

Effect of Health Educational Sessions about Testicular Cancer on Awareness and Practices of Port Said University Male Students

¹ Mona Abd- Elsabour Hassan; ²Magda Ali Mohamed; ³Mohamed Ibrahim Abd-Elghfar Qandil

¹Professor of Family and Community Health Nursing, Faculty of Nursing, Port Said University; ²Assistant Professor of Family and Community Health Nursing, Faculty of Nursing, Port Said University; ³Bachelor of Nursing, Faculty of Nursing, Port Said University.

ABSTRACT

Background: Young adult men are most frequently diagnosed with testicular cancer. The age-standardized incidence rate for testicular cancer varies considerably by region. **Aim:** to evaluate the effect of health educational sessions regarding testicular cancer on awareness and practices of Port Said University male students. **Subjects and method: Design:** A quasi-experimental research design with (pre-test and post-test) was used. **Setting:** study was done at six faculties belonged to university of Port Said city, chosen randomly. **Subjects:** It was carried on 207 male students on Port Said university. **Tools:** two tools were used, tool I: Students' Testicular Cancer Awareness and Prevention Questionnaire, tool II: Testicular Self Examination reported Practice Sheet. **Results:** The majority of areas for improvement were the definition of the testicle (98.1%), the age at which testicular cancer is most likely to occur (90.8%), the signs to look for during a testicular self-examination (92.8%), and the significance of testicular self-examination (80.2%). Testicular self-examination showed improvement from pre to post sessions. **Conclusion:** a marked improvement in the studied students' total score of awareness and practices levels regarding testicular cancer and TSE post-implementation of educational sessions. A statistical positive correlation was found between awareness and practices in post sessions. **Recommendation:** Continual health education for male university students that emphasizes improving their comprehension of TC and the value of TSE practice for the early diagnosis, in order to give kids this knowledge, health practitioners must also use communication platforms like social media.

Keywords: educational session, male students, testicular cancer.

INTRODUCTION

Testicular cancer (TC) is a tumor that develops in the testicles, a part of the male reproductive system. Testicular cancer (TC) is the most common cancer in men especially at the ages of 15 to 34 years, and the incidence is rising. About one in 500 men will develop TC before the age of 50, and nearly 25% will die of the disease (Sagir, and Altinel, 2022). However, the cure rate is exceeding 90% if detected early. In many nations, including Canada, the United States, the Nordic countries, and England, since the middle of the 20th century, an increase in the prevalence of testicular cancer has been documented, with the likely exception of children under the age of 14, in whom there is less chance of temporal variation. Testicular cancer (TC) continues to be the third major cause of cancer mortality among young men between the ages of 18 and 50, despite advances in therapy. According to the National Cancer Institute, there were 0.5 new cases of testicular cancer per 100,000 people in Egypt in 2016 (Znaor, et al.,2022).

Undescended testicles, family history, and personal history are risk factors for testicular cancer, while the actual etiology is unknown. Race, ethnicity, HIV status, and work-related risks (such chemical exposure) are some other risk factors (Gurney, et al., 2017). Some testicular tumors have a propensity to migrate to other organs, particularly the lungs, before they have fully developed as metastases. Surgery, radiation, and chemotherapy alone or in combination can cure more than 90% of patients with testicular cancer (Larimi, et al., 2021).

According to the World Health Organization's 2018 report, any type of cancer can be managed by implementing methods for prevention, early detection, and patient care. Testicular cancer is a condition that is quite curable and has an excellent prognosis, particularly if it is discovered early (Zawam, Selim, Osman, & Edesa, 2021). Testicular self-examination (TSE), which is crucial for early detection and preventing extension of the tumor stage, especially with non-seminomas and rapidly expanding testicular tumors, is a key component of prevention strategies for testicular cancer (Chong, et al., 2023). These strategies rely heavily on awareness of public, risk factors, manifestations, and self-examination of testes. The American Cancer Society advised that TSE be an essential component of routine cancer-related prevention since it is a straightforward and affordable operation, and because it is also critical to raise testicular cancer awareness among all men after puberty (Rovito, Leone, &Cavayero, 2022).

One of the most important aspects of self-care for health promotion is Self-examination because it increases awareness of men concerning the of early disease identification, screening procedures, appropriate treatment, less complication, and better health status (Jeihooni, Kashfi, Hatami, Avand, &Bazrafshan, 2017).

The early indicators of cancer are being taught by nurses are the early diagnosis and screening of diseases. In addition to putting health guidelines and health education programs into practice, research nurses can be done on attitudes of patient and healthy behaviors and develop their creativity to change these attitudes and promote desired health behaviors (Fadich, et al., 2018). They should be in charge of evaluating male TC screenings for self-efficacy, seriousness, health motivation, barriers, and susceptibility (Avci & Altinel, 2018). The CHN can also assist regional and national media outlets by funding initiatives that educate the target community on illness prevention through teaching and learning (Larimi et al., 2021).

Significance of the study

Despite the fact that testicular cancer is growing more widespread worldwide, research from various surveys revealed that teenagers and young adults still have inadequate knowledge of, habits with, and health beliefs around TSE and testicular cancer. Few studies have also been done to educate people about TSE and testicular cancer, particularly among Egyptian university students (Avci, & Altinel, 2018). Therefore, the goal of this study is to investigate how knowledge and behavior among male students at Port Said University have changed as a result of testicular cancer health education programs.

