



Knowledge on male sexual and reproductive health: a comparison between final year medical students in Universiti Sains Malaysia (USM) and Monash University (MU), Melbourne, Australia

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ABSTRACT

Introduction: Greater needs of medical doctors to provide appropriate care for both genders related diseases, however men face more problem since their problems have less been recognized. **Objective:** The objective was to determine the level of men's health knowledge among final year medical students in USM and MU. **Method:** A total of 199 final year medical students from Universiti Sains Malaysia (USM), Kelantan, Malaysia and Monash University, Melbourne, Australia (75 students from USM and 124 students from MU) were enrolled in the study and completed self-administered questionnaire on the topics related to male sexual and reproductive health. **Result:** The response rate for USM and MU was 44% and 68.9% respectively. Out of 52 items, 17 items were significantly had higher percentage in answering correctly ($p < 0.005$) by MU students as compared to USM students. Meanwhile, USM students had 10 items which had significantly higher percentage in answering correctly ($p < 0.005$) as compared to MU students. There was a significant difference in 2 domains which were knowledge on physiology of penile erection and male sexual dysfunction in both groups ($p < 0.005$). The highest score for men's health knowledge was 90.3% and the lowest score was 38.4%. Approximately 46.7% of the USM and 66.1% of the MU students had significantly good knowledge score (marks $\geq 75\%$ of the total score) ($p < 0.05$). **Conclusion:** There was still a gap in knowledge on Men's Health among the final year medical students in both universities.

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Introduction

Knowledge of male sexual and reproductive health has becoming more crucial nowadays. This is because of the increment of men's related diseases for example, sexually transmitted infections including HIV. In Malaysia, the cumulative estimated number of people with HIV or AIDS was increasing in trend since it was detected in 1998 from 44000 (1) to 51000 by the end of 2003 (2). In Victoria, Australia, 4412 cases of HIV infection reported in the same year (3). Furthermore, more people are becoming open in discussing their sexual problems; erectile dysfunction for instant is the most common sexual dysfunction among men. With the advance of technologies and treatment, more men have come forward to get proper treatment with availability of oral drug especially PDE5 inhibitors.

The curriculum in USM medical school for undergraduate teaching is based on problem based learning method, didactic lecture, case presentation as well as community oriented programme(4). The students are demanded to master a wide range of clinical knowledge and skills in order to be competent doctor and able to provide satisfactory services to community later (4). There was not much difference from Monash University curriculum, except the clinical years, the length of postings and how they trained their students. In current situation, men's health issues have mainly been taught using discipline-centred, for example urogenital problems is taught in surgical posting and internal medicine posting for STDs and topics on HIV. However there is no specific men's health teaching module, using truly patient-centered approach that can be used by multi-disciplinary lecturers available in USM.

In addition, this topic was addressed very scarcely in the curriculum even in Family Medicine Posting. Fewer attentions have been given to men's health as one of the essential component for undergraduate medical training as compared to women's health. Despite interest in developing policies for men's health has been increasing globally, there has been relatively less

acknowledgment for men's health needs, probably as a consequence of the differences between both genders behaviours in seeking treatment and using health services (5).

Initiatives to address this topic in health included a number of attempts to do short courses or training to make sure health care providers able to recognize, screen and manage the men's health problem appropriately. However for medical students, lack of opportunities was given to them. Lack of research about this issue also slower the rate of awareness among health care professional or medical educationist.

So, the need for curricula to incorporate gender-related health issues, apart from women's health issue has been highlighted by numerous health care professionals (6,7). Much of this interest has focused on women's health, with several published descriptions of women's health content in current curriculum, although certain issues like domestic violence not properly implement and taught as reported by World Health Organization (WHO) in 2006 (8). WHO already moved forward to implement it in certain medical schools including Monash University. The equity of addressing women and men health issues should be promoted earlier in undergraduate curriculum.

Realizing the importance of this topic, this study was conducted to determine the level of men's health knowledge among final year medical students in USM and MU and to compare between them. Hopefully this will indicate how far our students have grasped the knowledge from existing curricula

Method

Subject

A total of 199 final year medical students from Universiti Sains Malaysia (USM), Kelantan, Malaysia and Monash University (MU), Melbourne, Australia (75 students from USM and 124 students from MU), ages ranged from 23 to 30 years were enrolled into the study after signing informed consent.

Self-administered questionnaire

They were asked to answer about male sexual and reproductive health through self-administered questionnaires one month prior to their final examination.

