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Original Research Article

Use of multiple choice questions to assess the knowledge and awareness about HIV/AIDS - A core competency, among first and second MBBS students of KBNIMS, Gulbarga

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ABSTRACT

Introduction: Multiple choice questions (MCQ's) are a reliable and an efficient method of assessment. It is an objective type of assessment where, its efficiency depends on the item and the options given. A well framed MCQ is a very good tool for formative and summative assessment of the student. It is also been introduced in medical education, different entrance exams. The student can be assessed for the depth of the knowledge he/she has using MCQs. Also, the MCQs are less time consuming, cost effective and efficient and reliable.
Aim and Objective: To compare the knowledge and awareness about HIV/AIDS in 1st and 2nd MBBS students using MCQs as an assessment method
Materials and Methods: The study comprised 100 1st MBBS and 100 2nd MBBS students from KBNIMS, Gulbarga. Students were given 14 MCQs on HIV/AIDS and were asked to tick the correct answers.
Results: In our study we found that the performance of 2nd MBBS students was better compared to 1st MBBS students in majority of the MCQs
Conclusion: In this study we found that MCQs can be used as assessment tool to compare the knowledge and awareness about HIV/AIDS among UG medical students. We found that the knowledge and awareness of AIDS is better among 2nd year students who have the topic as core competency to learn.

1. Introduction

The ultimate aim of medical education is to improve the health and the health care of the population.[1] The outcomes of all medical education programs, in general, are focused on this aim. So assessments become necessary to measure accurately the students' progress towards achievement of this outcome.[1,2] Test with multiple choice questions (MCQ) and analyzing their options have become the choice of many examiners in medic al colleges.[1,3] Multiple-choice questions (MCQs) are one of the popular and accepted means of evaluation in medical education. MCQ test items are advantageous as they can cover wider section of lessons and scrutinize large numbers of students in lesser time simultaneously. The tests can be employed for both paradigms of assessment (formative and summative). Colleges are incorporating MCQs tests in their examinations as there is rising trend of adopting MCQs for postgraduate medical entrance examinations. Its acceptance is based on its objectivity, feasibility, high internal consistency and accuracy.[4] Although MCQs are not commonly used in assessment of MBBS and medical postgraduate students, these are often the choice for most of the graduate and postgraduate medical entrance examinations. MCQs can be designed to assess the higher cognitive levels of the students.[5]

With this prospect, the study was conducted to assess the knowledge and awareness on HIV/AIDS using MCQ as an assessment tool to cover wider area on a topic.

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2. Materials and Methods

The study included 100 1st MBBS students and 100 2nd MBBS students under the age group of 18-22 years of KBNIMS, Gulbarga. Institution Ethical Clearance was obtained for the study. Written consent was obtained from the students. The students were given 14 MCQ's on HIV/AIDS. The options given were yes or no type and true or false type. The numbers of options were between 2-4. The results were analysed using frequency and percentage and then compared.

2.1. Inclusion criteria

Students under the age group of 18-22 years.

3. Results

The study showed a better performance of 2nd year students compared to first year students. The Study shows that 2nd year students, as compared to 1st year students, knows the cause of HIV/AIDS (100%). 100% of 2nd year students answered correctly that it is not curable, whereas, 83% of 1st year students answered that it is not curable. There was no much difference in answering whether HIV/AIDs is contagious (37% and 30%). Regarding the modes of transmission, 2nd year students answered 100% for blood transfusion, unsterile needles and sexual transmission, whereas, mother to child transmission, the results were 92%, 73% and 76% respectively for pregnancy, delivery and breastfeeding. 98% of 2nd MBBS students knows that HIV/AIDS is not spread by mosquito, whereas, 83% in 1st MBBS students. On prevention of HIV/AIDS, majority of the 2nd MBBS students answered correctly compared to 1st year students, though not of much difference. Graph 1 shows the prevention of HIV/AIDS, and Graph 2 shows the modes of prevention of HIV/AIDS and Graph 3 shows the modes of transmission of HIV/AIDS.

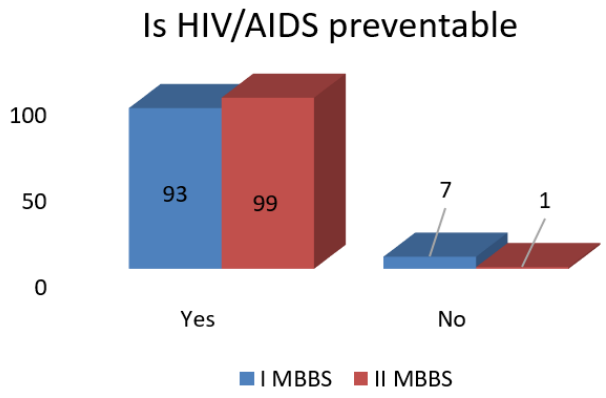

Fig. 1:

