TEACHING SCHIZOPHRENIA: 8-MINUTES VIDEO BASED LECTURE VERSUS 1-HOUR TRADITIONAL LECTURE

ABSTRACT

Video-based teaching module is well known and practiced in some university courses but the effort to validate this type of education tool in medical and health education system is yet to be expanded and explored especially from pharmacy students' perspective. Materials and method: forty pharmacy students evaluated their experience from attending a one-hour lecture and watching a short video-based lecture lasted for eight minutes both were about clinical presentation and diagnosis of schizophrenia. Result and discussion: 70% of the sample (n=28) preferred video-based lecturing. Advantages and disadvantages varied from faculty and students' perspectives, but it saved time, was enjoyable and memorable. Conclusion: positive agreement of pharmacy students toward schizophrenia video-based lecture was assured and effort must be put on validating video-based lecture content

KEY WORDS: Schizophrenia, teaching, video-based, pharmacy, education.

INTRODUCTION

University educators agree that absenteeism affect students' performance, learning outcomes, distraction and professionalism with several numbers of studies pointing towards this concern [1-5]. There are different learning modules adopted in academia to improve learning outcomes and video-based lecture is one of them. Video-based lecture could be defined as a recorded video of educational materials. The attention and memory were reported to be improved in video-based lesson in a study published in American journal of distance education [6]. In developing the scope of this study, the experiences of various institutions of higher learning were carefully selected and considered. Although not statistically significant, video-assisted lecture helped in changing the opinions of students toward pain-free dental injections in children at the Faculty of Dental Medicine, University of Medicine of Tirana, Albania [7]. The exam performance results of a biological psychology course show a significant difference toward recorded lectures with positive effect at the knowledge base but not in the critical thinking skills [8].

In Germany, three studies from different universities were also evaluated. The first one involved majority of students in a dental school in Tübingen preferred the videos in psychological aspects of paediatric dentistry course which was delivered by either live lecturing or through videotapes [9]. In the second study, they targeted senior medical students at the Vanderbilt University. Both studies concluded that online lecture (internet-based PowerPoint slides with audio) on principle of screening tests for health problems were comparable to the live traditional lecture [10]. The third study was at the University of Göttingen to prepare medical students for their clinical exams showed no difference in the effectiveness between video and live course but the learning atmosphere and ability to concentrate were significantly higher in the

video course [11]. It is therefore justified to state that video-based learning is more effective in medical training.

The main objective of the study is to assess whether video-based lecture improved pharmacy students understanding of clinical presentation of schizophrenia, a severe mental disorder that affects more than 21 million people globally [12], compared to traditional classroom lecture. Other objectives will explore advantages and disadvantages of video-based teaching strategy and different challenges facing faculty and students to apply this type of teaching.

Literature review

Video-based learning technology has been cited to enhance educational experience in training of persons especially in those subjects that require theoretical knowledge as well as practical skills. In healthcare, such study objectives may include demonstrations on how tracheal intubations are undertaken, first aid demonstrations as well as the administration of LA in dental procedures [13]. In another research, video modeling enhances the capacity of the instructors to teach through demonstration of the procedural information and thus enhancing modeling of targeted skills. One study summaries the above experiences by arguing that video-assisted lecture is more advantageous to train pharmacy students on schizophrenia symptoms, clinical presentations or even the predisposing factors as well as drug reactions in real life experiences.

In pharmacy, dental as well as the general surgical student lecturing, video-assisted model also helps the learners to understand both the technical components involved in injection as well as the general management of the patient behavior in the course of surgical operations [14]. This is against a backdrop of a belief that all injections are painful without regard to other pain free

injections. To shift student's perception in such stereotyping pain, visual demonstrations through the use of videos makes the explanation more elaborate. This is because; new learners have greater challenge in imagining that injections, such as those in the dental treatments, are pain-free. The same can be most effective in demonstrating how drugs are prescribed as well as administered to the schizophrenics just like any other medicine administration in normal patients.

