USE OF SOCIAL MEDIA VIDEOS TO IMPROVE NURSE ANESTHETIST ENGAGEMENT IN EVIDENCE-BASED LITERATURE

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Table of Contents

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Abstract

While there is a plethora of evidence-based literature available, there is a lack of dissemination amongst nurse anesthetists and other healthcare professionals. The purpose of this project was to determine the effectiveness of short educational videos posted to social media on nurse anesthetist engagement and its impact on patient outcomes. To assess their engagement in literature, pre-and post-intervention assessments were administered to nurse anesthetists. These assessments examined the frequency of nurse anesthetist engagement with evidence-based practice and the effect of engagement with the literature on patient outcomes. Findings from this project revealed statistically significant increases in provider engagement with evidence-based literature, along with an increase in the modification of their practice to meet evidence-based practice standards. Improved participant reported patient outcomes were observed after implementation of evidence-based practice interventions presented in the posted videos. Further research with a larger sample size is needed to fully understand the effects of short videos as an educational resource.

Background and Significance

Traditional methods of teaching have been used to disseminate information in medical educational settings as well as with professional continuing education. Traditional methods include textbooks, journal articles, and lectures to present the newest information. While these methods have been successful in the past to teach medical professionals, they may not be the best options for this generation of providers. Technology has advanced and it is becoming increasingly understood that integration of technology into the learning process can significantly improve outcomes as well as positively impact attitudes toward learning. Recent studies have discovered that learning is multifaceted and that absorbing information through multiple modalities can lead to a more complete understanding of a topic. Short educational videos published online through various platforms have been shown to improve learner retention of material for both students and medical professionals. (Salmon, 2021) Implementation of evidence-based practice has been proven to improve patient outcomes. The goal of the study is to engage anesthesia providers in evidence-based practice using short educational videos and determine whether this encourages practice change and ultimately improves patient outcomes.

The concept of short educational videos summarizing a topic has been examined in various experiments including undergraduate nursing education, nurse practitioner education, as well as medical education with positive results. Social media spotlights have been shown to bring more website traffic and increase downloaded articles for medical journals as opposed to those that had no social media spotlights.

It has been shown in literature that teams of providers that utilize evidence-based practice techniques have improved patient outcomes and decreased mortality. Utilizing social media to distribute evidence-based practice literature in a digestible and engaging way will lead to increased

consumption of this material. In the marriage of short videos posted to social media and evidence-based practice, it can be postulated that there will be an improvement in nurse anesthetist knowledge and practice, and ultimately patient outcomes.

Purpose

This Doctor of Nursing Practice (DNP) project evaluates the current state of nurse anesthetists' engagement with evidence-based practice literature. The purpose was to determine the effectiveness of short educational videos posted to social media on nurse anesthetists' engagement with literature and the impact that was had on patient outcomes.

Literature Review

A review of literature was completed from the years 2013-2023. The databases searched included CINAHL, MEDLINE, and PubMed. The literature review search used the following keywords: social media, education, evidence-based practice, anesthesia, patient outcomes, and engagement. The analysis included peer-reviewed, prospective cohort studies, retrospective cohort studies, and cross-sectional studies. Non-peer-reviewed articles, commentaries, and other nonrelevant studies were excluded. A total of 17 articles were reviewed which focused on social media, education, and patient outcomes.

Evidence-Based Practice

Medical knowledge is expanding exponentially. The doubling time for new medical information was at an estimated 50 years in 1950, it accelerated to 7 years in 1980 and was predicted to be 73 days in 2020 (Corish, 2018). This new information has led to great improvement in practices and medical advances. Following this updated medical knowledge is a key part of the evidence-based practice model. Evidence-based practice is an approach to