The questionnaire was developed based on the topics related to male sexual and reproductive health. The questionnaire has gone through various processes to meet the content and face validity. Firstly, focus group session with the fourth year medical students in MU was conducted looking at various domains for the questions as well as constructing of each of the question. Subsequently, the question was sent to the experts (endocrinologist, GP with special interest in sexual health and andrologist). The questionnaire was also sent to the Andrology Australia, the organization supported by the government of Australia.

The questionnaire was emphasized on nine domains which include; male reproductive system/anatomy and physiology, prostate disease, testicular cancer, male infertility, androgen deficiency, sexual dysfunction, male contraception, sexually transmitted infection and ethical and psychosocial issues (HIV). From those nine domains, there were 13 sub-domains with 52 questions' items all together. The average time of completion the questionnaires expected was 15 minutes. .

Statistical analysis

Correct and incorrect answers were expressed by frequencies and percentage. Pearson Chi-Square test was used to compare the knowledge on men's health issues among both groups. Poor knowledge was determined by researcher as the overall marks less than 75% of the total score, while marks $\geq 75\%$ of the total score will be referred as good knowledge. A two-sided hypotheses testing were used in all analysis with p-value <0.05 was considered statistically significant. All the analyses were done using SPSS 16.0 for Windows.

Result

The response rate from USM was about 44% compared to MU, 68.9%.

The overall knowledge

The overall knowledge was presented in (table 1)

The item with highest proportion of correct answer were "Prostate cancer is more common in men below the age of 40 years" (98.2%) followed by "Pituitary as a structure that control the production of male sex hormones" (97.5%) whereas the lowest proportion of correct answer was "Condom is appropriate for sperm collection" (18.6%).

Overall, MU students had higher percentage ($p<0.005$) of answering 17 questions correctly as compared to USM students. Meanwhile, USM students had answered only 10 questions with higher percentage of correct answer. The other questions were equivalent.

Comparison of men's health knowledge

Only 21 questions showed significantly different between groups. 15 questions favoured MU students and another 6 favoured USM students. The details as shown in table 3.

All physiology of penile erection showed significantly different among universities. Out of 4, 3 questions were answered better by MU students. For spermatogenesis, only duration of sperms maturity showed significant difference. However it percentages was low (46.0% vs 29.3%).

Regarding structures that control the production of male sex hormones, the percentages were equivalent. USM students had lower knowledge on normal sperm counts but higher knowledge on the uses of condom for sperm collection however the percentage was still very low (30.7% vs 11.3%).

Regarding Lower Urinary Tract Symptoms (LUTS), MU students had significantly higher

knowledge on two questions regarding testicular cancer as compared to USM students (Table 2).

About male infertility, only genital tuberculosis question showed significant difference in between groups which was 92.0% and 69.4% respectively (Table 2). Regarding knowledge on androgen deficiency, only one question (androgen replacement treatment) showed significantly different. USM students had higher knowledge for this question.

For erectile dysfunction, male contraception, and HIV knowledge, there were two questions for each item which students from both universities had significantly different knowledge and of these six questions, USM had lower knowledge for five questions stated (Table 2).

Level of knowledge score on male sexual and reproductive health

Overall performance of USM and MU final year medical students was presented in table 3 as either good or poor score. The highest mark was 90.3% and the lowest mark was 38.4%. Approximately 46.7% USM and 66.1% Monash University students had significantly good knowledge score (the marks $\geq 75\%$ the total score) ($p < 0.05$).

According to students' opinion the main factors that drove interaction were the assessment and motivation. The main hindering factor for the group interaction was the case scenarios which were not designed based on students' prior knowledge.

Discussion

Doctors should deliver comprehensive care spanning the life of men. Because adult men tend to seek health care services less often than do women, and many times at a more advanced stage of disease, medical practitioners should strive to provide care that helps prevent chronic and potentially debilitating diseases. The doctor also should be able to discuss sensitive issues in dealing with mental health and sexual dysfunction problems, in which men are often

more reserved. Because of that, knowledge about men's health needs to be stressed and implemented at par with other disciplines in undergraduate teaching or curriculum.

Final year medical students from both universities still uncertain or had poor knowledge regarding physiology of penile erection and spermatogenesis. This is because they learned it in preclinical years and might forget about it. However with integrated systems implemented in both universities, student should be able to apply it throughout their 5 years programme.

