

Reproductive Health Knowledge and Services Utilization among Rural Adolescents in Machakal district, Northwest Ethiopia

Amanuel Alemu Abajobir¹ and Assefa Seme²

¹ Debre Markos University, Public Health Department
Debre Markos University, Ethiopia

² Addis Ababa University, School of Public Health
Addis Ababa, Ethiopia

ABSTRACT— *The objective of this study was to assess the reproductive health knowledge and services utilization among rural adolescents in Machakal district, Northwest Ethiopia. A community-based cross-sectional mixed method study was conducted to assess the reproductive health knowledge and services utilization. More than two-third (67%) of the adolescents had knowledge about reproductive health issues. Late adolescence (AOR=3.77, 95%CI (3.1, 8.98)), residing with grandparents and/or other relatives (AOR=2.21, 95%CI (1.81, 6.04)) and being from rich families (AOR=3.37, 95%CI (1.65, 6.87)) were associated with reproductive health knowledge. However, only a fifth (21.5%) of the adolescents has ever utilized reproductive health services. Parent (s) disapproval, lack of basic information and peer pressure from were found to deter adolescents from accessing reproductive health services. Late adolescents had more tendencies to use reproductive health services (AOR=2.18, 95%CI (1.13, 8.03)). The likelihood of utilizing reproductive health services was significantly associated with knowledge for reproductive health (AOR=1.23, 95%CI (1.23-4.21)). It was found that reproductive health knowledge and services utilization amongst rural adolescents remained insufficient. Community-conversation in line with adolescent-to-adolescent-counseling, peer education and parent-adolescent communication should address sensitive topics such as sex education and other reproductive health issues.*

Keywords —Rural adolescent, Reproductive Health Knowledge, Services utilization

1. INTRODUCTION

According to World Health Organization, adolescents are defined as persons between 10 and 19 years of age and are characterized by significant physiological, psychological and social changes that place their life at high risk and making up about 20% of the world's population, of whom 85% live in developing countries. This has at least partially been because adolescents were considered to be a relatively healthy age group, without a heavy "burden of disease" [1, 2].

The concern about adolescent sexual and reproductive health (ASRH) has grown following reports that sexual activity, early pregnancies and sexually transmitted infections (STIs) including human immune deficiency virus (HIV) infection rates are increasing at unprecedented rates among adolescents [3, 4].

Since the 1994 International Conference on Population Development (ICPD) in Cairo, Egypt, adolescent-friendly reproductive health services (AFRHS) have been recognized as an appropriate and effective strategy to address sexual and reproductive health (SRH) needs of adolescents [5]. Nevertheless, the needs of the young people remain poorly understood or served in much of the world [6].

Despite 35% of the world population being in the 10-24 age groups, the RH needs of adolescents have neither been researched nor addressed adequately [14]. Early and unprotected sexual activity and misconceptions about HIV/AIDS are prevalent in rural adolescents [11].

There are few studies on knowledge, attitude and practice of adolescents in relation to their RH in Ethiopia showing a significant discrepancy between knowledge about and the level of services utilization in particular and poor access to RH services in general [17-19, 27].

As “age-appropriate” interventions specific to a particular setting are desirable to address the diverse needs and contexts of adolescents’ RH, studying their knowledge, services utilization and associated factors is highly relevant to design appropriate program interventions and strategies in the local context [17, 18].

In Ethiopia, nearly 20% are young people of whom four-fifth live in rural parts of the country [7]. However, few attempts have been made particularly in rural settings to communicate with them for addressing their critical concerns or provide them with the necessary SRH services.

2. METHODS

2.1 Study area and period

The study was conducted in Machakel district, northwest Ethiopia, in February 2012.

2.2 Study Design

A community-based cross-sectional study was conducted to assess the RH knowledge and services utilization of rural adolescents in Machakel district. The study employed both quantitative and qualitative methods.

2.3 Sampling

2.3.1 Quantitative study:

The sample size was calculated using single population proportion formula by taking proportion of modern contraceptive utilization by adolescents to be 57% [27].

The assumptions of 95% confidence level (level of significance, $\alpha=0.05$), 5% margin of error and 10% for non-respondents were used to determine the sample size. Accordingly, the total sample size was 415.

2.3.2 Qualitative study:

For in-depth exploration of adolescents’ RH knowledge and pattern of services utilization including their experiences, feelings and perceptions, participants were selected for in-depth interview purposively those who were not included in quantitative assessment.

2.4 Data Collection

2.4.1 Quantitative Data:

Pre-tested structured questionnaire was prepared by reviewing previously done studies on the topic of interest [7, 14, 23, 26, 27 and 32].

The questionnaire contained three parts:

1. Demographic, social and economic characteristics,
2. Knowledge on RH-related topics (fertility, contraception, STIs/HIV/AIDS, VCT) and
3. Patterns of RH services utilization.

2.4.2 Qualitative Data:

An in depth interview was used to get insight into issues that could not be addressed by the quantitative survey. Open-ended questions were used to guide the interview. The interviews were assisted by a rapporteur, who took notes and supported by a tape recorder after assent and/or consent was obtained from the participants.

2.5 Data Quality Management

Pre-test was undertaken on the questionnaire before the actual data collection started to examine the reliability and construct the validity of the instrument. Data collectors and supervisors were provided intensive training on the objective of the study, contents of the questionnaires and how to maintain confidentiality and privacy of the study subjects. The collected data were checked by the principal investigators for any incompleteness and/or inconsistency. During data cleaning, logical checking techniques were employed to identify possible errors.

2.6 Data processing and analysis

2.6.1 Quantitative Data:

Data were entered in to Epi Info 3.5.1 and transferred to SPSS 16.0 for windows for statistical analysis. The first step before analysis was data exploration to visualize the general feature of the data to be analyzed. After exploration, percentages were used to determine the level of RH knowledge and services utilization among rural adolescents. Data were presented using tables and graphs accordingly.

