



## ASSESSMENT OF AWARENESS LEVEL OF MEDICAL STUDENTS ON HIV PREVENTION AND TREATMENT

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### ABSTRACT

HIV is an emerging world health problem. India is one of the countries experiencing a sharp increase in the number of infections. As medical students are the budding doctors, they should take the sole responsibility to protect the society from this dreadful disease. With this in mind the study was framed and analysed.

### Objective

- To assess the Students knowledge, attitude and awareness about HIV treatment and prevention.
- To analyse whether a change in the existing curriculum is needed.

**Settings and Design:** questionnaire study. **Material and Methods:** This study was conducted amongst three hundred students from Three batches of undergraduate students of Government Medical College, Chennai belonging to first year, second year, third year MBBS were selected for the study and were designated as group a, b and c A questionnaire containing twenty questions were used and students were asked to select the option which they thought was appropriate. The purpose of the study was explained. They were asked to mark the most appropriate answer from the options provided. The data was statistically analysed. **Statistical Analysis Used:** Two sample binomial proportion test. **Results:** On analysis, from hundred students of the first year, 52% of them had knowledge on treatment aspect and 47% of students had awareness on HIV prevention. From two hundred students of

second and third year 82.5% of them had knowledge on treatment aspect and 72% of students had awareness on HIV prevention. **Conclusion:** From this study, First year students were lacking knowledge in the prevention and treatment of HIV. Hence a awareness programme in the medical curriculum is needed from first year onwards in order to improve the overall knowledge about HIV prevention and treatment and priorities should be for the introduction of safer techniques.

**KEY-WORDS:** Awareness, Prevention, treatment, Knowledge, HIV.

**KEY MESSAGES:** From this study, the medical curriculum plays an vital role in knowledge of students and also providing of adequate information about HIV during their first-year, it would help in spreading HIV awareness and early detection, treatment, reduce the incidence and assist HIV prevention and treatment.

## INTRODUCTION

HIV is an one of the most devastating disease. AIDS was first recognised in the united states in 1981. HIV has spread rapidly through out the world<sup>1</sup>. Most vulnerable to HIV/AIDS is 15 to 25 years. <sup>[2]</sup> HIV is a very active virus that infect mainly CD4 Positive cells. <sup>[3]</sup> Any HIV infected individual with a CD4 count less than 200/ $\mu$ l has AIDS by definition. <sup>[4]</sup> An estimated 34 million infected with HIV and an estimated 1.7 million lost their lives to AIDS. <sup>[5]</sup> Everyday 6000young people become infected with HIV and more than five every minute. <sup>[6]</sup> So an attempt was made to assess the awareness leveland knowledge among the medical students in our government medical college.

## Subject and Methods

Three hundred medical students from three batches (first year, second year, third year) were grouped as groupA, groupB, group C in a Government Medical College, Chennai during the month of October 2010. A Questionnaire containing twenty questions were designed to know their knowledge and awareness about various aspects. In this 14 questions were knowledge based and 7 were opinion questions. The questionnaire was given after 3 months of their stay inthe respective year and it was given on the same day.

The following parameters were consideredin our statistical analysis of HIV awareness among medical students.

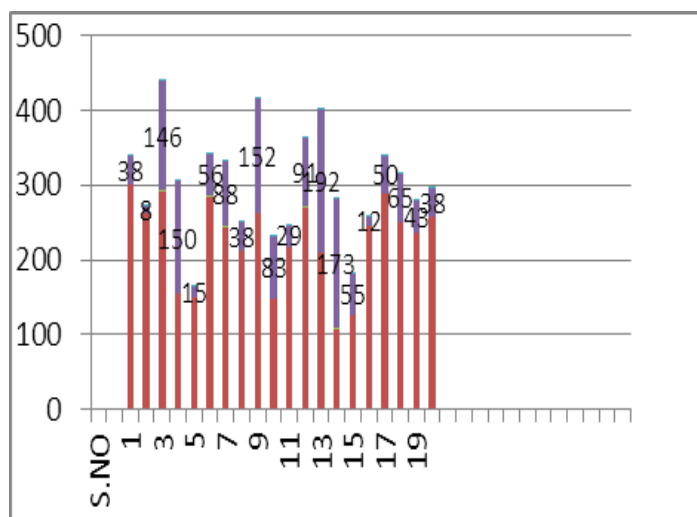
1. Question wise awareness
2. Age wise awareness
3. Gender wise awareness
4. Association between year of study and awareness
5. Place wise awareness
6. Association between parents qualification and awareness.