AIM OF THE STUDY

Evaluate the effect of health educational sessions about testicular cancer on awareness and practices of Port Said University male students.

Research Objectives

1. Assess the awareness of male students about testicular cancer, testicular self-examination and its preventive measures.
2. Design health educational sessions about testicular cancer for male students.

3. Evaluate the effect of the health educational sessions about testicular cancer for male students.

SUBJECT AND METHOD

A. Technical design

Study Design

A quasi-experimental design of one group (pretest and posttest) will be used to conduct this study.

Study Setting

The present study was conducted at six faculties (chosen randomly) affiliated to university of Port Said. The faculties which were chosen namely: Faculty of science, faculty of Arts, faculty of law, faculty of information technology, faculty of Specific Education, faculty of education

Subjects

Study Sample

Sample size was statistically calculated by using the equation of Steven Thompsons equation at 95%confidence power of the study (Dawson-SaundersandTrapp,2001).

$$n = \frac{N \times P(1-P)}{(N-1) \times (d^2/Z^2) + P(1-P)}$$

n=Sample size

N=Total society size (2141male students)

d=error percentage=(0.05)

P=percentage of availability of the character and objectivity= (0.1)

Z= the corresponding standard class of significance 95 %= (1.96).

The sample size will be 207 male students.

The sample selected from each faculty was calculating, to be as follow:

Name of faculty	Total number of males students	Sample selected
Faculty of specific Education	444	44
Faculty of Education	354	35
Faculty of Arts	360	36
Faculty of information technology	255	26
Faculty of sciences	444	44
Faculty of Rights	220	22
Total	2077	207

The selected sample size is 10% from total count of students

Tools of data collection

Two tools used to collect data:

Tool I: Students Awareness Questionnaire

The purpose of this instrument, which was created by El-Gilany, El-Wehady, and El-Wasify (2012) in Arabic, is to gauge a student's knowledge of testicular cancer and its prevention strategies. There were two parts to it:

- Part I: socio-demographic characteristics of the students such as age, educational status and occupation of parent...etc.
- Part II: Students awareness questionnaire: This part is used to assess the student's awareness regarding testicular cancer and its preventive measures. This tool composed of 10 questions, as, definition of testicular cancer, risk factors, symptoms, treatment, preventive measures....etc

Scoring system

The total scores of the awareness part were 0 to 15 marks graded as the following: One mark for each correct answer and zero for each incorrect answer. Total awareness was considered satisfactory if it is 60% and more and unsatisfactory if it is less than 60%.

Tool II: Students Reported (Subjective) Practice Sheet of Self Examination (TSE)

This tool was developed by El-Gilany, El-Wehady, and El-Wasify (2012) in an Arabic language to assess the student's practices related to testicular self-examination. It contained 5 steps about how to make self-examination of the testicles.

Scoring system

The total scores of the practice were 0-10 marks graded as follows: Two points for each done correctly item.

Total score was considered inadequate if it is < 60 and adequate if it is ≥ 60 .

B- Operational design**Tools' validity**

The tools have been modified by submitting them to specialists in "community health nursing, nursing education, as well as statistics." They made the improvements they suggested.

Tools' reliability

The Cronbach's alpha test result for the first tool indicated a reliability of 0.85. Cronbach's alpha test resulted in a reliability score of 0.87 for the second tool.

Field Work

The four steps of the study's implementation were assessment, design sessions, execution, and evaluation. The pre- and post-data collection as well as the session implementation took place during a three-month period beginning on September 20, 2022, and ending on January 20, 2023.

Assessment phase (Pre-test phase)

The researcher met the students; the study aim was explained to them in order to obtain oral acceptance to be recruited in the study as well as to gain their cooperation. The researcher was attending each faculty four days per week in their free

times from studying. The researcher clarifies the tools to the students, and asked them to fill out the them, students filled out tool I, which measured their awareness of testicular cancer and self-examinations, in about 20 to 25 minutes. Then, using tool II, which involved which measure students reported testicular self-examination practices, the time required for each student to complete the tool was about 10 to 15 minutes. This phase's sessions (pretest) yielded the data, and rigorous confidentiality guidelines were followed when gathering all the material.

Implementation phase

- The educational sessions were carried out in pre mentioned faculties
- The subjects were separated into small groups (16 groups), each group included twelve to fifteen students, the researcher visits each faculty two to three weeks, four days each week, according to the sample size of each faculty.
- The implementation of educational sessions was conducted as; each group obtained three sessions a week, each session was taken about one hour (the researcher took more than one group each day and more than one session each week).
- The study's purpose and the guidelines' objectives were introduced at the start of the first session. Additionally, the phases of the study and the content of the guidance sessions were explained to the pupils. The significance of consistent attendance and engaged engagement was emphasized by the researcher.
- A variety of teaching and learning techniques were used during the sessions, including data displays with pictures, videos that explained how to conduct a testicular self-examination, and pamphlets that were distributed to the students after the sessions were completed.
- A review of the previous session's objectives and an explanation of the new session's goals in language that was extremely simple and appropriate for the children's level, together with the use of motivational and reinforcement techniques, were provided at the start of each session. Any interpretation, elaboration, or explanation of any topic covered in the sessions that students had given in response to all of their inquiries.

Evaluation phase (Post-test)

After implementation of the sessions, immediately post- test was done to determine the sessions effect; using the same pretest research tools.

