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Assessment of Risky Sexual Behavior, Pap Smear Uptake and Predictors of Pap Smear Uptake among Female Students in Addis Ababa University College Health Science, Ethiopia

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Abstract

Introduction and Aim: Cervical cancer is the most frequent form and leading cause of cancer mortality among Ethiopian women, because cancer is often at its advanced stage by the time patients seek health care services. Pap smear test provides an appropriate way for early detection and prevention if appropriately implemented. However, Pap smear and other cervical cancer screening tests are underutilized by the legible women and the screening tests. This study was aimed at assessing risky sexual behavior, Pap smear uptake and Predictors of Pap smear uptake among female students in Addis Ababa University College Health Science in Addis Ababa, Ethiopia based on Health Belief Model.

Methods: A retrospective cross-sectional quantitative design study was carried out at Addis Ababa University Health Science College in June 2012 among 202 female students selected by simple random sampling technique. After the data was coded, entered and cleaned using Epi Info; SPSS was used for analysis. Association between dependent and independent variables was tested by Cross-tabulating the variables and Binary logistic regression test was performed to identify the major predictors of Pap smear uptake.

Result: Out of 58 (28.7%) sexually active respondents, 17 (30%) had sex with multiple partners and 46 (79.31%) had never used a condom while only 4 (6.9%) use condom always during sexual intercourse. Pap smear utilization rate was very low 26 (12.9%) and the uptake status was found to have association with marital status [$x^2 = 10.633$; $P < 0.001$], sexually activity [x2 = 23.934; $P < 0.00$] and year of study [$x^2 = 31.006$; $P < 0.001$]. However, knowledge level was major predictor [OR = 10.326 (1.290, 82.638)] followed by perceived susceptibility [OR = 3.522 (1.260, 9.850)] for Pap smear uptake status.

Conclusion: Some students were at high risk of contracting HPV and cervical cancer as they had risky behavioral practices. Pap smear uptake was very low which could be improved through increasing awareness concerning the disease, Pap smear test as well as their perceived susceptibility to cervical cancer. Therefore, concerned bodies are recommended to design and implement effective strategies to improve females Pap smear test with its utilization.

Keywords: *Risky Sexual Behavior; Pap Smear Uptake; Female Students*

Abbreviations

AAU: Addis Ababa University; ACOG: American College of Obstetrics and Gynecology; ETB: Ethiopian Birr; HIV/AIDS: Human Immuno Deficiency Virus /Acquired Immuno Deficiency Syndrome; VIA: Visual Inspection with Acetic Acid; HPV: Human Papilloma Virus; IARC: International Agency for Research on Cancer; PPS: Probability Proportional to Size; STD: Sexually Transmitted Disease; STI: Sexually Transmitted Infection; SRS: Simple Random Sampling

Introduction

Now a day Cancer is becoming an emerging public health problem worldwide mainly in Africa. A study on Cervical Cancer in the Context of the Global Cancer Burden had an expectation that cancer deaths will project by millions in 2015 - 2030; of which 40% of cases are preventable [1,2]. This expectation was proposed in light of major demographic and behavioral changes which are risky to expose to cancer. Survival after the diagnosis of cancer is much poorer in Africa than in developed countries, because a majority of cancers in Africa are diagnosed at an advanced stage of the disease due to the lack of screening and early detection services, as well as limited awareness of early signs and symptoms of cancer among the public as well as health care providers [2]. Most cancers which are secondary to infections including stomach, liver and cervical cancer are common in developing countries than in developed ones, which could be related to the absence of a well-developed public health infrastructure for the control of cancer-causing infectious agents and contaminants, the lack of basic preventive health care and screening services for much of the population, and the poor quality diets available to the most economically disadvantaged members of society in many developing countries [3]. By the same study, it was identified that cervical cancer is the 2nd most frequent cancer case and common cancer-related death among women in Ethiopia, mainly among those with age 15 - 44 years. It was judged that by 2025 new cervical cancer cases and cervical cancer deaths will project to 7700 and 5421 respectively in Ethiopia [4].

Cervical cancer can be prevented primarily by refraining from the above mentioned unhealthy practices and behavioral acts whereas secondary prevention of cervical cancer includes detection of pre-cancerous lesions or early-stage cancer and treatment of these lesions. The different screening tests available for cervical cancer are the Pap smear/cytology, HPV DNA testing, and visual inspection with acetic acid (VIA). Pap smear is a quick, easy and commonly used screening test that detects precancerous cells before they advance to cancer. Different recommendations were made concerning the timing and frequency of Pap smear test. For instance, the American Cancer Society recommends screening women in the general population has to be done about 3 years after they begin having vaginal intercourse, but no later than age 21, whereas ACOG states screening should start at age 21 to prevent cervical cancer and to start timely treatment before precancerous cell advances to actual cancer. Regarding frequency of the screening; both American Cancer Society and ACOG recommend that frequency of Pap smear screening would be better if it is done yearly for women with age 21 - 29 and every 2 - 3 years for those aged more than or equal to 30 years and who have had 3 normal Pap test results [5]. A Pap test can be reported as either of normal, unclear and abnormal. The HPV test can help find out if cell changes are related to HPV. An abnormal result means that cell changes were found on cervix. This usually does not mean that there is cervical cancer. Abnormal changes on cervix are likely caused by HPV. The changes may be minor (low-grade) or serious (high-grade) [6]. Cervical cancer is the most frequent form and leading cause of cancer mortality among Ethiopian women, because cancer is often at its advanced stage by the time patients seek health care services [7]. In general, cervical cancer which is common females' reproductive cancer problem is commonly caused by HPV through unprotected sexual intercourse and worsened depending on different socio-demographic characteristics and behavioral practices. However, it can easily be prevented through healthy behavioral practice and early detection using screening tests like Pap smear test which is recommended for all sexually active women and starting with age of 21 years with yearly or 2 - 3 years based regular test. Moreover, there are limited number of researches in our country which were concerned with young women's knowledge on cervical cancer and their Pap smear screening test uptake status. Hence, investigating the knowledge of younger women as well as the major factors they believe would hindered their Pap smear test utilization, seems essential in facilitating concerned bodies with information concerning women and their cervical health practices. Therefore, this study was aimed to assess Addis Ababa university health science college female students' engagement in to risky sexual practice, knowledge on cervical cancer and predictors for Pap smear screening test uptake.

