence/Rhythm	2. Yes (prompted)	
	A couple can avoid sex	3. No	
	on days when	4	
	pregnancy is most		
	likely tooccur.		
2.14	Have you over seen a	1. Yes	6
2.14	Have you ever seen a condom?	2. No	
-	_	t condoms. I will readout som	
want you	to tell me whether you agree	ee or disagree, or whether you	don't know.
2.15	Condoms are an	1. Agree	
	effective method of	96. Don't know/not sure	
	preventing pregnancy.	2. Disagree	
2.16	Condoms can be used	1. Agree	
	more than once.	96. Don't know/not sure	
		2. Disagree	
2.17	Condoms are an	1. Agree	
	effective way of	96. Don't know/not sure	
	protecting against	2. Disagree	
	HIV/AIDS		

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2.18	Condoms reduce sexual pleasure	1. Agree 96. Don't know/not sure 2. Discourse
2.19	Condoms are an effective way of protecting against sexually transmitted diseases	2. Disagree 1. Agree 96. Don't know/not sure 2. Disagree
		adolescent pregnancy. I will read you some statements. 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. True2. False96. Don't know/not sure
2.22	Masturbation causes serious damage to health.	 True False 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
2.24	(Ask this question if his/her father is alive and living in same household)	Attitude 1. Very easy 2. Easy 3. Average
	Do you find it difficult or easy to talk with your father about things that are important to you?	 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?	 Often Occasionally Never
2.26	(Ask this question if his/her mother is alive	1. Very easy 2. Easy

	and living in same household)	3. Average4. Difficult
	Do you find it difficult or easy to talk with your mother about things that are important to you?	5. Very difficult6. Do not see him
2.27	Have you ever discussed sex-related matters with your mother? If YES often or occasionally?	 Often Occasionally Never
2.28	If a friend of yours needed treatment for a sexuallytransmitted disease, where could he or she obtain such treatment? (CIRCLE EACH MENTIONED)	 Shop Pharmacy Govt. hospitals/health centre/clinic Private doctor/nurse/clinic 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.	 Agree Don't know/not sure 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

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

3. 4. F. 5. Hea. 6. Other

مدايتون	b	
	ريو وڃي.	ا.هر مضمون لاءِ الڳ فارم ڀ
بيان ڪريو.	پنهنجي انٽريو جو مقصد ب	2.پنهنجو تعارف کريو ۽
ٽاڻايل رضامندي حاصل ڪئي وڃي.	ڪندڙن جي والدين کان ڄ	انٽرويو کان اڳ شرڪت.
ڪندڙ کان لکت واري منظوري حاصل ڪئي وڃي.	ضي ٿيڻ کان پوءِ شرڪت ۽	4.هڪ ڀيرو شرڪت لاءِ را
دٚينهن_مهينو_ سال	تاريخ	فارم ڀريو
ڏينهن_مهينو_ سال	تاريخ	فارم چيڪ ۽ ايڊٽ ڪيو_
ڏينهن_مهينو_ سال	تاريخ	فارم داخل کيو
	پ	مطالعي جي سڃاڻ

يپ	2			سوال نمبر
			نالو(آپشنل)	1.0
Response جواب skip	اسڪp	1.عورت ڪوڊ Code	جنس wariable جنس	Question# 1.1
		2.مرد		
سال		سالن ۾ مڪمل عمر لکو	توهان گهڻن سالن جا آهيو؟	1.2
			سالن ۾ لکو	
		سالن ۾ جواب لکو(ڪراس چيڪ	توهان جي آخري سالگره تي	1.3
		ڄمڻ جي تاريخ سان ڪريو)	توهان جي عمر ڪيتري هئي؟	
		ı.غير شادي شده	· • •	1.4
		2.شادي شده	آهي؟	
		3.طلاق شده		
		4.بيواه		
		5.الڳ ٿيل		

