Effectiveness of self instructional module on awareness about prevention and transmission of HIV/AIDS among bachelor level management students in selected colleges at Bangalore, India

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ABSTRACT

Background
HIV/AIDS is posing the most alarming public health challenges in worldwide. Based on research studies showed that school, pre-university and university level students are not fully aware of the mode of transmissions, risk behaviour, attitudes, beliefs and prevention of HIV/AIDS. College students should be aware on the basic information, prevention and transmission of HIV/AIDS so that they can perceive themselves as having a personal responsibility for maintaining healthy life.

Objectives
This study was undertaken to evaluate the Effectiveness of Self Instructional Module on Knowledge regarding prevention and transmission of HIV/AIDS among bachelor level of management students.

Methods
Pre experimental research design was done. The samples were 100 bachelor level management students of selected colleges at Bangalore. A purposive sampling technique was used to select the samples for the study. A structured knowledge questionnaire was used to collect the data from the participants. The data was analyzed using descriptive and inferential statistics and interpreted in terms of objectives and hypothesis of the study. The level of significance was set at 0.05 levels.

Results
The mean pre-test knowledge score was 41.8% (SD of ± 10.9) whereas the mean post-test knowledge score was 84.2% (SD of ±8.2). A significant difference was found between mean pre-test and post-test knowledge scores ('t' = 39.35, $p < 0.05$). A significant association was found between age, gender, marital status, stream of education, place of origin, educational level of parents and the source of information received on prevention and transmission HIV/AIDS (χ_2 = 5.18, 3.87, 7.68, 7.31, 7.53, 8.67, 7.84 at $p < 0.05$).

Conclusion
The samples had inadequate knowledge regarding all the aspects of prevention and transmission of HIV/AIDS. The study finding indicates that Self-Instructional Module was effective in enhancing the knowledge of bachelor level management students regarding the prevention and transmission of HIV/AIDS.

Keywords: HIV/AIDS, Knowledge, Awareness, Prevention, Transmission, Socio Demographic Variables

INTRODUCTION

HIV/AIDS is globally posing the most alarming public health challenges. Internationally the first AIDS case was recognized in 1981.[1] An estimated 35.3 (32.2–38.8) million people were living with HIV/AIDS in Worldwide. There were 2.3 (1.9–2.7) million new HIV infections found. It is showing that a 33% decline in the number of new infections from 3.4 (3.1–3.7) million in 2001. AIDS epidemic is in its third decade and has become a pandemic disease that threatens the world population. The policies encourage later marriage, which may increase premarital sex. Rapid economic growth has resulted in an increase in the number of migrant workers who are away from their communities, families and spouse for long periods and who are more likely to visit sex workers.[2]

It is estimated that 3.5 million people were living with HIV/AIDS in South-East Asia region. Children are most vulnerable victims of this disease, 140,000 were living with HIV, and the numbers are still increasing. About 37% of women are infected with HIV. Among them majority were infected by their intimate partner only. An estimated 230,000 people have died due to AIDS until this time. Five countries in South Asia, namely India, Indonesia, Myanmar, Nepal and Thailand account for the majority (99%) of HIV infections.[3]

The number of new infections each year is showing a downward trend in four of the five high HIV burden countries; India, Myanmar, Nepal and Thailand. The majority of HIV infections in these countries are transmitted sexually; this is the most common cause of infection of this disease. Injecting drug use is the second most common mode of HIV transmission. There is evidence of continuing high transmission among people who are injecting drug users, Female Sex Workers (FSW), men who have sex with men (MSM) and transgender people. The prevalence of sexually transmitted infections is also unacceptably high, particularly among the general populations. The South-East Asia Region accounts for nearly 15% of the global burden of new HIV positive cases.[4]

Lack of knowledge is often accompanied by continuing risk behaviours, limited adoption of preventive measures, and negative attitude towards people living with HIV/AIDS. HIV/AIDS is still fairly contained particularly among the sex workers (8.44%), injecting drug users (10.16%), truck drivers, people infected through selling blood. Still without concentrated effort on the part of these high-risk behaviour groups, HIV can spread quickly to the general population. It faces a number of challenges in responding effectively to the HIV/AIDS epidemic.[5]

