



# Knowledge and Attitudes of Sana'a University Students Towards Reproductive Health, Yemen

Bothaina Ahmed Attal<sup>1\*</sup>, Abdullah Abdulaziz Muharam<sup>1</sup>, Ali Mohamed Assabri<sup>1</sup>, Jamila Saleh Al-Ra'abei<sup>2</sup>.

<sup>1</sup>Community Medicine, Faculty of Medicine and Health Sciences, Sana'a University,

<sup>2</sup>Nursing Division, Faculty of Medicine and Health Sciences, CHodeidah University

## Abstract

*Background: Addressing young people's Reproductive Health needs is crucial to adopt healthy behaviors and enable young people to reach their full potential. Aim: This study was conducted to elicit knowledge, attitude and practices of Sana'a University students towards Reproductive Health. Methods: A cross sectional descriptive study of 1040 students selected randomly using multi-stage sampling equally divided according to the sex and level (second and final years) and type of education (Applied: Medicine, Science / humanitarian: Art, Education). Data were collected using a self-completed structured questionnaire in order to elicit students' knowledge and attitudes towards Reproductive Health. Results: Nine out ten of the students heard about RH, but only half of them could mention its definition at least partly correct. Almost all the students heard about HIV (99%), Sexually Transmitted Diseases (STDs) (96%). Knowledge was high about sexual mode of transmission (91%) but low about the non-sexual modes of (13%). Studying applied science college was consistently and significantly associated with higher level of knowledge and right attitude towards RH including premarital counseling and STDs and their preventive measures. Mass media occupied the first rank as the source of information in the different aspects of knowledge on RH followed by books and journals. Youth sought information least from health care providers, parents or community leaders. Conclusion: Knowledge among Sana'a University students about Reproductive Health, its components and STDs prevention is generally low or incomplete. Knowledge was significantly higher among the applied science students and mass media was the main source of information.*

*Keywords: Reproductive Health, Knowledge, Attitude, Youth, Yemen*

## Introduction:

late adolescence or early young adulthood (18-24 years), a period of great emotional, educational, and social changes. Literature, over the last years, has highlighted different general and public health issues around the globe<sup>1,2,3</sup> including the Arab world<sup>4</sup>. The youth experimenting behavior compounded by poor knowledge about diseases and preventive measures increase their health risks. Accidents are dramatically higher among this age group; smoking and substance use typically begin in adolescence or young adulthood <sup>2,5</sup>. In 2010 young people aged 15–24 accounted for 42% of new HIV infections in people aged 15 and older<sup>5</sup>. On the other hand, studies show poor

knowledge about Reproductive issues and Health in a number of the developing countries such as Turkey<sup>6</sup> and Egypt<sup>7</sup>.

Supporting youth to understand and apply RH information and services is an important measure to meet the youth distinctive needs and reduce the RH risks of this crucial stage of life <sup>8,9, 10,11</sup>. This study provides such information in the Yemeni setting where RH is not well researched especially among the youth. Yemen is a low income country with an estimated 23 million population in 2010, 75% rural population and a rapid population growth (3.2%). Youth and adolescents form 33% of the population<sup>12</sup>. The Family Health Survey conducted in

\*Corresponding Author: Bothaina Ahmed Attal, Department of Community Medicine, Faculty of Medicine and Health Sciences, Sana'a University

2003 showed poor Reproductive Health status; Maternal Mortality was estimated at 365 per 100,000 live births, high Total Fertility Rate (6.2), only 23% of deliveries attended by a Skilled Birth Attendant and high Neonatal Mortality Rate (37 per 1000 live births) 13. Despite the efforts made, there is an ample room for improvement as shown by the last Yemen National Health and Demographic Health Survey (YNHDS) of 2013 14. The fertility rate is 4.4 and only 34% of the married women use family planning methods (urban: 40%, rural: 24%). On the other hand, 6 out of 10 pregnant women had at least one antenatal care visit (urban: 80%, rural: 51%) and only 45% of childbirths are attended by a skilled birth attendant.