There was still gap of knowledge in male sexual and reproductive health among the medical students in both universities. Generally, MU performed better in many domains. This is because the exposure in the male sexual and reproductive health among the undergraduates in MU is more especially during their General Practitioner Posting apart from other medical and surgical postings. Unfortunately, Primary Health and Preventive Medicine Posting that held in final year in USM has limited time and slot to discuss about men's health issues and whether comprehensive discussion related to the Men's health problem discussed elsewhere is unknown.

There were few areas where both universities performed very poorly. So we encourage both universities to make amendment on this issue in the next curriculum review to enhance men's health knowledge in the graduates to be at par with other health issues. With new or amendment of curriculum, we hope all medical students will be trained at least to diagnose and treat common men's health problem. As the population ages, men's health conditions are becoming more prevalent with increasing trends in prostate cancer, incontinence and erectile dysfunction.

In United States of America, medical students learn from state of the art technology, and finish medical school as some of the best-trained physicians in the world. However, despite this only 17% of the medical students received any training in urology. So they also emphasize the

need for all medical students to receive basic training in urology, regardless of their chosen specialties. To ensure proper care for all patients, the American Urological Association (AUA) has released its first National Medical Student Core Curriculum to train all medical students to successfully diagnose and treat common urologic disorders which is part of men's health(9). Another study done at Medical School of Virginia University, they compare how the medical students (year 1 to 3) perceived sexual health knowledge, their comfort of addressing sexual health problems and the attitudes towards the importance of addressing and discussing this issue with patient. They found out the knowledge increased with the increment of the year in medical school. Female students reported that addressing this issue significantly more important than male student whereas male students had higher level of knowledge and more comfortable to discuss this issue with patient (10).

So based on the results of this study, the authorities need to take further action and new assessment or evaluation need to be done after review the objectives or curriculum in order to increase medical students knowledge on men's health.

Conclusion

Knowledge of men's health issues among medical students still limited and insufficient. It is most probably due to under-represented of its topic in the undergraduate medical sciences curricular. Medical educationist and health professionals need to sit together, initiate and integrate men's reproductive and sexual health issues in the existing undergraduate curricula as a strategy to produce competency doctors in treating the male problem.

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Table 1: Overall knowledge of the final year medical students in USM and Monash University on male sexual and reproductive health (n=199)

No	KNOWLEDGE	USM n (%)	MONASH (%)	n	p-value
1	Physiology of penile erection				
a.	Phosphodiesterase type 5 breaks down cyclicGMP				<0.001
	Correct answer	46 (61.3)	99 (79.8)		
	Incorrect answer	11 (14.7)	19 (15.4)		
	No answer	18 (24.0)	6 (4.8)		
b.	Sexual stimulation is a prerequisite				<0.001
	Correct answer	56 (74.7)	28 (22.6)		
	Incorrect answer	16 (21.3)	92 (74.2)		
	No answer	3 (4.0)	4 (3.2)		
c.	It is medicated predominantly by the released of nitrous oxide				<0.001
	Correct answer	30 (41.3)	87 (70.2)		
	Incorrect answer	30 (41.3)	32 (25.8)		
	No answer	15 (17.4)	5 (4.0)		
d.	During erection, the intracarvenosus pressure is \geq than the systemic blood pressure				0.002
	Correct answer	40 (53.3)	92 (74.2)		
	Incorrect answer	28 (37.3)	30 (24.2)		
	No answer	7 (9.4)	2 (1.6)		
2	Spermatogenesis				
a.	It occurs in the prostate gland				0.129
	Correct answer	68 (90.7)	119 (96.0)		
	Incorrect answer	5 (6.7)	5 (4.0)		
	No answer	2 (2.6)	0 (0.0)		
b.	It takes about 70 days for sperms to mature				0.001
	Correct answer	22 (29.3)	57 (46.0)		
	Incorrect answer	41 (54.7)	64 (51.6)		
	No answer	12 (16.0)	3 (2.4)		
c.	Androgen is required				0.466
	Correct answer	69 (92.0)	119 (96.0)		
	Incorrect answer	3 (4.0)	3 (2.4)		
	No answer	3 (4.0)	2 (1.6)		
d.	Alcohol reduces man's sperm count				0.470
	Correct answer	62 (82.7)	100 (80.6)		
	Incorrect answer	11 (14.7)	23 (18.5)		
	No answer	2 (2.6)	1 (0.8)		
3	Structures that control the production of male sex hormones				
a.	Testis				0.111
	Correct answer	72 (97.2)	116 (93.5)		
	Incorrect answer	1 (1.4)	8 (6.5)		
	No answer	1 (1.4)	0 (0.0)		
b.	Thyroid gland				0.077
	Correct answer	56 (76.0)	90 (72.6)		
	Incorrect answer	14 (18.7)	33 (26.6)		
	No answer	4 (5.3)	1 (0.8)		
c.	Hypothalamus				0.327
	Correct answer	72 (97.3)	117 (94.4)		
	Incorrect answer	2 (2.7)	5 (5.6)		
	No answer	0 (0.0)	0 (0.0)		
d.	Pituitary				0.297
	Correct answer	72 (97.3)	117 (94.4)		
	Incorrect answer	2 (2.7)	5 (5.6)		
	No answer	0 (0.0)	0 (0.0)		