The awareness regarding the common diseases has been a matter of research earlier among the different strata of the population. In traditional culture, sex and sexuality are not openly spoken about and sex education has been excluded from school curricula. Many young people have not received life skills education and information on STD and HIV infection. The channels and preventive knowledge remains low.[6]

There is need to promote awareness about prevention and transmission of HIV/AIDS among bachelor level management students by informing and encouraging them to take precautions. The researcher through her detailed review and study found that the most of the students have misconception on transmission of HIV and lack of knowledge on preventive measures of HIV/AIDS. Hence, the researcher found it relevant to take up this study in order to indentify the awareness level of students about prevention and transmission of HIV/AIDS and to find out whether SIM would be an ideal educational material to enhance individualized learning so that it helps them to maintain a quality of life later in their personal life.

MATERIAL AND METHODS

The research design used in the study was pre-experimental one group pre test and post test design. The setting of the study was at Teachers Academy Group of Institutions and Faran College of Management at Bangalore. The target population for the study comprises of bachelor level management students from selected colleges in Bangalore.

The study sample size consists of 100 bachelor level management students. Non Probability purposive

sampling technique was used. A self instructional module and a structured questionnaire were prepared. The tool used for the study comprised of a demographic performa and a structured knowledge regarding awareness on prevention and transmission of HIV/AIDS. The questions are phrased in multiple choice forms with four options, three as distracters and one as correct response. The correct response is given a score of one and incorrect response a zero score. Thus the maximum possible score is 32.

Table 1 Range of Resulting Knowledge Score

Knowledge Score	No. of Items	Percentage
Adequate Knowledge	25 - 32	> 75%
Moderate Knowledge	17 -24	51 - 75%
Inadequate Knowledge	1 - 16	< 50%

Formal permission was obtained from the concerned Principal of Teachers Academy Group of Institutions and Faran College of Management at Bangalore. The period of data collection was on 28-04-2016 to 08 -5-2016. Samples were selected according to the laid down inclusion criteria. Confidentiality was assured. Written consents were obtained.

A questionnaire was administered to each of the respondents. Doubts were clarified in between. On an average it took approximately 30 minutes to complete the test. Then SIM was provided at the completion of the study with a brief explanation about its objectives and contents. On the day 8th post test was conducted for all respondents.

Development of the Self Instructional Module (SIM)

The SIM on knowledge regarding Prevention and Transmission of HIV/AIDS was prepared after reviewing the research and non-research literature and seeking opinion of the subject guide.

The steps followed in the development of SIM are as follows:
1) Review of literature
2) Organization of the content of SIM
   a. General information regarding HIV/AIDS and its risk factors
   b. Transmission, how to spread, signs and symptoms, testing, treatment of HIV
   c. Prevention of HIV/AIDS
3) Assessment of the content validity of SIM
4) Preparation of final draft of the SIM
5) Editing the module

The obtained data were analyzed using both descriptive and inferential statistics on the basis of the objective and hypothesis of the study. Demographic data containing sample personal characteristics were analyzed using frequencies and percentage. The knowledge score before and after the administration of the self instructional module will be calculated by using mean standard deviation and 't' test. The level of significance will be at ≤ 0.05 level. The effect of SIM was analyzed by paired 't' test. Association of socio-demographic variables with pre test knowledge score was found using chi square test.

RESULTS

The data was collected from the respondents before and after the administration of the Self Instructional Module. The collected information was organized, tabulated, analyzed and interpreted using descriptive and inferential statistics.

The result indicates that 61% of the respondents were in the age group of 18-20 years followed by 39% in the age group of 21-23 years. Out of the 100 respondents 51% were males and 49% were females. The finding indicates that 39% of the samples were belonged to B Com stream, followed by 36% to BBM and 25% to BCA stream. Most of the samples (33%) were studying in second year, 41% were in first year and 25% were in third year. Majority of samples (71%) were come from outside of India, 19% were from other states of India and 10% were belonged to

Bangalore city. Among them, 73% were living in hostel, 20% were living in apartment, 4% and 3% were living in an own house and in others respectively. It is observed that 39% were belong to Hindu religion, 44% were Christian, 9% were Muslim and 8% were others religion.

