



Using video to introduce clinical materials

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Does combining teaching preclinical material with a video presentation facilitate the interest and understanding of students

SUMMARY

Background: The early introduction of clinical material is a recognised strategy in medical education. The University of Ruhuna Medical School, where a traditional curriculum is followed, offers students pre-clinical subjects without clinical exposure during their first and second years.

Innovation: Clinical materials in the form of videos were introduced to first-year students. In the videos, patients and their relatives described the diseases and related problems. Students were instructed to identify the problems encountered by patients and relatives. Each video was followed by a discussion of the problems identified by the stu-

dents. The medical, social and economic problems encountered by patients and relatives were emphasised during post-video discussions. A lecture was conducted linking the contents of the videos to subsequent lectures. The aim of this study is to investigate whether combining teaching preclinical material with a video presentation of relevant clinical cases facilitates the interest and understanding of students.

Implications: Quantitative data were collected using a questionnaire, whereas qualitative data were collected using focus group discussions. Quantitative data showed that students appreciated the video, had 'better' knowledge acquisition and a 'better' under-

standing of problems encountered by patients. Qualitative analysis highlighted the following themes: increased interest; enhanced understanding; relevance of basic knowledge to clinical practice; orientation to profession; and personalising theories.

The introduction of patients in the form of videos helped students to understand the relevance of subject material for clinical practice, increased their interest and facilitated a better understanding of the subject material. Therefore, it seems video is a feasible medium to introduce clinical materials to first-year students who follow a traditional curriculum in a resource-limited environment.

INTRODUCTION

The early introduction of clinical material, integrating it with basic sciences, is a recognised strategy in medical education. However, at the University of Ruhuna Medical School students study basic medical science subjects without clinical exposure during their first and second years.

The early introduction of clinical material in medical education has been suggested by many previous researchers, who highlighted its many advantages.^{1,2} Early clinical exposure has been shown to produce accelerated and sustained learning.³ It has also been shown to help students to develop a humanistic approach towards patients.²

Actual patients, however, present with a combination of health problems. Although some of these problems can be highly relevant to a particular basic science, others can be distracting.⁴ The distractions may interfere with first-year medical students' understanding of basic science. Video presentation can help teachers to select and present only relevant aspects of patients to students. Moreover, specific segments of video can be repeated, enhanced or stressed if required. In addition, there may be administrative, logistical and ethical difficulties in using live patient demonstrations in preclinical teaching.

Video presentations have been used to deliver clinical materials in different teaching-learning scenarios.⁴⁻⁸ Studies have shown advantages of video over traditional teaching methods. For example, learners who viewed videos engaged in more data exploration, theory building and theory evaluation compared with those who used paper-based input in problem-based learning (PBL).⁵ A previous study suggested a possible increase in efficiency,



Video presentation can help teachers to select and present only relevant aspects of patients to students

with regard to time spent learning, with video compared with traditional teaching methods.⁴ Video presentations were also shown to enhance critical thinking in both face-to-face and virtual PBL groups.⁸ However, in medical undergraduate education, video has been used mainly in the PBL environment.^{4,5,8}

In addition, video can be used in environments with limited resources, because it requires only a few basic instruments such as a computer and a video camera, which are widely available these days.

In the present study, videos of clinical material were introduced to first-year students within the existing traditional curriculum in a non-PBL environment in the University of Ruhuna Medical School to demonstrate how preclinical knowledge is applied in actual clinical practice. We hypothesised that this would increase students' interest to learn preclinical material.

METHODS

Introduction of clinical material
It was planned to introduce one patient with thalassaemia and another patient with haemophilia

to the blood module conducted for first year-students. These two diseases were selected because both of them are chronic diseases with several social and economic implications. The structure of the video was designed using inputs from paediatricians and basic science teachers.

In the videos, an interviewer questioned patients and their relatives about the diseases and related problems; they were also asked to describe health, social and economic problems associated with the diseases. Both videos were shown in the classroom immediately prior to introducing the relevant subject area in the blood module. The students' task was to identify the problems faced by patients and relatives who appeared in the video. Each video was followed by a discussion of the problems identified by students. This discussion was conducted as a buzz group (several small group discussions inside a classroom) by medically qualified basic science teachers of the preclinical departments. The process ended with a wrap-up session. The medical, social and economic problems faced by patients and relatives were emphasised during the post-video discussions. The appropriate re-

The interest created by the video has motivated students to explore the wider subject area

Table 1. Percentages of students' Likert scale ratings for each statement

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I like the introduction of the patients' information as videos in the blood module	38.2%	51.5%	9.1%	0.6%	0.6%
Videos in the blood module helped me to understand the problems faced by patients and relatives	42.5%	53.3%	4.2%	0%	0%
The introduction of patients' information as videos helped me to learn the subject area of 'blood' better	24.2%	55.2%	15.8%	4.2%	0.6%
I have a better understanding about the problems faced by patients and relatives with a disease related to blood	29.7%	66.7%	3.6%	0%	0%
I have a clear understanding of the relevance of pre-clinical knowledge in the subject area of 'blood' to clinical studies in the future	21.8%	53.3%	18.8%	4.8%	1.3%

sponses and interventions of medical professionals for these problems were also discussed. A bridging lecture was conducted after the post-video discussion, linking the contents of the videos and the post-video discussion with subsequent lectures to be conducted in the blood module.

Quantitative assessment

The students' perceptions of their experience of video presentations were assessed using a questionnaire. At the end of the blood module, every student was given a questionnaire and was asked to complete it in the classroom. The questionnaire contained a number of statements. Each statement was to be answered on a five-point Likert scale, ranging from strongly agree to strongly disagree.