To determine the association between different factors and RH knowledge and services utilization, a logistic regression model was employed and two steps were followed. First, each factor was entered into a separate binary logistic regression model. Second, variables which were significant at P-value of 0.05 were put together into the logistic regression model to identify independent factors of RH knowledge and services utilization. Variables that remained significant at a P-value of 0.05 in the final multivariate logistic regression model were considered as independent factors of RH knowledge and services utilization.

2.6.2 Qualitative Data:

Responses were transcribed and translated into Amharic (local language) and then to English through maintaining the context of the responses. Most important findings were *summarized, narrated and incorporated* in the report.

2.7 Definitions

Reproductive Health Knowledge: the adolescents were asked questions which covered the expectations about male and female adolescents' fertility, FP, STIs and VCT for HIV/AIDS and services expected to be provided to and utilized by adolescents in the study area including information, education and communications about health services for RH. The investigators developed an index which summarized adolescents' knowledge about the above issues that assigned a score of **1** for each "Yes" or correct response and **0** for "No" or incorrect response.

Key: 1. Knowledgeable if the summary index equals/greater than the mean.

2. Not knowledgeable if the summary index is less than the mean.

Reproductive health services utilization: use of any sexual and reproductive health services such as medical checkup, consultations, FP, health education on HIV/AIDS and STIs treatment rendered in healthcare services providing centers.

2.8 Ethical Consideration

Ethical clearance was obtained from the Research and Ethical Committee of the School of Public Health of Addis Ababa University. Permission was also obtained from Machakel district administration and health bureau. Data collection was conducted after verbal consent and/or assent had been obtained.

3. RESULTS

3.1 Quantitative Findings

3.1.1 Socio-demographic and Socio-economic Characteristics

A total of 381 rural adolescents were volunteered to participate in the interview yielding a response rate of 92%.

The mean age of the adolescents was 14.6 ± 4.1 years and about half 190 (50.7%) were males. The majority 372 (99.3%) constituted Amhara by ethnicity and almost all 371 (99.2%) were Orthodox by religion. Most adolescents 319 (85.1%) were single and the rest 56 (14.9%) were ever married. About four-fifth 304 (81.1%) have ever attended formal education of which 145 (47.7%) and 159 (52.3%) were elementary and secondary school respectively; more than two-third 258 (68.9%) of the adolescents were in-school. About half families of the adolescents could not read and write (49.3% fathers versus 49.5% mothers). The mean number of family size was 4.43 ± 1.73 . Two hundred fifty eight (68.9%) of the study participants were students followed by 42 (11.2%) farmers, 39 (10.4%) house wives, 31 (8.2%) merchants and 6 (1.6%) daily laborers. Two hundred twenty three (60.6%) adolescents were living with both parents, followed by single parent 98 (26.4%), husband/wife 44 (11.4%) and others (grandparents and other relatives) 9 (1.7%). About two-third of the adolescents, 251 (67.4%), possessed means of communication (Table 1).

Table 1: socio-demographic and socio-economic characteristics of rural adolescents in Machakel district, northwest Ethiopia, February 2012.

Variables	Frequency (n=375)	Percent
Sex		
Male	190	50.7
Female	185	49.3
Age		
10-14	127	33.9
15-19	248	66.1
Mean	14.6 ± 4.1	
Marital status		
Single	319	85.1

Ever married	56	14.9
Ever attended school		
Yes	304	81.1
No	71	18.9
Educational status (n=304)		
Elementary	145	47.7
Secondary	159	52.3
Current schooling		
In-school	258	68.9
Out-of-school	117	31.1
Current living arrangement		
Both parents	227	60.6
Single parent	99	26.4
Husband/wife	43	11.4
Other	6	1.7
Family size		
<=5	143	38.1
>5	232	61.9
Mean	4.43 ± 1.73	
Current occupational status		
Student	258	68.9
Farmer	42	11.2
Housewife	39	10.4
Merchant	31	8.2
Daily laborer	6	1.6
Any means of communication		
Yes	251	67.4
No	124	32.6

3.1.2 Reproductive Health Knowledge of Rural Adolescents

The mean age at menarche for female adolescents was 13.8±1.4 years. The majority, 200 (53.5%), of the adolescents responded that a girl could get pregnant the first time she had sex and the age at which it could occur was “during puberty” by over a third 138 (36.6%), followed by “after puberty” 141 (37.7%) and “before 10 years” of age 5 (1.3%); however, a significant proportion of the adolescents 91 (24.3%) did not know the age at which pregnancy could occur. Regarding menstrual cycle with high chance of getting pregnancy, only 53 (14.2%) responded the “middle of the cycle” and a considerable proportion of the participants 118 (31.3%) did not know at which cycle it would occur at all. The male counterpart could be matured enough “during puberty” was reported by 129 (34.4%) of the adolescents and 105 (28.2%) did not know when the boy would be physiologically matured enough to be fertile. Adolescents’ overall knowledge was evaluated by summarizing all reproductive health-related questions. Accordingly, the study showed that the mean knowledge score was 10.01±2.7. Based on this mean score, more than two-third, 251 (67%), of the adolescents had knowledge about RH issues (Table 2).

Table 2: Reproductive health knowledge of rural adolescents in Machakel district, northwest Ethiopia, February 2012.

Variables	Frequency(n=375)	%
Age at menarche(years) n=185		
10-14	121	65.4
15-19	64	34.6
Mean age at menarche	3.8± 1.4	
A girl gets pregnant the 1st time she has sex		
Yes	200	53.5
No	175	46.5
Know ways of avoiding pregnancy		
Yes	282	75.1
No	93	24.9
Know about STIs		
Yes	236	63.0
No	139	37.0

Know about HIV/AIDS

Yes	297	79.5
No	78	20.5

HIV/AIDS can be acquired with 1st contact

Yes	210	56.2
No	165	43.8

Know any way to prevent HIV/AIDS

Yes	270	72.0
No	105	28.0

Know about VCT

Yes	243	65.0
No	132	35.0

Overall Knowledge

Knowledgeable	251	67.0
Not knowledgeable	124	33.0

More than four-fifth of the rural adolescents knew ways of avoiding unwanted pregnancy and the majority mentioned oral contraceptive pills 221 (78.2%) followed by condoms 51 (18%) and injectables 36 (12.8%) as means of preventing it but long-acting and permanent contraception methods such as norplant 1 (0.4%), intrauterine devices 1 (0.3%) and sterilization 3 (1%) were mentioned by the adolescents insignificantly (Figure1).