4	Seminal fluid analysis			
a.	Normal sperm counts are ≥ 20 millions/ml			0.009
	Correct answer	60 (80.0)	116 (93.5)	
	Incorrect answer	10 (13.3)	7 (5.6)	
	No answer	5 (6.7)	1 (0.8)	
b.	Condom is appropriate for sperm collection			0.001
	Correct answer	23 (31.6)	14 (11.3)	
	Incorrect answer	50 (66.7)	109 (87.9)	
	No answer	2 (2.7)	1 (0.8)	
c.	Abstinence from ejaculation for 2 – 3 days is required to get an accurate result			<0.001
	Correct answer	57 (76.0)	103 (83.1)	
	Incorrect answer	9 (12.0)	21 (16.9)	
	No answer	9 (12.0)	0 (0.0)	
d.	Sample is kept for 24 hours in the laboratory			0.028
	Correct answer	45 (60.0)	72 (58.1)	
	Incorrect answer	22 (29.3)	49 (39.5)	
	No answer	8 (10.7)	3 (2.4)	
5	Prostate disease			
a.	Prostate cancer is more common in men below the age of 40 years			0.297
	Correct answer	73 (97.3)	123 (99.2)	
	Incorrect answer	2 (2.7)	1 (0.8)	
	No answer	0 (0.0)	0 (0.0)	
b.	Alpha blocker is contraindicated in benign prostatic hyperplasia			0.060
	Correct answer	61 (81.3)	88 (71.0)	
	Incorrect answer	10 (13.4)	33 (26.6)	
	No answer	4 (5.3)	3 (2.4)	
c.	Prostatic specific antigen is indicated in testing asymptomatic men more than 50 years old for prostate cancer			0.861
	Correct answer	28 (37.3)	47 (37.9)	
	Incorrect answer	46 (61.3)	74 (59.7)	
	No answer	1 (1.4)	3 (2.4)	
d.	Patient with prostate cancer commonly presents with lower urinary tract symptoms (LUTS)			0.009
	Correct answer	14 (18.7)	47 (37.9)	
	Incorrect answer	60 (80.9)	77 (62.1)	
	No answer	1 (1.4)	0 (0.0)	
6	Testicular cancer			
a.	It is commonest cancer in men between 15 to 45 years			0.099
	Correct answer	42 (56.0)	88 (71.0)	
	Incorrect answer	32 (42.7)	35 (28.2)	
	No answer	1 (1.3)	1 (0.8)	
b.	It has a poor prognosis even if it was detected at the early stage			0.026
	Correct answer	52 (69.3)	101 (81.5)	
	Incorrect answer	20 (26.7)	23 (18.5)	
	No answer	3 (4.0)	0 (0.0)	
c.	Painless lump is a common presentation			0.383
	Correct answer	70 (93.3)	115 (92.7)	
	Incorrect answer	4 (5.4)	9 (7.3)	
	No answer	1 (1.3)	0 (0.0)	
d.	Undescended testis is a risk factor			0.193
	Correct answer	71 (96.0)	113 (91.1)	
	Incorrect answer	3 (4.0)	11 (8.9)	
	No answer	0 (0.0)	0 (0.0)	

