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A Comparative Study on Video Assisted Teaching Method and Classrooms Teaching Method on Ecg Among Nursing Students in Selected Nursing Colleges in Ahmedabad Gujarat

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Abstract

A Quasi Experimental study was conducted to assess the effectiveness of video assisted teaching method with those attending classrooms teaching method in terms of knowledge regarding ECG among third year and fourth year nursing students in selected colleges of nursing Ahmadabad Gujarat".

The main objectives of the study were to assess the effectiveness of video assisted teaching method with those attending classrooms teaching method in terms of knowledge regarding ECG among third year and fourth year nursing students in selected colleges of nursing Ahmadabad Gujarat".

The 'General System Model' adopted from Ludwig Von Bertalanaffy was used as the conceptual framework. A quantitative approach with comparative study design with quasi experimental approach was used to achieve the objectives of the study.

The samples consisted of 60 third year and fourth year B.Sc Nursing students in selected colleges of Nursing. The Simple random sampling technique was used to collect the sample. A structured questionnaire was used to assess the knowledge regarding ECG among the students. The tool was validated by the experts. Cronbach alpha was used to establish the reliability of the tools. The tool was found to be valid and reliable.

Data gathered was analyzed and interpreted using both descriptive and inferential statistic. The study shows that the majority (100%) were in the age group of 18-20 years in both group I and II. In group I, 1% were male and 99% were female and in group II, majority (100%) were female. In the classroom teaching method the majority (60%) of the students had average knowledge and in the video assisted teaching method majority (100%) of the students had good knowledge on ECG. The post test mean score of group I was 28 + 2.46 with the mean percentage of 66.67% after the classroom teaching and the post test mean score group II were 39.23 + 1.41 with the mean percentage of 93.41% after the video assisted teaching method. The calculated t-value was higher than the table value ($t_{59}=2.00$, $p<0.05$). hence the null hypothesis was rejected. So it is inferred that the present study, there was significant difference between the post test score after classroom teaching method and video assisted teaching method on ECG among second and third year B.Sc. Nursing students. Therefore it can be concluded that the video assisted teaching method was effective.

Based on the finding the following recommendations were proposed for future research: Similar study can be replicated on a large sample with similar baseline characteristics. A similar study can be replicated in more than one college of Nursing.

Keywords: A comparison between video and classroom teaching; To assess the.

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Inroduction

As we all know that to maintain proper health in daily living is very important. According to WHO, the cardiovascular disease death has increased globally to 17.5 million which is 30% of overall deaths. So it is important to know, how to prevent such kind of cardiovascular diseases. In today's life due to smoking and excessive intake of fast food, people are at more risk of cardiovascular diseases. Prevention is better than the cure". So, according to health advisors we should avoid all the factors which are responsible for heart diseases. After the age of 30 years, every individual must go for cardiac check-up. ECG is one of the important investigations to find out such kind of cardiac problems.[5]

ECG is the most commonly used diagnostic test in cardiology. If properly interpreted it contributes significantly to the diagnosis and management of patients with cardiac disorders. Importantly, it is essential to the diagnosis of cardiac arrhythmias and the acute myocardial ischemic syndrome. These two condition account for the majority of cardiac catastrophes. It is appropriately used as a screening test in many circumstances. Basic knowledge of the ECG is usually the most difficult to assimilate, as it impales learning the basic of interpretation. With technological advancement, change in provision of health care services and increasing pressure on critical care service, ward patients, severity of illness is ever increasing. As such, nurses need to develop their skill, knowledge to care for their clients group. So, competency in cardiac rhythm monitoring is beneficial to identify change in cardiac status, assess response to treatment diagnosis and post surgical monitoring every nurse student, nurses or even resident doctor must be aware of the importance of correlating clinical findings after a complete examination with the ECG findings.[6]

Background of the Study

Student nurses are the future caregivers of the patients. So it is very important for them to learn the technique of ECG monitoring. According to Mahatma Gandhi, "education is the all round drawing out of the best in child and man's body, mind and spirit'. So, it is necessary that whatever the students are taught, they should understand and learn to the core of it. There are several teaching-learning methods used in education. They are: lecture, demonstration, lecture cum demonstration, video assisted teaching.[1]