Methods

Study setting and period

This study was conducted at Addis Ababa University College of Health Science. Addis Ababa is the capital city of Ethiopia and seat of African Union and Economic Commission for Africa. The population size of Addis Ababa is over 3 million with an annual growth rate of 2.1. The city is divided into ten sub cities and 99 Kebeles (Lowest level administrative unit in the city).

Addis Ababa University is the oldest higher education comprising different colleges with the number of faculties and departments. Health Science College is one of the colleges of the university comprising a total of 382 during the study period. Therefore, this study was conducted on female students of Health Science College of the University. These students mainly use most of the government hospitals in the city for practical attachments. Some of the hospitals used for practical attachments are main referral hospitals of the country providing sophisticated health services accordingly. Addis Ababa University Health science students are anticipated to be knowledgeable concerning cervical and Pap smear screening test and even to utilize the service than Health Science students at other Universities. So, any gap identified based on this study was a good indicator for guesstimating Pap smear knowledge level and service utilization status among this domain of population segment. Therefore, this study was conducted on Addis Ababa University Health Science College female students.

Study design and population

A retrospective cross-sectional quantitative design study from June 2012 to December 2012 among Undergraduate regular female students at Addis Ababa University Health Science College female students.

Sample size determination and sampling techniques

The sample size was determined by using a single population proportion formula by considering 50% of proportion (P) of Pap smear uptake with 95% confidence interval and 5% marginal error. The corrected sample size was 193. By considering a 10% non-response rate, the final sample size was 213.

A list of regular undergraduate students of Addis Ababa University Health Science College female students was prepared and entered into computer SPSS window 20.0 version from the office of registrar then, selected by simple random sampling technique by proportionally allocated to each faculty. Five days (5 days) before data collection started the list of randomly selected students ID number was posted on notice boards and cafeteria for calling students for data collection at great hall and facilitators cross-check students' ID number with the sampled ID number.

The questionnaire was adopted from previous studies reviewing literature relevant to problems under the study and to include all the variables that address the objectives of the study. Before conducting the actual study, the questionnaire was -pre-tested among 20 Addis Ababa University School of Medicine female students (5 female students from each year of study, the i.e. year I to year IV), to revise its clarity, the order of question, skip patterns and its consistency. Based on the pretested feedback, some questions were rephrased, amended and the final questionnaire was prepared. One B.sc and three diploma nurses were recruited and trained to serve as supervisor and data collectors respectively. Finally, facilitator guided self-administered data collection was held on the study subjects using this anonymous questionnaire.

Questions designed to assess the students' knowledge level and perception (perceive susceptibility, perceived severity, perceived benefit, and perceived barriers; the constituents of health belief model) were scored to be "1" for correct and "0" for incorrect answers. The students' knowledge level was scaled based on quartile scaling method and categorized as poor (0 - 5 or ≤ 25%), fair (6 - 10 or 26 - 50%), good (11 - 15 or 51 - 75%) and excellent (16 - 20 or 76 - 100%). The respondents' perception (using Health Belief Model constituents) was rated as "low" for those who had given the correct answer to < 75% and "high" for those who had given the correct answer to ≥75% of questions constructed to assess each constituent.

The operational definition for variables

- Risky sexual behavior = Early initiation of sexual practice, having multiple sexual partners, unprotected sex, inconsistent use of a condom.
    - Early initiation of sexual practice = Sexual act which is commenced at age less or equal to 15 years.
    - Multiple Sexual partners = Having 2 or more sexual partners.
    - Unprotected Sex = Having sex with a partner of unknown HIV and other STI status without using a condom.
- Pap smear uptake = The action of making use of Pap smear screening test service to be checked for HPV infection and precancerous cells.

- Perceived susceptibility = The views of the participants regarding their risk of having cervical cancer.
- Perceived severity = How serious cervical cancer is viewed by these students.
- Perceived benefits = Viewed as the gain that doing cervical cancer screening will result in wn.
- Perceived barriers = Refers to obstacles that the students perceive can prevent those eligible for cervical cancer screening from participating in the available cervical cancer screening programs.

Data processing and analysis

The data were collected under day to day supervision of the trained supervisor and with the technical assistance of the principal investigator; so that each questionnaire was checked for completeness and consistency. In this order, eleven questionnaires were excluded for incompleteness. On top of this double data entry was performed. Collected data was edited and checked manually for missing. After entering to Epi Info version 3.5.1 the data was cleaned and coded using Microsoft Excel spreadsheet and transported to SPSS version 16 for analysis. The relationship between selected independent variables and the respondents' knowledge level and Pap smear uptake were explored using bivariate and multivariate analysis. Chi-square (χ^2) was used to explore factors associated with knowledge level and Pap smear uptake as well as a behavioral practice under the intermediate variables; while Binary logistic regression was used to investigate the major predictors for Pap smear uptake to provide odds ratio [OR] and 95% confidence intervals [CI]. Health Belief Model constituents and Knowledge level has were used in binary logistic regression analysis. The crude and adjusted analyses were employed using bivariate logistic and multivariate logistic regression respectively. The level of statistical significance was set at 95% CI and p-value < 0.05.