### 1. Questionwise Awareness

S. NO	Statement	Correct		Not correct	
		n	%	n	%
1	HIV is a	300	100.0%	38	12.7%
2	Hiv belongs to family	262	87.3%	8	2.7%
3	Which system is affected first?	292	97.3%	146	48.7%
4	Hiv enters the cd4 cells with the help of	154	51.3%	150	50.0%
5	Mention the criteria for antiretroviral therapy: such that cd4 count should be	150	50.0%	15	5.0%
6	Most common test for the diagnosis of aids is	285	95.0%	56	18.7%
7	What do you mean by vertical transmission?	244	81.3%	88	29.3%
8	Precautious use of which of the following is not required in hiv	212	70.7%	38	12.7%
9	Does hiv spread by using public swimming pools ?	262	87.3%	152	50.7%
10	Which of the following therapy is instituted in managing hiv ?	148	49.3%	83	27.7%
11	Which combination of drugs is used in treatment of hiv?	217	72.3%	29	9.7%
12	Can we skip screening of hiv before blood transmission?	270	90.3%	91	30.3%
13	Incidence of hiv is common among	209	69.7%	192	64.0%
14	It is indicated to start post exposure prophylaxis atleast within	108	36.0%	173	57.9%
15	What is the approximate cost (drugs supplied by govt) for the treatment of hiv?	126	42.1%	55	18.3%
16	Usage of condom will prevent the spread of	245	81.7%	12	4.0%
17	Testing for hiv before marriage is	288	96.0%	50	16.7%
18	Is it necessary to prevent sharing of razor blades in spreading of hiv?	250	83.3%	65	21.7%
19	Is the change of needle alone is justifiable?	235	78.3%	43	14.3%
20	In treatment of hiv people worry about	257	85.7%	38	12.7%

\* significant at  $P \leq 0.05$  \*\* highly significant at  $P \leq 0.01$  \*\*\* very high significant at  $P \leq 0.001$

For the twenty awareness questions given, showed a maximum awareness of 100% and a minimum awareness of 36% with an average awareness of 74.95%.



Graph-1

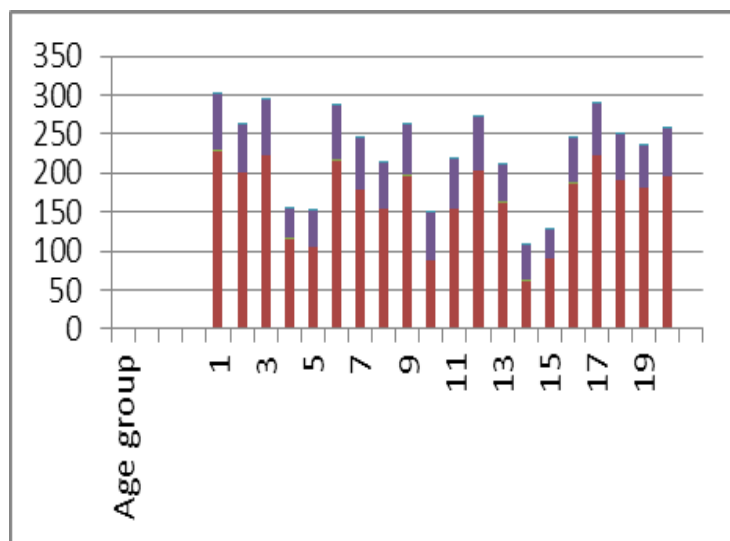
## 2. Age Wise Awareness.