Around 41% of the children are stunted 44% are wasted and only 3.7% of the infants had exclusive breastfeeding. There is poor utilization of health services as indicated by the large proportion of home deliveries. Four out 10 women who reported STDs symptoms did not seek health care because of lack of services, high cost, embarrassment and poor awareness about necessity of treatment.

There is a need among the Yemeni youth for RH knowledge and services<sup>15</sup>. In a project, youth from different governorates in Yemen, presented the researchers with questions about different aspects of RH such as STDs, physical changes of puberty and impact of early marriage among other issues in RH<sup>16</sup>.

The poor RH status, knowledge and health seeking behavior call for real attentions starting at the younger age. Yemen is one of few Middle East countries that began to focus on youth Reproductive Health<sup>17</sup>.

Aim of the study: to explore youth knowledge, attitudes and practices, and their needs for Reproductive Health and Youth Friendly Services in the university.

### Subjects and Methods

This is a cross sectional descriptive study of knowledge and attitudes of Sana'a University Students towards Reproductive Health. A sample of 1019 was calculated using Epi-Info with an added number to account for

survey effect to give a total of 1040. The sample was calculated based on total number of 78107 students at the University, 59% prevalence rate of RH knowledge of students based on selected indicators from youth studies in Yemen 18, worst acceptable error of 3% and a confidence level of 95%.

The students were selected randomly using multi-stage sampling. Two faculties were randomly selected from each of the applied (Medicine, Science) and humanitarian faculties (Art and Education). Then, students were randomly selected from each faculty according to the sex, level of studies (second and final). Data were collected from the students using a specially designed and pre-tested structured self-completed questionnaire. Information covered includes students' personal characteristics and knowledge and attitudes towards RH premarital counseling STDs and HIV.

The data were entered and analyzed using the Statistical Package for Social Sciences (SPSS) using appropriate statistical tests and presented in text, tables, and figures.

Necessary permissions were sought from the deanery of the Faculty of Medicine and Health Science and the other participating faculties. An informed consent was obtained from each participant ensuring the anonymity of participants and data. Participants were free to refuse participation or to drop any of the questions.

### Results

As mentioned above, a total of 1040 students were enrolled in this study equally divided among males and females and in turn equally divided between the second and final years of the 4 faculties. The main age ( $\pm$ SD) of the participants was 22.16 ( $\pm$  2.72) years ranging between 18 and 35 years.

Out of 1035 respondents, 855 students were single (82.6%), 170 student were married (16.4%), and 10 were divorced or widowed (1%). A larger proportion of the males were married compared to and females (M: 21%, F: 12%).

Knowledge and attitudes towards RH: Students were asked whether they heard about Reproductive Health, its definition, its components such as counseling, Sexually Transmitted Diseases (STDs), and the source of knowledge. Responses were analyzed according to sex, marital status and the level and type of education.

Out of a total 1040, 91 students said they heard about the term RH. Among the different factors studied, it is unfortunate that only marital status had significant association with hearing about RH; ever married students heard about RH more than single students ( $p= 0.022$ ). Table 1 shows the number and percentage of students who know about RH among each subgroup of sex, marital status and level and type of education.

Table 1: Factors associated with students' Knowledge about RH

Variables	Correct answer		p-value
	Frequency	Percent	
<b>Sex</b>			0.907
Male	468	90	
Female	470	91	
<b>Marital status</b>			0.022
Ever married	170	95	
Single	763	90	
<b>Type of education</b>			0.728
Applied	472	91	
Humanitarian	466	90	
<b>Level of Education</b>			0.411
Second Year	457	90	
Final Year	472	91	

Sources of hearing about RH varied among students but the mass media was the most common source (79 %) followed by reading books or journals (38%). Health care providers, parents and friends were the source equally in only 29% of the answers. Fewer students obtained the information on RH from either relatives (25%), or religious or community leaders (26%).

Slightly more than half of the students said that they knew the definition of RH (N: 558, 54%). However, small proportion could mention the definition of RH either completely or partially right (12%, 37% respectively).

Out of 1000 students, over half of them said that they did not know the elements (588, 59%).