Ethical consideration

Ethical clearance was obtained from the Faculty of Medicine Research and Publication Institution and Review Board Committee, Addis Ababa University. A formal letter was written from the Department of Nursing and Midwifery to respective departments for cooperation. Verbal and written consents were obtained from the study subjects after explaining the study objectives, procedures and their right to refuse to participate in the study any time they want. To assure confidentiality of the data the students did not write their name and ID number.

Result

Socio-demographic characteristic

Most of the respondents were nursing students 59 (29.9%) and the least has was Radiology students 22 (10.9%). Majority of them 73 (36.14%) were selected from 1st year and the least number 19 (4.9%) of students were from the 4th year. The mean age of participants was 21.08 years with a standard deviation of 1.94. Age of the majority of students was in the range of 20 - 25 years with the mode of 20 years. The youngest and oldest of the participants were 17 and 28 years old respectively. Majority of the participants were single 187 (92.6%) and none of them reported that they were widowed or separated. A large number of the respondents were ethnically Amhara 98 (48.5%) followed by Oromo 38 (18.8%) and Tigre (See table 1). More than half of the respondents were reported to be Orthodox Christian 132 (65.3%) followed by Protestant 39 (19.3%) and Muslim 26 (12.87%). One hundred fifty-seven (77.7%) were residing the in urban area before joining this University and only 45 (22.3%) were originated from a rural area.

Sexual behavior of the respondents

Fifty-eight (28.71%) of the respondents were sexually active, while the mean age at first sexual intercourse was 17.7 with a standard deviation of 3.06 years and the age at sexual debut ranged from 13 - 25 years. Out of the total sexually active respondents, 12 (20.69%) had commenced intercourse before the age of 15 years and 17 (29.31%) students had sex with two or more partners. Only 12 (20.70%) of sexually active respondents were using condoms, where very few of them use always during sexual intercourse 4 (6.9%) and 46 (79.31)

Variable	Frequency (n = 202)	Percentage (%)
Age in year		
< 20	38	18.81
20 - 25	159	78.71
26 - 30	5	2.48
Marital status		
Single	187	92.60
Married	15	7.40
Ethnicity		
Oromo	38	18.83
Amhara	98	48.51
Tigre	29	14.40
Gurage	25	12.42
Adere	1	0.54
Others*	11	5.43
Religion		
Orthodox	132	65.3
Protestant	39	19.3
Muslim	26	12.9
Catholic	2	1.0
Others**	3	1.5
Previous residence		
Urban	157	77.7
Rural	45	22.3
Department		
Nursing	59	29.2
Midwifery	54	26.7
Medical laboratory	34	16.8
Anesthesiology	33	16.3
Radiology	22	10.9
Year of study		
1st year	73	36.1
2nd year	51	25.2
3rd year	59	29.2
4th year	19	9.4

Table 1: *Socio-demographic characteristic of Addis Ababa University Health Science College Female Students, June 2012 (n=202). Others*-Gamo, Hadiya, Kembata, Silte, Welayita, Others**-Jehova.*

had never used a condom (Table 2). By cross-tabulating some socio-demographic characteristics with the behavioral practice of the respondents, it was identified that there was no significant association among these variables. Similarly, the cross-tabulation of condom use with a number of partners of the respondents revealed that they were not statistically associated ($x^2 = 3.93$; df = 2; p = 0.14) and their condom using habit varied irrespective of the number of persons they had sex with.

Behavioral practice	Frequency	Percentage
Have a sexual partner (n = 202)		
Yes	58	28.7
No	144	71.3
Number of partners (n = 58)		
One	41	70.69
2 and more	17	29.31
Age at first sex (age in year) (n = 58)		
< 15	17	29.31
> 15	41	70.69
Condom use (n = 58)		
Yes	12	20.69
No	46	79.31
The habit of condom use (n = 12)		
Always during sexual intercourse	4	33.3
Sometimes during sexual intercourse	8	66.7
Given birth (n = 58)		
Yes	4	6.9
No	54	93.1

Table 2: *Sexual behavior of Addis Ababa University Health Science college female students, June 2012 (n = 202).*

Pap smear uptake status

Out of twenty-six respondents who had pap smear screening test, 21 (80.77%) had the test within the past 3 years, 1 (3.85%) during the past 5 years and 4 (15.38%) do not remember the last time of their pap smear test. Twenty four (92.32%) of those who have a history of Pap smear uptake were to continue with having pap smear test, whereas only 106 (52.5%) of those who had no history of Pap smear uptake had planned to have the test in the future.

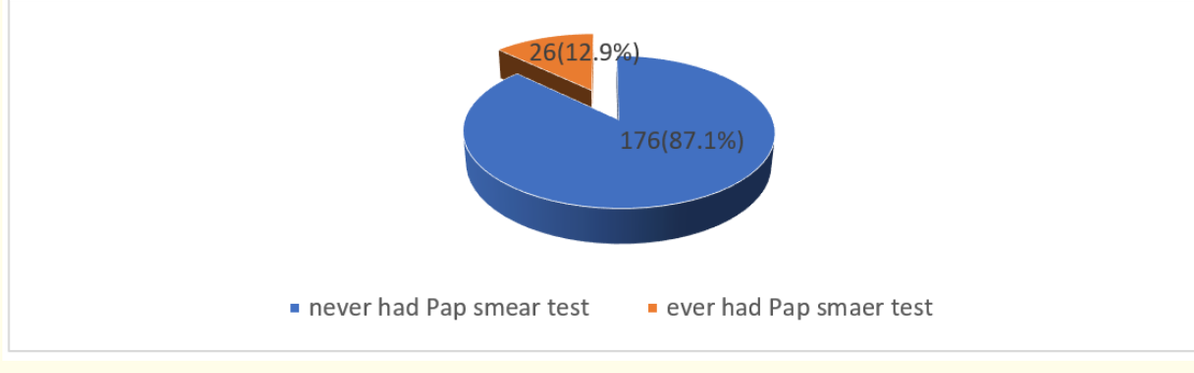

Figure 1: *Distribution of cervical cancer screening status among AAU Health Science College female students, June 2012 (n = 202).*

Pap uptake status of the respondents was significantly associated with marital status [x^2 = 10.633; P = 0.001] and sexual activity [x^2 = 31.006; P = 0.046] at [P < 0.05 and CI of 95%] (Table 2). The relatively large number of 3rd and 4th-year respondents were identified to had Pap smear uptake history (Figure 2).