7	Male infertility			
a.	Intracytoplasmic sperm injection (ICSI) is a mode of treatment			0.047
	Correct answer	62 (82.7)	92 (74.2)	
	Incorrect answer	9 (12.0)	30 (24.2)	
	No answer	4 (5.3)	2 (1.6)	
b.	Epididymitis is a risk factor			0.832
	Correct answer	65 (86.7)	105 (84.7)	
	Incorrect answer	9 (12.0)	18 (14.5)	
	No answer	1 (1.3)	1 (0.8)	
c.	Karyotyping is an important investigation in patients with azoospermia			0.013
	Correct answer	60 (80)	109 (87.9)	
	Incorrect answer	10 (13.3)	15 (12.1)	
	No answer	5 (6.7)	0 (0.0)	
d.	Genital tuberculosis is a cause of vas deferens blockage			<0.001
	Correct answer	69 (92.0)	86 (69.4)	
	Incorrect answer	4 (5.3)	37 (29.8)	
	No answer	2 (2.7)	1 (0.8)	
8	Androgen deficiency			
a.	It is common in the adolescent age group			0.012
	Correct answer	42 (56.0)	86 (69.4)	
	Incorrect answer	29 (38.7)	38 (30.6)	
	No answer	4 (5.3)	0 (0.0)	
b.	Treatment with androgen replacement is needed for life			0.001
	Correct answer	53 (70.7)	76 (61.3)	
	Incorrect answer	16 (21.3)	48 (38.7)	
	No answer	6 (8.0)	0 (0.0)	
c.	Testosterone level is best taken early in the morning			0.003
	Correct answer	63 (84.0)	103 (83.1)	
	Incorrect answer	5 (6.7)	20 (16.1)	
	No answer	7 (9.3)	1 (0.8)	
d.	Obesity is a known association			0.106
	Correct answer	58 (77.3)	90 (72.6)	
	Incorrect answer	15 (20.0)	34 (27.4)	
	No answer	2 (2.7)	0 (0.0)	
9	Erectile dysfunction			
a.	Combination of nitrate and sildenafil citrate produces best outcome			<0.001
	Correct answer	24 (32.0)	82 (66.1)	
	Incorrect answer	48 (64.0)	41 (33.1)	
	No answer	3 (4.0)	1 (0.8)	
b.	Penile implant is a method of treatment			<0.001
	Correct answer	37 (49.3)	106 (85.5)	
	Incorrect answer	35 (46.7)	18 (14.5)	
	No answer	3 (4.0)	0 (0.0)	
c.	Presence of spontaneous nocturnal erection suggests an organic origin			0.567
	Correct answer	55 (73.3)	91 (73.4)	
	Incorrect answer	18 (24.0)	32 (25.8)	
	No answer	2 (2.7)	1 (0.8)	
d.	Medication with beta-blocker is a recognized cause			0.271
	Correct answer	62 (82.7)	103 (83.1)	
	Incorrect answer	10 (13.3)	20 (16.1)	
	No answer	3 (4.0)	1 (0.8)	

10	Male sexual dysfunction			
a.	Presence of sperm in the post orgasmic urine is suggestive of retrograde ejaculation			0.001
	Correct answer	65 (86.7)	90 (72.6)	
	Incorrect answer	7 (9.3)	34 (27.4)	
	No answer	3 (4.0)	0 (0.0)	
b.	Selective serotonin receptor inhibitors (SSRIs) are contraindicated in patient with premature ejaculation			<0.001
	Correct answer	28 (37.3)	98 (79.0)	
	Incorrect answer	38 (50.7)	26 (21.0)	
	No answer	9 (12.0)	0 (0.0)	
c.	The term delayed ejaculation refers to inhibition of ejaculation despite adequate sexual stimulation			0.317
	Correct answer	54 (72.0)	95 (76.6)	
	Incorrect answer	17 (22.7)	27 (21.8)	
	No answer	4 (5.3)	2 (1.6)	
d.	Loss of libido is a symptom of androgen deficiency in ageing man			0.013
	Correct answer	66 (88.0)	91 (73.4)	
	Incorrect answer	8 (10.7)	33 (26.6)	
	No answer	1 (1.3)	0 (0.0)	
11	Male contraception			
a.	Vasectomy is a reliable method of male contraception			0.347
	Correct answer	68 (90.7)	117 (94.4)	
	Incorrect answer	7 (9.3)	6 (4.8)	
	No answer	0.0	1 (0.8)	
b.	Testosterone – progesterone pills are widely available			0.001
	Correct answer	60 (80.0)	119 (96.0)	
	Incorrect answer	12 (16.0)	5 (4.0)	
	No answer	3 (4.0)	0 (0.0)	
c.	Condom reduces risk of sexually transmitted infections			0.313
	Correct answer	73 (97.4)	120 (96.8)	
	Incorrect answer	1 (1.3)	4 (3.2)	
	No answer	1 (1.3)	0 (0.0)	
d.	Periodic abstinence is a well accepted method			<0.001
	Correct answer	20 (26.7)	100 (80.6)	
	Incorrect answer	54 (72.0)	24 (19.4)	
	No answer	1 (1.3)	0 (0.0)	
12	Urethral discharge			
a.	Gonorrhoea infection is unlikely if the discharge is mucopurulent in nature			0.173
	Correct answer	60 (80.0)	109 (87.9)	
	Incorrect answer	12 (16.0)	14 (11.3)	
	No answer	3 (4.0)	1 (0.8)	
b.	Swab for herpes culture is indicated in patient with proctitis			0.042
	Correct answer	58 (77.3)	95 (76.6)	
	Incorrect answer	12 (16.0)	28 (22.6)	
	No answer	5 (6.7)	1 (0.8)	
c.	Azithromycin 1 gram stat dose is the treatment for nonspecific urethritis			0.001
	Correct answer	50 (66.7)	84 (67.7)	
	Incorrect answer	16 (21.3)	39 (31.5)	
	No answer	9 (12.0)	1 (0.8)	
d.	Primary syphilis is a cause			0.023
	Correct answer	36 (48.0)	39 (31.5)	
	Incorrect answer	35 (46.7)	82 (66.1)	
	No answer	4 (5.3)	3 (2.4)	