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	۱. ها	توهان پڙهي سگھو ٿا ؟مثال	1.5
	2.نه	اخبار	
	ها	توهان ڪڏهن اسڪول ۾	1.6
	2.نه	شرڪت ڪئي؟	
	۱.آڻ پڙهيل 2.پرئمري تعليم(گريڊ ۱ کان 5) 3.مڊل تعليم(گريڊ 6 کان 8) 4.سيڪنڊري تعليم(گريڊ 9 کان 10)	حيثيت	1.7
	او ليول 5.اعلا ثانوي تعليم(گريڊ 11 کان 12) اي ليول 6.اعلا ثانوي تعليم کان مٿي تعليم		
	(گريڊ 13 کان مٿي) 1. سرڪاري 2.پرائيويٽ	اهو اسڪول،ڪاليج يا	1.8
	2.پراليويک	يو ٿيور سٽي جنهن ۾ ٿونهن شرڪت ڪندا آهيو يا ڪئي هئي اهو سرڪاري يا پرائيويٽ ادارو آهي؟	
	۱. سنڌي 2.ار دو 3.پشتو	توهان ڪهڙي ٻولي ڳالهايو ٿا؟	1.9
	4.پنجابي 99.ٻي ڪا		
	1.انفرادي خاندان 2.وسيع خاندان		1.10
پ ۱.۱:	د بي علي الكر ن 1.ها السك 2.نہ سوال نمبر	ڇا توهان جو پيءَ زنده آهي؟	1.11
, ت ہ پ	1.ها اگر ن 2.نہ اسک سواز نمبر	, i i i i i i i i i i i i i i i i i i i	1.12
	 ١.١ڻ پڙهيل 2. پرئمري تعليم (گريڊ ١ کان ٥) 3. مڊل تعليم (گريڊ ٥ کان 8) 4. سيڪنڊري تعليم (گريڊ 9 کان ١٥) او ليول 	ڪيتري آهي؟	1.13

	5. اعلا ثانوي تعليم (گريڊ 11 کان		
	12) اي ليو ل		
	6.اعلا ثانوي تعليم كان مٿي تعليم		
	(گريڊ 13 کان مٿي)		
	سندس پيشي جُو نالو لکو		1.14
		يا آهي؟	
گر نہ تہ		ڇا توهان جي ماءَ زنده آهي؟	1.15
ىىكپ			
وال			
مبر 1.16.			
2 2.2 ۽ 2.2 گر نہ تہ			
		ڇا هوءَ توهان وانگر ساڳئي گ	1.16
ىكپ		گهر ۾ رهي ٿي؟	
وال مبر2،1.16			
2.27 ជួ 20	 ۱.اڻ پڙهيل	توهان جو ماءً جي تعليم	1.17
	۲.۱۰ پرهین 2.پرئمري تعليم(گريڊ ۱ کان 5)	ڪيتري آهي؟	1.17
	2.پرلمري تعليم(لريب ۲ کان 3) 3.مدل تعليم (گريڊ 6 کان 8)	لسيكري أهي أ	
	د.مبان تعليم (گريڊ ٥ کان ٥) 4.سيڪنڊري تعليم (گريڊ 9 کان ١٥)		
	السيك برري تحقيد (تريب و عن ١٠) او ليول		
	د یون 5.اعلا ثانوی تعلیم(گرید ۱۱ کان		
	12) ای لیول		
	6.اعلا ثانوي تعليم كان مٿي تعليم		
	(گريڊ 13 کان مٿي)		
	سندس پيشي جُو نالو لکو		1.18
	-	آهي؟	
گر نہ			1.19
ىكىپ		ڪم ڪري رهيا آهيو؟	
بو ال1.20			
	حقيقي جواب لكو		1.20
		ڪندا هئا يا آهيو؟	
	1. 5000 کان 20000		1.21
	2. 21,000 کان 40,000 2	جي آمدني ڇا آهي؟	
	 60,000 كان 41,000 41,000 كان 000,000 		
	 4. 000,00 كان 000,08 5. 000,81 كان 100,000 		
	-		
	 6. 000,001 کان مٿي مقرره رقمر 	ڇا توهان جي گھر وارن وٽ	1.22
	مقررہ رقم	چا نوهان جي ٺهر وارن وڪ هيٺ ڏنل چيزون موجود آهن	1.22
		الميت دلل چيرون موجود المن (جيڪي لاڳو ٿين ٿا انهن کي	
		(جيڪي ۽ ٻو ٿين تا آنهن ٿي رڪارڊ ڪريو)	
	. ها	رىكىرىپ ئىرىيى) 1.بجلى	
	1. ها	٦.بجني	
	2. لم		