Lecture method is more concerned with the teaching of facts and information compared to other methods. Less attention is given to problem solving, critical thinking and decision making in formal lectures. We are quite familiars with the approach. Lecture can be informative, boring and overwhelming depending on the compelling nature of the message and the presenter style and clarity of message. The lecture method usually is one way communication and allow for little or none audience participate. The result is audience misunderstanding loss of information and poor retention. Some presenters prefer one way communication methods. Such as lecturing because they can transmit large amount of information to audience in a short periods of time. Presenters find lecture efficient because the flow of information can be direct and control with greater precision. At the same time the audience has little or no opportunity to get involved or provide feedback on the message being communicated. So we must develop techniques and message that are perceived as involving participants and providing opportunity for interaction.[2]

Video is the most unique and dramatic of all media devised by man for communication .Video is the electronic means by which sound and light energy are transmitted from one place to another. It is an electro mechanical system of converting the energy contained in sound and light patterns into electrical and electromagnetic energy .Video is a multi-dimensional and general medium of communication.[3]

One of the advantages of video is, the voice of the broad caster can be heard and his figure, movement, illustrations used by him, the demonstration presented by him can be seen. Educational video combines sight and sound together and thus makes the experience real, concrete and immediate. It offers opportunities of seeing and listening to the scenes and events. It can teach large number of students at one time. It stimulates and reinforces ideas, beliefs and tendencies already possessed by the onlooker.[3]

Dr. Wilbur Schramm, Director of the Stanford institute for communication research, in an analysis of the findings of 393 comparisons of video and conventional teaching methods in schools and colleges, reported that in these comparisons 86% of them showed at least 'same amount of learning' by video and one fourth of these reported 'more learning'.Video is helping teachers to specialize, so that each does what he can do best. It requires changed teaching techniques. It provides resources often unavailable to classrooms. Skills, knowledge

and time are required to prepare effective televised instruction.[2]

A study was conducted by Phillips to find the effectiveness of closed-circuit colour television for teaching nursing in a graduate workshop on military operating room nursing. A series of telecasts presented the preoperative care of a surgical patient each day for 9 days .These telecasts were made in various areas of the hospital. Results showed that, the telecasts served as successful and effective learning experiences were experienced by operating room nurses.[4]

Need of the Study

A video-assisted curriculum has three distinct parts. There is a facilitator who guides the discussion, the video cassette that contains consistent current information and handouts for the participants so they can actively involved in the process. The advantages of video-assisted teaching are, one time investment will allow the agency to train as many people as they want over a long time. Its flexible because you can present the curriculum at one time or divide it and the video cassettes contain the correct information, and you will not have people getting different messages from different people. A report by The Association of American Medical college points out that 37 percent of North American Schools scheduled over thousands hours of lectures for the first two year pre-clinical medicine curriculum, and another 42 percent schedule between 800 and thousand hours. With abundant evidence that the education yield from lecturers' are generally low, the report recommends reducing scheduled lectures by one third to one half and allowing students unscheduled time for more productive learning activities.[7]

A qualitative study was conducted in Pune, India to access teachers' reaction towards video assisted feedback. The four week studies investigated teachers' reaction towards the video as a feedback instrument. Result indicated that teachers' had a strong preference for feedback protocols that involved video, both in terms of effectiveness and ease of use, also found evidence to suggest that video technology improved the quality of human feedback by enabling rapid recall of events and by facilitating resolution of conflicts.[8]

Video assisted teaching is an effective instructional method using advanced technology in its applications. It is a technique which creates interest in the learners with its 3 dimensional audio and visual effects in the learner. Video teaching modules have been claimed to be more successful at holding a person's interest when compared with other methods of information. This method has strong influence on the degree of learning and the retention of information. Many studies in different fields like in case of prostate surgery, colonoscopy, and self-insulin administration in case of diabetes by pre-post video assisted teaching showed the increased knowledge, attitude, towards the particular field.[9]