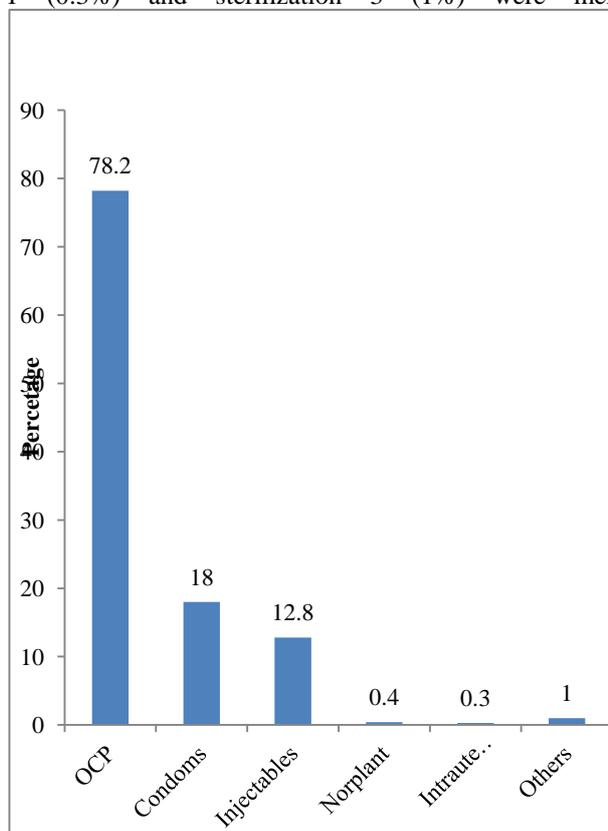


Figure 1: Knowledge of contraception methods of rural adolescents, Machakel district, northwest Ethiopia, February 2012.

Over two-third 255 (68%) of the rural adolescents have ever heard any disease a person could get through sexual intercourse; gonorrhoea and HIV/AIDS were the major STIs mentioned by 118 (46.4%) and 108 (42.5%) of the adolescents respectively. Genital ulcer was indicated by more than half of the study subjects 141 (55.2%) as the sign/symptom of such disease conditions followed by pain during urination 22 (8.6%) and abnormal genital discharge 13 (4.9%); however, more than one-fifth did not know any manifestation of such infections.

Most of the adolescents 343 (91.5%) have ever heard about HIV/AIDS and listed unsafe sexual intercourse as the major way of acquiring the disease 198 (66.6%) followed by sharing sharp materials like needles and syringes 66 (22.2%); only 18 (5.9%) responded mother-to-child transmission as a route of acquiring the virus. More than four-fifth of the adolescents, 279 (81.2%), responded as there were mechanisms through which STIs and HIV/AIDS could be avoided/prevented. Abstaining from sexual intercourse was the major means to prevent oneself from acquiring

such infections 188 (67.4%) followed by avoiding unsafe or casual sex 41 (14.8%) and remaining faithful to a partner 39 (14%). A person could not get HIV with the first sexual contact and through careful looking at a person HIV/AIDS status of an individual would be determined were reported by 41.1% and 12% of the adolescents respectively.

Two hundred seventy (72%) have ever heard about VCT and described reduction of the dissemination of HIV, enabling one to know his/her disease status and increasing one's confidence as its main advantages.

3.1.3 Pattern of Reproductive Health Services Utilization among rural Adolescents

As described in Table 3, more than a third of the adolescents 144 (38.3%) have ever heard of RH services and reported health professionals 116 (80.4%) as the main sources of information followed by radio 22 (15.5%), television 4 (3.1%) and print media (posters/leaflets) 2 (1%).

As to their service utilization pattern, 31 (21.5%) of the adolescents ever utilized RH services and 6 (18.8%) have visited an RH services providing centres in the last 6 months. For majority of adolescents, government health facilities 17 (54.8%), health posts 8 (25.8%) and private health facilities 5 (16.1%) were the preferred health institutions from where the services were obtained. There was also a sizeable contribution of traditional healers for 1 (3.1%) of the adolescents.

Effectiveness, proximity of the services rendering units and free of charge treatments provided were indicated as the reasons to visit the institutions. The services rendered in such facilities included medical checkup 12 (39.8%), STIs treatment 8 (23.1%), delivery 6 (21.1%) and others 5 (16%) such as FP, abortion/post abortion care, VCT and IEC. Healthcare professionals with the same sex were preferred by the majority of the adolescents 18 (58.9%).

Among other factors, parent (s) disapproval 51 (37%), lack of information 36 (31.9) and pressure from partners 28 (24.8) were reported to hinder adolescents from accessing RH services (Figure 2).