Only 52 students mentioned that they knew all the RH elements (5%) and 355 partially knew the elements (36%). In order to verify these answers, these students who said they knew any of the elements (N: 407) were requested to mention them. Only 3 (all male students from applied sciences) mentioned the RH elements completely right (at least 8 elements) and 29% mentioned completely wrong elements (N: 119). The remaining vast majority of 70% rest (N: 285) mentioned RH elements partially right (1-7 elements).

Knowing the right definition of the RH is significantly associated with the type of education. Table 2 shows that a larger proportion of the students of the applied science students knew the right definition of RH compared to the humanitarian students ( $p= 0.021$ ). The right understanding of RH was more common among females and those ever married although p value was slightly higher than 0.05.

Table 2: Factors associated with students' knowledge of the correct definition of RH

Variables	Correct answer		p-value
	Frequency	Percent	
<b>Sex</b>			0.077
Male	135	46	
Female	141	53	
<b>Marital status</b>			0.433
Ever married	53	53	
Single	221	49	
<b>Type of education</b>			0.021
Applied	202	53	
Humanitarian	74	42	
<b>Level of Education</b>			0.068
Second Year	124	46	
Final Year	151	54	

Regarding, the premarital counseling, the majority of the students thought that counseling is either very useful (50%) or useful (32%). Only 1% thought that it is not useful or harmful to do premarital counseling and 16% did not know. Type of education was the only statistically significant factor associated with the positive attitude towards premarital counseling where 85% of the students

of applied sciences compared to 80% of the humanitarian studies has positive attitude ( $p=0.021$ ).

There is almost no difference between the responses according to the sex, marital status or level of education. The vast majority of Sana'a University Students heard about STDs (96%). Further analysis of the data shows that, similar to the knowledge about RH and its correct definition as larger proportion of the students from the faculties of applied sciences heard about STD ( $p<0.05$ ). Surprisingly, there was no difference according to the marital status. Table 4

Table 3: Factors associated with students' hearing about STDs

Variables	Correct answer		p-value
	Frequency	Percent	
<b>Sex</b>			0.140
Male	497	97	
Female	492	95	
<b>Marital status</b>			0.998
Ever married	171	96	
Single	813	96	
<b>Type of education</b>			0.001
Applied	509	98	
Humanitarian	480	93	
<b>Level of Education</b>			0.330
Second Year	482	95	
Final Year	498	96	

The sources of hearing about STD were mainly mass media (81%), followed by books and journals (44%) and educational brochures and illustrations (42%). Religious leaders provided information in 26% of the responses. Health care providers were similar to friends providing information to only 23% of the participants.

Ideally, adequate and correct information should lead to adopting healthy attitudes and behaviors. Students were asked about the ideal action that a person should take in case of acquiring an STD. Out of 1033 respondents, 87% mentioned that a person should go to a health care center (N: 900). The minority mentioned self-medication (N: 94, 9%), seeking traditional healers (N: 17; 2%), nothing to

do (N: 6, 1%), and 16 (2%) mentioned other actions. The next table shows the factors associated with taking the right decision in seeking health care in a health facility. A significantly larger proportion of the appropriate responses were among females (96%) compared to the males (78%) and unexpectedly among second year (90%) than the final year (85%) students ( $p>0.05$ ).

Table 4: Factors associated with students' attitude towards seeking care for STD

Variables	Correct answer		p-value
	Frequency	Percent	
<b>Sex</b>			0.001
Male	404	78	
Female	496	96	
<b>Marital status</b>			0.126
Ever married	150	84	
Single	747	88	
<b>Type of education</b>			0.733
Applied	446	87	
Humanitarian	454	88	
<b>Level of Education</b>			0.009
Second Year	454	88	
Final Year	439	85	

Due to the importance of HIV, students were asked specifically about the infection. Results showed that the vast majority of 1037 students heard about the infection (N: 1026, 99%), a slightly larger proportion than those who heard about STDs in general. Because of the overwhelmingly positive response, there was no difference in the response according to the background variables. The majority of the students knew that HIV is transmitted through sexual intercourse (91%) but knowledge was lower regarding other routes of transmission especially mother to-child transmission (14%). See figure 1. Knowledge about STD preventive measures is very crucial to adopt protective behavior. Our study showed that 76% of 1023 students mentioned that they knew the preventive measures. The proportion of students who knew these measures was larger among students of applied faculties (86.2%) compared to those in humanitarian studies and 67% ( $p=0.001$ ) and larger among males (82%) than the females student (71.1%) with p value of 0.001. Neither

marriage nor the level of education had a statistically significant association with this type of knowledge.