It is also observed that 59% of respondents' family monthly income was Rs. 20,000 to 50,000, 31% had above 50,000 and 10% had up to Rs. 10,000 to 20,000. Among them, 45% of their fathers were belonging to business profession, 28% were in government service and 27% of them were in private services. Majority of (72%) the respondents' mother were housewife, 10% were government service holder and 9% of their mothers were working in business and private service respectively. Based on education level of the respondents' parents, 50%

were graduated, 26% were undergraduates, 19% were post graduate and only 5% were under SSLC.

Overall and Aspect Wise Pretest Knowledge Score of Respondents on Prevention and Transmission of HIV/AIDS

The data depicted in the table 2 shows the classification of bachelor level management students with regard to their pre-test knowledge level on Prevention and Transmission of HIV/AIDS was observed that, majority of the samples 66% had inadequate knowledge (≤50% scores) and 34% had moderately adequate knowledge (51-75% scores). It was alarming to observe that none of the respondents had adequate knowledge (>75% scores) regarding prevention and transmission of HIV/AIDS in the pre-test.

Table 2 Classification of Respondents Pre Test Knowledge Level on Prevention and Transmission of HIV/AIDS

Knowledge Level	Category	Respondents	
		Number	Percent
Inadequate Knowledge	≤ 50 % Score	66	66.0
Moderate Knowledge	51-75 % Score	34	34.0
Adequate Knowledge	> 75 % Score	0	0.0
Total		100	100.0

Table 3 Aspect Wise Pre Test Mean Knowledge Scores of Respondents on Prevention and Transmission of HIV/AIDS

No.	Knowledge Aspects	Statements	Max. Score	Respondents Knowledge			
				Mean	SD	Mean (%)	SD(%)
I	General information on HIV/AIDS	7	7	3.50	1.0	50.0	14.9
II	Transmission of HIV/AIDS	18	18	7.70	2.2	42.8	12.3
III	Prevention of HIV/AIDS	7	7	2.16	1.6	30.9	22.6
	Combined	32	32	13.36	3.5	41.8	10.9

The data presented in the above table shows the aspect wise pre test mean knowledge scores of respondents on prevention and transmission of HIV/AIDS. It was found that the respondents has highest mean percentage scores (50%) in the area of general information on HIV/AIDS and followed by 42.8% regarding transmission of HIV/AIDS and 30.9% in the area of prevention of HIV/AIDS. The mean percentage of aspect wise pre test mean knowledge shows that the respondents had inadequate

knowledge in all the aspects on prevention and transmission of HIV/AIDS.

Overall and Aspect Wise Posttest Knowledge Score of Respondents on Prevention and Transmission of HIV/AIDS

Data presented in the figure 1 shows the overall mean of the post-test knowledge scores of respondents with regard to their post test knowledge level on prevention and transmission of HIV/AIDS. The result showed that majority of respondents 71% had adequate knowledge level and remaining 29% of