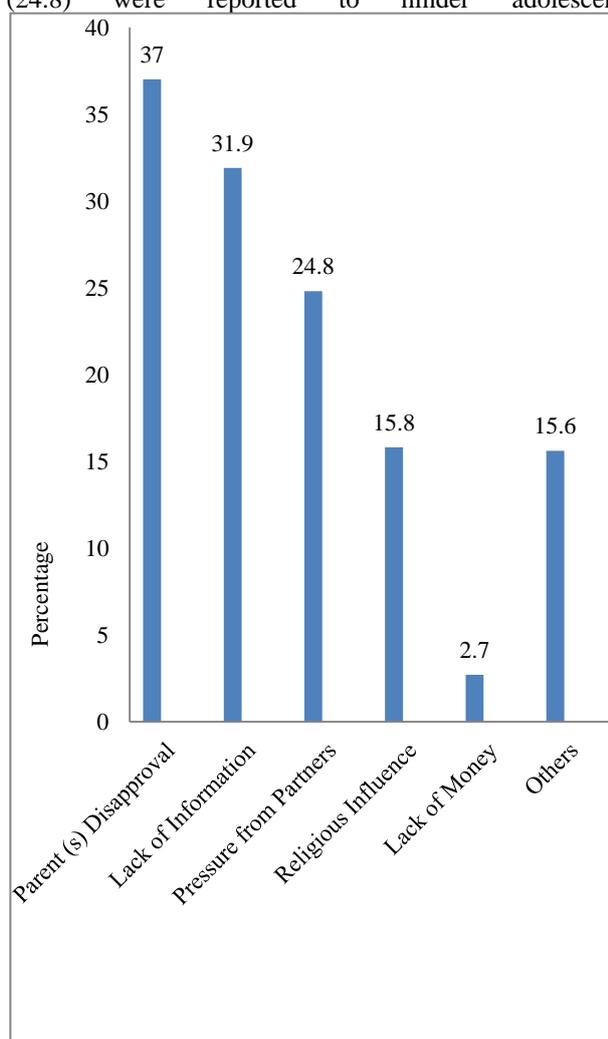


Figure 2: Factors hindering RH services utilization among rural adolescents, Machakel district, northwest Ethiopia, February 2012.

The main obstacles from the adolescents' perspective refraining them from getting RH services from health institutions were not think of the services, unnecessary of the services, lack of knowledge and being young/healthy were listed by 128 (50.6%), 87 (34.4%), 65 (24.3%) and 44 (17.4%) of the adolescents respectively among others.

Three quarters of the adolescents have never discussed RH topics with their parents due to worthlessness 63 (24.9%), fear 188 (74.3%), social and cultural restriction 52 (20.6%) and others 18 (7.1%). The majority of the adolescents prefer to discuss RH issues to friends/peers 174 (46.4%), followed by health professionals 105 (28%) and mothers 41 (10.8%).

According to this study, only 105 (28%) of the rural adolescents were well informed about RH such as contraceptives and other issues. Schools 51 (48.1%) and friends 14 (14.5%) were found to be important sources of SRH information among rural adolescents (Table 3).

Table 3: Reproductive health services utilization and related factors among rural adolescents of Machakel district, northwest Ethiopia, February 2012.

Variables	Frequency (n==375)	Percent
Ever heard of RHS		
Yes	144	38.3
No	231	61.7
Ever utilized RHS (n=144)		
Yes	31	21.5
No	113	79.5
Visited RHS centres in the last 6 months (n=144)		
Yes	6	18.8
No	138	81.2
Main obstacles preventing from getting RHS		
Never thought of the services	128	50.6
Services not necessary	87	34.4
Lack of knowledge	65	24.3
Too young/healthy	44	17.4
Ever discussed RH topics with parents		
Yes	122	32.0
No	253	68.0
Reasons for not discussing RH topics (n=253)		
Not necessary	63	24.9
Fear	188	74.3
Social and cultural restriction	52	20.6
Others	18	7.1
Well informed about RHS		
Yes	130	34.7
No	245	65.3

3.1.4 Association of Socio-demographic and Socio-economic Characteristics and RH Knowledge

In order to understand the social and demographic factors related to RH, a logistic regression analysis was done. Among the socio-demographic and economic characteristics of the respondents' sex, age, educational status, living arrangement (living with grandparents and other relatives) and family income were found to have statistically significant association with RH knowledge. However, adolescents' marital status, religion, ethnicity, history of schooling (ever attended school), current occupational status, families' educational history, family size and means of communication had no statistically significant association.

Accordingly, female adolescents were found to be less knowledgeable than their male counterparts for RH (COR=0.56 (0.11-0.89)). Late adolescence (15-19) was positively associated with RH knowledge (COR=1.29 (1.01, 3.63)). Reproductive health knowledge was higher among secondary education adolescents than primary education (COR=1.35 (1.06, 6.12)) as well as it was higher among in-school adolescents than their out-of-school counterparts (COR=1.05 (1.03, 4.98)). Adolescents mostly living with their grandparents and other relatives were more knowledgeable (COR=2.69, 95%CI (1.48, 14.99)). It was two times higher for adolescents from rich families than their poor counterparts (COR=2.15 95%CI (1.67, 6.98)).

Even after adjusting for socio-demographic and economic variables, age, family arrangement and family income remained to have statistically significant association with RH knowledge of the adolescents. The odds of RH knowledge was about 4 times higher among adolescents of age 15-19 than 10-14 years (AOR=3.77, 95%CI (3.1,

8.98)). It was also about 2 times higher among respondents currently living with their grandparents and other relatives than those who were living with their parents (either both or single parent) and spouse (AOR=2.21, 95%CI (1.81, 6.04)). Moreover, adolescents from rich families were 3 times more knowledgeable than from poor families (AOR=3.37, 95%CI (1.65, 6.87)) (Table 4).

Table 4: Bivariate and multivariate analysis of socio-demographic and socio-economic characteristics and reproductive health knowledge among rural adolescents of Machakel district, northwest Ethiopia, February 2012.

Factors	Reproductive Health Knowledge		COR [95%CI]	AOR [95%CI]
	Yes	No		
Sex				
Male	117 (46.6)	73 (58.9)	1.00	1.00
Female	134 (53.4)	51 (41.1)	0.56 (0.11, 0.89)	0.39 (0.47, 1.34)
Age (in years)				
10-14	54 (21.5)	73 (58.9)	1.00	1.00
15-19	167 (66.5)	51 (41.1)	1.29 (1.01, 3.63)	3.77 (3.1, 8.98)
Level of school completed				
Elementary	106 (42.2)	53 (42.7)	1.00	1.00
Secondary	105 (57.8)	39 (57.3)	1.37 (1.06, 6.12)	1.35 (1.06, 6.12)
Current Schooling				
In-school	153 (61)	105 (84.7)	1.05 (1.03, 4.98)	1.05 (1.03, 4.98)
Out-of-school	68 (39)	49 (15.3)	1.00	1.00
Living mostly with				
Both parents	117 (46.6)	94 (75.8)	1.00	1.00
Single parent	68 (27)	26 (21)	0.94 (0.57, 1.53)	0.94 (0.57, 1.53)
Husband/wife	36 (14)	2 (1.6)	0.95 (0.48, 1.87)	0.95 (0.48, 1.87)
Others	4 (1.4)	2 (1.6)	2.69 (1.48, 14.9)	2.21 (1.81, 6.04)
Perceived family income				
Poor	49 (19.5)	94 (75.8)	1.00	1.00
Medium	61 (24.3)	24 (19.4)	1.1 (0.58, 2.1)	1.1 (0.58, 2.1)
Rich	141 (56.2)	6 (4.8)	2.15 (1.67, 6.98)	3.37(1.65, 6.87)

Adjusted for sex, age, level of education, current schooling, living arrangement and family income.