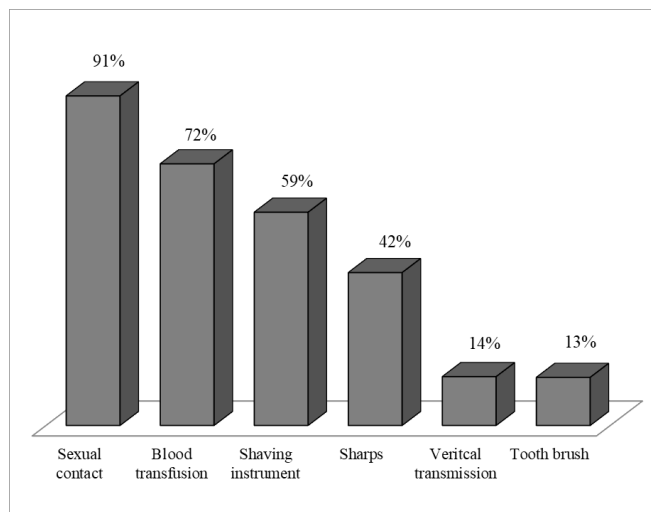


Figure 1: Students' knowledge about HIV routes of transmission

## Discussion

Health and health behaviors correspond strongly from adolescence to adult life<sup>19</sup>. Addressing young people's health including sexual and reproductive needs is crucial to enable young people to reach their full potential and form their adult identities<sup>20</sup> and has a high investment return<sup>21</sup>.

Our study aimed to explore the RH knowledge and attitudes of 1040 male and female students from different levels and types of faculties in Sana'a University.

Many students heard about RH (91%) but only half of them could mention its definition at least partly correct and the majority of the students think that premarital counseling is useful (82%). Also, the vast majority of the students heard about STDs (96%) especially HIV (99%). Almost all the students heard about HIV and 96% heard about STDs.

RH knowledge reported in our study was better than that in the youth survey conducted in several governorates in Yemen in 2006<sup>22</sup>. Although the majority of the youth in the survey heard HIV/AIDS (96%), only 53% know about STDs and another half of them believes that premarital

counseling is important (51%). This difference in the knowledge can be explained by higher level of education among our study participants compared to the survey youth. In comparison, studies from Turkey<sup>6</sup> and Egypt<sup>7</sup> showed that university students lack knowledge about RH. The overall mean RH knowledge score among Iranian College Students was 54%<sup>23</sup>.

Knowledge about STDs and HIV mode of transmission and preventive measures is very crucial to adopt protective behavior<sup>1,24</sup>. The level of knowledge was low in our study about the non-sexual routes of HIV transmission and a quarter of the students did not know the STD preventive measure. This was similar to results from population based surveys in low and middle-income countries where only 24% of young women and 36% of young men responded correctly when asked five questions on HIV prevention and HIV transmission<sup>4</sup>. This, in fact, limits the youth ability to protect themselves from infection. On the other hand, the majority of the students had a positive attitude in seeking medical care in case of acquiring an STD.

Factors associated with the students' knowledge and attitudes towards RH. Studying in an applied science college is a consistent factor that had significant association with the higher level of knowledge and right attitude towards RH including premarital counseling and STDs and their preventive measures. In a WHO review of several studies around the world, higher education was found to be a protective factor against STDs, HIV infection and unwanted pregnancy<sup>25</sup>.

It is surprising that marital status was not as important as the type of study because it is expected that married couples have better access to information about RH and STDs compared to single students. Unfortunately, females were less likely to know the STDs preventive measures, which can be explained by the social barriers limiting women discussion about sexuality<sup>20</sup>. However, females were more likely to seek medical care in case of STDs but reports from the 2003 national health survey shows that few married women seek professional care in



such cases<sup>13</sup>. This raises questions for a possible research on the barriers to seek and access care when women feel in need to have treatment for an RH complaint.