Qualitative assessment

Three focus group discussions were conducted with 12 medical students in each group. Altogether, 15 female and 21 male students participated in focus group discussions. Participants were randomly selected to represent 25 per cent of students who attended the blood module. Participation was voluntary.

All focus group discussions were moderated by the first author and were tape-recorded. Audiotapes were transcribed verbatim and analysed qualitatively; the first author and another academic staff member read the transcripts independently, and each developed a coding frame to capture the themes. A common set of categories was then negotiated, and the transcripts were coded independently. Disagreements about assignments of relevant portions of the text to the categories were negotiated through discussion.

The study was approved by the medical school ethical review committee of the University of Ruhana.

RESULTS

Quantitative data

The response rate for the questionnaire was 92.6 per cent. One hundred and sixty-five students responded to the questionnaire. Table 1 shows a summary of the data.

Qualitative data

Several themes were identified in the thematic analysis of the focus group discussions.

Increased interest

Students mentioned that watching videos was a new experience that increased their interest in the subject. It helped them to become familiar with the subject.

This [video] is a new experience...it helps to understand what we learn in lectures or from text books...with videos our interest increases and we won't be scared of the subject.

The interest created by the video at the beginning of the blood module has motivated students to explore the wider subject area.

This start [with video] helps us to study the subject deeper...it gives some idea at the beginning what we are going to do next few days...it helps to explore subject more.

Enhanced understanding

Students believed that the video aided them to understand the information in textbooks and

lectures. They also expressed that the video has helped them to remember facts from the textbooks.

When we read later, we remember things that we saw there in video...that is better than just remembering the fact from books.

After video, we can easily understand facts we study in textbook, amount we understand is increased...we can remember things easily.

Relevance of basic knowledge to clinical practice

Video has helped students to understand the relevance of the subject to medical practice. That is, making links between practice and theory has made evident the relevance of basic knowledge.

It was started with video therefore relevance can be seen when we learn subject with subsequent lectures...It is like a story.

Students have emphasised the importance of knowing the applications of the knowledge, especially in relation to their future practice.

Usually we study only one aspect of subject, but with this we learn many aspects – physiology, medical aspects and social aspects. Studying many aspects we learn condition as whole, it helps when we treat patients later.

Orientation to profession

The use of video has given the students a 'sense' of their future career. Together with the subject matter, they have also learned certain things about the medical profession and its responsibility.

We understand something about what will be our profession...what we are supposed to do later...We feel that we will be becoming a doctor.

Personalising theories

Unlike in textbooks, students saw patients from their own country in the videos (almost all textbooks used by these students are written in other countries). They saw clinical and social aspects of these diseases in their own country. It helped them to relate the subject knowledge to their local context.

In the books we see clinical aspects and social aspects of patients in other countries, but here we can see how they are applied to our country and our patients. We learn something around us. Then we remember more.

Because students came from different social backgrounds, their perceptions about patients' problems were different. The videos helped to enhance students' perspectives on patients' problems.

Due to their socio-economic background, some students did not have idea about problems faced by poor patient. For such students this [video] helps a lot; even for other students, it helps to get a deep feeling about the problems faced by our patients.

DISCUSSION

The data suggest that viewing videos of clinical material helps students to understand the relevance of basic science knowledge to clinical practice. Seeing the connection between basic science

material and clinical practice might serve to motivate students to master basic science material more thoroughly.

This understanding is important for the improved learning of basic sciences. Early clinical exposure might be an advantage when students learn clinical subjects in the latter part of their training.⁹

Students mentioned that the video provided an opportunity to see native patients, in contrast to the foreign patients often seen in textbooks. It is important for students to gain knowledge of the local context and local circumstances, in addition to the knowledge that they gain from foreign textbooks. Moreover, students suggested that the exposure to native patients facilitated a 'feeling for them': that is, it aided them to develop empathy towards the patients.

In the students' eyes, another benefit of the videos was that they helped students to 'feel like a doctor'. This beginning of a professional identity may help motivate students to acquire the knowledge, skill and attitude required of them.

The post-video discussion centred on problems identified by students and helped to redefine, emphasise and find solutions for the problems identified. Brennan and colleagues, in their study on newly qualified doctors, suggested that patient contact per se is not adequate, and the student should understand the significance of the experience he or she is gaining with patient contact.¹⁰ This post-video discussion may have helped students to understand the relevance of patient contact that they experienced with video.

Three themes 'relevance of the knowledge', 'personalising theories' and 'orientation to

Students have also learned certain things about the medical profession and its responsibility

profession' are linked to the personalisation of learning materials. Two themes – 'increased interest' and 'enhanced understanding' – are concerned with a better understanding of the material through provoking interest. Data gathered using the questionnaire also indicated that videos have helped with the better understanding of the material. Therefore, both qualitative and quantitative data indicate that the video has helped students to personalise their learning, increase their interest and improve their understanding.

Video has been used mainly to introduce clinical material into the PBL process. Students who follow a PBL curriculum receive considerable clinical exposure through PBL cases during the preclinical period. Our literature search revealed that published studies on the use of video in a non-PBL setting are rare, especially in undergraduate education. This study provides evidence for the successful use of video in a non-PBL environment.

Regarding the limitations of the study, we only assessed students' perceptions of the value of video portrayals of clinical material, we did not assess whether there were improvements in their

knowledge and skills, or whether there was a change in their attitudes. Future studies need to address the learning outcomes associated with the use of video-taped clinical material.

In conclusion, our study has shown that the introduction of patients in the form of video helped preclinical students to understand the relevance of subject material to clinical practice, increased their interest and facilitated a better understanding of the subject material. Therefore, video is a feasible medium to introduce clinical materials to first-year students who follow a traditional curriculum in a resource-limited setting.

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