3.1.5 Association of Socio-demographic and Socio-economic Characteristics and Reproductive Health Services Utilization

Social, demographic and economic characteristics including, marital status, religion, ethnicity, history of education, families' educational background, family size, family income and means of communication had no statistically significant association with RH services utilization. However, sex, age, being in-school and educational status showed statistically significant association with RH services utilization among the adolescents. Female adolescents were less likely to use RH services than their male counterparts (COR=0.17, 95%CI (0.14, 0.33)). Reproductive health services utilization was about 2 times higher among late adolescents (COR=1.5, 95%CI (1.3, 5.21)). Adolescents with secondary education were less likely to use RH services than elementary school correspondents (COR=0.57, 95%CI (1.48, 0.93)). Furthermore, in-school adolescents were found to use RH services 3 times more likely than their out-of-school counterparts (COR=3.3, CI95% (2.51, 6.43)). After adjusting for possible confounders, age and educational status remained to have statistically significant association with RH services utilization. Adolescents whose age ranges from 15-19 years were about 2 times more likely to use RH services than whose age ranges from 10-14 years (AOR=2.18, 95%CI (1.13, 8.03)). Adolescents with secondary education used RH services 2 times more likely than those in elementary school (AOR=2.41, 95%CI (2.98, 7.11)) (Table 5).

Table 5: Bivariate and multivariate analysis of socio-demographic and socio-economic characteristics and reproductive health services utilization among rural adolescents of Machakel district, northwest Ethiopia, February 2012.

Factors	RH services utilization		COR [95%CI]	AOR [95%CI]
	Yes	No		
Age (in years)				
15-19	21 (67.7)	261 (66)	1.5 (1.3, 5.21)	2.18 (1.6, 10.7)
10-14	10 (32.3)	83 (24)	1.00	1.00
Level of school completed				
Secondary	20 (64.5)	139 (61)	0.57 (0.48, 0.93)	2.41 (1.42, 4.1)

Elementary	11 (35.5)	134 (39)	1.00	1.00
Family size				
≤5	18 (58)	125 (36)	1.81 (0.13, 1.46)	2.23 (1.09, 6.87)
>5	13 (42)	219 (64)	1.00	1.00

Adjusted for sex, age, level of education and current schooling.

3.1.5 Factors affecting Reproductive Health Services Utilization

On bivariate analysis of factors affecting RH services utilization by adolescents, it was associated with IEC, adolescent-parent discussion of SHR topics and RH knowledge. The likelihood of its uptake was about 4 times higher where there was adolescent-parent communication regarding RH topics (COR=3.70, 95%CI (1.89-5.68)). Adolescents having knowledge for RH had more likelihood of using RH services (COR=1.46, 95%CI (1.35-4.23)).

On multivariate analysis, RH services utilization was associated with IEC, adolescent-parent discussion about SRH topics and RH knowledge.

The odds of RH services utilization was 3 times higher among rural adolescents who have ever heard about RH services; moreover, adolescents who have ever discussed RH topics with their parents and well informed about RH issues were about 2 (AOR=2.4, 95%CI (2.1-8.54)) and 4 (AOR=4.33, 95%CI (3.78-12.5)) times more likely to use RH services respectively. The likelihood of RH services utilization was also significantly associated with RH knowledge (AOR=1.23, 95%CI (1.23-4.21)) (Table 6).

Table 6: Bivariate and multivariate analysis of factors affecting reproductive health services utilization among rural adolescents of Machakel district, northwest Ethiopia, February 2012.

RH-related factors	RH services utilization		COR (95% CI)	AOR (95% CI)
	Yes	No		
Ever heard about RHS				
Yes	22 (71)	116 (33.7)	4.80 (1.32-6.71)	3.1 (1.56-8.97)
No	9 (29)	228 (66.3)	1.00	1.00
Ever discussed RH topics				
Yes	19 (61.3)	103 (30)	3.70 (1.89-5.68)	2.4 (2.1-8.54)
No	12 (38.7)	241 (70)	1.00	1.00
Well informed about RH issues				
Yes	24 (77.4)	106 (30.8)	7.69 (3.2-10.21)	4.33 (3.78-12.5)
No	7 (22.6)	238 (69.2)	1.00	1.00
Reproductive health knowledge				
Yes	23 (74.2)	228 (66.3)	1.46 (1.35-4.23)	1.23 (1.1-4.21)
No	8 (25.8)	116 (33.7)	1.00	1.00

3.2 Results from Qualitative Data

To support and capture the findings from quantitative data, adolescents were interviewed by using in-depth interview guide. Important findings were summarized, narrated and incorporated.

3.2.1 Reproductive Health Knowledge and associated Factors

Misunderstanding of reproductive health concepts was seen among the adolescents.

The in-depth interview was started with general question that, ‘what is RH?’, a third of participants noted, as they did not know its meaning literally, while, gradually two-third indicated as it was a family planning method.

Misconceptions regarding the ongoing physiological changes in reproductive health such as when to engage in sexual relation with opposite sex and what to do to avoid consequent risks like unwanted pregnancy were not uncommon among rural adolescents.

“I believe that a girl cannot become pregnant from a single act of sexual intercourse; therefore, to avoid pregnancy, some young men prefer to have sex in a casual relationship or have sex only once in a month with the same girl”.