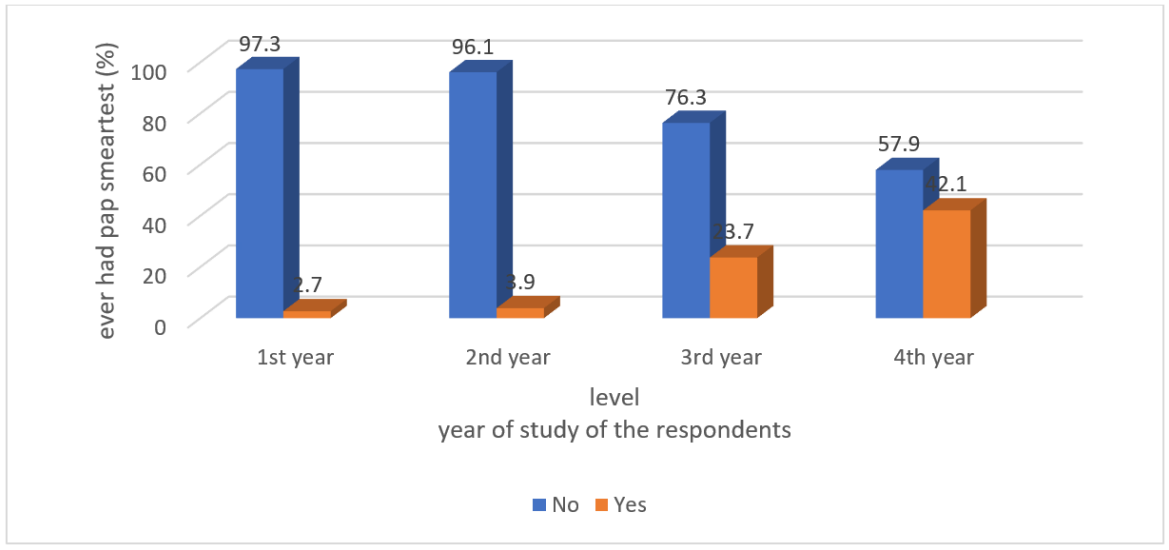

Figure 2: *Distribution of Pap smear uptake status by year of study, among AAU health science college female students, June 2012 (n = 202).*

Predictors for pap uptake status of the respondents using health belief model constructs and students' knowledge level.

According to HBM, individuals are more likely to perform health-related behaviors if they perceive an illness as being serious, feel that there is a high risk of contracting the disease, believe that the health action will result in a positive outcome that will outweigh any barriers encountered and can use cues to action to trigger the process and take action. Additionally, the level of knowledge towards a given action also influences an individual's health service utilization. Therefore, the health belief model constituents and knowledge level of the respondents were taken to be predictors for Pap smear uptake status. These constituents include perceived susceptibility to contracting cervical cancer, perceived severity of cervical cancer, perceived benefit of having pap smear screening test and perceived barriers to having Pap smear screening test. The respondents' perception was considered as "low" if they had given the correct answer to < 75% and "high" ≥ 75% of questions constructed to assess each construct.

Perceived susceptibility

Even though the level of their perceived susceptible to acquiring HPV and contracting cervical cancer varies, all of the respondents were aware that they are susceptible to cervical cancer as they gave at least two correct answers to susceptibility questions. Many of the respondents 148 (73.3%) believe that they could have precancerous lesion and 87 (43%) were not worried about cervical cancer because it is common in aged women, whereas very few 13 (6.4%) believe that their chance of getting HPV is high. The overall perceived susceptibility of most respondents was low 174 (86.1%) whereas 28 (13.9%) students were with high perceived susceptibility. Comparison of ever had Pap smear screening test with those never had Pap screening test demonstrated that 158 (91%) respondents who never had the test perceive their susceptibility to cervical cancer to be low and of the 26 (12.9%) ever screened respondents, 10 (36%) perceived their susceptibility to be high.

Perceived severity

Almost all 200 (99%) of the respondents had awareness on the severity of cervical cancer except 2 (1%) respondents who reported that cervical cancer is neither sever nor can be prevented and cured. Two respondents answered none of the questions correctly and 14 (6.9%) had answered all correctly. Most students' belief was that cervical cancer can results in infertility 80 (39.6%) and can make women's life difficult 70 (34.7%). Generally, the overall perceived severity of most respondents 196 (97.0%) was low whereas very few 6 (3.0%) were with high perceived severity. When those had Pap smear screening test and never had pap smear screening were grouped into high and low perceived severity based on the scores, 155 (88%) of the never screened had low perceived severity while 13 (50%) of the ever screened had high perceived severity to cervical cancer.

Perceived benefit

More than half of the respondents believe that having pap smear tests is important in early detection 147 (72.8%), early treatment 142 (70.3%) and controlling of cervical cancer 103 (51%). But the overall belief of the students shows that 127 (62.9%) have a low perception on the health benefit of pap smear test and 75 (37.1%) have the high perceived benefit of having a pap smear test. Out of the 176 respondents who had no pap uptake history, 158 (90%) were with low perceived benefit of pap smear while 4 (17%) of those who had a history of pap smear uptake perceive the benefit of Pap smear screening test to be high.