	Age Group	17 -19yrs (n=228)		20 -24 yrs (n=72)		Two Sample <i>Binomial</i> Proportion Test
		n	%	n	%	
1	Hiv is a	228	100.0%	72	100.0%	Z=0.0 P=1.00
2	Hiv belongs to family	200	87.7%	62	86.1%	Z=0.35 P=0.72
3	Which system is affected first?	223	97.8%	69	95.8%	Z=0.90 P=0.36
4	Hiv enters the cd4 cells with the help of	116	50.9%	38	52.8%	Z=0.28 P=0.78
5	Mention the criteria for antiretroviral Therapy: such that cd4 count should be	104	45.6%	46	63.9%	Z=2.70 P=0.01**
6	Most common test for the diagnosis of aids is	216	94.7%	69	95.8%	Z=0.36 P=0.71
7	What do you mean by vertical transmission?	178	78.1%	66	91.7%	Z=2.57 P=0.01**
8	Precautious use of which of the following is not required in hiv	154	67.5%	58	80.6%	Z=2.11P=0.03*
9	Does hiv spread by using public swimming pools ?	197	86.4%	65	90.3%	Z=0.86 P=0.39
10	Which of the follwing therapy is instituted in managing hiv ?	88	38.6%	60	83.3%	Z=6.61 P=0.001***
11	Which combination of drugs is used in treatment of hiv?	153	67.1%	64	88.9%	Z=3.59 P=0.001***

12	Can we skip screening of hiv Before blood transmission?	202	89.0%	68	94.4%	Z=1.36 P=0.17
13	Incidence of hiv is common among	162	71.1%	47	65.3%	Z=0.92P=0.35
14	It is indicated to start post exposure prophylaxis atleast within	62	27.2%	46	63.9%	Z=5.65 P=0.001***
15	What is the approximate cost (drug S supplied by govt) for the treatment of hiv?	90	39.6%	36	50.0%	Z=1.54 P=0.12
16	Usage of condom will prevent the spread of	187	82.0%	58	80.6%	Z=0.27 P=0.78
17	Testing for hiv before marriage is	222	97.4%	66	91.7%	Z=2.15 P=0.03*
18	Is it necessary to prevent sharing of razor blades in spreading of hiv?	190	83.3%	60	83.3%	Z=0.0 P=1.00
19	Is the change of needle alone is justifiable?	180	78.9%	55	76.4%	Z=0.45 P=0.65
20	In treatment of hiv people worry about	195	85.5%	62	86.1%	Z=0.12 P=0.90

\* significant at  $P \leq 0.05$  \*\* highly significant at  $P \leq 0.01$  \*\*\* very high significant at  $P \leq 0.001$

When agerwise awareness was considered, it was found that the 20-24 years had 79% more levels of awareness compared to the 17-19 years (67%) showing that they were served as a junction where transition occurred and students gained more knowledge.