Knowledge on SRH was found to be significant for adolescents even in their earlier age than expected in order to get ready to use the existing services.

“... for example, desire to have sexual relation with the opposite sex starts approximately at about the age of five to ten; therefore, it is very important to introduce sexual education at this age to increase awareness about the ongoing conditions: when and how something happens and what should be done if it becomes to reality.”

Most of the interviewees found it extremely difficult to discuss sexual matters with their parents. Some interviewees felt that if they talk about sex they made themselves more interested in exploring and practicing sex. Moreover, adolescents feared that parental perception of actual evidence of sexual involvement by raising the topics of sexuality for discussion.

“...many cases I fear because my parents may think as I am becoming an unfaithful/bad girl and/or boy.”

The in depth interview also revealed that the preferred sources of sex information were friends and peers.

“...I would prefer to get information from friends or relatives who are not harsh to me, those I do not fear and those I used to.”

“...I prefer other young people with whom I can exchange ideas better than older people”.

3.2.2 Reproductive Health Services Utilization and associated Factors

Regarding using RH services such as condoms and pills, there was a perception by adolescents that condoms were not suitable for young people.

“We young people are not believed to use condoms, because our reproductive organs are still small; condoms are manufactured for adults only.” “I do not think that the methods like pills are good for use by adolescents of our age group; when we use them they can harm future fertility and if used for a long time there will be a lot of abortions.”

The in depth interview also revealed that adolescents had little access to integrated RH services, where they could get appropriate information and services on RH. Especially for the younger age groups, it was difficult to buy/collect condoms and pills due to non-friendly reproductive health services providers and shame.

“...they think we are young and it is bad for us to use condoms.” “...for collecting pills I would feel shy because everybody would know I am going to play sex.”

4. DISCUSSION

This study included adolescents who were found at home at one of the three consecutive visits for interview by data collectors and those who were not found at home were excluded. On the way to access and use RH services, adolescents' level of knowledge is paramount. Advocating and increasing awareness about SRH is also crucial to the success of any ARH effort. Hence, this study represented an initial effort to assess the SHR knowledge and services utilization status of adolescents in rural setting of Machakel district. It has tried to include adolescents aged between 10-19 years; confidentiality and privacy were strictly maintained to disclose the required information and increase response rate. About 92% of the adolescents were voluntary to participate in the study, resulting in an effective sample size of 375 for analysis. The relatively high non-response rate might be due to the sensitive nature of the topic incorporating sexuality issues which could not easily be revealed by most societies. Comparison might be difficult because of lack of similar studies with similar objectives, using similar method and target population in local context.

In this study misconceptions in terms of most physiologic changes taking place during adolescence period were reported by significant proportion of the adolescents; for instance, misunderstanding like a girl could not get conceived the first time she has sex was reported by 46.5% and even 24.3% of the adolescents did not know at which age category the occurrence of pregnancy is most likely. Moreover, about 14% of the adolescents responded that the middle of a menses has high chance of getting pregnancy and a third did not know the cycle with the highest chance. This result is lower than the finding from China where 29.4% of rural migrant adolescents know issues on fertility [23]. A basic knowledge of the physiology of reproduction and fertility is important for successful practice of coitus-related methods such as periodic abstinence. The successful use of such methods depends in part on an understanding of the ovulatory cycle of a woman [7]. Most rural adolescents in this study did not know changes marked boys entering into adulthood and girls into womanhood which contradicts with the study in India, where nearly half of the adolescents are well informed about such an issue [22].

This finding was also supplemented by qualitative findings from IDI.

“I believe that a girl cannot become pregnant from a single act of sexual intercourse; therefore, to avoid pregnancy, some young men prefer to have sex in a casual relationship or have sex only once in a month with the same girl”.

About a third of adolescents have never heard of any disease that could transmit through unsafe sexual intercourse and about one-fifth (23.3%) did not know the manifestations of such diseases. Among STIs, gonorrhea and HIV/AIDS were reported by most of the adolescents which might be due to the advocacy efforts towards these disease conditions. A significant proportion of the adolescents (91.5%) have ever heard HIV/AIDS and 72% knew ways of preventing it which is greater than EDHS (2011) report where only half of the rural Ethiopian adolescents have knowledge on HIV prevention methods [8]. Unsafe sexual practice was considered to be the main transmission

route; however, mother-to-child transmission of the infection was reported only by 5.9% of the adolescents indicating directions for concerted efforts by all stakeholders to educate and raise awareness about this route of transmission in the general population and among the adolescents in particular. Abstaining from unsafe sexual practice was mentioned as means of preventing oneself from acquiring HIV infection by more than two-third (67.4%) of the respondents. This finding is in favor of national ARH package where more than two-third of Ethiopian adolescents know a specific way to avoid the infection [18]. However, misconceptions regarding its transmission was significantly high; false impressions such as a person could not get HIV with the first sexual contact and through careful looking at a person HIV/AIDS status of an individual would be determined were reported by 41.1% and 12% of the adolescents respectively. It shows similar results from Bangladesh where rural adolescents, particularly females, have a substantially lower level of knowledge about HIV/AIDS compared to that of the urban counterparts (data not shown) [10, 21].

Ever use of RH services is basically measured as the cumulative experience of adolescents with RH services and only about a fifth of adolescents have ever utilized the services. This study shows that there is a significantly lower RH services utilization rate among rural adolescents compared with the study undertaken in Jimma where 41.1% have experienced ever utilization of the services [26] even though the latter finding is not more comparable as it was undertaken in urban setting. Consistent with other studies in South Africa, Tanzania and Ghana [6, 24, 30], the most likely sources of information mentioned were healthcare professionals, schools and friends. Seeking FP was reported by 30% of the rural adolescents and there is a significant increase (about 15 times) with respect to this RH services component compared with the situation before a decade in the same area which was only 2% [27]. The possible reason for this significant difference might be the effort of health extension program and health extension workers in promoting and providing the services. About four-fifth (78.2%) of rural adolescents were familiar with oral contraceptive pills complementing the finding from Ghana showing that most adolescents (33.9%) know pills as the main FP methods [6]; moreover, similar with the findings from Ghana and EDHS (2005), long-acting contraceptive methods were less likely used by the adolescents [6, 7]. Knowledge of contraceptives and their utilization are important prerequisites to gaining access to and eventually adopting SRH services among adolescents [11, 18].