them had obtained moderate level of knowledge. It is observed that in the post test, none of the respondents were having inadequate knowledge on prevention and transmission of HIV/AIDS.
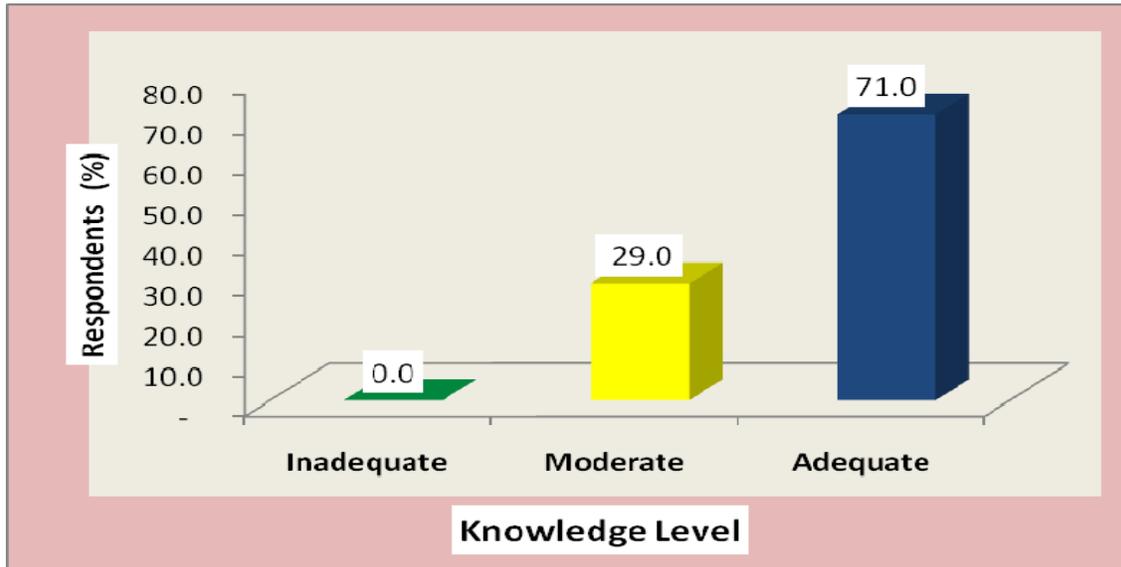

Fig 1 Classification of Respondents of Post test Knowledge level on Prevention and Transmission of HIV/AIDS

Table 4 Aspect Wise Post Test Mean Knowledge Scores of Respondents on Prevention and Transmission of HIV/AIDS

No.	Knowledge Aspects	Statements	Max. Score	Respondents Knowledge			
				Mean	SD	Mean (%)	SD(%)
I	General information on HIV/AIDS	7	7	5.80	0.9	82.9	13.1
II	Transmission of HIV/AIDS	18	18	15.16	1.4	84.2	7.9
III	Prevention of HIV/AIDS	7	7	5.99	1.0	85.6	14.8
	Combined	32	32	26.95	2.6	84.2	8.2

The data presented in the table shows the aspect wise post test mean knowledge scores of respondents on prevention and transmission of HIV/AIDS. It was found that the respondents gained the highest mean percentage scores (85.6%) in the area of prevention of HIV/AIDS followed by 84.2% in the area of transmission of HIV/AIDS and 82.9% in the area of general information on HIV/AIDS. The mean percentage of aspect wise post test mean knowledge shows that the respondents had adequate knowledge in all the aspects on prevention and transmission of HIV/AIDS.

Overall and Aspect Wise Pretest and Post test Knowledge Score of Respondents on Prevention and Transmission of HIV/AIDS
To evaluate the effectiveness of the self instructional module on prevention and transmission of HIV/AIDS among bachelor level management students of selected colleges at Bangalore, a null hypothesis (H_{01}) was developed that is there is no significant change in the mean post test knowledge scores of bachelor level management students on prevention and transmission of HIV/AIDS after administration of self instructional module.

The 't' value (39.35) is found to be more that the table value (3.46) of 1.96 with 99df at 0.05 level of significance so that the null hypothesis is rejected and the research hypothesis is accepted which says that there will be a significant change in the

knowledge on prevention and transmission of HIV/AIDS among bachelor level management students in selected colleges in Bangalore. Thus it can be inferred that the self instructional module was effective in enhancing the knowledge of bachelor level management students in selected colleges in Bangalore.

Table 5 Comparison of Overall Pretest and Posttest Mean Knowledge Scores of Respondents on Prevention and Transmission of HIV/AIDS

No.	Knowledge Aspects	Respondents Knowledge (%)						Paired 't' Test
		Pre Test		Post Test		Enhancement		
		Mean	SD	Mean	SD	Mean	SD	
I	General information on HIV/AIDS	50.0	14.9	82.9	13.1	32.9	18.2	18.08*
II	Transmission of HIV/AIDS	42.8	12.3	84.2	7.9	41.4	11.8	35.08*
III	Prevention of HIV/AIDS	30.9	22.6	85.6	14.8	54.7	23.7	23.08*
	Combined	41.8	10.9	84.2	8.2	42.5	10.8	39.35*