Source of students' information on RH. Mass media occupied the first rank as the source of information in the different aspects of knowledge on RH followed by books and journals. Youth sought information least from health care providers, parents or community leaders. A study of adolescent in Egypt shows that only 7% of adolescent boys learnt about puberty from their fathers<sup>26</sup>. Similarly in Algeria, a survey among young people showed that the vast majority (males: 95%, females: 73%) had learned about puberty on their own without assistance from adult family members or professionals<sup>27</sup>. Young people are generally reluctant to seek information about sexuality and reproduction from their parents or in the general health services although parental communication can significantly be associated with adopting protective sexual behavior among adolescents and youth<sup>28</sup>. This may be because of embarrassment<sup>29,30</sup> or out of fear of the assumption that they are engaged in unacceptable activities.

Study limitation: we claim that this study can reflect the opinions of the university students and we realize that the findings cannot be generalized to general youth population.

### Conclusion

There is a great room to improve the knowledge on RH among the university students especially the females to provide them with the right understanding of RH concepts, STDs and preventive measures. The knowledge was significantly higher among the applied science students indicating that introducing RH within a wider health context into the curriculum across the humanitarian faculties can be useful intervention in providing the right information. The fact that the mass media was the commonest source of information points out the poor role of health professionals and peer education.

### Recommendations

The university, as mentioned before presents a golden opportunity to reach out to the youth with the right information and services to protect youth health and support them adopt healthy behavior.

### Acknowledgement

This study is part of a wider research which was conducted with the financial and technical support from WHO office Yemen. The authors declare no conflict of interests.

### References

1. Blum R and Mman K. Risk and protective factors affecting adolescent reproductive health in developing countries: an analysis of adolescent sexual and reproductive health literature from around the world. WHO Summary report 2004.
2. Eaton DK, Kann L, Kinchen S, Shanklin S, Flint KH, Hawkins J et al. Center for Disease Control and Prevention (CDC) Morbidity and Mortality Weekly Report. Surveillance Summaries. 2012; 61(4):1-162.
3. Patton G, Coffey C, Cappa C, Currie D, Riley L, Gore F et al. Health of the World's Adolescents: a synthesis of internationally Comparable Data. Lancet 2012; 379:1665-1675
4. ASDA'A Burson-Barsteller. A White Paper on the Findings of the ASDA'A Burson-Marsteller Arab Youth Survey 2014. Available at: [www.arabyouthsurvey.com](http://www.arabyouthsurvey.com). Accessed March 12, 2016.
5. UNAIDS Factsheet. 2012. Available online [http://www.unaids.org/sites/default/files/en/media/unaids/contentassets/documents/factsheet/2012/20120417\\_FS\\_adolescentsyoungpeoplehiv\\_en.pdf](http://www.unaids.org/sites/default/files/en/media/unaids/contentassets/documents/factsheet/2012/20120417_FS_adolescentsyoungpeoplehiv_en.pdf). Accessed: March 7, 2016.
6. Inandi T, Tosun A, Guraksin A. Reproductive Health: knowledge and opinions of university students in Erzurum, Turkey. European Journal of Contraception and Reproductive Health Care. 2003 Dec; 8 (4): 177-84.
7. Mounir GM, Mahdy NH, Fatohy IM. Impact of health education program about reproductive health on knowledge and attitude of female Alexandria University