Pilot Study

It done on10% (21 students) of the study sample. It was carried out to determine the tool's applicability, lucidity, and relevance as well as to calculate the required time to fill in the questionnaire sheet. The primary sample of the study didn't include the pilot subjects. Pilot study took around one month from the beginning of March 2023 till its end

Ethical Consideration

The Port Said University Faculty of Nursing received approval from the Scientific Research Ethics Committee. Throughout every stage of the study, all ethical concerns were taken into account, including the following:

1. Explained the aim of the study to the deans of faculties and students (participants) to take his permission to do the study.
2. Explained the aim of the study to each participant to be familiar with the importance of his participation.
3. A brief explanation of the study was given assurance to the participants that the information obtained to confidential and used only for the purpose of the study.
4. The researcher was letting the study participants know that they might leave the study whenever they wanted to.

Administrative Design

Before starting any step in the study, an official letter from the Dean of the Faculty of Nursing, Port Said University was sent to the directors of the above mentioned setting requesting their permission and cooperation to conduct the present research after explaining the aim of the study.

Statistical Design

Data entry and statistical analysis were done using statistical package for social science (SPSS) version (20.0). Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, and means and standard deviations for quantitative variables. Qualitative categorical variables were compared using chi-square test. Moreover, Person coefficient test was used for the assessment of the inter-relationships among quantities variables. Statistical significance was considered at $P\text{-value} \leq 0.05$, and highly significant at ≤ 0.01 .

RESULTS

Table (1) illustrates the socio-demographic characteristics of studied students, elaborated that, 77.3% in their age group were from 18 to 20 years. While 22.3% were from faculties of specific education and science. As well as the table indicates that 33.8% were in the first academic year, and 97.6% were single. On the other way, 75.4% of their fathers had a university and above education, and 72.5% of fathers were employed. Also, 73.4% of their mothers had university and above education, and 56.5% of them their mothers were employed. On the other hand, 75.4% were residents in urban. **Table (2)** presented students' awareness about testicular cancer, it indicating that there were statistically significant differences whereas ($P=0.001^*$) between pre and post-program regarding awareness about the definition of testicle items. Whereas, the function of the testicle items, only the storage and production of man's sperm item differed statistically significantly between before and after conducting the program ($P=0.001^*$). As well as the table indicates that there was a statistically significant difference whereas ($P=0.002^*$) between pre- & post-program regarding awareness about the possibility for men to get testicular tumor items. While there was statistically significant improvement between pre & post-program regarding types of testicular tumors related to spermatoma and don't know where as ($P=0.001^*$). Regarding the proper definition of testicular cancer and the age at which testicular cancer is most likely to occur, between the pre- and post-program periods, there were statistically significant differences ($P=0.001^*$).

There were statistically significant differences between pre- and post-program in terms of knowledge of factors that contribute to the development of testicular cancer in matters relating to the testicles not descended into the scrotum, infection by a family

member, prior injuries to the same person, whereas ($P=0.001^*$), HIV infection, whereas ($P=0.002^*$), and wounds in the testicular area, whereas ($P=0.014^*$).

The results also reveal that there were highly statistically significant differences between pre & post-program regarding awareness about symptoms of testicular cancer in items related to the emergence of a bump or enlargement on one of the testicles, severe pain in the testicle or scrotum, feeling of heaviness in the scrotum, whereas ($P=0.001^*$), and Gynecomastia “breast enlargement” whereas ($P=0.030^*$). The most improvement area from pre to post test, is Definition of the testicle (98.1%), then the possibility for men to get testicular tumors (92.8%), then most likely age for testicular cancer (90.8%).

Table (3) illustrates that there were statistically significant differences between pre and post program regarding awareness about ways for early detection of testicular cancer in items related to testicular self-examination, testicular medical examination, ultrasound of the scrotum, whereas ($P=0.001^*$). While there were statistically significant differences between pre and post program regarding cure for testicular cancer if it is detected early all items whereas ($P=0.001^*$). And there were statistically significant differences between pre and post program regarding awareness about ways to prevent testicular cancer related to items avoidance of smoking, avoiding strenuous exercise, conducting a testicular self-examination periodically, whereas ($P=0.001^*$).

The table also indicates that, there were statistically significant differences between pre and post program regarding awareness about testicular self-examination in items related to testicular cancer is a procedure that an adult performs to feel and examine his testicles, whereas ($P=0.001^*$). Also, there were statistically significant differences between pre and post program regarding awareness about testicular self-examination importance of items about varicocele detection, and periodic examination of the injured person.

Regarding awareness of the proper time to perform a testicular self-examination item connected to every week, every month, and every year, there were statistically significant variations between pre and post program ($P=0.012^*$), whereas ($P=0.001^*$). Also, there were statistically significant differences between pre and post program regarding signs to look for during a testicular self-examination item related to Swelling of the testicle, a bulk or lump in the testicle, whereas ($P=0.001^*$). The most prominent

improvement was in area of Signs to look for during a testicular self-examination (92.8%), then Treatment of testicular cancer if it is detected early (87.4%), then Importance of testicular self-examination (80.2%).

Table (4) indicates that there was a marked improvement in the studied students' total score of awareness level post-implementation of educational sessions with a highly statistically significant difference between pre-and post-educational sessions(**P=0.001***), table also shows that nearly half of the students (49.3%) get satisfactory score of awareness in posttest, where minority of them (4.8%) get this level in pre-test.

