

Knowledge, attitude and practice towards testicular self-examination among regular undergraduate non-health sciences university students, Debre Tabor, Amhara Regional State, North West Ethiopia

Abstract

Background: Testicular self-examination is a screening technique that involves inspection and palpation of the testes for early detection of testicular cancer. The incidence of testicular cancer among 15-35 aged males have increased worldwide though being rare in the general population. In spite of increase, nine out of ten testicular cancer cases can be detected by testicular self-examination and almost 90% can be cured if earlier detected. The aim of this study was to assess knowledge, attitude and practice of testicular-self-examination and associated factors among non-health sciences Debre Tabor University undergraduate regular students, North West Ethiopia

Methods: An institution based cross - sectional quantitative study among 422 students was conducted. Study participants were stratified based on their year and field of study. After proportional allocation study subjects were selected by simple random sampling method. Pretested structured self-administered questionnaire was used. The data was entered to Epidata version 3.1 statistical software and analyzed using statistical package for social sciences version 22.0. Univariate, bivariate and multivariate analyses were carried out.

Results: A total of 422 respondents were participated with a response rate of (98.3%). Out of the respondents (31.8%) had good knowledge, almost half (51.3%) of respondents had favorable attitude and (11.8%) had good practice for testicular self-examination. The major reason (62.0%) to not perform testicular self-examination was lack of knowledge about testicular self-examination.

Conclusion: Testicular self-examination knowledge and practice among respondents were inadequate due to lack of health promotion for testicular self-examination, but their attitude towards TSE was optimal. Improving information dissemination about TSE and TC may help to reduce the presentation of patients at advanced stages of TC and may reduce costs incurred in their management.

Keywords: Testicular self-examination, knowledge, attitude, practice, student, Ethiopia

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Abbreviations: AAU, Addis Ababa University; ACS, American cancer society; BC, Breast Cancer; BSc, Bachelor of Science; DTU, Debre Tabor University; KAP, Knowledge Attitude and Practice; TC, Testicular Cancer; TSE, Testicular Self-Examination

Background

Testicular-self-examination (TSE) refers to the procedure in which a man checks the appearance as well as the consistency of his testicles. TSE is a simple, painless procedure, easy-to-learn and requires about three minutes to complete and it is an important clinical tool for early detection of testicular cancer (TC).^{1,2} It has been recommended that young men between the ages of 15 - 35 years should practice TSE every month.³ This recommendation is supported by the fact that nine out of every ten TC is first found by the individual himself.⁴ Worldwide, TC accounts for approximately 1% of all cancers in men and it is increased twofold in the last 40 years.⁵ The prevalence and incidence of TC in Africa are rising and also the mortality rate of TC in Sub-Saharan Africa is increasing due to poor awareness of TSE.⁶ In Ethiopia, TC cases account 5.4% of all new male cancer patients aged

greater than 15 years in the oncology unit of Black Lion Specialized Hospital; the only oncology unit in Ethiopia.⁷ Early detection and treatment is very important in TC. One of the method to detect TC is regular self-exam of testicles.⁸ It is highly recommended to seek medical help if one experiences some of the following symptoms; lump in one testis or hardening of one of the testicles, significant increase or decrease in the size of one testis, abnormal sensitivity, loss of sexual activity, blood in or watery semen, generally feeling tired and buildup of fluid within the scrotum.⁹ As American Cancer Society (ACS) recommendation, all men should examine their testicles by themselves monthly after puberty.¹⁰

Scientists have found few risk factors that make someone more susceptible to TC. These are undescended testicle, family history of TC, carcinoma in situ of the testicle, history of TC, race and body size.¹¹ Knowledge and practice level of men in Iran 5% had knowledge of TSE and 10% were practicing TSE,¹² in Uganda 14% of university students performed TSE regularly,⁴ in Malaysia 65.0% of male students have never performed TSE¹³ and in Ethiopia, to our knowledge there are no published data regarding the knowledge,

attitude and practice of TSE among young adult males but significant number of adult men presented with advanced stage of TC due to lack of information and awareness of early detection measurements. Recommended preventive techniques to reduce TC mortality and morbidity include TSE and clinical testicular examination. But, clinical testicular examination requires hospital visit and expertise whereas TSE is an inexpensive tool that can be carried out by men themselves.¹⁴ So, an attempt have been made to increase public knowledge, attitude and practice (KAP) of TSE among male population.¹⁵ The researchers observed TC cases at Black Lion Specialized Hospital with recorded deaths while others in severe pain and distress with advanced stage of TC. University students demographic represent the age group where TC is most common and thus they may be representative of the habits of the larger population. These prompted the researchers to embark on assessing knowledge, attitude and practice of TSE among male University students.