Parent (s) disapproval (35%) and lack of information (22.4%) made obtaining RH services difficult. Similar to this finding opposition from husband/relatives was reported as one of the reasons for not using FP methods among adolescents in Bangladesh [10]. From the adolescents perspective not thinking of the services (31.5%), less awareness about the need of the services, (22.4%) and perception of being too young and healthy (13.7%) were reported as the main obstacles restricting them from utilizing RH services pointing direction for risk assessment and designing health education programs pertinent to increase awareness towards such issues.

Reasons refraining adolescents from discussing RH issues with their parents were fear, worthlessness and social and cultural restrictions. As a result, less than a third of adolescents were well informed about such issues. This complements with the situation in Bangladesh where restrictive socio-cultural norms inhibit disclosure of information about sexual activities and other RH-related issues to unmarried adolescents [21].

Logistic regression analysis (multivariate analysis) was done to reveal the association between RH knowledge and services utilization and different social, demographic, economic and other factors. Accordingly, age, level of school, living status (arrangement) and family income were found to affect the level of knowledge among the rural adolescents.

After adjusting for possible confounding factors, adolescents in their late adolescence period (14-19) were 4 times more likely to have RH knowledge than their early counterparts. It reveals similar finding with the study in India that shows age of the rural adolescents is significantly related with their RH knowledge levels [21]; this might be due to more exposure for RH related issues as age increases. However, it contradicts with the finding from China [23]. Living arrangement (adolescents living with their grandparents and other relatives) had about 2 times more knowledge for RH. The possible explanation would be more freedom to communicate about SHR issues with relatives. In terms of economic status, those from rich families were 3 times more knowledgeable than their poor counterparts. The higher knowledge status among the rich might be due to more probability of exposure for such issues through mass media [20, 22]. This finding is consistent with other studies from sub-Saharan African countries [20, 22]. Moreover, RH services utilization had a positive relation with age (14-19 years) and educational status of the adolescents. This finding is supported by other studies in northwest Ethiopia and Kenya where higher educational status is positively associated with RH services utilization [27, 29, 32].

However, being from rich family did not show any association with RH services utilization among the adolescents. It complements the findings from other studies in Ethiopia, Kenya and Bangladesh revealing that income have no significant impact on RH services utilization [20, 21, 32]. It contradicts the finding from other sub-Saharan African countries on the magnitude of socioeconomic inequalities in RH services utilization showing contraceptive use is significantly less common among adolescents in the poorest quintile than in the richest [29]. One of the socio-demographic factors, sex, did not show association neither with RH knowledge nor services utilization as opposed to

many studies where male gender has more knowledge and the female counterpart having more tendency of utilizing RH services [22, 29]. The odds of reproductive health services utilization were positively associated with exposure of IEC, parent-adolescent discussion about sexuality and the knowledge level of the adolescents. This is due to more disclosure for SRH information and hence bringing behavioral change.

5. CONCLUSIONS

In general, it was found that RH knowledge and services utilization amongst rural adolescents in the study area remained insufficient as evidenced by only about two-third of the adolescents had basic knowledge and a fifth using available services for RH.

Socio-demographic and economic factors including age, level of education, living arrangement and being from well to do families were found to be predictors of RH knowledge and services utilization. Parent (s) disapproval, lack of basic information for RH and pressure from partners were found to deter adolescents from accessing RH services; moreover, low parent-adolescent communication on SRH issues was evidenced showing that sexual and reproductive health-related issues continued to be socio-cultural taboos among the societies.

6. RECOMMENDATIONS

6.1 To families, community leaders and education institutions:

- Community-conversation in line with adolescent-to-adolescent counseling and parent-adolescent communication should address sensitive topics such as sex education, part of life-skills and family-life education.
- There should be an ongoing need to educate adolescents about the changes taking place during this particular stage of growth and the content of formal education should continue to include socially sensitive topics such as sex education, RH, FP, higher risk sexual behaviors, HIV/AIDS and other STIs.

6.2 To healthcare institutions:

- Sex and age preference of adolescents should be considered while providing RH services in developing and supporting adolescent-friendly RH services.

6.3 To research institutions and organizations working on ASRH:

- There is a need to perform further research in order to deeply explore the RH knowledge and services utilization pattern of adolescents especially focusing and including other stakeholders such as families, teachers and community and religious leaders perspectives so as to enable planners to design all-inclusive supporting adolescent-friendly RH services.

6.4 To ministry of health:

- Adolescent-friendly RH services provision should be strengthened and mainstreamed across all levels of healthcare system with particular emphasis to address hard-to-reach adolescents.

7. COMPETING INTERESTS

The authors declared that there were no any forms (i.e., financial and non-financial) of conflict of interest in this particular study.

8. ACKNOWLEDGEMENTS

We would like to thank Addis Ababa University School of Public Health for sponsoring this study. Our gratitude also goes to all staffs of School of Public Health for their unreserved efforts throughout my stay. We would like to thank Machakel district health department its staffs, all data collectors, supervisors and research participants who took part in the study.

9. REFERENCES

1. WHO, Programming for Adolescent Health and Development Report of WHO/UNFPA/UNICEF Study Group on Programming for Adolescents Health. Geneva: WHO, 1999.
2. World Health Organization and Deutsche Gesellschaft fuer Technische Zusammenarbeit (GTZ) GmbH. Sexually Transmitted Infections among Adolescents: the Need for Adequate Health Services: Geneva, 2005.
3. Malleshappa K, Shivaram K and Nandini C, Knowledge and attitude about reproductive health among rural adolescent girls in Kuppam mandal: An intervention study, Biomedical Research, 22 (3): 305-310, 2011.
4. Hughes J and McCauley AP, Improving the Fit: Adolescents' Needs and Future Programs for Sexual and Reproductive Health in Developing Countries Studies in Family Planning, 29(2): 233-245, 1998.