Video-based lecture is one of the first hand experiences of practical training methods. It comprises of displaying, real performance as well as declaring something. The burden is not on the tutor to use all his or her effort in describing education components by word of mouth but rather, he or she is tasked with showing the steps and let the video demonstrate all the course contents. Even though the learners are expected to practice through repeating of all the items the teacher did, video-based learning is intended to bridge the gap between theory as well as practice [15]. Additionally, it minimizes confusion occasioned by accidents that the medical student learners are at risk of undertaking. Moreover, video-based lecture incorporates both the advantages of the physical availability of the tutor as well as the aid of the video that in the long run enforces leaned activity [13]. On a similar note, it filters out the disadvantages that might be accustomed by the presence of a tutor in the absence of the video-training model as well as the presence of the video model minus the physical availability of the lecturer [14]. Demonstrations, in simpler terms, means to "show" and in a lecture method, the tutor just speaks but in demonstration, certain fundamental phenomenon of the subject matter are stated and illustrated. Just like in other lecturing, video based learning aids in schizophrenia training among pharmacy students as they are exposed to hands-on training before they are tasked with undertaking such roles in their future practice in schizophrenia management.

In another instance, a video-based lecturing method in healthcare is also associated with other benefits. On the first note, the video demonstration models have enhanced capacity to portray various behaviors in a realistic context of schizophrenia training models [16]. It is more advantageous to those learners with a challenge of understanding printed materials as they reeve various advantages in training which may include the model's capacity to show various variations in stimulus and response. Another study suggest that video-based lecture standardizes stimuli presentation in the course of training which is suggested to reinforce internal consistency as well as improves the learner's capacity to confidently compare data across sessions and learners [17]. Above all, video-modeling has the capacity to record actions in real time and thus the student is capable of reviewing the class actions at any time he deems fit or when required.

In the current video-based lecture in schizophrenia and associated health education, the broadcaster's voice can be clearly heard and his movement, figure as well as illustrations he adopts can be clearly viewed on the screen [18]. One research suggests that video-based learning integrates sight and sound making the overall experience to be real, immediate and concrete [15]. The research continuous to note that, through video-based learning, the learners have an opportunity to see as well as listen to the events and scenes as they unfold. A major advantage of video-based learning is that many learners can be taught at a go where they are exposed to practical experiences of various symptoms that can be associated with disease conditions such as schizophrenia.

Another research notes that video-based lecturing has greater capacity to illustrate coordination of various body organs such as head, hands as well as the heart which are ideal in both development as well as sharpening of an individual's psychomotor as well observation

skills [17]. On the same note, a demonstration through video-based lecture enhances visual skills where the students develop skills in reasoning, thinking, and observation as well as conceptualize the topic. The same result can be realized in training pharmacy students on the symptoms that are associated with schizophrenics as well as the DSM criteria used to determine availability of schizophrenia.

Video images as well as graphs can be distributed to the learners through a website where they can make a review during their private time [18]. Examples that can be availed through website comprise of illustrations of the clinical manifestations, stimulations of student discussions as well as illustrating clinical skills with regards to schizophrenia. On illustrating the clinical conditions, it is ideal that the students should confidently associate certain behaviors to the disease condition [16]. Disorders especially those of movement incapacitations, are better seen than when they are described. With regards to demonstrating clinical skills, standard procedure in clinical skills should be best illustrated in a video before any student attempts to undertake such roles immediately or in the future. Through self trials, the students' capacity to retain the skills is elevated before the actual trial on a patient [19].

Blending text as well as video is suggested to be more learners focused due to the common belief that video is more relevant other than simply illustrating dynamic processes. In itself, video is one of the greatest learning tools that, if applied in appropriate manner, extensive benefits are likely to be accrued [19]. Another cross-sectional study on video-based learning and its effectiveness affirms that it provides collaboration medium as well as a language unique to itself that has a global appeal.

In another study by the American Public Broadcasting System that involved a yearly assessment of teachers on media and technology which found that there has been a consistent increase, since 2007, in the number of teachers who finds value in both multimedia as well as video content. The teachers agreed that through the use of video in class instructions, the students' levels of discussions are enhanced [16]. The 2010 result, for instance, showed that 68 percent of the surveyed teachers attributed the increased student discussions from the adoption of video oriented lecturing. Sixty six percent of the surveyed teachers, on the other hand, believed that video-based teaching increase student's motivations [16]. Another 61 percent believed that students prefer video-based lecture with 42 percent believe that the overall student achievements are enhanced through video-based lecture [16]. The overall observation is that the use of video as a lecture model increases as well as enhances the overall student's school performances in both technical and art based courses. Pharmacy being one of the technical science based course is much understood when demonstrated through video based learning.