Methods

Study area

The study was conducted at Debre Tabor University, Amhara region, North West Ethiopia. Debre Tabor is the capital city of South Gondar Zone which is located 50 kilometers East of Lake Tana. Debre Tabor University (DTU) is far 100 kilometers from Bahirdar and 666 kilometers from Addis Ababa. This historic town has a latitude and longitude of 11°51' N 38°1' E with an elevation of 2,706 meters (8,878 ft.) above sea level.¹⁶

Study design

Institutional based cross-sectional quantitative study was conducted

Source population

All non -health sciences regular undergraduate male students in DTU

Study [opulation

All selected non- health sciences regular undergraduate male students in DTU

Inclusion criteria

All non -health sciences regular undergraduate male students in DTU who were enrol during the data collection time

Exclusion criteria

Those students who were seriously ill and unable to communicate during data collection time

Sample size determination

The sample size was determined using Cochran formula (1963) i.e. single population proportion formula and the following assumptions were made. To get the maximum sample size the prevalence of KAP of TSE was 50% ($p_a = 0.5$), level of significance 5% ($\alpha = 0.05$), 95 % confidence level ($Z_{\alpha/2} = 1.96$) and absolute precision or margin of error was 5% ($d = 0.05$).

$$n = \frac{\left(\frac{Z_{\alpha/2}}{d}\right)^2 p(1-p)}{(0.05)^2} \text{ Where, } n = \text{sample size, } n = (1.96)^2 \times 0.5(1-0.5) / (0.05)^2 = 384$$

By assuming 10% non-response rate, the total sample size was 422

Sampling procedures

Students in each field of study were stratified based on their year of study as first, second and third+ year (third year and above) assuming that their field of study and duration of stay in the campus affect their KAP of TSE. Finally, proportional numbers of participants (students) were selected with their identification number by computer generated simple random sampling technique from each field and year of study.

Operational Definitions

TSE: inspection and palpation of his testis by himself

Good knowledge: Those students/respondents who scored above mean score of the knowledge questions.

Poor knowledge: Those students/respondents who scored equal and below mean score of the knowledge questions.

Favorable attitude: Those students/respondents who scored above mean score with Liker five points scale of attitude questions.

Unfavorable attitude; Those students/respondents who scored equal and below mean score with Likert five points scale of attitude questions

Good practice: those students/respondents who scored above mean score of the practice questions

Poor practice: those students/respondents who scored equal and below mean score of the practice questions

Cues to action: Refer to motivators that could prompt an individual to have knowledge, attitude and practice of TSE.

Self- efficacy: Confidence and ability to have TSE practice

Regular TSE: According to ACS if the man examines his testicles every month

Data collection tools

Data were collected through self -administered structured questionnaire adapted from literatures¹⁷⁻²⁰ and health belief model. The questionnaire was prepared in English language and then translated to the national language Amharic with second person and then it was also back translate to original language English with third person to check its consistency. The questionnaire contains four sections. The first section assessed socio-demographic characteristics, the second section assessed knowledge of respondents on TSE (e.g. ever heard TSE, source of information, importance of doing TSE, frequency to perform TSE), the third section assessed attitude of respondents towards TSE(e.g. thinking of TC fear to me, monthly TSE helps to find lump before discovered by health check-up) and the fourth section assessed practice of respondents towards TSE (e.g. regularity of doing TSE, techniques of doing TSE).