Perceived barriers

Lack of information about cervical cancer screening procedures 159 (78.7%), being worried it would be found to have early signs of cancer 128 (63.4%), not knowing where to go for cervical cancer screening 110 (54.5%) and believing that Pap smear is unnecessary if there are no signs and symptoms 96 (47.5%) were reported by the majority of the respondents as barriers for having Pap smear screening tests. Overall, believe of the respondents' shows that very few of them 6 (3.0%) had a high perception on the barriers for having a pap smear test and the rest 196 (97.0%) have low perceived barriers. None of the respondents who had ever pap smear test have high perceived barriers and 153 (87%) of the never screened had low perceived barriers for having a pap smear test. The statistical test of the relationship of socio demographic characteristic and behavioral practice with each constituents of health belief model revealed that susceptibility score (high, low) had a significant relationship with a year of study [$x^2 = 9.608$; $p = 0.022$] and sexual activity [$x^2 = 7.196$; $p = 0.007$]. The proportion of respondents' high perceived susceptibility to contracting cervical cancer increases with their year of study, whereas that of those with low perceived susceptibility decrease as the study year goes up. Out of all sexually active respondents, 14 (24%) were with high perceived susceptibility to cervical cancer while 120 (90%) of non-sexually active respondents were with low perceived susceptibility. But socio-demographic characteristics and behavioral practice of the respondents were not significant association with perceived severity, perceived benefit and perceived barriers of the respondents.

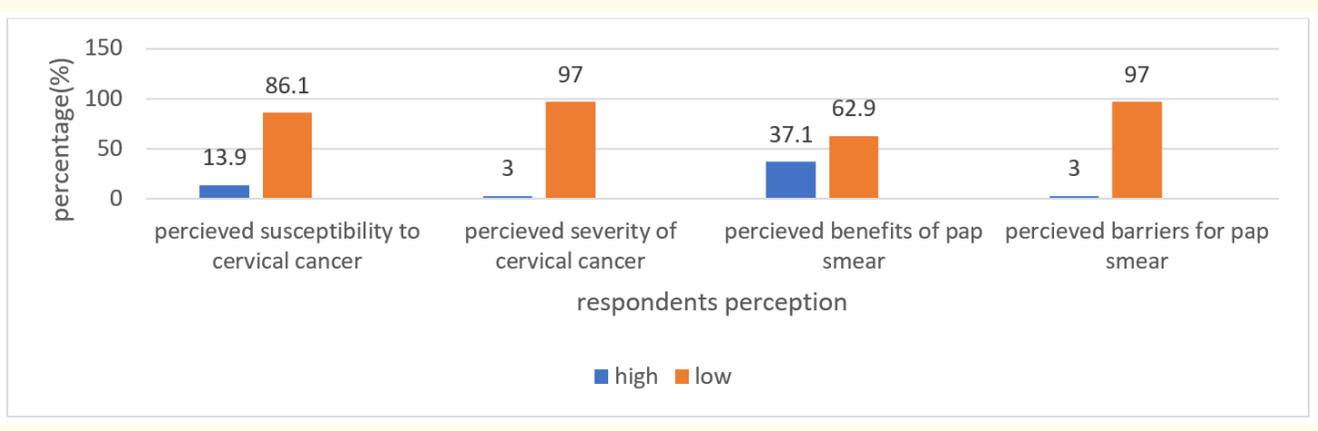

Figure 3: *Summary of AAU Health Science College female students' perception of cervical cancer and pap smear test, June 2012 (n = 202).*

Predictors for Pap smear uptake status

Bivariate and Multivariate Logistic regression analysis was employed to identify predictors for Pap smear uptake status of the respondents. Health belief model constructs and knowledge level of the respondents were used as independent variables (Table 3). On crude analysis using bivariate logistic regression; Pap smear uptake was significantly associated with having good knowledge [Crude OR = 14.53 (95% CI; 1.863, 113.301)] and excellent knowledge [Crude OR = 15.67 (95% CI; 1.460, 168.074)], compared with having poor knowledge on cervical cancer and Pap smear screening test. Similarly, significant association was found between Pap smear uptake and having high perceived susceptibility [Crude OR = 5.49 (95% CI; 2.168, 13.883)] compared with low perceived susceptibility and high perceived severity compared with low perceived severity of the respondents [Crude OR = 7.52 (95% CI; 1.433, 39.495)]. However, in adjusted analysis, Pap smear uptake was significantly associated with good knowledge level [Adjusted OR = 10.326 (95% CI; 1.290, 82.638)] and perceived susceptibility [Adjusted OR = 3.522 (95% CI; 1.260, 9.850)] of the respondents. This shows that students with good knowledge were 10 times more likely to have Pap smear screening test than those with poor knowledge concerning cervical cancer and Pap smear screening test. Similarly, students whose perception was high towards contracting Human Papilloma Virus and Cervical Cancer are about 4 times more likely to have Pap smear screening test compared with those with low perceived susceptibility. Having a look at this result it could be explained in such a way that students' knowledge level was the major predictor for their Pap smear uptake status which is indicative for giving due attention towards the need of increasing awareness of young group concerning cervical cancer and Pap smear screening test.