- Students. Egypt Public Health Association. 2003; 78 (5- 6) : 433-66.
- 8.Greydanus DE, Rimsza ME, Matytsina L. Contraception for college students. *Pediatric Clinics of North America*. 2005 Feb; 52 (1): 135-61, ix.
- 9.Sawyer S, Afifi R , Bearinger L, Blakemore S, Dick B, Ezeh A, Patton G. Adolescence: a foundation for future health. *Lancet* 2012; 379: 1630–40.
- 10.Rusakaniko S, Mbizvo MT, Kasule J, Gupta V, Kinoti SN, Mapanju-shumbushu W et al. Trends in reproductive health knowledge following a health education intervention among adolescents in Zimbabwe. *Central African Journal of Medicine*. 1997 Jan; 43 (1): 1-6.
- 11.Lane C. Peer education: hopes and realities/ The West African Youth Initiative. In the Young and Restless CEDPA Symposium. Baltimore: Johns Hopkins University, 1997.
- 12.Ministry of Planning and International Cooperation, Yemen. Population Projection for Population of Yemen 2005-2025. Central Statistical Office and National Population Council, 2010.
- 13.The Republic of Yemen. PAPFAM. The Yemen National Health and Demographic Survey 2003. Available on: [http://www.mophp-ye.org/arabic/docs/Familyhealth\\_english.pdf](http://www.mophp-ye.org/arabic/docs/Familyhealth_english.pdf). Accessed March 7, 2016.
- 14.Republic of Yemen, The Pan Arab Program for Family Health (PAPFAM), The Demographic and Health Surveys (DHS) Program at ICF International Rockville. Yemeni Family Health Survey 2013. Ministry of Public Health and Population and Central Statistical Organization, 2015.
- 15.Ministry of Public Health and Population, Yemen. The National Reproductive Health Strategy 2011-2015. The Population Sector, 2011.
- 16.GTZ (German Cooperation ). Facts for Life: What The Yemeni Youth Want to Know about RH. The Yemeni German Reproductive Health Project, 2006.
- 17.Roudi-Fahimi F, EL Feki. Facts of Life: Youth Sexuality and Reproductive Health in MENA. Population Reference Bureau, 2011. Available on line at: <http://www.prb.org/pdf11/facts-of-life-youth-in-middle-east.pdf>. Accessed March 1, 2016.
- 18.Republic of Yemen, National Population Council in collaboration with the Ministry of Youth and UNPFA. Knowledge Attitudes Survey of Youth about population issues and Reproductive Health, 2006.
- 19.Viner R, Ozer E, Denny S, Marmot M, Resnick M, Fatusi A, Currie C. Adolescents and the social determinants of health. *Lancet* 2012, 379: 1641-1652.
- 20.Assaad R, Roudi-Fahimi F. Youth in the Middle East and North Africa: Demographic Challenge or Opportunity. Population Reference Bureau, 2007.
- 21.Every Woman Every Child Organization. The Global Strategy for Women's, Children and Adolescents' health (2016-2030). 2015.
- 22.Republic of Yemen, UNPFA. Knowledge Attitudes Survey of Youth about population issues and reproductive health. The National Population Council and the Ministry of Youth, 2006.
- 23.Simbar M; Tehrani FR ; Hashemi Z . Reproductive health knowledge, attitudes and practice of Iranian College Students. *Eastern Mediterranean Health Journal*. 2005 Sep-Nov ; 11 ( 5-6 ): 888-897.
- 24.Magnani R, Karim A, Weiss L, Bond C, Lemba M, Morgan G. Reproductive Health Risk and Protective Factors among Youth in Lusaka, Zambia. *Pathfinder*, August 2000.
- 25.WHO. Addressing gender issues in HIV programmes: Qualitative analysis of access to and experience of HIV services in Jordan and Yemen. Regional Office for the Eastern Mediterranean, 2012.
- 26.Ibrahim B, Sallam S, El Tawila S, El Gibaly O, El Sahn F, Lee SM et al. Transitions to adulthood: a national survey of Egyptian adolescents. Population Council, 1999.
- 27.DeJong J, Jawad R, Mortagy I, Shepard B. The sexual and reproductive health of young people in the Arab countries and Iran. . *Reproductive Health Matters* 2005 May; 13 (25): 49-59.

- 28.Asphy CB, Vesely SK, Oman RF, Rodine S, Marshall L, McLeroy K. Parental communication and youth sexual behaviour. *Journal of Adolescence*. 2007 Jun; 30(3):449-66.
- 29.Regmi P, Van Teijlingen E, Simkhada P, Acharya DR. Barriers to Sexual Health Services for Young People in Nepal. *Journal of Health, Population and Nutrition*. . 2010 Dec; 28(6): 619- 627.
- 30.Van Teijlingen E, Reid J, Shucksmith J, Harris F, Philip K, Imamura M, et al. Embarrassment as a key emotion in young people talking about sexual health. *Sociological Research Online* 2007; 12(2).