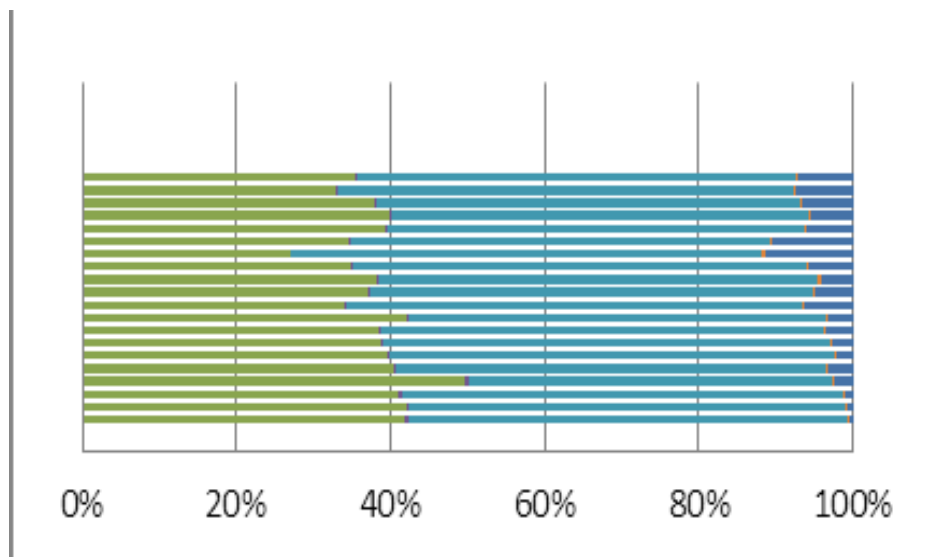


Graph-2

## 3. Genderwise Awareness

		Male(n=127)		Female(n=137)		Two sample binomial proportion test
		n	%	n	%	
1	Hiv is a	127	100.0%	173	100.0%	Z=0.0 P=1.00
2	Hiv belongs to family	112	88.2%	150	86.7%	Z=-0.38 P=0.70
3	Which system is affected first?	122	96.1%	170	98.3%	Z=1.16 P=0.24
4	Hiv enters the cd4 cells with the help of	79	62.2%	75	43.4%	Z=3.23 P=0.001***
5	Mention the criteria for antiretroviral therapy: such that cd4 count should be	63	49.6%	87	50.3%	Z=0.12 P=0.90
6	Most common test for the diagnosis of aids is	116	91.3%	169	97.7%	Z=2.49 P=0.01**
7	What do you mean by vertical transmission?	98	77.2%	146	84.4%	Z=1.58 P=0.11
8	Precautious use of which of the following is not required in hiv	85	66.9%	127	73.4%	Z=1.21P=0.22
9	Does hiv spread by using public swimming pools ?	115	90.6%	147	85.0%	Z=1.43 P=0.15
10	Which of the follwing therapy is instituted in managing hiv ?	54	42.5%	94	54.3%	Z=2.021 P=0.04*
11	Which combination of drugs is used in treatment of hiv?	85	66.9%	132	76.3%	Z=1.79 P=0.07
12	Can we skip screening of hiv before blood transmission?	108	85.7%	162	93.6%	Z=2.286 P=0.02*
13	Incidence of hiv is common among	78	61.4%	131	75.7%	Z=2.66P=0.008**
14	It is indicated to start post exposure prophylaxis atleast within	33	26.0%	75	43.4%	Z=3.09 P=0.001***
15	What is the approximate cost (drugs supplied by govt) for the treatment of hiv?	49	38.9%	77	44.5%	Z=0.97 P=0.33
16	Usage of condom will prevent the spread of	103	81.1%	142	82.1%	Z=0.22 P=0.82
17	Testing for hiv before marriage is	122	96.1%	166	96.0%	Z=0.04 P=0.96
18	Is it necessary to	102	80.3%	148	85.5%	Z=1.22 P=0.23

	prevent sharing of razor blades in spreading of hiv?					
19	Is the change of needle alone is justifiable?	84	66.1%	151	87.3%	Z=4.39 P=0.001***
20	In treatment of hiv people worry about	99	78.0%	158	91.3%	Z=3.27 P=0.001***



Graph-3

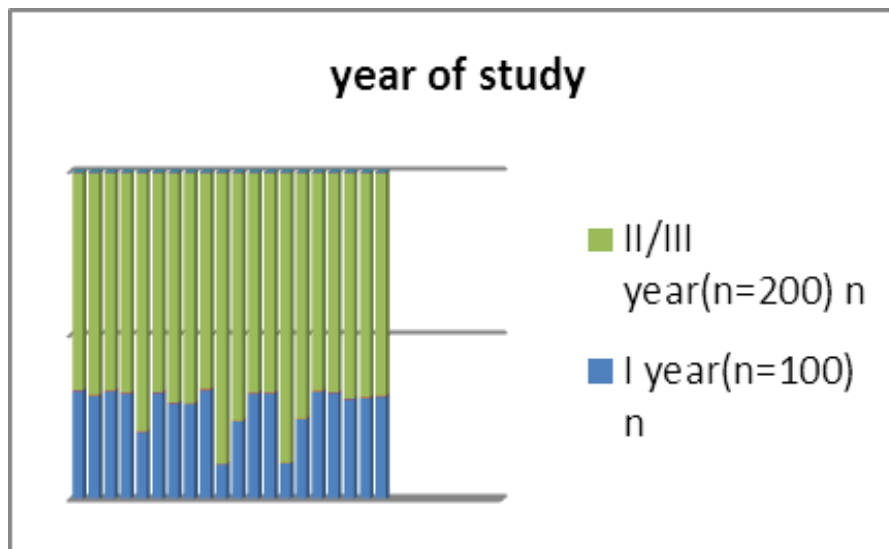
Girls were more aware(77%) of AIDS knowledge compared to boys (72%).  $P \leq 0.01$  \*\*\* very high significant at  $P \leq 0.001$ .