13 HIV				
a.	Notification is mandatory			0.238
	Correct answer	72 (96.0)	119 (96.0)	
	Incorrect answer	0 (0.0)	3 (2.4)	
	No answer	3 (4.0)	2 (1.6)	
b.	Informed consent is unnecessary for HIV testing			0.013
	Correct answer	70 (93.3)	103 (83.1)	
	Incorrect answer	2 (2.7)	19 (15.3)	
	No answer	3 (4.0)	2 (1.6)	
c.	Telephone confirmation of HIV result is acceptable			0.243
	Correct answer	70 (93.3)	118(95.2)	
	Incorrect answer	1(1.3)	4 (3.2)	
	No answer	4 (5.3)	2 (1.6)	
d.	Antiretroviral drugs for post – exposure prophylaxis is given within 72 hours			0.001
	Correct answer	47 (62.7)	106 (85.5)	
	Incorrect answer	21 (28.0)	16 (12.9)	
	No answer	7 (9.3)	2 (1.6)	
	No answer	7 (9.3)	2 (1.6)	

Chi-Square test, significant at $p < 0.05$

Table 2 The comparison of the correct and wrong answer on men's health knowledge between the final year medical students in USM and Monash University.

No	KNOWLEDGE	USM n (%)	MONASH n (%)	p-value
1	Physiology of penile erection			
a.	Phosphodiesterase type 5 breaks down cyclicGMP			0.004
	Correct answer	46 (61.3)	99 (79.8)	
	Wrong answer	29 (38.7)	25 (20.2)	
b.	Sexual stimulation is a prerequisite			<0.001
	Correct answer	56 (74.7)	28 (22.6)	
	Wrong answer	19 (25.3)	96 (77.4)	
c.	It is medicated predominantly by the released of nitrous oxide			<0.001
	Correct answer	30 (41.3)	87 (70.2)	
	Wrong answer	45 (58.7)	37 (29.8)	
d.	During erection, the intracavernous pressure is less than the systemic blood pressure			0.003
	Correct answer	40 (53.3)	92 (74.2)	
	Wrong answer	35 (46.7)	32 (25.8)	
2	Spermatogenesis			
a.	It occurs in the prostate gland			0.128
	Correct answer	68 (90.7)	119 (96.0)	
	Wrong answer	7 (9.3)	5 (4.0)	
b.	It takes about 70 days for sperms to mature			0.020
	Correct answer	22 (29.3)	57 (46.0)	
	Wrong answer	53 (70.7)	67 (54.0)	