The investigator felt that preparation, validation and reliability of an video assisted teaching can be more useful as it permits both observing and listening and also facilitates learning at their own pace in comparison to classroom teaching method. So the investigator had chosen these two methods to teach ECG to the students, the evaluation of which will help in choosing the best of the method to be recommended in practice, cooperation future.[10]

Objectives

1. To assess the knowledge of third year and fourth year B.sc Nursing students regarding ECG with classroom teaching method.
2. To assess the knowledge of third year and fourth year B.sc Nursing students regarding ECG with video assisted teaching method.
3. To compare the effectiveness of the classroom teaching method and video assisted teaching method regarding ECG.

Hypothesis

1. H0: There will be a no significant difference between Pre tests and post test knowledge scores of video assisted teaching method and classroom teaching method among third year and fourth year BSc Nursing students.
2. H1: The post test knowledge score of video assisted teaching method and classroom teaching method among third year and fourth year BSc Nursing students will be higher than the pre-test knowledge score.

Operational Definition

- *Comparative:* in this study, comparative refers to measuring or judging the quality of video – assisted and lecture method of teaching on ECG.
- *Effectiveness:* effective refers to determining the extent to which the video-assisted and lecture teaching method have achieved desired effect as evidenced by gain in the post test score of Nursing students regarding

ECG.

- *Video assisted teaching:* it refers to teaching the proper steps of ECG with the help of a video on ECG which is prepared by the investigator.
- *Classroom teaching method:* it refers to teaching correct steps of ECG by adequate explanation and lecture given by the investigator.
- *Group one:* in this study it refers to the of third year and fourth year B.sc Nursing students who are participating in the classroom teaching method on ECG.
- *Group two:* In this study it refers to the of third year and fourth year B.sc Nursing Students who are participating in the video assisted teaching method on ECG.
- *Electrocardiogram:* it refers to the normal and abnormal changes in the heart recorded in a waveform on a graphic sheet.
- *Knowledge:* it refers to awareness about ECG among second and third year B.sc nursing students.
- *Nursing colleges:* it refers to an educational establishment situated in Ahmadabad that provides B.sc nursing programme having science and principles of nursing as the main stream of study.
- *Nursing student:* it refers to the of third year and fourth year B.sc Nursing students who are studying in science and principles of nursing as the main stream of study in selected nursing colleges Ahmadabad.

Methodology

Research methodology indicates the general pattern of organizing the procedure for gathering valid and reliable data for an investigation. The content of this chapter includes research approach and its rationale, description of setting and population, description of sample, tool selection, construction, description and rational of the tool, procedure of data collection, data analysis and statistically methods used.

The data in table 1 presents the demographic data like Age group of students and Gender. In the classroom teaching method, the table depicts that 30 (100%) out of the 30 students were from the age group 18-20 years and none were found to be in age group of 21-23 years and 24-26 years. In the video assisted teaching method, the table depicts that 30 (100%) out of the 30 students were from the age group 18-20 years and none were found to be in age group of 21-23 years and 24-26 years.(Figure 1,2)

Table 1: Frequency and percentage distribution of sample characteristic Age and Gender. n1=30, n2=30

Variables	Classroom teaching method		Video assisted teaching method	
	Frequency	Percentage %	Frequency	Percentage %
Age in years				
18 – 20 years	30	100%	30	100%
21-23 years	0	0	0	0
24–26 years	0	0	0	0
Gender				
Male	1	1%	0	0
Female	29	99%	30	100%

In classroom teaching method, the data also show that 29(99%) out of the 30 students were females and remaining 1 (1%) student was male. In video assisted teaching method, 30 (100%) out of the 30 students were females. (Figure 3, 4)