#### 4. Association Between Year of Study and Awareness.

	4. Association between year of study and awareness	I year(n=100)		II/III year(n=200)		Two sample binomial proportion test
		n	%	n	%	
1	Hiv is a	100	100.0%	200	100.0%	Z=0.0 P=1.00
2	Hiv belongs to family	83	83.0%	179	89.5%	Z=1.59 P=0.11
3	Which system is affected first?	97	97.0%	195	97.5%	Z=0.25 P=0.80
4	Hiv enters the cd4 cells with the help of	50	50.0%	104	52.0%	Z=0.32 P=0.74
5	Mention the criteria for antiretroviral therapy: such that cd4 count should be	31	31.0%	119	59.5%	Z=4.66 P=0.001***
6	Most common test for the diagnosis of aids is	93	93.0%	192	96.0%	Z=1.12 P=0.26

7	What do you mean by vertical transmission?	72	72.0%	172	86.0%	Z=2.93P=0.003*
8	Precautious use of which of the following is not required in hiv	62	62.0%	150	75.0%	Z=2.33 P=0.02
9	Does hiv spread by using public swimming pools ?	88	88.0%	174	87.0%	Z=0.24 P=0.81
10	Which of the following therapy is instituted in managing hiv ?	16	16.0%	132	66.0%	Z=8.16 P=0.001***
11	Which combination of drugs is used in treatment of hiv?	52	52.0%	165	82.5%	Z=5.56 P=0.001***
12	Can we skip screening of hiv before blood transmission?	88	88.0%	182	91.5%	Z=0.95P=0.34
13	Incidence of hiv is common among	68	68.0%	141	70.5%	Z=0.44P=0.66
14	It is indicated to start post exposure prophylaxis atleast within	12	12.0%	96	48.0%	Z=6.12 P=0.001***
15	What is the approximate cost (drugs supplied by govt) for the treatment of hiv?	31	31.3%	95	47.5%	Z=2.66 P=0.008**
16	Usage of condom will prevent the spread of	81	81.0%	164	82.0%	Z=0.21 P=0.83
17	Testing for hiv before marriage is	94	94.0%	194	97.0%	Z=1.25 P=0.21
18	Is it necessary to prevent sharing of razor blades in spreading of hiv?	77	77.0%	173	86.5%	Z=2.08 P=0.04*
19	Is the change of needle alone is justifiable?	73	73.0%	162	81.0%	Z=1.58 P=0.11
20	In treatment of hiv people worry about	81	81.0%	176	88.0%	Z=1.63 P=0.10





Graph-4: Year of study

\*significant at  $P \leq 0.05$  \*\* highly significant at  $P \leq 0.01$  \*\*\* very high significant at  $P \leq 0.001$

Seven questions that showed significant awareness (with two sample binominal test) among the 2ndseniors and 3rdyears who were well into the clinical side were more aware compared to first year.