ڪيترا؟	2. بجلي وار پنکا	
ڪيترا؟	3.رنگين ٽيليويزن	
ڪيترا؟	4.فرج	
ڪيترا؟	5. ريڊيو ٽرانسميٽر	
ڪيترا؟	6. موبائل فون	
ڪيترا؟	7.كمپيوٽر ،ليپ ٽاپ	
ڪيترا؟	8.ڪپڙن ڌوئڻ واري مشين	
ڪيترا؟	9. سلائی مشین	
ڪيترا؟		
ڪيترا؟	11.ايئر ڪنڊيشنر (اي.سي)	
ڪيترا؟	12. جانورن جي ٺھيل گاڏ ي	
ڪيترا؟	13.سائيڪل	
ڪيترا؟	14.ٽريڪٽر ،موٽر واري ٻيڙي	
ڪيترا؟	15.ڪار، ٽرڪ	
ڪيترا؟	16.موٽر سائيڪل، اسڪوٽر	
ڪيترا؟	17. رکشا، وين	
ڪيترا؟	18,ڪرسي	
ڪيترا؟	19بسترو، پلنگھ	
ڪيترا؟	20. گدو	
ڪيترا؟	21. سوفا	
ڪيترا؟	22.ٽيبل	
ڪيترا؟	23.الميراه،كابينا، الماڙي	
ڪيترا؟	24. يو ر	
ڪيترا؟	25. مرغي	

سيڪشن 2. ڄاڻ،رويو ۽ عمل

	۱. ها	ڇا توهان ايڇ,آءِ , وي ۽ ايڊس	2.1
	2. نہ	جي باري ۾ ٻڌو آهي؟	
ي مون کي ٻڌايو تہ توھان ڇا ٿا	بيان پڙهڻ وارو،واري آهيان مهرباني ڪر;	ٻڇ آءِ وي ۽ ايڊس جي بابت ڪجھ ٻ	مان توهان لاءِ ا
	، کي خبر نہ آهي.	بيان صحيح آهي غلط آهي يا توهان	سمجھو تہ اہو ہ

1.صحيح	AIDSجو علاج ممڪن آهي ؟	2.2
2.غلط		
96.خبر نہ آهي		
ا.صحيح	ايڇ آءِ وي سان متاثر شخص	2.3
2.غلط	هميشہ ڪنهن نہ ڪنهن طريقي	
96.خبر نہ آھي	سان ڪمزور يا غير صحتمند	
	نطر اچي ٿو؟	
1.صحيح	ماڻهو هڪ سادي ٽيسٽ وٺي	2.4
2.غلط	سگهن ٿا هي معلوم ڪرڻ لاءِ	
96.خبر نہ آهي	تہ ڇا هن کي ايچ آءِ وي آهي	