Table (5) illustrates that, there were highly statistically significant differences between students' practices of testicular self-examination in pre & post-educational sessions with marked improvements in all items Whereas($p<0.001$). The most prominent improvement was in their practices about the examination of each testicle separately using both hands' (83.6%) in the immediate posttest.

Table (6) demonstrates that there was an enhancement in the overall score of testicular self-examination practices among the examined students following the implementation of educational sessions, with a statistically significant difference between pre- and post-educational sessions, where ($P=0.004*$). The table also reveals that only 17.9% of students achieved this level on the pretest, but 82.1% of students achieved it on the posttest.

Table (7) shows that, the following the execution of instructional sessions, there was a statistically significant positive association between the total score of awareness and the total score of practices among the students under study ($P=0.032*$).

Table (1): Distribution of the studied students according to sociodemographic data (n = 207)

Items	No.	%
Age		
18 to <21	160	77.3
21 to <23	42	20.3
23 to ≤ 26	5	2.4
Faculty		
Faculty of specific education	44	21.3
Faculty of science	44	21.3
Faculty of Arts	36	17.4
Faculty of Education	36	17.4
Faculty of Information Technology	26	12.6
Faculty of law	21	10.1
Academic year		
First-year	70	33.8
Second year	65	31.4
Third year	45	21.7
Fourth Year	27	13.0
Marital status		
Single	202	97.6
Married	5	2.4
Father's education		
Illiterate	13	6.3
Primary education	6	2.9
Preparatory education	8	3.9
Secondary education	24	11.6
University and above	156	75.4
The father working condition		
Working	150	72.5
Not working	67	27.5
mother's education		
Illiterate	10	4.8
Primary education	5	2.4
Preparatory education	6	2.9
Secondary education	34	16.4
University and above	152	73.4
The mother working condition		
Working	117	56.5
Housewife	90	43.5
Resident		
Rural	51	24.6
Urban	156	75.4

Table (2) Distribution of the studied sample according to awareness to testicular cancer (n = 207)

Items	Pre		Post		P
	No.	%	No.	%	
1. Definition of the testicle.					
It is a component of the male reproductive system, located outside the body	56	27.1	3	1.4	MCN p<0.001*
It is a component of the male reproductive system, located inside the body	42	20.3	1	0.5	MCN p<0.001*
It is a component of the male reproductive system, located inside the scrotum and hanging outside the male body	100	48.3	203	98.1	MCN p<0.001*
2. #Function of the testicle.					
It is responsible for sperm production	131	63.3	129	62.3	MCN p=0.911
Produce the male hormone	112	54.1	120	58.0	MCN p=0.461
Storage and production of man's sperm	127	61.4	185	89.4	MCN p<0.001*
3. Possibility for men to get testicular tumors?					
No	64	30.9	14	6.8	MH p=0.002*
Yes	122	58.9	192	92.8	
4. #Types of testicular tumors.					
Spermatoma	51	24.6	137	66.2	MCN p<0.001*
Cell tumor	86	41.5	99	47.8	MCN p=0.285
Don't know	76	36.7	8	3.9	MCN p<0.001*
5. Definition of testicular cancer.					
Abnormal growth of testicular cells	65	31.4	107	51.7	MCN p<0.001*
Swelling in the scrotum surrounding the testicles	33	15.9	100	48.3	MCN p<0.001*
Redness and itching in the genitals	42	20.3	12	5.8	MCN p<0.001*
6. Most likely age for testicular cancer.					
Less than 15 years old	48	23.2	17	8.2	MCN p<0.001*
From 15 to 35 years old	35	16.9	188	90.8	MCN p<0.001*
Over 35 years old	53	25.6	7	3.4	MCN p<0.001*
Don't know	79	38.2	1	.5	MCN p<0.001*
7. #Factors that help to develop testicular cancer.					
The testicles not descend into the scrotum	94	45.4	149	72.0	MCN p<0.001*
Infection by a family member	59	28.5	184	88.9	MCN p<0.001*
Previous injury of the disease	32	15.5	109	52.7	MCN p<0.001*
HIV infection	25	12.1	49	23.7	MCN p=0.002*
Abnormal testicular growth "the Klinefelter syndrome"	22	10.6	29	14.0	MCN p=0.310
Wounds in the testicles area	24	11.6	10	4.8	MCN p=0.014*
8. #Symptoms testicular cancer.					
The emergence of a bump or enlargement on one of the testicles	82	39.6	149	72.0	MCN p<0.001*
Severe pain in the testicle or scrotum	61	29.5	156	75.4	MCN p<0.001*
Feeling of heaviness in the scrotum	32	15.5	122	58.9	MCN p<0.001*
Pain in the back or abdomen	39	18.8	51	24.6	MCN p=0.162
Weight loss	25	12.1	38	18.4	MCN p=0.080
Gynecomastia "breast enlargement"	15	7.2	29	14.0	MCN p=0.030*
Pain or burning when urinating	25	12.1	18	8.7	MCN p=0.310
Don't know	41	19.8	1	0.5	MCN p<0.001*

Table (3): Distribution of the studied sample according to about testicular cancer (n = 207)" Cont."