#### 5. Placewise Awareness.

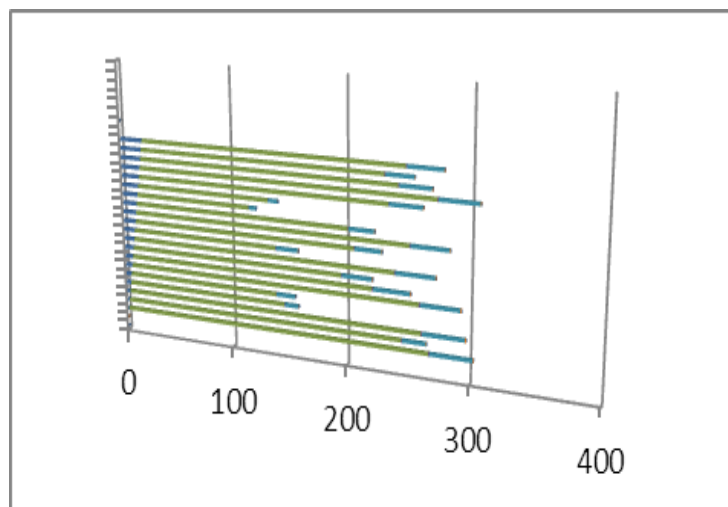
		Tamilnadu (n=266)		Other state(n=34)		Two sample binomial proportion test
		n	%	n	%	
1	Hiv is a	266	100.0%	34	100.0%	Z=0.0 P=1.00
2	Hiv belongs to family	243	91.4%	19	55.9%	Z=5.85 P=0.001***
3	Which system is affected first?	258	97.0%	34	100.0%	Z=1.02 P=0.31
4	Hiv enters the cd4 cells with the help of	142	53.4%	12	35.3%	Z=1.99 P=0.05
5	Mention the criteria for antiretroviral therapy: such that cd4 count should be	134	50.4%	16	47.1%	Z=0.36 P=0.71
6	Most common test for the diagnosis of aids is	253	95.1%	32	94.1%	Z=0.25 P=0.80

7	What do you mean by vertical transmission?	214	80.5%	30	88.2%	Z=1.10 P=0.27
8	Precautious use of which of the following is not required in hiv	187	70.3%	25	73.5%	Z=0.38 P=0.69
9	Does hiv spread by using public swimming pools ?	230	86.5%	32	94.1%	Z=1.26 P=0.21
10	Which of the follwing therapy is instituted in managing hiv ?	129	48.5%	19	55.9%	Z=0.81 P=0.41
11	Which combination of drugs is used in treatment of hiv?	195	73.3%	22	64.7%	Z=1.05 P=0.29
12	Can we skip screening of hiv before blood transmission?	239	90.2%	31	91.2%	Z=0.18 P=0.85
13	Incidence of hiv is common among	188	70.7%	21	61.8%	Z=1.06 P=0.28
14	It is indicated to start post exposure prophylaxis atleast within	102	38.3%	6	17.6%	Z=2.36 P=0.01**
15	What is the approximate cost (drugs supplied by govt) for the treatment of hiv?	118	44.5%	8	23.5%	Z=2.33 P=0.02**
16	Usage of condom will prevent the spread of	218	82.0%	27	79.4%	Z=0.36 P=0.72
17	Testing for hiv before marriage is	256	96.2%	32	94.1%	Z=0.59 P=0.55
18	Is it necessary to prevent sharing of razor blades in spreading of hiv?	224	84.2%	26	76.5%	Z=1.14 P=0.25

19	Is the change of needle alone is justifiable?	212	79.7%	23	67.6%	Z=1.60 P=0.10
20	In treatment of hiv people worry about	228	85.7%	29	85.3%	Z=0.02 P=0.98

\* significant at  $P \leq 0.05$  \*\* highly significant at  $P \leq 0.01$  \*\*\* very high significant at  $P \leq 0.001$

Students belongs to Tamil Nadu(75%) shows better awareness compared to students belong to other states(73%).