c.	Androgen is required			0.235
	Correct answer	69 (92.0)	119 (96.0)	
	Wrong answer	6 (8.0)	5 (4.0)	
d.	Alcohol reduces man's sperm count			0.722
	Correct answer	40 (53.3)	92 (74.2)	
	Wrong answer	35 (46.7)	32 (25.8)	
3	Structures that control the production of male sex hormones			
a.	Testis			0.463
	Correct answer	72 (97.2)	116 (93.5)	
	Wrong answer	2 (2.8)	8 (6.5)	
b.	Thyroid gland			0.595
	Correct answer	56 (76.0)	90 (72.6)	
	Wrong answer	18 (24.0)	34 (27.4)	
c.	Hypothalamus			0.327
	Correct answer	72 (97.3)	117 (94.4)	
	Wrong answer	2 (2.7)	5 (5.6)	
d.	Pituitary			0.297
	Correct answer	72 (97.3)	117 (94.4)	
	Wrong answer	2 (2.7)	5 (5.6)	
4	Seminal fluid analysis			
a.	Normal sperm counts are ≥ 20 millions/ml			0.004
	Correct answer	60 (80.0)	116 (93.5)	
	Wrong answer	15 (20.0)	8 (6.4)	
b.	Condom is appropriate for sperm collection			0.001
	Correct answer	23 (31.6)	14 (11.3)	
	Wrong answer	52 (69.4)	110 (88.7)	
c.	Abstinence from ejaculation for 2 – 3 days is required to get an accurate result			0.224
	Correct answer	57 (76.0)	103 (83.1)	
	Wrong answer	18 (24.0)	21 (16.9)	
d.	Sample is kept for 24 hours in the laboratory			0.788
	Correct answer	45 (60.0)	72 (58.1)	
	Wrong answer	30 (40.0)	52 (41.9)	
5	Prostate disease			
a.	Prostate cancer is more common in men below the age of 40 years			0.297
	Correct answer	73 (97.3)	123 (99.2)	
	Wrong answer	2 (2.7)	1 (0.8)	
b.	Alpha blocker is contraindicated in benign prostatic hyperplasia			0.102
	Correct answer	61 (81.3)	88 (71.0)	
	Wrong answer	14 (18.7)	36 (29.0)	
c.	Prostatic specific antigen is indicated in testing asymptomatic men more than 50 years old for prostate cancer			0.936
	Correct answer	28 (37.3)	47 (37.9)	
	Wrong answer	47 (62.7)	77(62.1)	
d.	Patient with prostate cancer commonly presents with lower urinary tract symptoms			0.004
	Correct answer	14 (18.7)	47 (37.9)	
	Wrong answer	62 (82.1)	77 (62.1)	

6	Testicular cancer			
a.	It is commonest cancer in men between 15 to 45 years			0.032
	Correct answer	42 (56.0)	88 (71.0)	
	Wrong answer	33 (44.0)	36 (29.0)	
b.	It has a poor prognosis even if it was detected at the early stage			0.049
	Correct answer	52 (69.3)	101 (81.5)	
	Wrong answer	23 (30.7)	23 (18.5)	
c.	Painless lump is a common presentation			0.874
	Correct answer	70 (93.3)	115 (92.7)	
	Wrong answer	5 (6.7)	9 (7.3)	
d.	Undescended testis is a risk factor			0.193
	Correct answer	71 (96.0)	113 (91.1)	
	Wrong answer	3 (4.0)	11 (8.9)	
7	Male infertility			
a.	Intracytoplasmic sperm injection (ICSI) is a mode of treatment			0.166
	Correct answer	62 (82.7)	92 (74.2)	
	Wrong answer	11 (17.3)	32 (25.8)	
b.	Epididymitis is a risk factor			0.700
	Correct answer	65 (86.7)	105 (84.7)	
	Wrong answer	10 (13.3)	19 (15.3)	
c.	Karyotyping is an important investigation in patients with azoospermia			0.131
	Correct answer	60 (80.0)	109 (87.9)	
	Wrong answer	15 (20.0)	15 (12.1)	
d.	Genital tuberculosis is a cause of vas deferens blockage			<0.001
	Correct answer	69 (92.0)	86 (69.4)	
	Wrong answer	6 (8.0)	38 (30.6)	
8	Androgen deficiency			
a.	It is common in the adolescent age group			0.057
	Correct answer	42 (56.0)	86 (69.4)	
	Wrong answer	33 (44.0)	38 (30.6)	
b.	Treatment with androgen replacement is needed for life			0.001
	Correct answer	53 (70.7)	76 (61.3)	
	Wrong answer	22 (29.3)	48 (38.7)	
c.	Testosterone level is best taken early in the morning			0.863
	Correct answer	63 (84.0)	103 (83.1)	
	Wrong answer	12 (16.0)	21 (16.9)	
d.	Obesity is a known association			0.457
	Correct answer	58 (77.3)	90 (72.6)	
	Wrong answer	17 (22.7)	34 (27.4)	
9	Erectile dysfunction			
a.	Combination of nitrate and sildenafil citrate produces best outcome			<0.001
	Correct answer	24 (32.0)	82 (66.1)	
	Wrong answer	51 (68.0)	42 (33.9)	