Items	Pre		Post		MCN p
	No.	%	No.	%	
1. #Ways for early detection of testicular cancer.					
Testicular self-examination	73	35.3	156	75.4	<0.001*
Testicular medical examination	58	28.0	138	66.7	<0.001*
Ultrasound of the scrotum	52	25.1	88	42.5	<0.001*
Blood tests	44	21.3	53	25.6	0.306
2. #Treatment of testicular cancer if it is detected early.					
Chemotherapy	84	40.6	179	86.5	<0.001*
Radiation therapy	67	32.4	181	87.4	<0.001*
Surgical intervention	63	30.4	157	75.8	<0.001*
3. #Ways to prevent testicular cancer.					
Avoidance of smoking	90	43.5	123	59.4	<0.001*
Avoiding strenuous exercise	71	34.3	148	71.5	<0.001*
Conducting a testicular self-examination periodically	43	20.8	111	53.6	<0.001*
Not eating carcinogenic foods such as canned food and processed meat	37	17.9	76	36.7	<0.001*
Perform an X-ray of the pelvic area	32	15.5	43	20.8	0.200
Don't know	42	20.3	1	0.5	<0.001*
4. #Definition of testicular self-examination.					
It is a procedure that an adult performs to feel and examine his testicles	65	31.4	142	68.6	<0.001*
It is a procedure carried out by the doctor to examine the injured testicle	74	35.7	66	31.9	0.445
Don't know	75	36.2	30	14.5	<0.001*
5. #Importance of testicular self-examination.					
Detection of tumors	163	78.7	152	73.4	0.222
Detection of varicocele	128	61.8	166	80.2	<0.001*
Periodic examination for mens	131	63.3	161	77.8	0.001*
Don't know	8	3.9	0	0.0	0.008*
6. Appropriate time to do a testicular self-examination.					
Every week	31	15.0	14	6.8	0.012*
Every month	21	10.1	153	73.9	<0.001*
Every 6 months	39	18.8	49	23.7	0.282
Every year	39	18.8	8	3.9	<0.001*
Don't know	92	44.4	0	0.0	<0.001*
7. Signs to look for during a testicular self-examination.					
Redness	89	43.0	123	59.4	0.002*
Swelling of the testicle	85	41.1	133	64.3	<0.001*
A bulk or lump in the testicle	95	45.9	192	92.8	<0.001*
Don't know	58	28.0	1	0.5	<0.001*

Table (4): Distribution of the studied students according to their overall score of awareness: (n = 207)

Second: Students' Information about Testicular Cancer and Ways to Prevent it	Pre		Post		Test of Sig	p
	No.	%	No.	%		
Unsatisfactory (<60%)	197	95.2	105	50.7	MCN= 86.260*	<0.001*
Satisfactory (≥60%)	10	4.8	102	49.3		
Total score (0 – 42)					t= 23.093*	<0.001*
Min. – Max.	3.0 – 36.0		11.0 – 37.0			
Mean ± SD.	13.95 ± 6.13		24.73 ± 4.42			
Median	13.0		25.0			

Table (5): Distribution of the studied students according to their overall score of practices of Testicular Self Examination (n = 207)

Items	Pre		Post		P
	No.	%	No.	%	
Steps for a testicular self-examination					
Standing in front of the mirror after taking a warm bath					
Done correctly	45	21.7	172	83.1	^{Mh} p <0.001*
Done incorrectly	162	78.2	35	16.9	
I examine each testicle separately using both hands					
Done correctly	42	20.3	173	83.6	^{Mh} p <0.001*
Done incorrectly	165	79.8	34	16.4	
I put my index and middle fingers below the testicle and thumb above it while moving					
Done correctly	41	19.8	171	82.6	^{Mh} p <0.001*
Done incorrectly	166	80.2	36	17.4	
I touch the spermatic cord and look for lumps					
Done correctly	47	22.7	65	31.4	^{Mh} p= 0.032*
Done incorrectly	160	77.3	142	68.6	
I consult a doctor in case of lumps or bumps					
Done correctly	64	30.9	83	40.1	^{Mh} p= 0.022*
Done incorrectly	143	69	124	59.9	

Table (6): Distribution of the studied cases according to overall student practices testicular self-examination (n = 207)

Overall score practices testicular self-examination	Pre		Post		Test of Sig	p
	No.	%	No.	%		
Inadequate (<60%)	171	82.6	37	17.9	McN= 119.520*	<0.001*
Adequate (≥60%)	36	17.4	170	82.1		
Total score (0 – 10)					Z= 10.382*	<0.001*
Min. – Max.	0.0 – 10.0		0.0 – 10.0			
Mean ± SD.	2.31 ± 2.77		6.42 ± 2.90			
Median	2.0		6.00			

Table (7): Correlation between studied students total score of awareness and practice (n = 207)

		Pre	Post
Awareness vs. Practice	r	0.091	0.489*

DISCUSSION

Typically, testicular cancer appears as a painless scrotal lump. It is particularly harmful due to its vague symptoms and prevalence in young males. Young adult men are more likely to develop testicular cancer, which is easily identified at an early stage by doing routine testicular self-examinations (TSE). Therefore, every month, TSE should be performed by all men between the ages of 15 and 35. However, health care professionals rarely teach TSE, missing opportunities for early detection (Jeihooni et al., 2021). The aim of this study is to evaluate the effect of health educational sessions regarding testicular cancer on awareness and practices of Port Said University male students.