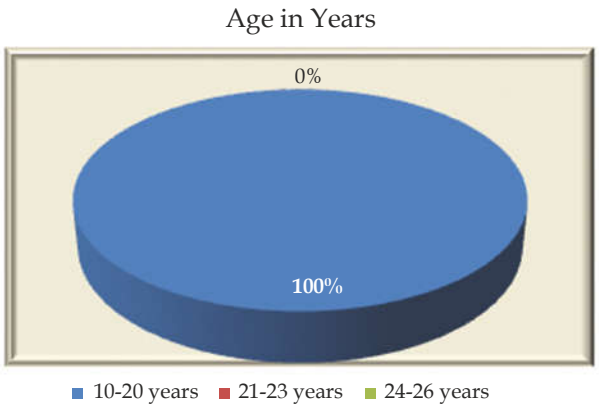

Figure 1: A pie diagram showing frequency distribution of the samples of classroom teaching method as per their age group.

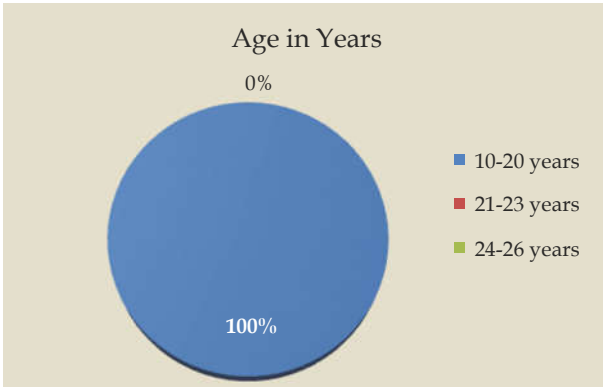

Figure 2: A pie diagram showing frequency distribution of the samples of video teaching method as per their age group.

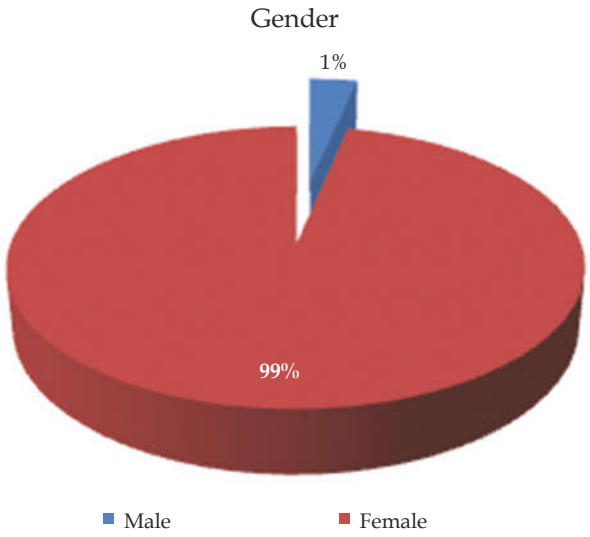

Figure 3: A pie diagram showing frequency distribution of samples of classroom teaching as per their gender.

Figure 4: A pie diagram showing frequency distribution of samples of video teaching method as per their gender.

Analysis and interpretation of the data related to the knowledge of the samples before and after the administration of the classroom teaching method and video assisted teaching method on ECG.

This section describes the analysis, description and interpretation of the data collected to assess the knowledge on ECG among students by classroom teaching method and video assisted teaching method. The mean, standard deviation, mean difference and t value socres by classroom teaching method and video assisted teaching method were computed and presented in table (4,5). On the basis of these scores, in table 2, a range was created to divide the students as per their awareness about ECG in classroom teaching method and video assisted teaching method into these categories:

Interpretation of the score	
Poor	0–13
Average	14–27
Good	28–42

The data in table 3 presents the interpretation of the score of administration of knowledge questionnaire before and after classroom teaching method and video assisted teaching method. The table depicts that 26 out of 30 students had average knowledge where as remaining 4 students had poor knowledge and none of the student had good knowledge in the pre-test of both classroom teaching method and video assisted teaching method. (Figure 5)

The interpretation of the post test score of classroom teaching method shows that 18 out of 30 students had average knowledge and remaining 12 students had good knowledge and none of the student had poor knowledge. (Figure 6)

The interpretation of the post test score of video assisted teaching method. The data shows that 30 out of 30 students had good knowledge and none of the student had average and poor knowledge. (Figure 7).