In another study entitled, "Learning through Digital Media Experiments in Technology and Pedagogy' stipulates that it is not necessary for the video to be long to make it captivating [17]. Ideally, a shorter video presentation is likely to place higher emphasis on a closer view which in the long run enhances student's level of comprehension. Through adoption of technology, the current learning environments are characterized by video presentations to introduce ideas, updates, lectures as well as discussions.

In another research, which confirms that an alternative method to engage as well as motivate students is through showing them videos that are actually for entertainment where a short video segment was used in a bid to assess its effectiveness concluded that majority of

students were involved and their grades rose greatly[14]. In 2012, Steffes and Duverger reported that showing students supplementary videos that directly or indirectly illustrates the topic to be learnt, during the beginning of a lecture session increase the overall students' positive moods [15]. In both Bravo et al. alongside Steffes & Duverger agree that there is need to design an appropriate design of a supplementary video content as well as the overall method by which such a video is displayed to the students. The most important concern of such a method is attributable to establishing better methodology to embed video clips in a video-based learning model in a bid to enhance learning process; otherwise, prolonged exposure might achieve the opposite. The use of a vignette or video triggers that runs for 1 to 5 minutes does not only grab the attention of the learners towards the speaker but also enhances the audience's understanding of the subject matter [20]. Furthermore, the use of an appropriate teaching media as well as teaching methods in sieving contents that are relevant to the course contents is also suggested to increase effectiveness as well as efficiency in self-learning process. Placing major focus in training the pharmacy students on schizophrenia is one example of success in knowledge transfer.

In another study findings in "Effect of Video on the Teaching of Library Studies among Undergraduates in Adeyeni Education College, Ondo" found that when video is integrated in teaching, the learners' positive attitude towards the course materials are enhanced as well as improves their overall learning experiences. More findings are registered by Hill & Nelson who sought to examine how such supplementary education video can be used to assist with exam revision. The study indicated that videos are more effective especially when applied to develop information on courses on literacy [19]. Another study by Hahns found that such supplementary videos were ideal in enhancing understanding of lectures they had taken part in.

The Bandura's theory on social learning puts greater emphasis on the importance of learning through behavior modeling through observations as well as emotional reactions to others. The theory states that "learning would be intensely laborious, not to mention hazardous, if people had to solely rely on the effects of their own actions to inform them what to do" [20]. Ideally, most of the human behaviors are learnt through observation and modeling where an individual will observe how functions are performed by others and on a later date, the coded information guides the observer to undertake actions on his or her own. It is prudent to note that social learning theory describes the behaviors of human beings as a persistent reciprocal interaction between environmental influences, cognitions as well as behavioral influences. Since it comprises memory, attention as well as motivation, the theory on social learning incorporates both behavioral as well as cognitive frameworks. The Bandura's explanations echoes Miller & Dollar interpretations of behavior modeling which alludes that the highest level of learning through observation is realized by first organizing as well as symbolically rehearsing the modeled behavior after which it should be clearly enacted [20]. This is because; individuals will only adopt a modeled behavior only if such results into outcomes that reflect their values. It is important to note that copying modeled behaviors into images, labels as well as in words enhances idea or concept retention as opposed to simple observation. If the students are likely to value outcomes of video-based lecture, their capacity to adopt modeled behavior is enhanced.

Despite the many advantages that are as a result of adoption of video-based lecture, there are certain restrictions that must be observed [18]. The fair use act outlines a variety of purposes and circumstances in which video clips can be used to enhance learning such as criticism, comment, reporting news, teaching to encompass multiple copying to meet all the student

requirements, research or scholarship”[14]. The considerations of such factors, nevertheless, should not be mechanically undertaken but they should be balanced. Majority of the educators, for instance, adopts the use of a checklist such as that created by Columbia University Copyright Advisory Office, which arranges in an organized manner the fair use requirement.

In a snapshot, video-based learning is more convenient for training pharmacy students on the clinical manifestations of schizophrenia as well as the disease condition management as opposed to when it is undertaken through the normal classroom narrations. It saves time, cheap and ideal for bigger audiences.

MATERIALS AND METHOD

The study adopted both qualitative and quantitative research. The adoption of both qualitative and quantitative is to minimise the errors occasioned by each method and exploit their respective advantages in ensuring validity of the research.