The data presented in the above table shows that for general information on prevention and transmission of HIV/AIDS, the obtained 't' value is 18.08 and it is found to be significant at 0.05 level t=1.96 (99df). In the area of transmission of HIV/AIDS, the obtained 't' value 35.08 is also found to be significant at 0.05 level t=1.96 (99df). Regarding prevention of HIV/AIDS, the obtained 't' value is 23.08 which is also found to be significant at 0.05 level t=1.96 (99df). It is evident that the SIM was significantly effective in improving the knowledge of bachelor level management students on all aspects of prevention and transmission of HIV/AIDS.
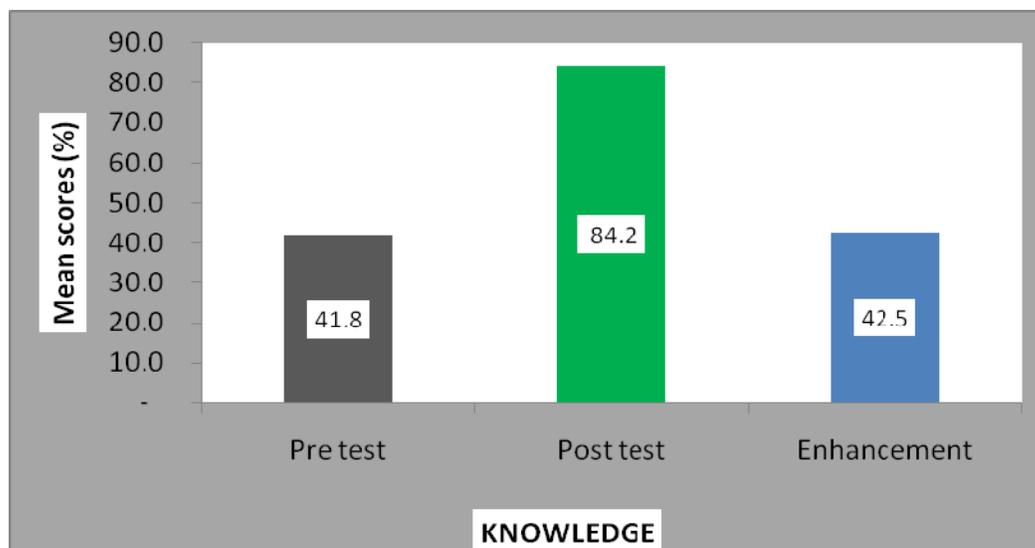

Fig 2 Overall Pre test and Post test Mean Knowledge Scores on Prevention and Transmission of HIV/AIDS

Association between Demographic variables and Pre test Knowledge level on Prevention and Transmission of HIV/AIDS
To determine the association between selected socio-demographic variables and the mean pre test knowledge level of bachelor level management students on prevention and transmission of HIV/AIDS null hypothesis H_{02} was developed that is, there is no significant association between mean pre test score knowledge of bachelor level management

students and their selected socio demographic variables such as age, gender, marital status, stream of education, level of education, place of origin, living with and living in.

Table 6 Association between Demographic variables and Pre test Knowledge level on Prevention and Transmission of HIV/AIDS

Demographic Variables	Category	Sample	Knowledge Level				χ^2 Value	P Value
			Inadequate		Moderate			
			N	%	N	%		
	18-20	61	35	57.4	26	42.6		
	21-23	39	31	79.5	8	20.5		
	Male	51	29	56.9	22	43.1		
	Female	49	37	75.5	12	25.5		
	Single	68	51	75.0	17	25.0		
	Have a boy friend	19	8	47.4	10	52.6		
	Have a girl friend	13	6	46.2	7	53.8		
	BCA	25	17	68.0	8	32.0		
	BBM	36	18	50.0	18	50.0		
	B Com	39	31	79.5	8	20.5		
	First year	41	29	70.7	12	29.3		
	Second year	33	19	57.6	14	42.4		
	Third year	26	18	69.2	8	30.8		
	Bangalore	10	9	90.0	1	10.0		
	Other state of India	19	16	84.2	3	15.8		
	Other country	71	41	57.8	30	42.2		
	Family	8	7	87.5	1	12.5		
	Partner	4	3	75.0	1	25.0		
	Friends	82	52	63.4	30	36.6		
	Others	6	4	66.7	2	33.3		
	Own house	4	3	75.0	1	25.0		
	Apartment	20	14	70.0	6	30.0		
	Hostel	73	47	64.4	26	35.6		
	Others	3	2	66.7	1	33.3		
Combined		100	66	66.0	34	34.0		