Variables	Pap smear uptake status			
	No n (%)	Yes n (%)	Crude OR (95%CI)	Adjusted OR (95%CI)
Knowledge level				
Poor	47 (97.92)	1 (2.08)	1	1
Fair	65 (92.86)	5 (7.14)	3.615 (0.409, 31.969)	3.125 (0.347, 28.144)
Good	55 (76.4)	17 (23.6)	14.527 (1.863, 113.30)*	10.326 (1.290,82.64)*
Excellent	9 (75)	3 (25)	15.667 (1.460, 168.07)*	5.886 (0.447,77.445)
Perceived susceptibility				
Low	158 (90.8)	16 (9.2)	1	1
High	18 (64.29)	10 (35.71)	5.486 (2.168, 13.88)*	3.522 (1.260,9.850)*
Perceived severity				
Low	173 (88.27)	23 (11.73)	1	1
High	3 (50)	3 (50)	7.522 (1.433, 39.5)*	2.474 (0.370,16.552)
Perceived benefit				
Low	114 (89.76)	13 (10.24)	1	1
High	62 (82.7)	13 (17.3)	1.839 (0.803,4.211)	1.528 (0.616, 3.795)

Table 3: *Bivariate and multivariate binary logistic regression analysis of predictors for Pap smear uptake status among AAU Health Science College female students, June 2012 (n = 202).*

**=Statistically significant at P < 0.05; CI of 95%; 1=reference.*

Discussion

Risky sexual behavioral

The prevalence of having a history of sexual practice was identified to be 58 (28.9%) which comprised all of the 15 married and 43 (23%) single respondents. This shows that the number of students who were sexually engaged was much smaller than those who were not 144 (71.1%). This result is inconsistent with data obtained from the assessment of the behavioral practice of students at different

universities like; South Africa, Hawasa and selected faculties of AAU in which 51.2%, 40.6%, and 8.9% were identified to have sexual experience respectively [8-10]. The mean age at first sexual intercourse in this study was 17.7 years and the age at sexual debut ranged from 13 - 25 years. Less than one-fourth of them had an early sexual debut, in that 12 (20.69%) had been commenced intercourse before the age of 15 years. It is almost similar to the study at South Africa in which the mean age at first sex was 18 years with a range of 10 - 26 [10]. However, the mean age at first sexual debut in this study is greater almost by 3 years than study at Hawasa [8]. Apart from this, there were also respondents with multiple sexual partners in which about 17 (30%) of sexually active respondents had sex with two or more partners. Despite the fact that there is at least a 64% chance of contracting HPV with each act of unprotected sex with an infected partner [11]; the use of condoms was however found to be unpopular among this study participants. Only 12 (20.70%) respondents were using condoms, of which very few 4 (6.9%) use always during sexual intercourse and 46 (79.31%) had never used a condom. Quite the opposite to this result, only 19.2% respondents of South Africa study participants were reporting that they had sex with two or more sexual partners; while large proportion (81.4%) of them had condom using habit always during sexual intercourse [10]. However, this finding seems better when compared with study at Hawasa in which about 35% of students were with multiple sexual partners [8]. None of the socio-demographic characteristics was identified to have significant association with behavioral practice of the students; this might be because of the small number of students had sexual practice which could not significant to show the relationship; however a relatively large proportion of students with more than one sexual partner used condom when compared to those who had single partner. This in general indicates that some of the respondents were still at high risk of contracting HPV as a result of the early initiation of sexual intercourse 12 (20.69%), having multiple sexual partner 17 (29.31%) and unprotected sex 46 (79.31%).

Pap smear uptake status

Another major finding of this study was that awareness of Pap smear far outweighed its utilization by the students. Very few of this study participants had Pap smear uptake history 26 (12.9%) of which 21 (80.77%) were tested within the last 3 years. The high rate of Pap smear non-utilization in this study is comparable with previous findings among a similar group of respondents [10,12,13]. It was however observed that the married [$x^2 = 10.633$; $P < 0.001$], the sexually active [$x^2 = 23.934$; $P < 0.001$] and students in the third year and fourth year [$x^2 = 31.006$; $P < 0.001$] were more likely to have the test, which could be related with the better knowledge they have compared to the rest group. It was a similar finding with study at Ibadan [12]. The most frequent reasons for not having pap smear were; lack of information about cervical cancer screening 159 (78.7%), being worried if found to have early signs of cancer 128 (63.4%) and not knowing of centers where the test could be done 110 (54.5%); as observed in other studies [12]. Personal factors such as fear of the procedure, cultural (religious) reasons, and not having an illness (61.1%) were among reasons for not having the test, in other studies [10]. This shows the fact that cervical cancer screening is uncommon among the youngest group of societies because of different factors and some studies also evidenced that very few of respondents whose age between 18 - 29 years had tested at some time in their life when compared to those whose age was more than 30 years [14]. In the conclusion; health education for all college female students concerning cervical cancer and screening tests appears to have a prominent role to play in increasing awareness and Pap smear uptake so as to be input in addressing some of the reproductive health need of youth group.

Predictors for Pap smear uptake

Bivariate and Multivariate Logistic regression analysis was employed to identify predictors for Pap smear uptake status of the respondents. Constituents of Health belief model (perceived susceptibility to cervical cancer, perceived severity of cervical cancer, perceived benefit of pap smear test and perceived barriers for having pap smear test), as well as knowledge level of the respondents, were used as covariates.

Perceived susceptibility

It was identified that respondents who never had Pap smear test have low perceived susceptibility to cervical cancer than those who ever had Pap smear test. When perceived susceptibility to cervical cancer was compared with Pap smear uptake status, 173 (86%) of the

respondents perceived themselves as having low susceptibility to cervical cancer and as a result think having Pap smear test was not necessary. However, 148 (73.3%) respondents believe that they could have a precancerous lesion, 86 (43%) were not worried about cervical cancer because they believed it is common in older women and therefore screening would be mainly essential in the older age group. Factors in favor of the respondents perceived susceptibility to contracting HPV infection and cervical cancer were; their year of study [P = 0.022; CI = 95%] and sexual activity [P = 0.007; CI = 95%]. The proportion of respondents' high perception of their susceptibility to contracting cervical cancer increased with the year of study, whereas that of low perception decreased as the study year goes up. Likewise, a large proportion of sexually active respondents was with high perceived susceptibility compared to those who did not have sexual intercourse. Susceptibility to cervical cancer was significantly associated with pap smear uptake status [Adjusted OR = 3.5229 (95% CI; 1.260, 9.850)], wherein students whose perception is high towards contracting Cervical Cancer were about 4 times more possible to have Pap smear screening test than those with low perception. This is in keeping with other study which revealed that those with high perceived susceptibility were 3.2 times more likely to screen for cervical cancer than those with low perceived susceptibility [15] and it goes well with Health Belief Model which explained that individuals are more likely to perform health-related behaviors if they feel that there is a high risk of contracting the disease. Thus, respondents who perceived themselves susceptible to cervical cancer more had Pap smear screening test compared to those who perceived themselves as not susceptible.

