A Novel Educational Interventional Approach Using Standard Didactic Teaching Associated With Video Based-Simulations to Improve Understanding of the Management of Combative Patients, Use of Restraint Protocols, Violence Prevention and De-escalation in the Emergency Department

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ABSTRACT

Violent encounters and difficult patients have long been a reality for the physician and staff members of an emergency department. There is a special didactic challenge embedded in the knowledge base associated with teaching the management of ED violence, restraint protocols and violence prevention and de-escalation. Learning objectives should ideally be transmitted in the context of sensitivity to the difficult and potential violent patient. This is especially important in the care of the patient with special needs. Issues such as distancing and pacing in the approach to a patient are problems in special relationships (known as "proxemics") that would be predictably difficult to convey on a slide.

There is, however, a way to integrate traditional slide-based approaches with video-based scenarios.

The objective of this research project was to create and evaluate the efficacy of using video based story telling combined with standard didactic teaching to specifically enhance the understanding of the knowledge base in emergency medicine related to the management of the violent patient. The intervention, combining standard slide based and video based modalities, showed a pretest average score was 51.3 percent. The post-test average score was 89.1 percent. The difference was very highly significant, based on a paired (two sample) T-test using pre and post scores, by participant. (P = < 0.001)

The participants showed extremely high levels of agreement with three survey questions related to the video-based clips per se. The three questions used a 5 part Likert scale, where: 5 = highly agree, 4 = agree, 3 = neutral, 2 = disagree, 1 = highly disagree

Specifically, the participants showed a very high level of agreement that video-based storytelling clips added to [the] understanding of the presentation. The average score for this question was 4.63.The participants showed a very high level of agreement that the video-based storytelling clips were of high quality. The average score for this question was 5.0. The participants showed a very high level of agreement that video-based storytelling clips could be used in other presentations to enhance learning and understanding. The average score for this question was 4.9.

This approach may be useful in other venues, with other audiences, such as nursing, security, hospital-based teaching of policies and protocols, etc.

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INTRODUCTION

Violent encounters and difficult patients have long been a reality for the physician and staff members of an emergency department. One of the earliest published quality improvement projects in emergency medicine involved the management of ED violence [1,2]. The problem of ED violence continues to be an active issue in emergency medicine. According to a survey cited in recent edition of Rosen's Textbook of Emergency Medicine, 51% of physicians and 67% of nurses reported a physical assault at the work place within the 6 months prior to the survey period [3].

There is a knowledge base to be acquired in this area. Fortunately, there are published resources in which this knowledge base is reviewed. The above-cited emergency medicine textbook contains a dedicated chapter on the management of the combative patient [3]. A text has been published which covers the topic of violence in the emergency department [4]. A text on hospital and healthcare security contains discussions of emergency medicine violence issues, including a very unique and sensitive discussion of the special needs patients, such as autistic patients [5]. A consensus statement and consensus overview statement by the American Association for Emergency Psychiatry discusses the use and avoidance of seclusion and restraint [6,7]. Risk factors for restraint and seclusion in emergency psychiatry research may be generalizable to the emergency department [8].

Taking these texts and papers as a whole, it appears that the knowledge base in this domain includes, but is not limited to, the following:

- Identifying body language and clues consistent with aggressive behavior

- Proxemics: how body positioning can escalate or de-escalate combative behavior.

- How to medical evaluate a potentially violent or violent patient, including key elements in the history and physical examinations, medical clearance process and pathophysiology.

- How to medically manage the combative patient

- Understand how to approach and manage a patient with special needs, such as autism, so as to reduce the likelihood of combative behavior

- Understand the appropriate use of chemical and physical restraints

- Understand the proper use and documentation re: the restraint protocol

- Understanding of the epidemiology of ED violence

- Appreciate the systems properties of the ED to prevent ED violence (security, access, prevention strategies, etc).

Traditional slide-based didactic lecture approaches may transmit much of the factual information needed in reference to some of the learning objectives noted above. In addition, there is a special didactic challenge embedded in this knowledge base. That is to say, the aforementioned learning objectives should ideally be transmitted in the context of sensitivity to the difficult and potential violent patient. This is especially important in the care of the patient with special needs. Lastly, issues such as distancing and pacing in the approach to a patient are problems in spacial relationships (known as "proxemics") that would be predictably difficult to convey on a slide. There is, however, a way to integrate traditional slide-based approaches with video-based scenarios [9].

Learning objective such as proxemics and the approach to the patient with special needs may be supported and adjuncted with video-based scenarios. Such scenarios can set the stage for discussion and other didactic approaches. Such a scenario can provide a bit of a hypothetical background for a scenario, allowing the participant to see the patient as person with a life history and background. This approach has been called "video-based storytelling." The scenario camera, where possible, can help provide the point of view of the patient. Video-based storytelling belongs to an emerging body of work often referred to a narrative medicine. Multiple examples of novel hybrid teaching projects involving storytelling and other narrative techniques can be found in the literature [10,11].