Graph-5

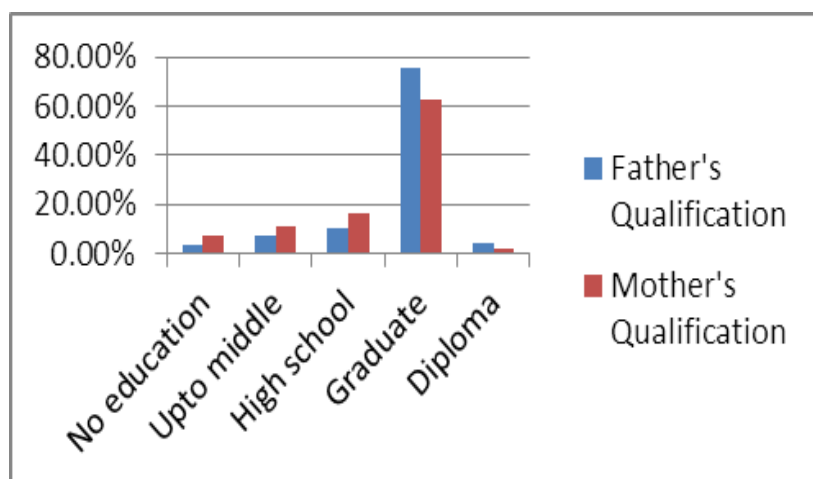
## 6. Parents Qualification.

### a. Father Education Qualification.

		School (n=61)		College (n=239)		Two sample binomial proportion test
		n	%	n	%	
1	Hiv is a	61	100.0%	239	100.0%	Z=0.0 P=1.00
2	Hiv belongs to family	51	83.6%	211	88.3%	Z=0.98 P=0.32
3	Which system is affected first?	58	95.1%	234	97.9%	Z=1.34 P=0.18
4	Hiv enters the cd4 cells with the help of	36	59.0%	118	49.4%	Z=0.43 P=0.67
5	Mention the criteria for antiretroviral therapy: such that cd4 count should be	29	47.5%	121	50.6%	Z=0.36 P=0.71
6	Most common test for the diagnosis of aids is	52	85.2%	233	97.5%	Z=3.91 P=0.001***
7	What do you mean by vertical transmission?	48	78.7%	196	82.0%	Z=0.59 P=0.55
8	Precautious use of which of the following is not	41	67.2%	171	71.5%	Z=0.66 P=0.51

	required in hiv					
9	Does hiv spread by using public swimming pools ?	56	91.8%	206	86.2%	Z=1.17 P=0.24
10	Which of the follwing therapy is instituted in managing hiv ?	23	37.7%	125	52.3%	Z=2.03 P=0.04*
11	Which combination of drugs is used in treatment of hiv?	37	60.7%	180	75.3%	Z=2.02 P=0.02*
12	Can we skip screening of hiv before blood transmission?	47	77.0%	223	93.7%	Z=3.91 P=0.001***
13	Incidence of hiv is common among	38	62.3%	171	71.5%	Z=1.40 P=0.16
14	It is indicated to start post exposure prophylaxis atleast within	21	34.4%	87	36.4%	Z=0.28 P=0.77
15	What is the approximate cost (drugs supplied by govt) for the treatment of hiv?	28	45.9%	98	41.2%	Z=0.66 P=0.51
16	Usage of condom will prevent the spread of	49	80.3%	196	82.0%	Z=0.30 P=0.76
17	Testing for hiv before marriage is	55	90.2%	233	97.5%	Z=0.59 P=0.55
18	Is it necessary to prevent sharing of razor blades in spreading of hiv?	46	75.4%	204	85.4%	Z=2.60 P=0.009**
19	Is the change of needle alone is justifiable?	46	75.4%	189	79.1%	Z=1.86 P=0.06
20	In treatment of hiv people worry about	46	75.4%	211	88.3%	Z=0.62 P=0.53

\* significant at  $P \leq 0.05$  \*\* highly significant at  $P \leq 0.01$  \*\*\* very high significant at  $P \leq 0.001$