Data collection procedures and quality control

The questionnaire was checked thoroughly for its objective and variable based before it was distributed to the respondents. Pre-test was conducted on 5% of sampled students out of the study area. This was used to get feedback on whether the intended study objectives were captured well, any omissions and any need for additional items. So, that appropriate modifications were made after viewing the pre-

test result. Half day training was given to the data collectors and the supervisors on the objective, relevance of the study, confidentiality of information, respondent's right and informed consent. Four supervisors were recruited with MSc degree and eight data collectors also recruited among Assistant lecturers from DTU. The study participants had filled the questionnaire at the same time or simultaneously in eight lecture halls. This prevents information dissemination to the sampled students before data collection. The investigators and the supervisors made frequent checks on the data collection process to ensure completeness & consistency of the gathered information.

Data Entry, analysis and presentation

Data was entered to the computer using Epi Data version 3.1 and transported to SPSS version 22.0 for analysis. Descriptive and inferential statistics were analyzed and presented. Initially, bivariate logistic regression was carried out to see the association of each independent variables with the outcome variable. Thereafter, to see temporary relationship of dependent and independent variables multivariable logistic regression was used. Variables with P- value ≤ 0.2 in the bivariate logistic regression were transported to multiple logistic regression analysis. P-value of ≤ 0.05 and 95% confidence level was considered as statistical significance.

Ethical consideration

Ethical clearance and approval were obtained from the ethical committee of AAU. After explaining the objectives of the study in detail, informed verbal consent was obtained from all study participants. Information obtained from the participants was stored in a file which had not have participants name on it, but a code number was assigned. The information was not revealed to anyone except the principal investigator.

Results

Socio-demographic characteristics of the study participants

In this study a total of 422 study subjects were participated with the response rate of 415(98.3%). The mean (SD \pm) age of the respondents was 21.9 (± 2.2) years with a range of 18 – 38 years. About 341 (82.2%) study participants were in the age group of 20-24 years and the least 3(0.7%) were in the age group of 30 and above years. Majority of the respondents 374 (90.1%) were orthodox religion followers, about three fourth 321(77.3%) of respondents were Amhara ethnicity, 238(57.3%) were rural in their place of origin, 307(74.0%) were 2nd and above years (senior) students in their year of study, 257(61.9%) were Engineering and technology by their field of study. From participants 6(1.4%) and 18(4.3%) of students had previous history of TC and family history of TC respectively.

Knowledge of respondents on TSE

Out of the total respondents only 51(12.3%) had ever heard about TSE. The main sources of information 22(43.1%) were health professionals. About 133 (32.0%) of participants knew the importance of TSE, 38(9.2%) correctly knew frequency of TSE and 98 (23.6%) identifies age groups at risk of TC (Table 1).

Attitude of respondents towards TSE

The result of attitude related questions showed that most of the study participants had agreed with the thinking of TC fears, TC

would endanger their marriage, TC would be more serious than other diseases and TSE can help to find lumps in the testicles 250(60.2%), 267(64.3%), 255(54.2%) and 227(54.7%) respectively. Also above half of the respondents disagreed with monthly TSE is embarrassing 236(56.9%) and TSE is time consuming 214(51.6%) (Table 2).

Table 1 Knowledge of respondents on TSE among Debre Tabor University non-health sciences undergraduate regular students, North West Ethiopia

Variables	Frequency (n = 415)	Percent (%)
Ever heard about TSE		
Yes	51	12.3
No	364	87.7
Source of information		
Media	11	21.6
Friends	11	21.6
Health professionals	22	43.1
Teachers	7	13.7
Importance of doing TSE		
For screening	133	32.0
For diagnosing	100	24.1
Don't know	182	43.9
Frequency to perform TSE		
Once every month	38	9.2
Once every 3 months	20	4.8
Once every 6 months	5	1.2
Once every year	11	2.7
Don't know	341	82.2
Age groups at risk of TC		
15-35 years	98	23.6
Below 15 years	15	3.6
Above 35 years	44	10.6
Don't know	258	62.2
Testicular self-examination shall done in the shower		
Yes	54	13.0
No	49	11.8
Don't know	312	75.2
Able to find testicular lump when perform TSE		
Yes	65	15.7
No	42	10.1
Don't know		
The risk of TC probability will increase with family history of TC	308	74.2
Yes	69	16.6
No	55	13.3
Don't know	291	70.1

Only 31.8% of the participants had good knowledge with 95% CI (27.0% - 36%).