b.	Penile implant is a method of treatment			<0.001
	Correct answer	37 (49.3)	106 (85.5)	
	Wrong answer	38 (50.7)	18 (14.5)	
c.	Presence of spontaneous nocturnal erection suggests an organic origin			0.993
	Correct answer	55 (73.3)	91 (73.4)	
	Wrong answer	20 (26.7)	33 (26.6)	
d.	Medication with beta-blocker is a recognized cause			0.942
	Correct answer	62 (82.7)	103 (83.1)	
	Wrong answer	13 (17.3)	21 (16.9)	
10	Male sexual dysfunction			
a.	Presence of sperm in the post orgasmic urine is suggestive of retrograde ejaculation			<0.050
	Correct answer	65 (86.7)	90 (72.6)	
	Wrong answer	10 (13.3)	34 (27.4)	
b.	Selective serotonin receptor inhibitors (SSRIs) are contraindicated in patient with premature ejaculation			<0.001
	Correct answer	28 (37.3)	98 (79.0)	
	Wrong answer	47 (62.7)	26 (21.0)	
c.	The term delayed ejaculation refers to inhibition of ejaculation despite adequate sexual stimulation			0.467
	Correct answer	54 (72.0)	95 (76.6)	
	Wrong answer	21 (28.0)	29 (23.4)	
d.	Loss of libido is a symptom of androgen deficiency in ageing man			<0.050
	Correct answer	66 (88.0)	91 (73.4)	
	Wrong answer	9 (12.0)	33 (26.6)	
11	Male contraception			
a.	Vasectomy is a reliable method of male contraception			0.324
	Correct answer	68 (90.7)	117 (94.4)	
	Wrong answer	7 (9.3)	7 (5.6)	
b.	Testosterone – progesterone pills are widely available			<0.001
	Correct answer	60 (80.0)	119 (96.0)	
	Wrong answer	15 (20.0)	5 (4.0)	
c.	Condom reduces risk of sexually transmitted infections			0.823
	Correct answer	73 (97.4)	120 (96.8)	
	Wrong answer	2 (2.6)	4 (3.2)	
d.	Periodic abstinence is a well accepted method			<0.001
	Correct answer	20 (26.7)	100 (80.6)	
	Wrong answer	55 (73.3)	24 (19.4)	
12	Urethral discharge			
a.	Gonorrhoea infection is unlikely if the discharge is mucopurulent in nature			0.131
	Correct answer	60 (80.0)	109 (87.9)	
	Wrong answer	15 (20.0)	15 (11.1)	
b.	Swab for herpes culture is indicated in patient with proctitis			0.907
	Correct answer	58 (77.3)	95 (76.6)	
	Wrong answer	17 (22.7)	29 (23.4)	

c.	Azithromycin 1 gram stat dose is the treatment for nonspecific urethritis			0.875
	Correct answer	50 (66.7)	84 (67.7)	
	Wrong answer	25 (33.3)	40 (32.3)	
d.	Primary syphilis is a cause			<0.050
	Correct answer	36 (48.0)	39 (31.5)	
	Wrong answer	39 (52.0)	85 (68.5)	
13	HIV			
a.	Notification is mandatory			0.991
	Correct answer	72 (96.0)	119 (96.0)	
	Wrong answer	3 (4.0)	5 (4.0)	
b.	Informed consent is unnecessary for HIV testing			<0.050
	Correct answer	70 (93.3)	103 (83.1)	
	Wrong answer	5 (6.7)	21 (16.9)	
c.	Telephone confirmation of HIV result is acceptable			0.584
	Correct answer	70 (93.3)	118 (95.2)	
	Wrong answer	5 (6.7)	6 (4.8)	
d.	Antiretroviral drugs for post – exposure prophylaxis is given within 72 hours			<0.001
	Correct answer	47 (62.7)	106 (85.5)	
	Wrong answer	28 (37.3)	18 (14.5)	

Table 3: The proportion of good and poor male sexual and reproductive health knowledge score among students in both universities (n=199)

UNIVERSITY	Frequency (%)		P value
	Good	Poor	
USM	35 (46.7%)	40 (53.3%)	0.007
MU	82 (66.1%)	42 (33.9%)	

Definition: good score when the marks were 75% or more of the total score