Perceived severity

Almost all respondents 200 (99%) had some information about the severity of cervical cancer as they had given a correct answer at least to one perceived severity question, this is in line with another study in which majority were sure about the severity of cervical cancer with the average response of 2.56 [15]. The belief of most respondents was that cervical cancer can result in infertility 80 (39.6%) and can make women's life difficult 70 (34.7%). This finding clearly indicated that both group (ever and never had pap smear test) were aware that cervical cancer is a serious disease. More than half of those ever had a pap smear test 15 (57.7%) and 51 (29.5%) of those who never had a pap smear test, believe that cervical cancer can easily be cured with early detection and proper treatment. This implies that understanding about the effective treatment of cervical cancer if identified early could contributory factor for the uptake of Pap smear, regardless of believe on the seriousness of the diseases which was supposed by both groups (ever and never had pap smear test). When the ever had Pap smear test and those never had the test were grouped in to high and low perceived severity based on the scores, 154 (88%) of those never had Pap smear test were with low perceived severity while 13 (50%) of those ever had Pap smear test had high perceived severity to cervical cancer. However, Pap smear uptake status was not affected by the perceived severity of the respondents [Adjusted OR = 2.474 (95% CI; 0.370, 16.552)]. This is in line with a study in Botswana [15] but in contrary to Health Believe Model, which put forward that individuals are more likely to perform health-related behaviors if they perceive illness as being serious. Therefore, the respondents' Pap smear uptake was very low irrespective of their perceived severity of cervical cancer whether it was high or low. Hence, the reason why this is contradictory to what was explained by the Health Belief Model needs to be further explored.

Perceived benefit

In this study, it was good to identify that remarkable number of respondents believed that pap smear tests are important in early detection 147 (72.8%), early treatment 142 (70.3%) and controlling of cervical cancer 103 (51%). But when seen generally, 127 (62.9%) were with low perception on the health benefit of pap smear test while 75 (37.1%) respondents were with high perceived benefit. By the comparison of ever and never having Pap smear uptake with perceived benefit of having the test, it was illustrated that there was no significant association between perceived benefit and Pap smear uptake status of the respondents [Adjusted OR = 1.528 (95% CI; 0.616, 3.795)]. This contradicts what was elucidated by the Health Belief Model, which explained that those with high perceived benefits are more likely to take preventive actions than those with no or low perceived benefits. Thus, the students' beliefs about the benefit of Pap smear screening test was not a significant barrier for having the test, rather low Pap smear uptake among these students could be attributable to the unpopularity of the service or other factors than their perception on the benefit of the screening test.

Perceived barriers

Generally speaking, very few of the respondents were with high perceived barriers 6 (3.0%) of having a pap smear test. However, the most frequently mentioned barriers perceived to hold back the students to have pap smear test were; lack of information about cervical cancer screening procedures 159 (78.7%), being worried if they would be found to have early signs of cancer 128 (63.4%), not knowing where to go for the test 110 (54.5%) and believing that Pap smear is unnecessary if there is no signs and symptoms 96 (47.5%). This finding was comparable with the previous study at Botswana [15]. In some other studies; fear of the procedure, being healthy (no illness), discouraging behavior of health workers, cost of the test, belief that everyone would consider them sexually active, embarrassing to expose themselves for screening, the belief that the Pap test is painful and the belief that Pap test will take away virginity were considered as barriers for not having pap smear screening test [10,16]. Whilst, comparing never and ever having pap smear test with their perceived barriers, none of the respondents with high perceived barriers had a pap smear test, while 87% of the never screened had low perceived barriers for a pap smear test. The statistical test revealed that the association did not exist between the Pap smear uptake and perceived barriers. Even though it is cheering to identify that 196 (97%) participants were with low perceived barriers for having Pap smear test, non-utilization rate of Pap smear test overwhelms their low perception of barriers for having the test. This is still opposed to the Health Belief Models' explanation which states that individuals are more likely to perform health-related behaviors if they believe that the health action will result in a positive outcome that will out weight any barriers encountered.

Conclusion

This study sought to explore risky sexual behavior and predictors for Pap smear uptake among undergraduate Health Science students, in the context of cervical cancer burden in Ethiopia. The finding had shown that behavioral practices including; early initiation of sexual intercourse, having multiple sexual partner and unprotected sex was prevalent among female undergraduates, which enable to conclude that some students were at high risk of contracting HPV and cervical cancer. The knowledge level among this group was found to be low, as less than half of the students were with good or excellent knowledge concerning cervical cancer and Pap smear test.

The most senior or third year and fourth-year students tend to be better informed, possibly because they were more likely to hear about cervical cancer and Pap smear test during class lectures, which was a source of information for the majority of students in these study years in addition to other sources of information. Sexually active respondents were also found to have better knowledge than those who did not have sexual intercourse.