Ninety pharmacy students in their final year enrolled in college of pharmacy, Princess Nourah Bint Abdul Rahman University (PNU), Riyadh, Saudi Arabia and registered for "integrated patient care laboratory CPP 444" course with forty of them agreeing to participate (response rate of 44.4%) and were given a 1-hour lecture- schizophrenia lecture- covering disease background, aetiology, diagnostic criteria, and general treatment plan. The same students then watched a video (scientific content of the video was evaluated) which lasted for eight minutes with the same learning outcomes covered by the 1-hour session. Students were asked individually to evaluate their experience whether they preferred the video-based lecture or not with no bearing to their grades. Students had the option to select their responses on a five-point

Likert scale. Suggestions and concerns were collected from pharmacy faculty and students through short interview to conclude pros and cons of video versus traditional lecturing. Descriptive statistics were performed to explain the results with mean, standard deviation SD and percentages.

RESULT AND DISCUSSION

Positive agreement toward schizophrenia video-based lecture were 70% (32.5% responded with strongly agree and 37.5% responded with agree) while 10% preferred traditional lecturing (all of which responded with disagree to video-based teaching and none with strongly disagree). However, 20% of the students were undecided on which model suits them best. The low standard deviation (SD=0.971) indicates that the responses were closer to the mean which was in favour of video-based lecturing (mean=3.9725) as summarized in table 1 and figure 1.

Upon collecting faculty and students' opinions, the main advantages of video-based lecturing were 1) saving time: 13% of the time spent on watching the video when compared to attending traditional lecture, 2) flexible time sets, 3) attending from remote places and distance, 4) ability to repeat the lecture and pause at any time, 5) no need to attend the class and spend the extra time in other activities, 6) much fun and 7) memorable. The disadvantages were 1) the loss of contact with the lecturer with no effective discussions, 2) no contact with peers, 3) not all faculty aware of using this type of teaching, 4) finding valuable video resources or creating teaching materials is difficult and 5) if decided to purchase educational videos it will be expensive. Limitations may include 1) the number of participants, 2) lack of control group to draw more conclusions, 3) correlation with quiz or test grades for each group, 4) more videos of complicated topics in

pharmacy and finally 5) readiness of both faculty and students to use and validate online resources.

CONCLUSION

Time is valuable in education and incorporation of various learning modules into the current class set up improves students' attention. As opposed to the traditional learning module, video-based lecturing is one of the transformations in lecture that brings high acceptance from students' perspective in this study. This study may attract educators to adopt video-based lecturing in pharmacy schools.

ETHICS APPROVAL

Approval for the study was given by PNU institutional review board (IRB Log Number: 18-0334) and considering the national regulations that govern the protection of human subjects.

REFERENCES

1. Reunitz, P.C., *Promoting in-class student involvement in medicinal chemistry.* American Journal of Pharmaceutical Education, 1997. **61**(3): p. 302-305.
2. Fjortoft, N., *Students' motivations for class attendance.* American Journal of Pharmaceutical Education, 2005. **69**(1): p. 15.
3. Westrick, S.C., et al., *Factors influencing pharmacy students' attendance decisions in large lectures.* American Journal of Pharmaceutical Education, 2009. **73**(5): p. 83.
4. Young, J.R., *The lectures are recorded, so why go to class.* Chronicle of Higher Education, 2008. **54**(36): p. A1.
5. Zureick, A.H., et al., *The interrupted learner: How distractions during live and video lectures influence learning outcomes.* Anatomical sciences education, 2018. **11**(4): p. 366-376.
6. Choi, H.J. and S.D. Johnson, *The effect of context-based video instruction on learning and motivation in online courses.* The American Journal of Distance Education, 2005. **19**(4): p. 215-227.
7. Hysi, D., et al., *Role of "Video Assisted Lecture" on Changing Albanian Undergraduate Students' Opinion Regarding Pain-free Dental Injections in Children.* Acta Stomatol Croat, 2018. **52**(3): p. 238-245.
8. Bos, N., et al., *The use of recorded lectures in education and the impact on lecture attendance and exam performance.* British Journal of Educational Technology, 2016. **47**(5): p. 906-917.

9. Kalwitzki, M., C. Meller, and C. Beyer, *Does teaching method affect students' perceptions regarding communication patterns in pediatric dentistry? A comparison of lecture and video methods.* Journal of dental education, 2011. **75**(8): p. 1084-1091.