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$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$					
$ \begin{vmatrix} i & i & i & i & i & i & i & i & i & i$	2.5	ايڇ آءِ وي ,ايڊس کان علاوا	.1		
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سگهن تيون يا ترهان انهن . سگهن تيون جي ترهان انهن .		آهن جيڪي مرد ۽ عورت کي			
بيمارين مان ڪنهن جي باري		جنسي ميلاَپ ڪرڻ سان ٿي			
$q.$ $q.$ $\bar{q.}$ $\bar{q.}$ $q.$ <th< th=""><th></th><th>سگهن ٿيون.ڇا توهان انهن</th><th></th><th></th><th></th></th<>		سگهن ٿيون.ڇا توهان انهن			
2.6 q , جing det oristid 1.3 actor is relative of a set o		بيمارين مان ڪنهن جي باري			
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علامتون کهترین آهن؟(ذکر ۵. آلسر.; خرج جینیاتی جگه تي ۵. فجر تر آهی کیل تی داتر دی ۵. فجر تر آهی ۵. فجر تر آهی مجذهن هذ عررت متاثر ثنی ۲. پیشاب دوران دود ۲. پیشاب دوران دود تي؟ ۲. پیشاب دوران دود ۲. پیشاب دوران دود تی؟ ۲. پیشاب دوران دود ۲. پیشاب دوران دود تو؟ ۲. پیشاب دوران دود ۲. پیشاب دوران دود دونی سگهن تیون. ۲. ها (فوري جواب) ۲. (ش) دونی سگهن تیون. ۲. ها (فوري جواب) ۲. (ش) دونی سگهن تیون. ۲. ها (فوري جواب) ۲. (ش) دوران مائید می بیاتین. ۲. ها (فوري جواب) ۲. (ش) دوران مائید می بین یا تین. ۲. ها (فوري جواب) ۲. (ش) دوران مائید می بین یا تین. ۲. (ش) ۲. (ش) دوران مائید می بین یا تین. ۲. (ش) ۲. (ش) دوران مائید می بین یا تین. ۲. (ش) ۲. (ش) دوران مائید می بین یا تین. ۲. (ش) ۲. (ش) دوران داور قری کی تی تی ۲. (ش) ۲. (ش) دوران داور قری کی تی ۲. (ش) ۲. (ش) دوران دور دو مائی دو جعی یا تی در تر جر بی بی تی تی تی ۲	2.6		. عضون تناسل مان خ ارج ٿيڻ		
ڪيل تي دائرو ڪير) (e_{1}, μ) (e_{2}, μ) $(e_{2}$		ٿيندڙ بيماريان جون نشانيون ۽	2.پيشاب دور ان در د		
30.4 30.4		علامتون کهڙيون آهن؟(ذکر	3. السر،زخم جينياتي جڳھہ تي		
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$ \begin{array}{c c c c c c c c c c c c c c c c c c c $			96.خبر نہ آھي		
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	2.7	۽ ڇا نشانيون يا علامتون آهن	1.وي ج ينا مان خارج ٿيڻ		
الحكم المالي $(0, \omega)$		جڏهن هڪ عورت متاثر ٿئي	2. پیشاب دوران درد		
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		ٿي؟	3.السر،زخم جينياتي جڳهہ تي		
2.8(a) 1.al (éççə, şelp.) \mathbb{I} \mathbb{I} \mathbb{I} açırçı (cçliz acè Zeçə, etiə màştı ٿيون. 2.al (meşə, şelp.) \mathbb{I} \mathbb{I} 2.8(b) \mathbb{I} \mathbb{I} \mathbb{I} \mathbb{I} 2.8(b) \mathbb{I} <			99.بيا		
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $					
وني سگهن ٿيون.د. ثد. ثسوال 2.8.وني سگهن ٿيون.د. ذ. ثد. د. ثسوال 2.8.شخص کي سياثو تا جتي نوجوان ماڻهر هي طريقو2.82.8نوجوان ماڻهر هي طريقو2.92.8داصل ڪري سگهن تا1.41.4داصل ڪري سگهن تا1.41.4داصل ڪري سگهن تا1.41.4دامل ڪري سگهن تا1.41.4دامل ڪري سگهن تا2.81.4دامل ڪري سگهن تا1.41.4دامل ڪري سگهن تا1.4	2.8(a)		1.ها (فوري جواب)	اگر (نہ)	
\cdot <th></th> <th>عورتون روزانو هڪ گوري</th> <th>2.ها (سوچي جواب)</th> <th>اسڪيپ</th> <th></th>		عورتون روزانو هڪ گوري	2.ها (سو چي جواب)	اسڪيپ	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		وٺي سگهن ٿيون.	3.نه	سوال 2.8	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$				بي	
نوبوان مانّهو هي طريقو تااها (فوري جواب)اگر (أن)داصل ڪري سگهن تا عورتون هر بئين يا ٽئين١.ها (فوري جواب)اگر (أن)عورتون هر بئين يا ٽئين2.ها (سوچي جواب)اسڪيپعورتون هر بئين يا ٽئين2.ها (سوچي جواب)اسڪيپمهيني انجيڪشن لڳائي3.ها (سوچي جواب)اسڪيپسگهن ٿيونسگهن ٿيونسگهن ٿيونمهيني انجيڪشن لڳائي3.ها (أور جوان مانهو هي طريقونجوان مانهو هي طريقوماصل ڪري سگهن ٿادوجوان مانهو هي طريقومرد جوا حي مانهو هي طريقودوجوان مانهو هي طريقو تا وري جواب)دوجوان مانهو هي طريقو تا جي تا دوبون جوان مانهو تا جي تا دوبو تا مانهو تا جي تا دوبو تا مانهو تا جي تا دوبو تا دوبو تا تا دوبو تا دوبو تا تا دوبو تا تا دوبو تا دوبو تا دوبو تا تا دوبو تا تا دوبو تا تا دوبو تا دوبو تا دوبو ت	2.8(b)	ڇا توهان ڪنهن جڳهہ يا	1. ها		