In terms of students' knowledge of testicular cancer prior to the start of instructional sessions, the current study found that less than a fifth of students were aware of the average age at which testicular cancer may develop. Less than two fifth of them know the most symptoms testicular cancer, only minority know the other causes, about two fifth of them, aware that the testicles not descend into the scrotum as a risk factor of testicular cancer, while most of them did not aware of other risk factors, moreover only about third of them aware that testicular self-examination as one of ways for early detection of testicular cancer, only fifth of them know that conducting a testicular self-examination periodically can help in prevention and early detection of testicular cancer, data also indicate that, only one third of them know the correct definition of testicular self-examination.

In the point of researcher view, this results might be due to the students did not get any health education about testicular cancer, may be due to there is mass media & social media did not give enough information about this topic and our community culture that is topic is sensitive.

The table also revealed that, a statistical significant improvement in all items of student awareness after implementation of the sessions, where the results showed that the

most improved area were most of them said the right definition, most likely age for testicular cancer, possibility for men to get testicular tumors, ways for early detection of testicular cancer, the correct definition of testicular self-examination, risk factors of testicular cancer...etc

These results are consistent with those of Ugwumba et al. (2016) in his study of (testicular cancer and testicular self-examination; knowledge, attitudes and practice in final year medical students in Nigeria) demonstrated that there was poor awareness of the potential curability of testicular cancer, that was improved following the intervention. Respondents had surprisingly weak/poor responses to the question “How important to men’s health is regular testicular self-examination?” Answers to the questions “Do you think it is worthwhile to examine your testis regularly?” and “Would you be interested in more information on testicular cancer and testicular self-examination?” were also suboptimal, but improved post intervention.

Similar to this, a prior study by Demir and Polat (2022) revealed that a total of 81.7% of the students said they were unaware that testicular cancer was most common in males between the ages of 15 and 35, that 82.5% of them were unaware that the greatest risk factor for testicular cancer is having undescended testicles, that 55.6% were unaware that the chance of recovery from testicular cancer can increase to 80-90% with early diagnosis, and that 62, 80.6% of the students did not know the necessity of TSE in the shower or right after the shower, 70.6% of the students had no information about the fact that TSE should be performed regularly every month and 77.8% did not know that it should be done every month at specific times. Most of the students had no information about the symptoms of testicular cancer.

Furthermore, the present study reveals that, there was a marked improvement in the studied students’ total score of awareness level post-implementation of educational sessions with a highly statistically significant difference between pre-and post-educational sessions.

In the researcher point of view, this might be due to the effect of educational sessions given to students, which provide them with basics and necessary information about testicular cancer its prevention and early detection.

Similar findings were made in the study by Jeihooni et al. from 2021, which looked at "the impact of an educational intervention based on health belief models and social support on testicular self-examination in Iranian men between the ages of 15 and 35". The study found that three and six months after the intervention, the experimental group showed significantly higher levels of knowledge, perceived susceptibility, perceived severity, perceived benefits, self-efficacy, and cues to action.

Walt et al. (2023), who examined the baseline knowledge of testicular cancer (TC) and TSE and determined the efficiency of various media in educating young people, found that there is generally low awareness and education regarding TC and TSE, with adolescents performing noticeably worse than young adults. Both the short and long videos underperformed in terms of completion and raising knowledge of TC and TSE, with the infographic performing best overall.

Furthermore, the results of a randomized controlled trial study by Akcali and Tastan (2023) on "the effects of the flipped classroom model on the knowledge and health beliefs of testicular cancer and testicular self-examination" showed that the intervention group's mean posttest knowledge score was higher than the control group's mean posttest knowledge score. The group differences were statistically different from one another. Following training, 82.4% of individuals in the intervention group and 59.4% of participants in the control group performed the testicular self-examination, respectively.

In addition, Waheed et al. (2023), who assessed 124 male outdoor patients of Lahore General Hospital, Pakistan, regarding their knowledge of testicular cancer and TSE, found that about 92% of the subjects had never heard of or used TSE, and that 58.3% attributed their ignorance to a lack of education. Patients who made up 82% had never heard of testicular cancer. Following the teaching, 100% of the patients said their understanding of the subject had improved, and 97% were prepared to instruct other male relatives.

The present study revealed that, with regard to the student practices for self-examination of testes, the majority of the students received inadequate overall scores in testicular self-examinations' practice prior to the educational sessions implementation, but that the practices of the studied students with regard to testicular self-examination post-

implementation of educational sessions in all steps of examination showed a remarkable significant improvement. In the researcher point of view, this might be due to the effect of educational sessions given to students, which train them to do correct steps of testicular self-examination using different media.

These results are consistent with a study by Akcali and Tastan (2023), which examined the effects of the flipped classroom model on participants' knowledge and health beliefs about testicular cancer and testicular self-examination. They discovered that the percentages of participants performing the testicular self-examination after receiving training were 82.4% and 59.4% for the intervention group and control group, respectively.

Similar to this, a remarkable increase in the overall score of satisfactory knowledge about testicular cancer and its preventive behaviors during follow-up following the application of the intervention guideline was found in a quasi-experimental study by Ahmed et al. (2012) on 250 students at Beni-Suef University's technical institute. Furthermore, follow-up post-intervention testicular self-examination techniques improved. In a 2022 study by Sagir and Altinel, the researchers looked at how participants' health perceptions and self-examination were affected by a leaflet explaining testicular cancer and its early detection. They found that 83.3% of the experimental group's testicles were self-examined, compared to 4.5% of the control group.