A review of the literature by the authors of this proposal has not identified a best practice study of the method to transmit this information. Even a simple assessment of a traditional slide-based teaching intervention in the area of ED violence

would appear to be a contribution to the literature. However, the goal of this project is deeper. The objective of this research project to create and evaluate the efficacy of using video based story telling combined with standard didactic teaching to specifically enhance the understanding of the knowledge base in emergency medicine related to the management of the violent patient. This would create an enduring material in the form of a lecture with video-based scenarios that could become part of the ED Residency teaching curriculum.

MATERIALS AND METHODS

Research Design and Methods

A didactic intervention was designed utilizing standard didactic teaching associated with two video based-simulations. Study participants were resident physicians of Rowan University Department of Emergency Medicine, Kennedy Health System. All were greater than 21 years of age. Actors for the two video-based scenarios were volunteers from within the Kennedy Health System. All were greater than 21 years of age. All participants and actors gave informed consent.

The intervention was administered to a cohort of emergency medicine residents in the Rowan KHS program. 11 Emergency Medicine resident physicians from Rowan University Department of Emergency Medicine, Kennedy Health System participated. Subjects for testing were approached and consented during a standard Wednesday morning Rowan University Department of Emergency Medicine academic session during the year of 2014. Actors for the scenarios were approached and consented prior to the didactic session and did not include residents. There was no cost to the institution. There was no compensation for resident participants or actors.

The objective of this research project was to create and evaluate the efficacy of using video based story telling combined with standard didactic teaching to specifically enhance the understanding of the knowledge base in emergency medicine related to the management of the violent patient.

Specific learning objectives included:

- Identifying body language and clues consistent with aggressive behavior

- Proxemics: how position yourself in relationship to the patient who may be combative

- How to medical evaluate a potentially violent or violent patient, including key elements in the history and physical examinations, medical clearance process and pathophysiology.

- How to medically manage the combative patient

- Appreciate best practices for approaching a patient with special needs, so as to reduce the likelihood of combative behavior

- Appropriate use of chemical and physical restraints

- Proper use and documentation re: the restraint protocol

- Understanding of the epidemiology of ED violence

- Systems properties of the ED to prevent ED violence (security, access, prevention strategies, etc.).

It was hypothesized that there would be a statistically significant increase between the pre-test and post-test assessments of a cohort of emergency medicine residents who are exposed to a teaching intervention which utilizes standard didactic teaching associated with video based-simulations.

The principal investigator collected results of the pre educational intervention and compare those results to the post educational examination. The results were of the pre and post tests were analyzed using a paired Student T test. Results were coded with a respondent numerical unique identifier; no individual names were recorded. (Minitab 16, College Park, PA).

Video-Based Scenarios

Scenario #1: A Combative Patient: A middle aged patient suffering from a schizoaffective disorder, awaits evaluation in an Emergency Department room. He was brought in by police for odd behavior. He had has been noncompliant with his medications. The emergency physician attempts to medically evaluate the patient. The emergency physician makes a series of-poor decisions. The physician becomes cornered in the room and the patient loses control, ultimately leading to an assault by the patient. This scenario is designed to highlight important teaching points discussed in the lecture.

Scenario #2: An Autistic Patient: A patient with autism, accidentally swallowed an extra dose of Depakote and is brought to an emergency room with a care giver for evaluation. The patient is spoken to and handled roughly while being transported and changed into a gown. Minimal appreciation for his autism by both nursing and the physician is evident. He eventually lashes out at the medical staff. This scenario, using a patient point of view camera technique, is designed to convey the fear and anxiety that the patient experienced.

There were 31 multiple choice questions in the pretest and post-learning session test.

There were three survey questions concerning video-based

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storytelling clips used in the presentation. The survey questions are based on a 5 part Likert scale.

Likert scale used: 5 = highly agree, 4 = agree, 3 = neutral, 2 = disagree, 1 = highly disagree

- The video-based storytelling clips added to my understanding of the presentation.

- The video-based storytelling clips were of high quality.

- Video-based storytelling clips could be used in other presentations to enhance learning and understanding.

RESULTS

There were 11 participants in the study.