Practice of respondents towards TSE

Only 49(11.8%) of students had examined their testis. About 13(26.5%) of students perform TSE regularly and 35(71.4%) of them apply correct techniques. Around two third 227(62.0%) of students hadn't practice TSE due to lack of knowledge (Table 3).

Factors associated with knowledge and practice of TSE

Binary Logistic regression was performed to assess the association of each independent variable with TSE. Factors which had a p-value

of ≤ 0.2 were added to the multivariable regression model. According to the result of multiple logistic regression analysis, family history of TC and cues to action were the predictor for knowledge of TSE; those students who had family history of TC and cues to action found to have 3.2 and 1.5 times more likely had good knowledge of TSE than those who hadn't family history of TC and cues to action AOR, 3.169; 95% CI (1.189, 8.442) and AOR, 1.549; 95% CI (1.006, 2.384) respectively (Table 4).

For practice of TSE, the multiple logistic regressions analysis revealed that respondents who had history of TC 15.9 times, had self-efficacy 1.5 times and had good knowledge 1.3 times had more likely good practice than respondents who hadn't history of TC, hadn't self-efficacy and poor knowledge of TSE AOR, 15.94, 95% CI (2.546, 19.73), AOR, 1.47; 95% (1.08, 2.17), AOR, 1.35; 95% CI (1.18, 2.66) respectively (Table 5).

Table 2 Attitude of respondents towards TSE among Debre Tabor University non-health sciences undergraduate regular students, North West Ethiopia (n = 415)

Variables	Disagree		Uncertain		Agree	
	N	%	N	%	N	%
My physical health makes it more likely for TC if fail to perform TSE	125	30.1	158	38.1	132	31.8
Chances of getting TC in the future increase if fail to perform TSE	156	37.6	122	29.4	137	33.0
The thinking of TC fear to me	115	27.7	50	12.0	250	60.2
If I had TC, my career would be endangered	101	24.3	70	16.9	244	58.8
TC would endanger my marriage	90	21.7	58	14.0	267	64.3
TC would be more serious than other diseases	83	20.0	107	25.8	225	54.2
TSE can help to find lumps in the testicles	85	20.5	103	24.8	227	54.7
Monthly TSE helps to find lump before discovered by health check-up	97	23.4	128	30.8	190	45.8
It is embarrassing for me to do monthly examinations	236	56.9	78	18.8	101	24.3
TSE can be painful	199	48.0	112	27.0	104	25.1
TSE can be time consuming	214	51.6	103	24.8	98	23.6
Family would make fun of if do TSE	165	39.8	81	19.5	169	40.7

Note: N, frequency; %, percentage

Remember: - strongly disagree is added to disagree and strongly agree is added to agree since the frequency is small for them

Almost half 216(51.3%) of the respondents had favorable attitude with 95% CI (46% - 56%).

Table 3 Practice of students towards TSE among Debre Tabor University non-health sciences undergraduate regular students, North West Ethiopia (n = 415)

Variables	Frequency	Percent (%)
Ever examined their testis		
Yes	49	11.8
No	366	88.2
Age of starting TSE		
< 15 years	9	18.4
>= 15 years	40	81.6
Regularity of doing TSE		
Daily to weekly	20	40.8
Once a month	13	26.5
Once in three months	8	16.3
Once in six months	3	6.2
Once a year	5	10.2
Techniques of doing TSE		
Inspection and palpation	35	71.4
Only inspection	14	28.6
Time to perform TSE		
After showering	12	24.5
Before showering	14	28.6
At any time	23	46.9
Place to perform TSE		
In front of mirror	5	10.2
In the bath room	23	46.9
Lying on the bed	21	42.9
Reasons for not doing TSE		
Not caring the examination	73	19.9
Not knowing TSE	227	62.0
Fear of worse result after examination	23	6.3
Thinking the examination as a sin	31	8.5
Others*	12	3.3

Note: * Shame, Guilty, Culture

One tenth 49 (11.8%), 95% CI (9.0% - 15%) of the respondents had good practice.