5. UNFP, State of World Population: Making 1 Billion Count: Investing in Adolescent Health and Rights, New York, UNFPA, 2003.
6. Health Unit, Association of Church-Based Development Program (ACDEP): A Baseline Survey on Adolescent Sexual and Reproductive Health in the Operational areas of Ten ACDEP-Member Primary Health Care Programmes in Northern and Upper East Regions: Northern Region Ghana, 2008.
7. Central Statistical Agency (CSA) [Ethiopia] and ORC Macro, Ethiopia Demographic and Health Survey (2005). Addis Ababa, Ethiopia and Calverton, Maryland, USA: CSA and ORC Macro, 2006.
8. Central Statistical Agency (CSA) [Ethiopia], MEASURE DHS, ICF Macro Calverton, Maryland, and USA. Ethiopia Demographic and Health Survey (2011): Preliminary Report. Addis Ababa, Ethiopia: 2011.
9. Gupta N and Mahy M. Adolescent Childbearing in sub-Saharan Africa: Can Increased Schooling alone raise ages at first Birth? *Demographic Research*, 8(4):93-106, 2003,
10. Associates for Community and Population Research (ACPR): Baseline Survey of Adolescent Reproductive Health Interventions in Bangladesh, 2003.
11. Butler, P.A, The Reproductive Health Situation of Adolescents. *Progress in Reproductive Research*, (64), 2003.
12. Sandoy IF, Associations between Sexual Behavior Change in Young People and the decline in HIV Prevalence in Zambia, *BMC Public Health*, 2007 [www.biomedcentral.com/content/pdf/1471-2458-7-60.pdf retrieved on 09/02/2011].
13. S.L. Chauhan and F. David, Biomedical Research: Improving Reproductive Health of Adolescents: An Urban School-Based Approach, 2002-2005.
14. Ayalew T, Meseret Y and Yeshigeta G, Reproductive Health Knowledge and Attitude among Adolescents: A community-based study in Jimma Town, Southwest Ethiopia, *Ethiopian Journal of Health Sciences*, 22(3) 2008.
15. CDC (U.S. Centers for Disease Control and Prevention) and ORC Macro, Reproductive, Maternal, and Child Health in Eastern Europe and Eurasia: A Comparative Report. Atlanta: U.S. Department of Health and Human Services. 2003.
16. Alemayehu T, Haider J and Habte D, Determinants of Adolescent Fertility in Ethiopia. *Ethiop. J. Health Dev*, 24 (1):30-38, 2010.
17. FMOH, National Reproductive Health Strategy: 2006-2015. Addis Ababa, Ethiopia, 2006.
18. FMOH, Adolescent Reproductive Health Extension Package, Addis Ababa, Ethiopia, 2003.
19. Berhane F, Health Problems and Service Preferences of School Adolescents in Addis Ababa with emphasis on Reproductive Health (Dissertation), Department of Community Health, Addis Ababa University, 2000.
20. Govindasamy, Pav, Kidanu A and Banteyerga H, Youth Reproductive Health in Ethiopia, Calverton, Maryland: ORC Macro, 2002.
21. Abul Barkat, Adolescent Reproductive Health in Bangladesh: Status, Policies, Programs and Issues, 2003.
22. P.V.Kotecha, Sangita P, R.K. Baxi, et al. Reproductive Health Awareness among Rural School going Adolescents of Vadodara district, Gujarat, *Indian J Sex Transm Dis & AIDS*, 2011.
23. Zhiyong L, Minmin Z, Hassen H, Zi L, Shuhua S and Zengzhen W. Reproductive Health Knowledge and Services Utilization among Unmarried rural-to-urban Migrants in three major cities, China. *BMC Public Health*, 11:74, 2011 [<http://www.biomedcentral.com/1471-2458/11/74>].
24. Bana A, Knowledge, Attitudes and Behaviours of Adolescents in relation to Sexual Transmitted Infections, Pregnancy, Contraceptive Utilization and Substance abuse in the Mhlakulo region, Eastern Cape, 52(2), 2010.
25. Sangeeta S, Rural Women Take Reproductive Health Matters into their own Hands: Rural Women's Social Education Center. Series on Upscaling Innovations in Reproductive Health in Aisa. The International Council of Management of Population Programmes. (1)51.
26. Ayalew T, Meseret Y and Yeshigeta G, Adolescent Reproductive Health Services in Jimma City: Accessibility and Utilization: *Ethiop J Health Sci.*, 19 (2), 2009.
27. Alemayehu S, and Fantahun M. Reproductive Health Needs of out-of-school Adolescents: A cross-sectional comparative study of rural and urban areas in northwest Ethiopia. *Ethiop.J.Health Dev.*, 20(1):10-17, 2006.
28. UNICEF, State of the World's Children, UNICEF, New York, 2007.
29. Rani M and Lule E, Exploring the Socioeconomic Dimension of Adolescent Reproductive Health: A Multi-country Analysis, *International Family Planning Perspectives*, 30(3):110–117, 2004.
30. Van Eijk, Use of antenatal services and delivery care among women in rural western Kenya: a community based survey, *Reproductive Health.*, 3(2) 2006 [<http://www.reproductive-health-journal.com/content/3/1/2>].
31. Madeni H and Davey J, Evaluation of a reproductive health awareness program for adolescence in urban Tanzania *Reproductive Health*, 8(21), 2011. [<http://www.reproductive-health-journal.com/content/8/1/21>].
32. Fantahun M and Degu G, Health Service Utilization in Amhara Region of Ethiopia. *Ethiop J Health Dev.*, 17(2):141-147, 2003.
33. G.D. Alene, J.G. Wheeler and H. Grosskurth, Adolescent Reproductive Health and Awareness of HIV among Rural high school students, Northwest Ethiopia, *AIDS CARE*, 6 (1): 57-68, 2004.