From the above table, it is evident that with regard to age of the bachelor level management students, the obtained chi-square (χ^2) value of 5.18 is found to be more than the table value (3.84) with df 99 at 0.05% level of significance. Based on this, the null hypothesis is rejected and the research hypothesis is accepted. It means that there is significant association between age and the pre test knowledge scores of bachelor level management students on prevention and transmission of HIV/AIDS.

When the socio- demographic variable gender is considered, the obtained chi-square (χ^2) value of 3.87 is found to be more than the table value (3.84) with df 99 at 0.05 level of significance. Based on this the null hypothesis is rejected and the research hypothesis is accepted. It means that there is significant association between knowledge scores of bachelor level management students on prevention and transmission of HIV/AIDS with their gender variable.

With regard to marital status of bachelor level management students and pre test knowledge score on prevention and transmission of HIV/AIDS, the obtained chi-square value of 7.68 is found to be more than the table value (5.99) with df 2 at 0.05 level of significance. Based on this the null hypothesis is

rejected and the research hypothesis is accepted. It means that there is significant association between the marital status and pre test knowledge level of bachelor level management students on prevention and transmission of HIV/AIDS.

When the stream of education as considered as socio demographic variable, the obtained χ^2value (7.31) is found to be more than the table value (5.99, 1d.f) at 0.05 level of significance. Therefore, the null hypothesis is rejected and the research hypothesis is accepted. It means that there is significant association between the stream of education and the mean pre-test knowledge level of the bachelor level management students on prevention and transmission of HIV/AIDS.

Considering respondents level of education, the obtained χ^2value (1.57) is found to be less than the table value (5.99, 2d.f) at 0.05 level of significance. Therefore, the null hypothesis is accepted and the research hypothesis is rejected. It means that there is no significant association between level of education and the mean pre-test knowledge level of the bachelor level management students on prevention and transmission of HIV/AIDS.

With regard to place of origin, the obtained χ^2value (7.53) is found to be more than the table value (5.99, 2df) at 0.05 level of significance. Therefore the null hypothesis is rejected and the research hypothesis is accepted. It means that there is a significant association between place of origin and the mean pre-test knowledge level of bachelor level management students on prevention and transmission of HIV/AIDS.

When the respondents' living with, the obtained χ^2value (2.04) is found to be less than the table value (7.81, 3df) at 0.05 level of significance. Therefore the null hypothesis is accepted and the research hypothesis is rejected. It means that there is no significant association between living with and the mean pre-test knowledge level of bachelor level management students on prevention and transmission of HIV/AIDS.

With regard to the respondent's living in, the obtained χ^2value (0.37) is found to be less than the table value (7.81, 3d.f) at 0.05 level of significance. Therefore the null hypothesis is accepted and the research hypothesis is rejected. It means that there is no significant association between living in and the mean pre-test knowledge level of bachelor level management students on prevention and transmission of HIV/AIDS.

With regard to family income per month, the obtained χ^2value (0.18) is found to be less than the table value (5.99, 2d.f) at 0.05 level of significance. Therefore the null hypothesis is accepted and the research hypothesis is rejected. It means that there is no significant association between family income and the mean pre-test knowledge level of bachelor level management students on prevention and transmission of HIV/AIDS.