حاصل ڪري سگهن ٿا اها (فوري جواب) اگر (\dot{u}) 2.9 انجيڪشن 1.81 (فوري جواب) اگر (\dot{u}) عورتون هر ٻئين يا ٽئين 2.9 اسڪيپ مهيني انجيڪشن لڳائي 2.81 (سوچي جواب) السڪيپ مهيني انجيڪشن لڳائي 3.61 (سوچي جواب) السڪيپ سگهن ٿيون 1.81 سوال (2.9 سگهن ٿيون 1.81 بي منځون ڪنهن دجگه يا 1.81 بي شخص کي سڃاڻو ٿا جتي 2.4 بي نوجوان ماڻهو هي طريقو 1.81 1.81 نوجوان ماڻهو هي طريقو 1.81 (فوري جواب) اگر (\dot{u}) مرد جماع ڪرڻ کان اڳ 2.81 سوال (1.2 سگهي ٿو؟ 2.81 (سوچي جواب) السڪيپ سگهي ٿو؟ 2.81 (سوچي جواب) الي سگهي ٿو؟ 2.81 (سوچي جواب) الي نوجوان ماڻهو هي طريقو 1.81 (فوري جواب) الي نوجوان ماڻهو هي طريقو 1.81 (فوري جواب) الي نوجوان ماڻهو هي طريقو 1.81 (فوري جواب) الي نوجوان ماڻهو هي طريقو 2.31 1.81 (فوري جواب) <		شخص کي سڃاڻو ٿا جتي	2. نه		
2.9 1.84 1.64 1.64 1.64 1.64 2.9 1.82 2.9 1.82 1.82 1.82 320 320 320 2.9 1.64 1.62 320 320 320 320 320 320 320 320 1.64 1.64 320 320 320 32.66 1.64 320 320 32.66 32.66 320 320 32.66 32.66 320 320 32.66 32.66 320 320 32.66 32.66 320 320 32.66 32.66 320 320 32.66 32.66 320 320 32.66 32.66 320 320 32.66 32.66 320 320 32.66 32.66 320 32.66 32.66 32.66 320 32.66 32.66 32.66 320 32.66 32.66 32.66 320 32.66 32.66 32.66 320 32.66 32.66 32.66 320 32.66 32.66 32.66 320 32.66 32.66 32.66 320 32.66 32.66 32.66 320 32.66 32.66 32.66 320 32.66 32.66 32.66 320 32.66 32.66 32.66 320 32.66 32.66 32.66 320 32.66 <th></th> <th>نوجوان ماڻهو هي طريقو</th> <th></th> <th></th> <th></th>		نوجوان ماڻهو هي طريقو			
1.4 1.6 <th< th=""><th></th><th>حاصل ڪري سگهن ٿا</th><th></th><th></th><th></th></th<>		حاصل ڪري سگهن ٿا			
$as_{as_{as_{as_{as_{as_{as_{as_{as_{as_{$	2.9	انجيڪشن	1.ها (فوري جواب)	اگر (نہ)	
$m \lambda \beta u \ddot{z} u \dot{z} \dot{u}$ $m \lambda \beta u \ddot{z} u \dot{z} \dot{u}$ $m \lambda \beta u \dot{z} \dot{z} \dot{u}$ $m \lambda \dot{z} \dot{z} \dot{z} \dot{z} \dot{z} \dot{z}$ $(0,0)$ $\vec{z} = \vec{z} \ u \dot{z} \dot{z} \dot{z} \dot{z} \dot{u} \dot{z} \dot{z} \dot{z} \ddot{u} \dot{z} \dot{z} \dot{z} \dot{z} \dot{z} \dot{z} \dot{z} z$		عورتون هر ٻئين يا ٽئين	2.ها (سوچي جواب)	اسڪيپ	
$2.9(b)$ $\frac{1}{2}$.ن	سوال 2.9	
i i <		سگهن ٿيون		بي	
ieqelic ماتُهو هي طريقو حاصل ڪري سگهن ٿاا.ها (فوري جواب)اگر (ن)حاصل ڪري سگهن ٿاا.ها (فوري جواب)اگر (ن)2.10ڪنڊوم (ربڙ وارو ڦوڪڻو)ا.ها (فوري جواب)اسڪيپمرد جماع ڪرڻ کان اڳ2.ها (سوچي جواب)اسڪيپينهنجي عضوي تي ربڙ وجهي سگهي ٿو؟د.نسوال 2.10سگهي ٿو؟بيمرد جام ڪري سگهن ٿاا.هامرد جماع ڪرڻ کان اڳينهنجي عضوي تي ربڙ وجهي في؟د.نمرد جام ڪرڻ کان اڳمرد جام ڪرڻ کان اڳينهنجي عضوي تي ربڙ وجهي في؟سگهي ٿو؟مال كنهن جگهہ ياامال حصل کي سڃاڻو ٿا جتي نوجوان ماڻهو هي طريقوحاصل ڪري سگهن ٿادوري جواب)اگر (ن)عاصل ڪري سگهن ٿادوري جواب)اگر (ن)دوري مواب)اگر (ن)دوري جواب)اگر (ن)دوري جواب)اگر (ن)دوري جواب)الڪري سگهن ٿادوري جواب)اگر (ن)دوري جواب)الڪي پار (ن)دوري جواب)الڪي پار (ن)دوري جواب)الي (د)دوري جواب)الڪي پار (د)دوري جواب)الڪي پار (د)دوري جواب)دوري جوابدور	2.9(b)		1. ها		
dot			2. نې		
2.10 2.10 1.64 $(6c, 2, eql, 2)$ 1.64 $(6c, 2, eql, 2)$ 1.64 $(6c, 2, eql, 2)$ $a, c, e, end 3 \rightarrow c, c'2.012.84(me, equ, 2, eql, 2)1me \Delta u, uque 10u, white, q, q,$		Ŧ			
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $					
پنهنجي عضوي تي ربڙ وجهي د.ن سوال 2.10 سگهي ٿو؟ سگهي ٿو؟ ٥.10(b) ڀا توهان ڪنهن جڳه يا شخص کي سڃاڻو ٿا جتي ٢.٠٠ نوجوان ماڻهو هي طريقو ٢.٠٠ حاصل ڪري سگهن ٿا ٢.٠٠ دامل ڪري سگهن ٿا ٢.٠٠ دامل ڪري سياڻو ٿا جتي ٢.٠٠ دوران ماڻهو هي طريقو ٢.٠٠ دامل ڪري سگهن ٿا ٢.٠٠ دامل ڪري جواب) ١٨٠ دامل ڪري جواب) ١٠٠ دري ٢.٠٠ گوري ٢٠٠	2.10		1.ها (فوري جواب)	اگر (نہ)	
سگهي ٿو؟ سگهي ٿو؟ سگهي ٿو؟ اها 2.10(b) ڀا توهان ڪنهن جڳه يا شخص کي سڃاڻو ٿا جتي 2.ن نوجوان ماڻهو هي طريقو 2.ن حاصل ڪري سگهن ٿا اها حاصل ڪري سگهن ٿا 2.ها (فوري جواب) 2.11 گوري گوري 2.ها (سوچي جواب)		مرد جماع ڪرڻ کان اڳ	2.ها (سوچي ج واب)	اسڪيپ	
شخص كي سڃاڻو ٿا جتي 2.ن نوجوان ماڻهو هي طريقو نوجوان ماڻهو هي طريقو حاصل ڪري سگهن ٿا حاصل ڪري سگهن ٿا 2.11 ايمرجنسي مانع حمل جي گوري 2.ها (سوچي جواب)			نہ .3	سوال 2.10	
شخص كي سڃاڻو ٿا جتي 2.ن نوجوان ماڻهو هي طريقو نوجوان ماڻهو هي طريقو حاصل ڪري سگهن ٿا حاصل ڪري سگهن ٿا 2.11 ايمرجنسي مانع حمل جي گوري 2.ها (سوچي جواب)		سگهي ٿو؟		بي	
نوجوان مَآثهو هي طريقو حاصل ڪري سگهن ٿا 2.11 ايمرجنسي مانع حمل جي 1.ها (فوري جواب) اگر (نر) گوري گوري اسڪيپ	2.10(b)		1. ها		
حاصل كري سكَّهن ٿا 2.11 ايمرجنسي مانع حمل جي 1.ها (فوري جواب) اگر (نہ) گوري گوري عواب) اسكيپ			2. نې		
2.11 ايمرجنسي مانع حمل جي ١.ها (فوري جواب) اگر (نه) گوري گوري ٤.ها (سوچي جواب) اسکيپ					
گوري 2.ها (سوچي جواب) اسڪيپ					
	2.11		-		
		گوري	2.ها (سوچي جواب)	اسڪيپ	
			.ن		