Table 4 Bivariate and multivariate logistic regression analysis of knowledge of TSE and its explanatory variables among Debre Tabor University non-health science undergraduate regular students, North West Ethiopia

Variables	Knowledge level				OR (95% CI)	
	Poor knowledge		Good knowledge		COR	AOR
	N	%	N	%		
Respondent religion	253	67.6	121	32.4	1	1
Orthodox	19	66.7	5	33.3	1.05(0.39, 3.13)	1.45(0.45, 4.66)
Muslim	1	79.2	5	20.8	0.55(0.20, 1.51)	0.664(0.19, 2.23)
Protestant	1	50.0	1	50.0	2.09(0.13, 33.71)	1.409(0.08, 24.85)
Catholic						
Respondent ethnicity	218	67.9	103	32.1	1	1
Amhara	24	77.4	7	22.6	0.62(0.26, 1.48)	0.62(0.24, 1.61)
Oromo	18	56.3	14	43.8	1.65(0.79, 3.44)	2.0861(0.36, 4.66)
Tigris	12	70.6	5	29.4	0.88(0.30, 2.57)	1.124(0.33, 3.82)
Wolaita	11	78.6	3	21.4	0.58(0.16, 2.11)	0.56(0.13, 2.40)
Others**						
Respondents place of origin						
Urban	126	71.2	51	28.8	1.26(0.836, 1.94)	1.393(0.89, 2.18)
Rural	157	66.4	81	34.0	1	1
Respondents year of study						
Freshman	75	69.4	33	30.6	1	1
Senior	208	67.8	99	32.2	1.08(0.67, 1.74)	1.17(0.71, 1.94)
History of TC						
Yes	3	50.0	3	50.0	2.17(0.43, 10.90)	2.39(0.42, 13.70)
No	280	68.5	129	31.5	1	1
Family history of TC						
Yes	8	44.4	10	55.6	2.818(1.09, 7.31)*	3.17(1.19, 8.44)*
No	275	69.3	122	30.7	1	1
Cues to action						
Yes	121	63.4	70	36.6	1.512(1.02, 2.29)*	1.55(1.06, 2.38)*
No	162	72.3	62	27.7	1	1

Note: *Reminded the significance of the variable (P value <0.05), **Guragie, Gambela, Sidama, Agew and Somalie
OR, Odds Ratio; COR, Crude odds ratio; AOR, Adjusted odds ratio

Table 5 Bivariate and multivariate logistic regression analysis for practice of students on TSE and its explanatory variables among Debre Tabor University non-health science undergraduate regular students, North West Ethiopia (n = 415).

Variables	Practice level				OR (95% CI)	
	Poor practice		Good practice		COR	AOR
	N	%	N	%		
Respondent ethnicity						
Amhara	284	88.5	37	11.5	1	1
Oromo	27	87.1	4	12.9	1.13(0.37, 3.43)	1.13(0.327, 3.93)
Tigris	28	87.5	4	12.5	1.09(0.36, 3.30)	1.23(0.383, 3.95)
Wolaita	16	94.1	1	5.9	0.48(0.062, 3.723)	0.69(0.078, 6.18)
Others**	11	78.6	3	21.4	2.09(0.56, 7.85)	1.59(0.30, 8.26)
Respondents place of origin						
Urban	154	87.0	23	13.0	0.821(0.45, 1.49)	1.361(0.72, 2.57)
Rural	212	89.1	26	10.9	1	1
Respondent year of study						
Freshman students	98	90.7	10	9.3	1	1
Senior students	268	87.3	39	12.7	1.42(0.68, 2.96)	1.30(0.59, 2.82)
History of TC						
Yes	2	33.3	4	66.7	16.178(2.88, 20.83)*	15.94(2.55, 19.70)*
No	364	89.0	45	11.0	1	1
Family history of TC						
Yes	15	83.3	3	16.7	1.53(0.43, 5.47)	1.30(0.32, 5.26)
No	351	88.4	46	11.6	1	1

Table Continued...