Pre-test/Post-test scores: The pre-test average score was 51.3 percent. The post-test average score was 89.1 percent. The difference was very highly significant, based on a Paired T-test using pre and post scores, by participant. (P = < 0.001) The identical significance was seen with non-paired (two sample) T-test of pre and post test scores. (P = < 0.001) This significance was further supported by a non-parametric analysis. (Mann-Whitney, (P = < 0.001).   The difference in the pre-test and post-test scores can be visualized by an interval plot, pre-test and post-test with 95% confidence intervals for the mean. (Figure 1).
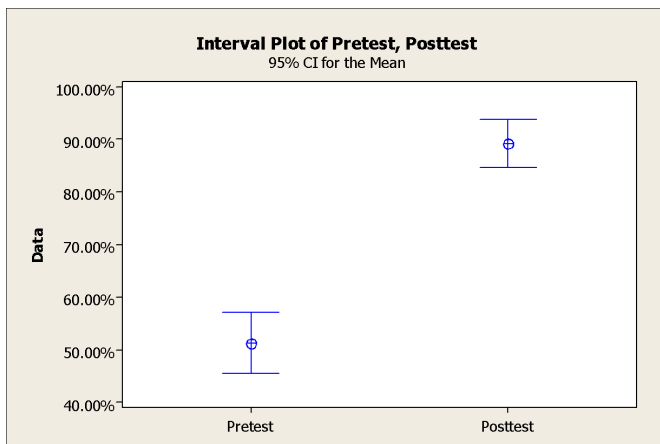

Figure 1: Interval Plot, Pretest and Post-test with 95% confidence intervals for the mean.

Survey Questions

The participants were asked to respond to three survey questions, designed to look at whether the video-based storytelling clips added to the participants' understanding, were of high quality and might be useful in other presentations. The three questions used a 5 part Likert scale, where: 5 = highly agree, 4 = agree, 3 = neutral, 2 = disagree, 1 = highly disagree.
Survey question 1: *The video-based storytelling clips added to*

my understanding of the presentation.

The average score for this question was 4.63, which represented a very high level of agreement with the question.

Survey question 2: *The video-based storytelling clips were of high quality.*

The average score for this question was 5.0 which represented a very high level of agreement with the question.

Survey question 3: *Video-based storytelling clips could be used in other presentations to enhance learning and understanding.* The average score for this question was 4.9 which represented a very high level of agreement with the question.

DISCUSSION

The objective of this research project was to create and evaluate the efficacy of using video based story telling combined with standard didactic teaching to specifically enhance the understanding of the knowledge base in emergency medicine related to the management of the violent patient.

The intervention, combining standard slide based and video based modalities, showed a pretest average score was 51.3 percent. The post-test average score was 89.1 percent. The difference was very highly significant, based on a paired (two sample) T-test using pre and post scores, by participant. (P = < 0.001)

The participants showed extremely high levels of agreement with three survey questions related to the video-based clips per se. The three questions used a 5 part Likert scale, where: 5 = highly agree, 4 = agree, 3 = neutral, 2 = disagree, 1 = highly disagree. The participants showed a very high level of agreement that video-based storytelling clips *added to [the] understanding of the presentation*. The average score for this question was 4.63, which represents a very high level of agreement with the question. The participants showed a very high level of agreement that the *video-based storytelling clips were of high quality.* The average score for this question was 5.0, which represents a very high level of agreement with the question. The participants showed a very high level of agreement that video-based storytelling clips *could be used in other presentations to enhance learning and understanding*. The average score for this question was 4.9, which represents a very high level of agreement with the question.

The results suggest that this approach may be useful not only with ED didactic work, but also in other venues, with other audiences, such as nursing, security, hospital-based teaching of policies and protocols, etc.

Limitations of the Study:

The combined slide and scenario based teaching is that is was given at one center. Other programs might study this approach. Another limitation is that is does not control for the effect of slide alone vs. video-based learning. This could be studied in the future.

A limitation of the approach is potentially technical: the development of such video based scenarios required time for the development, filming and editing of the scenarios.

CONCLUSION

The objective of this research project was to create and evaluate the efficacy of using video based story telling combined with standard didactic teaching to specifically enhance the understanding of the knowledge base in emergency medicine related to the management of the violent patient. The intervention, combining standard slide based and video based modalities, showed a pretest average score was 51.3 percent. The post-test average score was 89.1 percent. The difference was very highly significant, based on a paired (two sample) T-test using pre and post scores, by participant. (P = < 0.001).

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This approach may be useful in other venues, with other audiences, such as nursing, security, hospital-based teaching of policies and protocols, etc.

DISCLOSURE

Dr. Garcia discloses that he currently has a financial relationship with the company (Between Pictures, 344 S. Jackson St, Woodbury, NJ, 08096) that produced the videos for this research. The company did not provide or receive grants or any funding in the production of the videos. The authors did not receive grants, funding or assistance in the development of the related manuscript. The videos are not for sale.

None of the other authors have any disclosures.

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