problem solving in the health care system that integrates current evidence from studies and patient care data with clinician expertise and patient preference and values. (Stillwell et al, 2015) Patient outcomes with clinicians following evidence-based practice recommendations are 28% better when compared with patients who received “routine” nursing care (Leufer et al, 2013). Following the recommendations of evidence-based practice guidelines improves patient outcomes and reduces mortality. (Paton, 2022) Data shows that implementation of evidence-based practice is relatively low in hospitals. (Melnyck, 2017) More than one-third of hospitals studied are not meeting nursing quality indicators. Nurses overwhelmingly do not feel confident in evidence-based practices (Melnyck et al, 2017). Clinicians are shown to have positive attitudes towards evidence-based practice. Their confidence however, regarding evidence-based skills and knowledge is significantly lacking (Harding, 2014). This speaks to an inadequacy in presentation of evidence-based practice to clinicians. The current predominant method for translation of evidence into practice is for nurse anesthetists to read research articles. This is not effectively reaching the masses of health care professionals as evidenced by there being 3 million nurses, of which only 18% are members of the American Nurses Association which is the main distributor of evidence-based practice for nurses (Walton, 2017) The relevance of this project involves the importance of evidence-based practice in improved patient care and outcomes. Staying up to date on current scientific literature leads to a more complete practice that will better serve patients.

Social Media

Despite the advances in healthcare, there is a delay in this information being disseminated to the provider. Half of academic papers are read only by their authors and journal editors. (Eveleth, 2014) This may have to do in part with ineffectivepresentation of information as the traditional way of distributing medical information are outdated. The way general information

is communicated with the public has changed significantly. Eighty-six percent of American adults get their news from their mobile device and 53% percent of that number get their news from social media specifically (Shearer, 2021). Adults in America spend an average of 2 hours and 31 minutes a day on social media (Georgiev, 2023). Communication of important medical knowledge should be updated to meet the population with which it seeks to reach.

Evidence-based practice literature should be readily available to everyone practicing anesthesia. Ideally, information could be distributed in a way that improves engagement and encourages the learner to use the recommendations in practice. The use of social media and short videos is proving to be a successful method for improving learning outcomes. Social media engages internet users and social learning uses the power for education." (Blair, 2015). Short educational videos on surgical techniques were posted to Twitter were viewed by medical students and residents and were found to be a useful way to learn a new skill. (Palmon, 2021) When practitioners engage in the material in a way that is effective for them, confidence improves. Nursing students who were given YouTube videos to watch along with their didactic learning reported significance improvement in skills (Burton, 2022). These studies speak to the effectiveness of using an alternative method of engaging learners where traditional models have been unsuccessful.

Creating Videos

Videos have elements that are more appealing to a large audience. ARCS is an instructional model with four primary components that assist in designing E-learning programs that engage learners. These four parts are attention, relevance, confidence, and satisfaction. This

model emphasizes using tactics such as inquiry, humor, and relatability in to hold a viewers' attention (Keller, 2010). The first component of a successful video is to capture the viewer's attention. This can be accomplished by utilizing humor, inquiry, and variability. The creator of the video can ask thoughtful questions for the viewer to ponder which may engage learner in the content (Keller, 2010). The next part in the model is relevance. It is helpful to utilize examples from practice to bridge the gap between content and the real world to validate the usefulness of the content being presented. Confidence is the third part in the model which focuses on developing success expectation among learners, which allows learners to control their own learning processes. In the case of anesthesia providers, it would be helpful to provide practitioners with evaluation criteria by which they can measure the success of the interventions. The final component is satisfaction as there is a direct correlation between motivation and satisfaction (Keller, 2010). For anesthesia providers it is important to encourage intrinsic enjoyment of the learning experience and emphasize the amount of satisfaction that comes from taking the best care possible of one's patients, particularly in utilizing the best practices available. It has been shown that videos are more appealing to viewers if the presenter has a clear voice with good tone. Presenter expertise is considered very important as well (Cihangir, 2021). The quality of information is not just important but the presentation of the information in a manner that is attention-grabbing is equally as important in ensuring engagement. This concept is in congruence with the theoretical framework of connectivism that is used for this project. Connectivism focuses on identifying and remediating gaps in knowledge in a way that is engaging and creates habits of continuous learning (Underwood, 2016). Utilizing social media to reach nurse anesthetists to disseminate evidence-based practice is an efficient and exciting way to improve patient outcomes.