Variables	Practice level				OR (95% CI)	
	Poor practice		Good practice		COR	AOR
	N	%	N	%		
Cues to action						
Yes	170	89.0	21	11.0	1.156(0.63, 2.11)	1.23(0.61, 2.48)
No	196	87.5	28	12.5		
Self- efficacy						
Yes	151	87.8	19	12.2	1.41(1.03, 2.04)*	1.47(1.08, 2.17)*
No	215	88.8	30	11.2		
Knowledge						
Good knowledge	106	80.3	26	19.7	1.36(1.19, 2.54)*	1.35(1.18, 2.66)*
Poor knowledge	260	91.9	23	8.1		

Note: * Reminded the significance of the variable (P value <0.05)

OR, Odds Ratio; COR, Crude odds ratio; AOR, Adjusted odds ratio

Discussion

In this study 12.3% of the respondents had heard about TSE. This figure is slightly higher than study done in Turkey and Nigeria 5.9% and 1.3 respectively.¹⁷⁻²¹ This discrepancy might be due to socio-demographic factors and sample size differences. From respondents heard about TSE most of students 43.1% heard from health professionals. This result is in line with study in Turkey 43% of students heard TSE from health professionals.¹⁷ This show even if still there is low information dissemination for TSE, information from health personnel is highly promoted. Regarding with over all knowledge level of respondents 32.0% had good knowledge for TSE; this figure is lower than a research conducted in Ireland 61.0%.²² This discrepancy might be due to health promotion for early detection of TC may not much provoke in this study. About 16.6% of respondents said risk of TC will increase with family history of TC. This result is much lower than research conducted in Nigeria 67.4% of the respondents said men who have blood relatives with TC are more likely to get TC.²³ This huge discrepancy might be due to differences with field of study i.e. our study is on non-health sciences students but in Nigeria on medical students. Almost half 51% of respondents have favorable attitude to TSE. This finding is lower than research done in Nigeria 57.2% of respondents had favorable attitude.²³ This discrepancy may be due to socio-demographic character such as religion, family history of TC and culture. In this study only 11.8% of respondents ever had practiced TSE. This finding is lower than researches conducted in Turkey, Nigeria and Uganda 17.7%, 45.9% and 14.0% respectively.^{17,23,24} This finding is also lower than findings in low income (Bangladesh, Madagascar), middle income (South Africa, Turkey) and emerging economy (Singapore) countries 13.6%.¹⁸ This difference could be lack of health promotion how to detect TC early and poor knowledge about TSE importance. Regarding with regularity of TSE only 3.1% of respondents examined their testis regularly (every month). This figure is consistent with low income, middle income and emerging economy countries 3.1% respondents examined their testis regularly,¹⁸ and lower than research finding revealed in Nigeria 25.3%.²³ This could be because the study sample beliefs that TSE is important in general, but performing regularly may not for them at their young age.

Conclusion

In conclusion, results showed that TSE practices among sampled male undergraduate non- health sciences regular undergraduate university students were inadequate. The major reason for not performing TSE as revealed in the study was not having knowledge about TSE and lack of ability to examine the testicle. Therefore,

efforts should be made to develop educational programmes that can increase knowledge and skill to TSE. Improving information dissemination about TSE and TC also helps to reduce the presentation of patients at advanced stages of TC and may reduce costs incurred in their management.

Declarations

Ethics approval and consent to participate

A research proposal was approved by the institutional review board (IRB) of AAU College of health sciences, Ethiopia. The participants were assured of their rights and the freedom to withdraw from the study at any time; if they did not wish to continue. Informed written consent was obtained from each participant.

Consent to publish

Not applicable

Availability of data and materials

The datasets used and analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

SZ is the principal researcher who collected the data, entered, analyzed and interpreted the data and was a major contributor in writing the manuscript. DK and ZA involved in title selection, data entry, data analysis and presentation. All authors write and reviewed manuscript drafts and also approved the final version of the manuscript.