This indicates the video assisted teaching method

Table 2: Distribution of students according to obtained scores in basic information on ECG. n1 = 30 n2 = 30

Categories of Score	Classroom teaching method				Video assisted teaching method			
	Pre test		Post test		Pre test		Post test	
	Frequency	Percentage %	Frequency	Percentage %	Frequency	Percentage %	Frequency	Percentage %
Poor	4	13.33	0	0	4	13.33	0	0
Average	26	86.66	18	60	26	86.66	0	0
Good	0	0	12	40	0	0	30	100

was more effective than the classroom teaching method on ECG. (Figure 8)

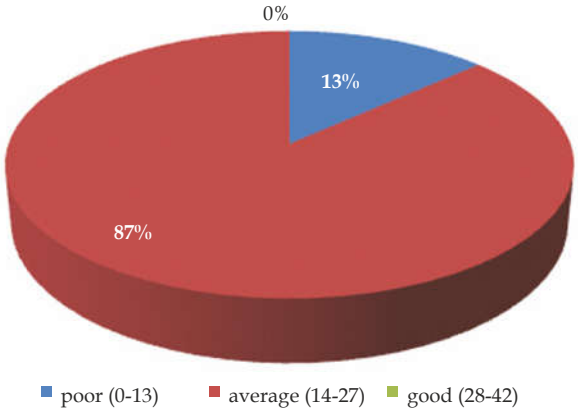

Figure 5: The pie diagram showing interpretation of the data of pre test of classroom teaching method and video assisted teaching method.

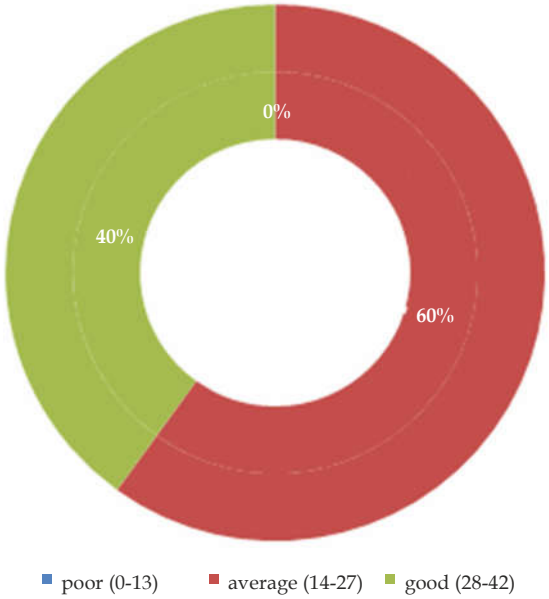

Figure 6: The doughnut diagram showing interpretation of the data of post test of classroom teaching method.

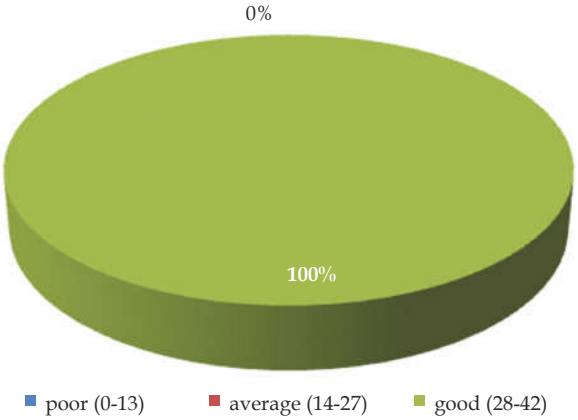

Figure 7: The pie diagram showing interpretation of the data of post test of video teaching method.