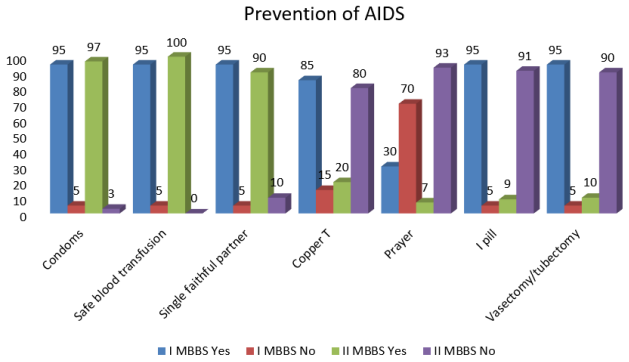

Fig. 2: Modes of prevention

4. Discussion

According to Angelo (1995) "Assessment can be defined as an ongoing process aimed at understanding and improving student learning".[6,7] The goal of assessment in medical education is usually to support learning or to establish the competence of individual doctors; it helps person being assessed, identify and respond to his or her own learning needs.[8] MCQs are considered as an efficient and reliable testing tool and could yield valid information of clinical reasoning skills.[6,9] It has also been demonstrated that MCQs have predictive value for more recognized problem solving tasks and can elicit higher order problem solving ability such as forward reasoning.[6,10,11] Magzoub et al concluded that the MCQ test is able to detect learning outcomes in the cognitive domain.[12]

MCQs bring a lot of advantages into the assessment process. In the first place, as a result of case specificity; the reliability and content validity of an examination depends on a broad sampling of problems; such sampling is easier to do with tests such as MCQs.[10]

In undergraduate medical education, a well-constructed MCQ can easily assess a student's ability to apply, evaluate and judge medical education knowledge.[13,14] Scully (2017) invalidated the perception that MCQs can only assess lower ordered thinking[15] and Palmer EJ and Devitt (2007) illustrated that the percentage of question testing lower ordered thinking is same in both MCQs and MEQs.[16] It also shows that a well-constructed MCQ is a better tool to assess higher ordered thinking in medical students than an MEQ (Palmer & Devitt, 2007). There is nothing innate in the MCQ assessment format which prevents testing of higher-ordered thinking.[17] Besides, medical schools are training their faculty members to develop multiple-choice questions which ensure assessment of higher ordered thinking of their students.[13]

There is a general perception that MCQs emphasize on knowledge recall i.e. Level I of revised Bloom's Taxonomy and MEQs are capable of testing higher ordered thinking. The criticism against MCQs is basically due to

Table 1:

Have you heard about AIDS	1st year MBBS		2nd year MBBS	
	N	%	N	%
Yes	100	100	100	100
No	0	0	0	0

Table 2:

What causes HIV AIDS	1st year MBBS		2nd year MBBS	
	N	%	N	%
Virus	98	98	100	100
NA	2	2	0	0

Table 3:

Is HIV/AIDS curable	1st year MBBS		2nd year MBBS	
	N	%	N	%
Yes	11	11	00	00
No	83	83	100	100
Don't know	4	4	0	0
NA	2	2	0	0

Table 4:

Is HIV/AIDS contagious	1st year MBBS		2nd year MBBS	
	N	%	N	%
Yes	54	54	63	63
No	30	30	37	37
Don't know	10	10	0	0
NA	6	6	0	0

Table 5:

What are the modes of sexual transmission	1st year MBBS						2nd year MBBS			
	Yes		No		Yes		No		Don't know	
	N	%	N	%	N	%	N	%	N	%
Heterosexual	79	79	21	21	89	89	3	3	9	9
Homosexual	46	46	54	54	89	89	4	4	7	7
Anal intercourse	40	40	60	60	67	67	20	20	13	13
Vaginal intercourse	81	81	19	19	96	96	3	3	1	1

Table 6:

Is unprotected sex harmless between two HIV infected people?	1st year MBBS		2nd year MBBS	
	N	%	N	%
Yes	25	25	30	30
No	63	63	70	70
Don't know	0	0	0	0
NA	12	12	0	0

Table 7:

Percentage of prevention of HIV/AIDS by condom	1st year MBBS		2nd year MBBS	
	N	%	N	%
100%	95	95	95	95
0%	1	1	00	00
< 100%	4	4	05	05

Table 8:

Knowledge about disease per se	1st year MBBS			2nd year MBBS		
	True	False	NA	True	False	NA
A. Infected person need not show symptoms and signs of AIDS	65	29	6	71	29	0
B. Body cannot defend itself from certain diseases	88	7	5	89	11	0
C. HIV/AIDS can be cured if detected early	50	34	6	46	54	0
D. HIV/AIDS can be identified by how he or she looks	11	85	4	21	79	0
E. Vaccine available to prevent HIV infection to occur	26	67	7	7	93	0

Table 9:

Knowledge about disease per se	1st year MBBS				2nd year MBBS			
	Yes		No		Yes		No	
		%		%		%		%
F. Is there any difference between HIV and AIDS	81	81	19	19	90	90	10	10
G. Symptoms of AIDS include								
a. Weight loss	90	90	10	10	97	97	3	3
b. prolonged fever	86	86	14	14	89	89	11	11
c. diarhhoea	72	72	28	28	73	73	27	27
d. repeated infections	93	93	7	7	96	96	4	4

Table 10:

Source of information about HIV/AIDS	1st year MBBS		2nd year MBBS	
		%		%
A. TV	84	84	100	100
B. Radio	68	68	100	100
C. Friends	71	71	100	100
D. Parents	58	58	100	100
E. Partners	53	53	100	100
F. Community health workers	69	69	100	100
G. Civil Society	55	55	100	100
H. News papers/magazines	82	82	100	100
I. School	83	83	100	100
J. PU College	88	88	100	100
K. Internet	86	86	100	100

Table 11:

Was any formal sex education imparted in your school or college	1st year MBBS		2nd year MBBS	
		%		%
Yes	72	72	76	76
No	25	25	24	24
NA	3	3	0	0

Table 12:

Was it a part of the regular biology classes or was it taken differently	1st year MBBS		2nd year MBBS	
		%		%
a. was part of biology class	86	86	84	84
b. was taken differently	10	10	16	16
c. Not answered	4	4	0	0

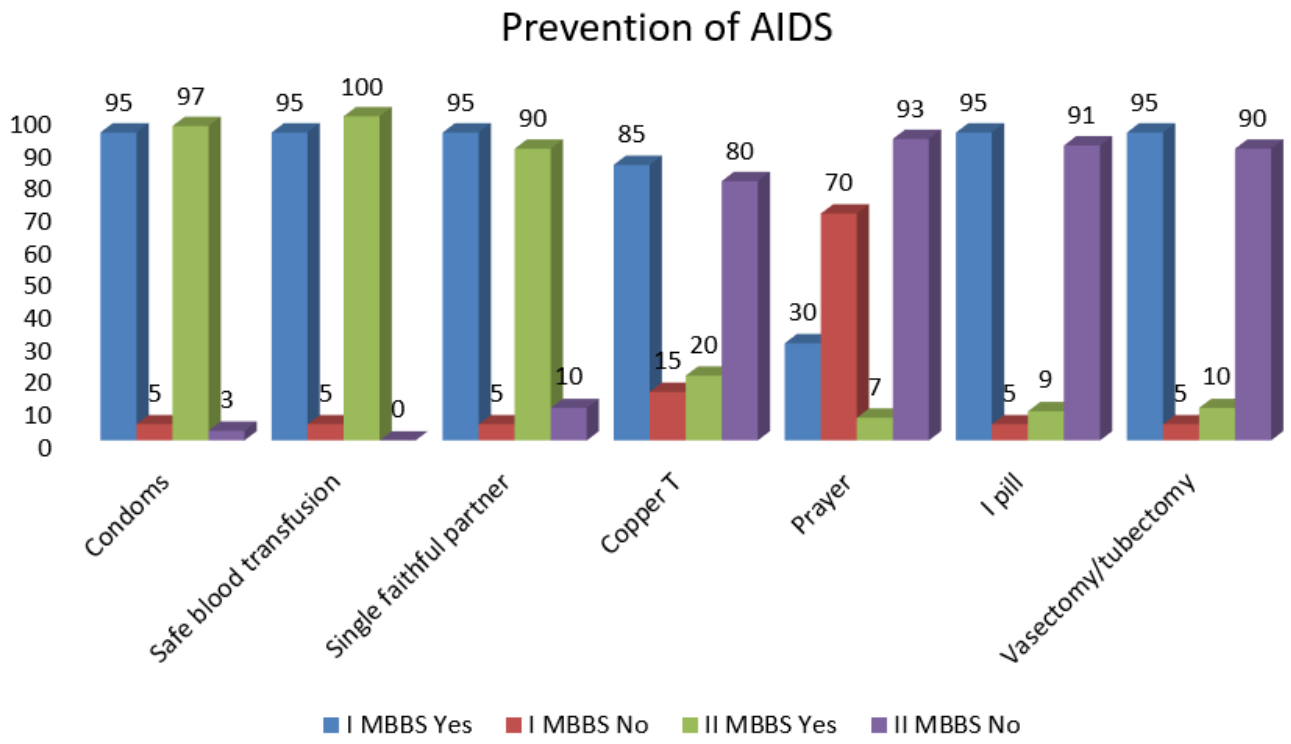

Fig. 3: Modes of transmission

its poor construction rather than the format itself. A study reveals that in assessing cognitive skills, MCQs significantly correlate with MEQs when their assessment's content is matched.[13,16]

5. Conclusion

In this study we found that MCQs can be used as assessment tool to compare the knowledge and awareness about HIV/AIDS among UG medical students. We found that the knowledge and awareness of AIDS is better among 2^{nd} year students who have the topic as core competency to learn.

6. Acknowledgement

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7. Conflict of Interest

None.

8. Source of Funding

None.

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