Gaps

While the topic of learning via social media is quickly gaining recognition, it is still a relatively new concept. Broad studies have shown success with nurses, physicians, and medical students on retention of knowledge and skills when given short videos containing educational material. This will be the first project of its kind that specifically focuses on nurse anesthesia and social media. While it has been shown that short educational videos improve engagement, there are no studies that directly show that this has any impact on patient outcomes. Platforms such as YouTube have been studied extensively for disseminating learning materials. While applications such as TikTok, Instagram, and Twitter are frequently used to distribute educational materials, few studies have been conducted on them at this time.

Theoretical Framework

Connectivism will be used as the theoretical framework for implementation. Connectivism is a relatively new learning theory that includes technology. It promotes the combination of thoughts, theories, and general information as a part of the learning process. It suggests that learning can happen through nontraditional avenues such as social media, online networks, and information databases.

Connectivism is appropriate for implementation of this project as it has a focus on technology in learning. It focuses on identifying and remediating gaps in knowledge in an effective way. This project is designed to assist providers in maintaining connection to accurate, up-to-date knowledge which closely follows this framework. The focus of both the framework and this study is shifted to knowing how and where to find information is being just as important as the information itself. Designing the project with connectivism at the forefront will be particularly useful, as it focuses on how to engage learners and nurturing habits of continuous

learning. This framework encourages using a technologically supported environment that supports meaningful dialogue and collaboration. It also incorporates content with previous knowledge that learners have from life experience. Connectivism focuses on a stimulating and motivational environment that encourages thought provocation.

Methods

Project Design

This project utilizes a post-intervention follow-up design consisting of a pre-intervention survey (Appendix B), online educational videos, and a post-intervention survey (Appendix C). The primary outcomes of this project were the effect of educational videos posted to social media on nurse anesthetist engagement with educational literature, implementation of evidence-based practice recommendations, and patient outcomes. Data was collected using pre- and post-intervention surveys to address the following question: Do short educational videos posted to social media increase engagement in evidence-based practice among nurse anesthetists and improve patient outcomes?

The project had three stages of implementation: (1) creation of the pre- and post-intervention surveys (Appendix B and C), (2) development and distribution of educational videos, and (3) evaluation of presentation of educational material via pre- and post-intervention survey (Appendix B and C).

Methods/Procedures

This project recruited certified nurse anesthetists and student nurse anesthetists. Certified nurse anesthetists and student nurse anesthetists were recruited from CRNA Facebook groups. Additionally, some students were recruited

via email for the 6-week project. The participants were invited to watch videos posted to an Instagram account. These videos were short summarizations of evidence-based practice articles that are relevant to anesthesia practice. A recruitment statement (Appendix A) was distributed to multiple Facebook groups that were limited to CRNAs and SRNAs including 'The Nurse Anesthesiologist Group' and 'CRNAs and SRNAs'. The posts explained the proposed usefulness of utilizing social media to stay up to date with current best practice and gave details of the project. (Appendix D)

Translational Framework

This project was designed utilizing the John Hopkins model. This framework includes a practice question, evidence, and translation. The project itself focused on increasing the interest of nurse anesthetists in reading evidence-based journals via social media. This EBP model strives to facilitate the swift and efficient implementation of current evidence-based research into patient care. The Johns Hopkins EBP model includes three fundamental steps: practice question, evidence, and translation (Johns Hopkins Medicine, 2019). This three-step process details developing a practice question, using best practice evidence to answer the question, and translating the evidence into current practice. The project will focus on how to increase nurse anesthetist consumption of evidence-based practice journals via social media.

The first step of this model requires the development of a practice question of interest by identifying the problem, establishing a research team, and delegating leadership roles. This project examines the frequency of nurse anesthetist engagement with evidence-based practice and the effect of engagement with the literature on patient outcomes. The DNP student and the University of North Carolina at Greensboro (UNCG) faculty advisor comprised the project research team.

The second step involved the PI researching how projects like this have been executed in the past. This included looking at research about various nontraditional styles of learning such as podcasts or any previous research about the use of social media for supplemental educational material. This will predominately focus on studies that relate to the nursing profession specifically but will also include medical education material as well.