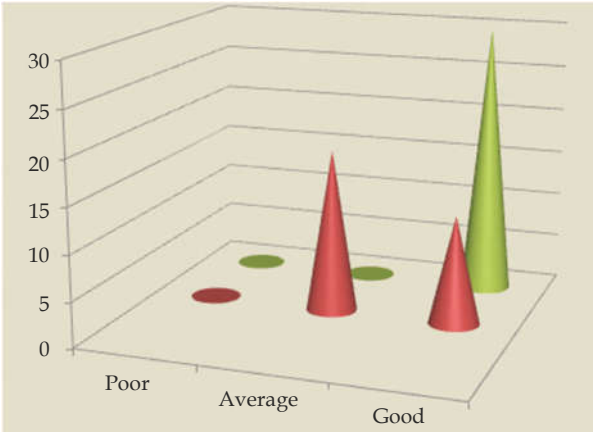

Figure 8: Pyramid showing distribution of students based on post test score of classroom teaching and video assisted teaching.

Table 3: Possible range of scores, Range of obtained scores, Mean, Standard Deviation, Mean difference, Mean percentage before and after administration of classroom teaching method. n1 = 30

Classroom Teaching Method	Pre test	Post test
Possible ranges of scores	0-42	0-42
Range of obtained scores	11-23	24-34
Mean	17.43	28
Standard Deviation	3.15	2.46
Mean Difference	10.57	

The data given in table 4 indicate that the possible ranges of scores were 0-42 and the range of obtained score for the subjects before administration of classroom teaching was 11—23 and after administration 24—34. The mean pre test scores 17.43 was less than the mean post test score 28 in group I with mean difference =10.57. The Standard deviation of pre test was 3.15 and the post test was 2.46.

Table 4: Possible range of scores, Range of obtained scores, Mean, Standard Deviation, Mean difference, Mean percentage before and after administration of video assisted teaching method. n2=30

Video Assisted Teaching Method	Pre test	Post test
Possible ranges of scores	0-42	0-42
Range of obtained scores	12-24	36-41
Mean	17.13	39.23
Standard Deviation	3.18	1.41
Mean Difference	22.1	

The data given in table 5 indicate that the possible ranges of scores were 0-42 and the range of obtained score for the subjects before administration of classroom teaching was 12-24 and after administration 36—41. The mean pre test scores 17.13 was less than the mean post test score 39.23 in group II with mean difference =22.1. The

Standard deviation of pre test was 3.18 and the post test was 1.41.

Since the pre test of classroom teaching method and video assisted teaching method from table 4, 5 shows that the mean value of both are almost close by in range. So in this study the investigator has given more preference to the post test of video assisted teaching and classroom teaching method. Figure 7 and 8 presents the comparison of mean score of pre test and post test of classroom teaching method and video assisted teaching method respectively.

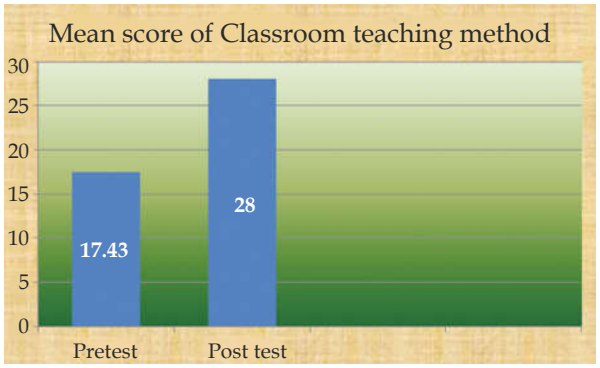

Figure 9: The bar diagram showing the comparisons of mean score of pre test and post test of classroom teaching method.

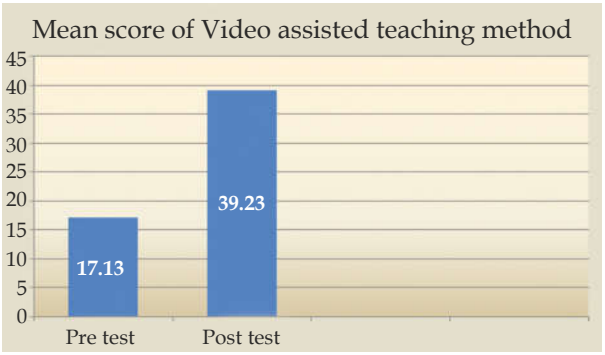

Figure 10: The bar diagram showing the comparisons of mean score of pre test and post test of video teaching method.