سوال 2.11		عورتون جماع ڪرڻ کان پوءِ	
سوال 2.11 بي		عورتوں جماع کرن کان پوءِ جلد گوريون وٺي سگھن ٿيون	
	1. ها	ڇا توهان ڪنهن جڳهہ يا	2.11(b)
	2.نه	شخص کي سڃاڻو ٿا جتي	
		نوجوان ماڻهو هي طريقو	
		حاصل ڪري سگهن ٿا	
	1.ها (فوري جواب)	واپس وٺڻ	2.12
	2.ها (سوچي جواب)	هڪ مرد هڪ عورت کي	
	3.نه	ڪلائيمڪس کان اڳ ڪڍي	
		سگھي ٿو	
	1.ها (فوري جواب)	وقتي پابندي ،تال	2.13
	2.ها (سوچي جواب)	هڪ جوڙو انهن ڏينهن تي	
	3.نه	جنسي ميلاپ کان پاسو ڪري	
		سگهي ٿو جڏهن حمل ٿيڻ جو	
		تمام گهڻو امڪان آهي؟	
	۱. ها	ڇا توهان ڪڏهن ڪنڊوم(رٻڙ	2.14
	2.نې	وارو ڦوڪڻو) ڏٺو آهي؟	
ٿو تہ توھان مور	بهه رایا پڙهندس .هر هن لاءِ مان چاهيان	ﺎڻهن جا مختلف رايا آهن .مان ڪج	کنڊومر بابت م
		ير متفق آهيو يا توهان نٿا ڄاڻو	تفق آهيو يا غ
	ا.متفق آهيان	ڪنڊوم حمل کي روڪڻ جو	2.15