The results of the current study showed that, following the execution of instructional sessions, there was a statistically significant positive association between knowledge and practice. This conclusion is supported by El Mezayen and Abd El-Hay's (2019) report, which found that, between three and six months after the release of educational guidelines, there were statistically significant positive correlations between students' knowledge and practise with a P value of 0.01.

Pietrzyk et al. (2020) studied 1077 Polish male students, including 335 high school students and 742 medical students, and discovered that the biggest obstacle to performing self-examination was a lack of information and practical abilities. Additionally, Ahmed et al. (2012) found a highly statistically significant link between the overall knowledge score and the total practice and behavior score of student male nurses. This study was done at the Beni-Suef technical institute and involved 250 students.

CONCLUSION

According to the study's findings, the majority of the students were not sufficiently aware of testicular cancer. Additionally, the majority of them did not practice testicular self-examination enough. According to statistical analysis, students' awareness and practices significantly improved after the implementation of educational sessions. There was also a statistically significant positive correlation between students' post-implementation awareness and practices. The fact that these indicators significantly improved after educational sessions were implemented suggests that educational interventions for university students are worthwhile.

RECOMMENDATIONS

1. More extensive studies on testicular cancer awareness are advised.
2. Conduct health education initiatives aimed at male university students, with a focus on enhancing their knowledge of TC and the importance of TSE practice for early identification.
3. Use the hospital health education talks to deliver knowledge to students and also utilize communication channels like social media that are accessed by most of the respondents.
4. Further research studies should be conducted with a bigger sample size in several governorates, encompassing both medical and paramedical students.

References

- Ahmed, M. A., Darwish, E. S., Khedr, E. M., El Serogy, Y. M., & Ali, A. M. (2012). Effects of low versus high frequencies of repetitive transcranial magnetic stimulation on cognitive function and cortical excitability in Alzheimer's dementia. *Journal of neurology*, 259(1), 83–92. <https://doi.org/10.1007/s00415-011-6128-4>.
- Akcali, K., & Tastan, S. (2023). The effects of flipped classroom model on knowledge, behaviour and health beliefs on testicular cancer and self-examination: a randomized controlled trial study. *Health education research*, 38(3), 230–240. <https://doi.org/10.1093/her/cyad007>.
- Avcı, I. A., & Altinel, B. (2018). The Validity and Reliability of Health Belief Scale for Testicular Cancer Self-Examination. *American journal of men's health*, 12(3), 531–538. <https://doi.org/10.1177/1557988315611226>.
- Chong, R. I. H., Leow, J. J., Choo, Z. W., Salada, R., Yong, D. Z. P., & Chong, Y. L. (2023). Testicular self-examination for early detection of testicular cancer. *World journal of urology*, 41(4), 941–951. <https://doi.org/10.1007/s00345-023-04381-4>
- Dawson B, Trapp R (2001) Basic and clinical biostatistics, 3rd edn. Lange Medical Books/McGraw-Hill, New York.
- Demir, B. and TürkbenPolat, H.(2022). The effect of testicular cancer and testicular self-examination on knowledge, attitude and health beliefs in university students in Turkey. *Journal of Health Research*, 36(3), pp.494-502.

- El-Gilany, A., El-Wehady, A., & El-Wasify, M. (2012). Updating and validation of the socioeconomic status scale for health research in Egypt. *Eastern Mediterranean health journal = La revue de sante de la Mediterranee orientale = al-Majallah al-sihhiyah li-sharq al-mutawassit*, 18(9), 962–968.
<https://doi.org/10.26719/2012.18.9.962>
- El Mezayen, S.E. and Abd El-Hay, S.A.(2019). Effect of educational guidelines based on health belief model regarding testicular cancer knowledge, practice and beliefs among male nursing students. *ClinNurs Stud*, 7(3), pp.27-41.
- Fadich, A., Giorgianni, S. J., Rovito, M. J., Pecchia, G. A., Bonhomme, J. J., Adams, W. B., Stephenson, C. L., Mesa-Morales, F. E., & Sparkes, J. S. (2018). USPSTF Testicular Examination Nomination-Self-Examinations and Examinations in a Clinical Setting. *American journal of men's health*, 12(5), 1510–1516.
<https://doi.org/10.1177/1557988318768597>
- Gurney, J. K., McGlynn, K. A., Stanley, J., Merriman, T., Signal, V., Shaw, C., Edwards, R., Richiardi, L., Hutson, J., & Sarfati, D. (2017). Risk factors for cryptorchidism. *Nature reviews. Urology*, 14(9), 534–548.
<https://doi.org/10.1038/nrurol.2017.90>
- Jeihooni, A., Jormand, H., Ansari, M., AfzaliHarsini, P., &Rakhshani, T. (2021). The effect of educational intervention based on health belief model and social support on testicular self-examination in sample of Iranian men. *BMC cancer*, 21(1), 685.
<https://doi.org/10.1186/s12885-021-08411-5>
- Larimi, N. A., Belash, I., Abedi, M., Bandari, P., Mousavi, G., Ekhtiari, S., Khademloo, F. H., Rahnamaei, K., Konari, M. E., Rahmdel, S., &Saripour, E. (2021). An

investigation of efficient nursing interventions in early diagnosis of cancer: A systematic review and meta-analysis. *Journal of family medicine and primary care*, 10(8), 2964–2968. https://doi.org/10.4103/jfmpe.jfmpe_2148_20

Pietrzyk, Ł., Denisow-Pietrzyk, M., Czeczelewski, M., Ślizień-Kuczapski, K., & Torres, K. (2020). Cancer education matters: a report on testicular cancer knowledge, awareness, and self-examination practice among young Polish men. *Scientific reports*, 10(1), 20684. <https://doi.org/10.1038/s41598-020-77734-3>.