Table 5: Findings related to mean post test scores of group I and group II on ECG.

	Mean	Standard deviation	Mean %
Group I (Classroom)	28	2.46	66.67
Group II (Video)	39.23	1.41	93.41

The data in the table 6 shows the comparison of post test score obtained by second and third year BSc Nursing students after administration of classroom teaching method and video assisted teaching method on ECG.

Comparison of mean, mean percentage, standard deviation of post test score shows the effectiveness of video assisted teaching method. The mean post test of Group I is 28 which is less than the mean post test of Group II which is 39.23 respectively. The mean percentage in group II after the video assisted teaching was 93.41 and in Group I was 66.67 respectively. The mean post test score of video assisted teaching method is significantly higher than the mean post test score of classroom teaching method on ECG. So, it is proved that the video assisted teaching method was more effective. (Figure 11)

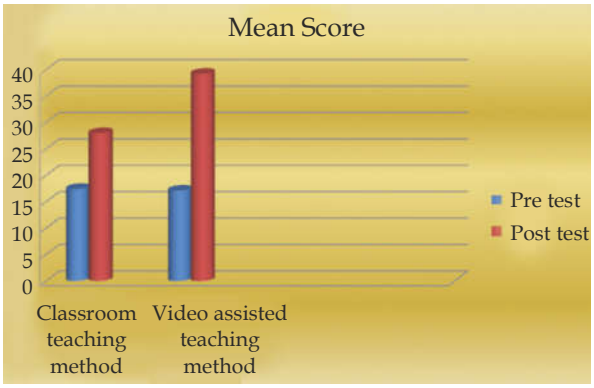

Figure 11: A bar diagram showing mean score of pre test and post test classroom teaching method and video assisted teaching method on ECG.

Evaluate and compare classroom teaching method and video assisted teaching method on ECG.

To evaluate the effectiveness of video assisted Vs classroom teaching method on ECG among group I and group II students, a null hypothesis was formulated. An unpaired 't' test was used to find the effectiveness.

H0: There will be a no significant difference between post test knowledge scores of classroom teaching method and video assisted teaching method among second and third year BSc Nursing students.

H1: There will be a significant difference between post test knowledge scores of classroom teaching method and video assisted teaching method among second and third year BSc Nursing students.

Table 6: Comparison of post test score of group I and group II students on ECG and effectiveness of the study. n1 = 30 n2 = 30

Method of teaching	Mean	Median	Standard Deviation	't' value
Classroom teaching	28	28	2.46	*8.826
Video assisted teaching	39.23	39	1.41	

*=significant at 0.05 level t=2.00, p<0.05

Data presented in table 6 shows the mean, median, standard deviation and unpaired t test of second and third year BSc nursing students after

classroom teaching method and video assisted teaching method on ECG. The mean and standard deviation of video assisted teaching method was 39.23+ 1.41 with a percentage mean of 93.41% whereas the mean and standard deviation of classroom teaching method was 28+ 2.46 with a percentage mean of 66.67%.

The calculated 't' value was higher than the table value ($t_{59}=2.00$, $p<0.05$). Hence the null hypothesis was rejected and the research hypothesis was accepted and it was inferred that in the present study, there was significant difference between the post test score after classroom teaching method and video assisted teaching method on ECG among second and third year BSc Nursing students. Therefore it can be concluded that video assisted teaching method was effective.

Discussion

This section evaluated the findings of the present study in the light of previous research studies. The discussion is organized based on finding of the study. The theoretical framework of the present study was based on concept of General System Theory.

Conclusion

The study intends to assess the effectiveness of video assisted teaching method and classroom assisted teaching method in terms of knowledge regarding ECG among third year and fourth year B.sc Nursing student in selected colleges of Ahmadabad Gujarat. The study reveals that post test knowledge score of video assisted teaching method is higher than the post knowledge score of classroom assisted teaching method.

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