Graph-6

**b. Mother Education Qualification**

		School(n=100)		College(n=195)		Two sample binomial proportion test	
		n	%	n	%		
1	Hiv is a	105	100.0%	195	100.0%	Z=0.0 P=1.00	
2	Hiv belongs to family	88	83.8%	174	89.2%	Z=1.33 P=0.18	
3	Which system is affected first?	100	95.2%	192	98.5%	Z=1.65 P=0.09	
4	Hiv enters the cd4 cells with the help of	61	58.1%	93	47.7%	Z=1.72 P=0.08	
5	Mention the criteria for antiretroviral therapy: such that cd4 count should be	58	55.2%	92	47.2%	Z=1.33 P=0.18	
6	Most common test for the diagnosis of aids is	96	91.4%	189	96.9%	Z=2.08 P=0.04*	
7	What do you mean by vertical transmission?	86	81.9%	158	81.0%	Z=0.19 P=0.85	
8	Precautious use of which of the following is not required in hiv	70	66.7%	142	72.8%	Z=1.11 P=0.26	
9	Does hiv spread by using public swimming pools ?	92	87.6%	170	87.2%	Z=0.11 P=0.91	
10	Which of the follwing therapy is instituted in managing hiv ?	53	50.5%	95	48.7%	Z=0.29 P=0.77	
11	Which combination of drugs is used in treatment of hiv?	71	67.6%	146	74.9%	Z=1.33 P=0.18	
12	Can we skip screening of hiv before blood transmission?	87	83.7%	183	93.8%	Z=2.83 P=0.005**	
13	Incidence of hiv is common among	72	68.6%	137	70.3%	Z=0.03 P=0.76	
14	It is indicated to start post exposure prophylaxis atleast within	44	41.9%	64	32.8%	Z=1.56 P=0.12	
15	What is the approximate cost (drugs supplied by govt) for the treatment of hiv?	44	41.9%	82	42.3%	Z=0.06 P=0.95	
16	Usage of condom will prevent the spread of	89	84.8%	156	80.0%	Z=1.01 P=0.31	
17	Testing for hiv before marriage is	99	94.3%	189	96.9%	Z=1.11 P=0.27	
18	Is it necessary to prevent sharing of razor blades in	83	79.0%	167	85.6%	Z=1.46 P=0.14	

	spreading of hiv?					
19	Is the change of needle alone is justifiable?	83	79.0%	152	77.9%	Z=0.21 P=0.82
20	In treatment of hiv people worry about	82	78.1%	175	89.7%	Z=2.74 P=0.006**

\* significant at  $P \leq 0.05$  \*\* highly significant at  $P \leq 0.01$  \*\*\* very high significant at  $P \leq 0.001$

Students of graduate father shows more than 70% awareness compared to mothers qualification.

## DISCUSSION

Among the different questions based on awareness about hiv average of 75% students had better knowledge. Highly significant p value .001 in girls compared to boys in the five questions. Similar study on knowledge about aids was found to be higher in boys(72%) than girls. <sup>[7]</sup> Among caribbean medical students the knowledge towards hiv was 97%. <sup>[8]</sup>

Knowledge about HIV/AIDS shows increase in percentile- 67% in first year, 79% in II/III year, as their curriculum progressed. 80% boys and 90% girls opined that hiv was transmitted through pregnancy. <sup>[9]</sup> There was a significant difference in the p value (.01) observed in the criteria for anti retroviral therapy with CD4count.the p value also .01 significant with the vertical transmission question. The highest .001 significant p value was a feature of therapy instituted in managing hiv similar highly significant value (.001) seen with combination of drugs used in hiv.

The indication to start with post exposure prophylaxis had p value of .001, highly significant.22% intern percutaneous exposures avoided by universal precautions. <sup>[10]</sup> In Malaysia the incidence of needle stick injury among medical students was 14%. <sup>[11]</sup> In US study 83% had needle stick injury were common among surgeons in training. <sup>[12]</sup> There was significant  $p=.03$  observed with testing for hiv before marriage and precautions use is not required in hiv questions.

## CONCLUSION

In this study first year medical students were less aware compared to second year. Awareness programme should be intensified about sex and std to improve the overall knowledge of AIDS. <sup>[13]</sup> Sharpless methods and sharpless surgery and the use of blunt tip needle are associated with reduced risk of injury. <sup>[14]</sup> Antiretroviral therapy administered within 24 to 36 hours associated with 81% reduction in HIV. <sup>[15]</sup> Educational campaigns needed to

disseminate information and raises awareness about blood exposures and strict application of universal precautions, introduction of safer techniques.

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