Rovito, M.J., Adams, W.B., Craycraft, M., Gooljar, C., Maresca, M., Guelmes, J. and Gallelli, A.(2022). The association between testicular self-examination and stages of testicular cancer diagnosis: A cross-sectional analysis. *Journal of Adolescent and Young Adult Oncology*, 11(1), pp.41-47.

Sagir, F.N. and Altinel, B.(2022). Effects of Information Provided to University Students Through an Educational Brochure on Health Beliefs and Testicular Self-Examination. *Journal of Cancer Education*, pp.1-7.

Ugwumba, F.O., Ekwueme, O.E.C. and Okoh, A.D.(2016). Testicular cancer and testicular self-examination; knowledge, attitudes and practice in final year medical students in Nigeria. *Asian Pacific journal of cancer prevention: APJCP*, 17(11), p.4999.

Walt, A.M., Levy, M., Chin, C.P., Liaw, B.C.H. and Palese, M. (2023). Awareness of testicular cancer and testicular self-examination in young adults, and the efficacy of education-based media.*Journal of Clinical Oncology*, 41(16).

Waheed, M., Luqman, M. S., Bhatti, U. U., Mehmood Qadri, H., Saeed, H., Babar, M. S., Sheraz, M., Abdullah, S., Ahmad, M. A., & Munawar, A. (2023). Intervene to

Improve: Awareness of Testicular Self-Examination and Testicular Cancer Among Male Patients at a Tertiary Care Hospital in Lahore, Pakistan. *Cureus*, 15(1), e33838. <https://doi.org/10.7759/cureus.33838>.

Zawam, H. H., Selim, A., Osman, N. O., & Edesa, W. (2021). Factors Influencing the Response Rate and Survival of Testicular Germ Cell Tumors: A Single Institution Experience from Egypt. *Research in Oncology*, 17(2), p66-72.

أثر جلسات تعليمية عن سرطان الخصية علي وعي وممارسات الطلاب الذكور بجامعة بورسعيد

أ.د. منى عبد الصبور حسن¹، أ.م.د. ماجده علي محمد²، محمد ابراهيم ابراهيم عبد الغفار قنديل³

¹أستاذ تـمريض صحة الأسرة والمجتمع- كلية التمريض- جامعة بورسعيد
²أستاذ مساعد تـمريض صحة الأسرة والمجتمع- كلية التمريض- جامعة بورسعيد
³بكالوريوس تـمريض ، جامعة بورسعيد

الخلاصة

يتم تشخيص الرجال البالغين في أغلب الأحيان بسرطان الخصية، هذاو يختلف معدل الإصابة بالعمر لسرطان الخصية اختلافاً كبيراً حسب المنطقة. الهدف: تقييم أثر الجلسات التثقيفية الصحية فيما يتعلق بسرطان الخصية على وعي وممارسات طلاب جامعة بورسعيد. طرق البحث: تم استخدام تصميم بحث شبه تجريبي مع (الاختبار القبلي والبعدي). عينة البحث: ٢٠٧ طالب في جامعة بورسعيد. مكان البحث: تمت الدراسة في ست كليات تابعة لجامعة بورسعيد ، تم اختيارها عشوائياً. الأدوات: تم استخدام أداتين ، الأداة الأولى: استبيان الطلاب للتوعية بسرطان الخصية والوقاية منه ، الأداة الثانية: استمارة الممارسة عن الفحص الذاتي للخصية. النتائج: كانت غالبية مجالات التحسين هي تعريف الخصية (٩٨.١٪) ، العمر الذي يُرجح أن يحدث فيه سرطان الخصية (٩٠.٨٪)، العلامات التي يجب البحث عنها أثناء الفحص الذاتي للخصية (٩٢.٨٪)، وأهمية الفحص الذاتي للخصيتين (٨٠.٢٪) كما أظهر الفحص الذاتي للخصية تحسناً بعد إعطاء الجلسات النوعية. الخلاصة: تحسن ملحوظ في النتيجة الإجمالية للطلبة المدروسين من مستويات الوعي والممارسات فيما يتعلق بسرطان الخصية و الفحص الذاتي بعد تنفيذ الجلسات التعليمية. تم العثور على علاقة إحصائية إيجابية بين الوعي والممارسات في ما بعد الجلسات. التوصيات: التثقيف الصحي المستمر لطلاب الجامعات ر الذي يؤكد على تحسين فهمهم لمبادئ التعاون التقني وقيمة ممارسة الفحص الذاتي للتشخيص المبكر ، من أجل إعطاء الأطفال هذه المعرفة ، يجب على الممارسين الصحيين أيضاً استخدام منصات الاتصال مثل وسائل التواصل الاجتماعي. للتوعية بسرطان الخصية.

الكلمات المرشدة: جلسات تثقيفية، طلاب، سرطان الخصية.