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References

1. Urology EAO. Guidelines on Testicular Cancer. 2015.
2. Znaor A, Lortet-Tieulent J, Jemal A, et al. International variations and trends in testicular cancer incidence and mortality. *Eur Urol*. 2014;65(6):1095–1096.

3. Verhoeven R. Epidemiology of Uncommon Male Genital Cancers: Studies with regional, national and international cancer registry data, 2012.
4. Ahmed RA HD, Bobrayshev Y, Chen R, et al. Practice and barriers towards testicular self examination among young Malaysian men. *Asian pacific of cancer prevention*. 2011;12:1173–1178.
5. Society AC. Importance of Testicular Self Examination.
6. Ugboma HA, Aburoma HL. Public awareness of testicular cancer and testicular self-examination in academic environments: a lost opportunity. *Clinics*. 2011;66(7):1125–1128.
7. Tikur Anbesa Specialized Hospital, Ethiopia. Testicular cancer statistics. Oncology unit. 2016.
8. Altinel B AAI. The knowledge, beliefs and practices of university students on testicular cancer and testicular self-examination. *TAF Med Bull*. 2014;12:365–370.
9. Morhason-Bello IO, Odedina F, Rebbeck TR, Harford J, Dangou J-M, Denny L, et al. Challenges and opportunities in cancer control in Africa: a perspective from the African Organisation for Research and Training in Cancer. *The lancet oncology*. 2013;14(4):142–51.
10. Testis. In AJCC Cancer Staging Manual. New York, 2010.
11. Howlader N NA, Krapcho M, et al. SEER Cancer Statistics Review. National Cancer Institute. 1975–2011.
12. Ramim T MS, Rosatmnia L, Bazyar A, et al. Student knowledge of testicular cancer and selfexamination in university students in Iran. *Basic Clin Cancer Res*. 2014;6(3):1–5.
13. M Norhaini, H Norazlan Shah, Khairil Anuar M, et al. Health risk factors and health promoting behaviour among non-medical students. *Malaysian J Pub Health Med*. 2014;14:1–11.
14. Ozbas A CI, Findik UY, Akyüz N. Inadequate knowledge levels of Turkish male university students about testicular self-examination. *Asian Pac J Cancer Prev*. 2012;12(4):919–922.
15. Guleser GN, & Unalan, D. The knowledge, attitude and behaviours of healthy services vocational students on testicular cancer and testicular self-examination. *European Journal of Oncology Nursing*. 2010;14(1):30–35.
16. Local History in Ethiopia, 2013.
17. Ziyafet U GA, Azize K, Alper B, et al. Testicular Cancer Awareness and Self-Examination among University Students. *Asian Pac J Cancer Prev*. 2011;12(3):695–698.
18. Karl Peltzer, Pengpid S. Knowledge, Attitudes and Practice of Testicular Selfexamination among Male University Students from Bangladesh, Madagascar, Singapore, South Africa and Turkey. *Asian Pac J Cancer Prev*. 2015;16(11):4741–4743.
19. Lechner L, Oenema A, de Nooijer J. Testicular self-examination among Dutchy men aged 15–50: determinants of the intention to practice TSE. *Health Education Research*. 2012;17(1):925–928.
20. Umeh K, Chadwick R. Early detection of testicular cancer: revisiting the role of self-efficacy in testicular self-examination among young asymptomatic males. *J Behav Med*. 2016;39(1):151–160.
21. Onyiriuka A. Testicular-self examination among Nigerian adolescent secondary school boys: knowledge, attitudes and practices. *J prev med hyg*. 2013;54(3):163–166.
22. Ugboma HA, Aburoma HL. Public awareness of testicular cancer and testicular self-examination: Academic environment. *Clinics (Sao Paulo)*. 2011;66(7):1125–1128.
23. Agorye J. Awareness and Practice of Testicular Self Examination among Male Students University of Nigeria Enugu Campus South-East Nigeria. *IOSR Journal of Nursing and Health Science*. 2016;5(3):19–24.
24. Muliira JK, Nalwanga PB, Muliira RS, et al. Knowledge, perceived risk and barriers to testicular self-examination among male university students in Uganda. *Journal of Men's Health*. 2012;1(9):36–44.