With regard to respondents' father's profession, the obtained χ^2value (0.56) is found to be less than the table value (5.99, 2d.f) at 0.05 level of significance. Therefore the null hypothesis is accepted and the research hypothesis is rejected. It means that there is no significant association between the profession of father and the mean pre-test knowledge level of bachelor level management students on prevention and transmission of HIV/AIDS

Considering of respondents' mother's profession, the obtained χ^2value (1.83) is found to be less than the table value (7.81, 3d.f) at 0.05 level of significance. Therefore the null hypothesis is accepted and the research hypothesis is rejected. It means that there is no significant association between mother's profession and the mean pre-test knowledge level of bachelor level management students on prevention and transmission of HIV/AIDS

When considering the educational level of parents, the obtained χ^2value (8.67) is found to be more than the table value (7.81, 3d.f) at 0.05 level of significance. Therefore the null hypothesis is rejected and the research hypothesis is accepted. It means that there is a significant association between the educational level of parents and the mean pre-test knowledge level of bachelor level management

students on prevention and transmission of HIV/AIDS.

With regard to the source of information, the obtained χ^2value (7.84) is found to be more than the table value (7.81, 3d.f) at 0.05 level of significance. Therefore the null hypothesis is rejected and the research hypothesis is accepted. It means that there is a significant association between the source of information and the mean pre-test knowledge level of bachelor level management students on prevention and transmission of HIV/AIDS.

DISCUSSION

To discuss the significant findings of data analysis in accordance with the objectives and stated hypothesis of the present study to evaluate the effectiveness of self instructional module on awareness about prevention and transmission of HIV/AIDS among bachelor level management students in selected colleges at Bangalore.

It was observed that the mean pre-test knowledge score of bachelor level management students regarding the prevention and transmission of HIV/AIDS was inadequate. Majority of samples (66%) out of 100 had inadequate level of pre test knowledge ($\leq$50% scores). The remaining 34% of them had moderate level of pre test knowledge. It is alarming to observe that none of the samples had adequate ($\geq$75% scores) pre test knowledge level on prevention and transmission of HIV/AIDS.

It is observed the mean post test knowledge scores of bachelor level management students after the administration of SIM was 71% and the difference between the pre test and post test knowledge score was found statistically significant (t=39.35, P$\leq$0.05). So, it is inferred that administration of SIM was effective in increasing the knowledge of bachelor level management students on prevention and transmission of HIV/AIDS. From this it can be inferred that the self instructional module is effective in enhancing the knowledge of management students.

The finding is supported by the study conducted on the effectiveness of education on knowledge, attitude and practice (KAP) on prevention and

transmission of HIV/AIDS among students study concluded that the program on HIV/AIDS education significantly improved the relative knowledge for students and it exerted positive effects in knowledge on HIV/AIDS. The study results demonstrated that the majority of the subjects attained adequate knowledge after administration of self instructional module. The study had concluded that SIM had a significant impact in raising the knowledge level of youth regarding HIV/AIDS.

An association was sought between the pre test knowledge scores of bachelor level management students with their selected socio demographic variables. A significant association was found between the pre test knowledge scores of bachelor level management students on prevention and transmission of HIV /AIDS and their socio-demographic variables such as age (χ^2 = 5.18), gender (χ^2 = 3.87), marital status (χ^2 = 7.86), stream of education (χ^2 = 7.31), place of origin (χ^2 = 7.53), education level of parents (χ^2 = 8.67) and source of information (χ^2 = 7.84).

Other socio-demographic variables such as level of education, living with living in, religion, family income, profession of father and profession of their mothers did not show any significant association with pre-test knowledge.

CONCLUSION

HIV/AIDS is globally posing the most alarming public health problems. AIDS epidemic is in its third decade and has become a pandemic disease that threatens the world population. Based on research studies showed that school, pre-university and university level students are not fully aware of the mode of transmissions, risk behaviour, attitudes, beliefs and prevention of HIV/AIDS. College students should be aware on the basic information, prevention and transmission of HIV/AIDS so that they can perceive themselves as having a personal responsibility for maintaining healthy life.

The result showed that after the administration of Self-Instructional Module all bachelor level management students had gained moderately

adequate to adequate knowledge on prevention and transmission of HIV/AIDS.

A well-planned health education program about risk factors and prevention and transmission of HIV/AIDS should be included in the curriculum of preparatory and university levels to enhance individualized learning so that it helps them to maintain a quality of life later in their personal life.

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