10. Spickard, A., 3rd, et al., *Learning about screening using an online or live lecture: does it matter?* J Gen Intern Med, 2002. **17**(7): p. 540-5.

11. Brockfeld, T., B. Muller, and J. de Laffolie, *Video versus live lecture courses: a comparative evaluation of lecture types and results.* Med Educ Online, 2018. **23**(1): p. 1555434.

12. World Health Organization. 2019 [cited 2019, Feb 1; Available from: http://www.who.int/mental_health/management/schizophrenia/en/.

13. Mendoza, Gia Lenn L., Lawrence C. Caranto, and Juan Jose T. David. "Effectiveness of video presentation to students' learning." *International Journal of Nursing Science* 5, no. 2 (2015): 81-86.

14. Hsin, Wen-Jung, and John Cigas. "Short videos improve student learning in online education." *Journal of Computing Sciences in Colleges* 28, no. 5 (2013): 253-259.

15. Steffes, Erin M., and Philippe Duverger. "Edutainment with Videos and its Positive Effect on Long Term Memory." *Journal for Advancement of Marketing Education* 20, no. 1 (2012).

16. Li, Tiger, Barnett A. Greenberg, and J. A. F. Nicholls. "Teaching experiential learning: Adoption of an innovative course in an MBA marketing curriculum." *Journal of Marketing Education* 29, no. 1 (2007): 25-33.

17. Maceková, L'udmila, Volodymyr Palahin, Jana Handriková, and Stanislav Marchevský. "Applying of video technologies in educational process." In *2016 26th International Conference Radioelektronika (RADIOELEKTRONIKA)*, pp. 367-371. IEEE, 2016.

18. Bravo, Edna, Beatriz Amante, Pep Simo, Mihaela Enache, and Vicenc Fernandez. "Video as a new teaching tool to increase student motivation." In *2011 IEEE Global Engineering Education Conference (EDUCON)*, pp. 638-642. IEEE, 2011.

19. Hill, Jennifer L., and Amanda Nelson. "New technology, new pedagogy? Employing video podcasts in learning and teaching about exotic ecosystems." *Environmental Education Research* 17, no. 3 (2011): 393-408.

20. Bandura, Albert, W. H. Freeman, and Richard Lightsey. "Self-efficacy: The exercise of control." (1999): 158-166..

TABLES AND FIGURES

Table 1. Students' evaluation of their experience: video-based teaching would be better for teaching of clinical presentation of schizophrenia (mean, standard deviation SD, numbers and percentages of agreement).

Mean	SD	Strongly agree N (%)	Agree N (%)	Undecidable N (%)	Disagree N (%)	Strongly disagree N (%)
3.925	0.971	13 (32.5%)	15 (37.5%)	8 (20%)	4 (10%)	0 (0%)

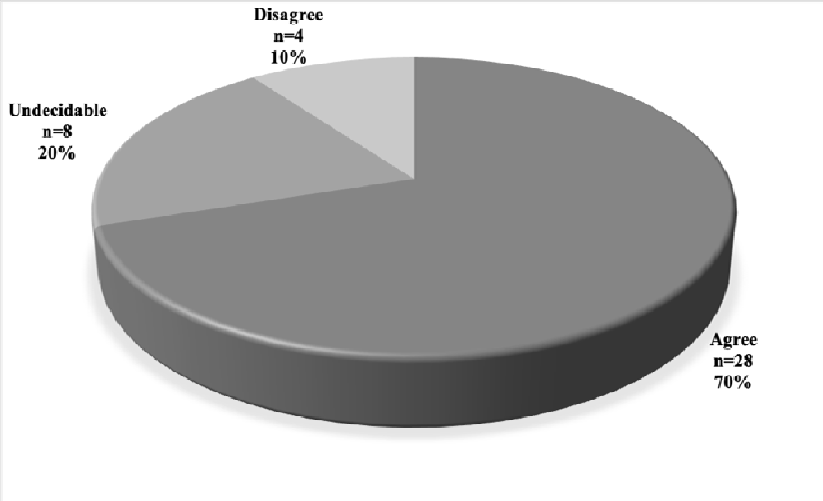

Figure1. Students' evaluation of their experience: video-based teaching would be better for teaching of clinical presentation of schizophrenia by percentage of agreement.