Pap smear uptake rate was still very low compared to previous studies conducted on a similar segment of the population. The Pap smear test uptake was better among married, third year and fourth year as well as sexually active students. This could be related to the better knowledge they had compared to the rest group. Majority of the respondents were aware of their susceptibility to cervical cancer, the severity of cervical cancer, benefits of having Pap smear and had some barriers to seeking Pap smear screening test. But when seen generally, enormous numbers of the students were with low perceived susceptibility to cervical cancer, low perceived severity of cervical cancer, low perceived benefit of Pap smear test and low perceived barriers for having Pap smear test. The results of binary logistic regression, keeping other health belief model constituents constant; had proved that Pap smear uptake status of the students was influenced by perceived susceptibility and knowledge level. Students with high perceived susceptibility and good knowledge level were more likely to had Pap smear test compared to those with low perceived susceptibility and poor knowledge.

This study indicated the need to design and implement effective strategies to improve awareness of cervical cancer and Pap smear with its utilization. Therefore, the following actions may be recommended to be considered by relevant bodies.

These young people should be encouraged to increase the age at first coitus, to limit the number of the sexual partner to one and hug to the use of condoms.

The Pap smear test among this group was very low, as less than 15% of the students were ever screened for cervical cancer.

The study identified contributed factors low practiced of cervical screening based on health belief model was low perceived susceptibility, low perceived severity and low perceived benefit of cervical cancer screening uptake and poor knowledge among the study respondents were identified factors more likely responsible for low utilization of Pap smear test. Therefore, policy makers and health planners would be better to reconsiders these identified factors and intervened based on health belief model to improved utilization of Pap smear test among high risk group, especial for sexually active University/College students during policy development and training materials.

Health education at health institutions should also give due attention to reproductive health with special attention to STIs and cervical cancer. The target group would be better promoted for the screening of cervical cancer during their MCH visits, not to miss the opportunities at all level of health institutions.

Youth-friendly services would better available in centers were reproductive services are rendered including the teaching hospitals; and an invasion of privacy was identified as a possible cause of fear for having a pap smear test.

Finally, it is highly recommended that related studies would better be conducted on factors affecting service utilization of available cervical cancer screening tests at other universities and colleges on a large sample of students.

Perceived susceptibility should be emphasized through education and awareness campaigns as to improved knowledge towards cervical cancer screening by using Pap smear test.

Some students were at high risk of contracting HPV and cervical cancer as they had risky behavioral practices. Pap smear uptake was very low which could be improved through increasing awareness concerning the disease, Pap smear test as well as their perceived susceptibility to cervical cancer. Therefore, concerned bodies are recommended to design and implement effective strategies to improve females Pap smear test with its utilization.

Reproductive health education about cervical cancer, sexually transmitted diseases and prevention should be intensified in high schools and higher institutions.

The reliance on increasing awareness about cervical cancer with special emphasis on risk factors, preventive mechanisms and the need for regular cervical screenings; would do very much by bringing up good understanding and behavioral change.

Competing Interests

The author (s) declare that they have no competing interests

Authors' Contributions

Eriste Nugusa Gamshe and Dereje Bayissa Demissie conceptualized the study, designed the study instrument and conducted the data analysis and wrote the first draft and final draft of the manuscript.

ENG and DBD: Approved the research proposal with some revisions, participated in data analysis, revised subsequent drafts of the paper and involved in critical review of the manuscript. All authors read and approved the final manuscript.

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Bibliography

1. Andreas Ullrich. "Cervical Cancer in the Context of the Global Cancer Burden" (2005).
2. Timothy R Rebbeck. "Cancer in Africa, 2008". American Cancer Society, Atlanta, GA.
3. Martin L Brown., *et al*. "Health Service Interventions for Cancer Control in Developing Countries". Washington DC, The International Bank for Reconstruction and Development/The World Bank (2006).
4. Pap Smears and Cervical Cancer Screening (2015).
5. Carmen Zorrilla. "Women's Health: Cervical Cancer Screening". Florida/Caribbean AIDS Education and Training Center 11.4 (2010).
6. Centers for Disease Control and Prevention (CDC). "Cervical cancer screening with the HPV and the Pap test in women ages 30 and older". U.S. Department of health and human services.
7. Addis Tesfa. "Combating Cervical Cancer in Ethiopia, Addis Ababa". Pathfinder International Ethiopia, 0310/250 (2010).
8. Martha Fikre. "Assessment of Parent-Adolescent Communication on Sexual and Reproductive Health matters, Hawassa Ethiopia" (2009).
9. Nigatu Regassa and Seman Kedir. "Attitudes, and practices on HIV preventions among students of higher education institutions in Ethiopia, Addis Ababa". *East African Journal of Public Health* 8.2 (2011): 141-154.
10. E Hoque and M Hoque. "Knowledge of and attitude towards cervical cancer among female university students in South Africa". *Southern African Journal of Epidemiology and Infection* 24.1 (2009): 22-23.
11. Pap Smears and HPV (2011).
12. OA Ayinde., *et al*. "Awareness of cervical cancer, papanicolaou's smear and its utilisation among Female Undergraduates in Ibadan". *African Journal of Reproductive Health* 8.3 (2004): 68-80.
13. Beauty Hlengiwe Ndlovu. "Awareness, knowledge and experiences of women regarding cervical cancer in Rural Kwazulu-Natal, South Africa" (2011).
14. Chantal Sauvageau., *et al*. "Human Papilloma Virus vaccine and cervical cancer screening acceptability among adults in Quebec". *BMC Public Health* 7 (2007): 304.
15. Chidiebere Maquincy Ibekwe. "Factors influencing cervical cancer screening uptake among women attending Mahalapye District Hospital in Botswana-Use of the Health Belief Model" (2009).
16. Peter N Abotchie and Navkiran K Shokar. "Cervical Cancer Screening Among College Students in Ghana: Knowledge and Health Beliefs, Ghana". *International Journal of Gynecological Cancer* 19.3 (2009): 412-416.

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