	ا.متفق آهيان	ڪنڊوم حمل کي روڪڻ جو	2.15
	2.غير متفص آهيان	هڪ موثر طريقو آهي	
	96.خبر نہ آهي،پڪ نہ آهي		
	1.متفق آهيان	ڪنڊوم هڪ کان وڌيڪ ڀيرا	2.16
	2.غير متفص آهيان	سگھجي ٿو	
	96.خبر نہ آهي،پڪ نہ آهي		
	ا.م تف ق آهيان	ڪنڊوم ايڊز ،ايڇ آءِ وي کان	2.17
	2.غير متفص آهيان	بچاءَ جو هڪ مئوثر طريقو	
	96.خبر نہ آهي،پڪ نہ آهي	آهي	
	1.متفق آهيان	ڪنڊوم جنسي خوشي کي	2.18
	2.غير متفص آهيان	گهٽائي ٿو	
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هاڻي مون وٽ نوجوانن جي حمل تي ڪجھہ ٻيا سوال آهن .مان توهان کا ڪجھہ ٻيا بيان پڙهي ڏيندس. مھرباني ڪري مون کي ٻڌايو تہ توهان ڇا ٿا سمجھو تہ هي بيان صحيح آهن غلط آهن يا توهان کي خبر نہ آهي.

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2.25	ڇا توهان ڪڏهن پنهنجي پيءَ	1. اڪثر
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