The third and final step included collecting evidence and transforming it into an achievable action plan. The educational videos will be posted to social media will be evaluated for their effect on overall engagement with evidence-based literature and improvement of patient outcomes. This will be accomplished by pre-intervention and post-intervention surveys. Data from surveys will then be analyzed to determine efficacy of the intervention.

Setting

This project was conducted online. Participants were able to access the project wherever they have access to Internet. All parts of the project including pre- and post-intervention surveys, and educational videos were online.

Sample

The sample for this project includes certified registered nurse anesthetists (CRNAs) and student registered nurse anesthetists (SRNAs). CRNAs not currently in clinical practice were excluded from the project. SRNAs who have not yet begun clinical work were excluded from the project. CRNAs and SRNAs with a current clinical practice who have access to social media were included. Nurse anesthetists/student nurse anesthetists of any age, gender, or

ethnicity were welcome to participate. Participants were recruited through convenience sampling using nurse anesthetist Facebook groups and email invitations.

Implementation

A recruitment message (Appendix A) was posted on the nurse anesthesia Facebook pages. The recruitment message was also attached to the email for the student nurse anesthetists. The recruitment message invited nurse anesthetists to participate in the study while describing the content and purpose of the project. The PI obtained approval from the Facebook group moderators prior to posting it on the group pages. The recruitment process began upon approval from the Institutional Review Board.

Consent was obtained from patients through a university approved consent form. This consent form included length of the study, risks involved, and how participants information will be protected. After two weeks of recruitment, 25 volunteers had agreed to participate. At this time emails were sent out to participants with pre-surveys. Two weeks were allotted for participants to respond to the pre-survey.

Posts were made weekly to the Instagram account. Participants were encouraged to turn on their post notifications for the account that the posts were being made from, as a reminder. The videos were all under 3 minutes in length. The videos concisely broke down the most relevant information from the studies. The principal investigator created all the videos and made them to be applicable and succinct. When the videos were posted to Instagram, a link to the original article was provided and the participant was encouraged to read that for further details on the topic. After 6 weeks of posting videos the post-intervention survey was emailed to participants

and two weeks were allowed for participants to respond to post surveys. After post-intervention surveys were collected, the implementation stage of the project was concluded.

Instruments

The pre-test survey (Appendix B) was developed by the PI and was distributed to participating anesthetists before the educational videos were posted to Instagram. The pre-test survey (Appendix A) included Likert-scale questions to assess baseline clinician habits regarding evidence-based literature. Anesthetists were first asked about demographic information including age, gender, and years in practice. Participants were also asked about their practice setting, the anesthesia model they predominately worked in, and their learning styles. Questions in the pre-intervention survey also were relating to frequency of clinician time spent reading evidence-based literature, time spent on social media, and barriers to engagement in literature. Finally, Likert style questions were used for anesthetists to rank their engagement in evidence-based literature and the degree to which evidence-based practice modified their current practice.

The post-test survey (Appendix C) developed by the PI was administered immediately after the 6 weeks of online learning had concluded. The post-test survey (Appendix C) assessed clinician engagement and patient outcomes to determine benefits. Likert scales were used to determine if anesthetists implemented the individual practice modifications, and if so, measure the extent to which they saw improvement in their patients. These questions were asked about each individual topic to assess specific outcomes. The last question of the survey was an open-ended question allowing nurse anesthetists to share any barriers to practice change that they may have encountered when attempting to implement the changes. In both the pre- and post-

intervention surveys, participants were asked to enter their email addresses to link the pre-intervention survey to the post-intervention survey.

Data Collection

Information sheets and pre-test survey were available via link on Facebook in the recruitment post. They were also available in the emails sent to students. Consent was obtained before the educational videos (Appendix B).

Post-intervention surveys (Appendix B) were distributed after the 6 weeks of implementation. 20 participants responded with post-intervention surveys. The data collection period lasted two weeks and 3 emails were sent to participants to remind them about the need for post-intervention survey completion. The participants were contacted via email for post-intervention survey completion.

The only personal identifying information recorded from participants was their email, which had been approved by the University of North Carolina at Greensboro Institutional Review Board. The participant email was used to link the pre-and post-test surveys (Appendix B and C). The surveys (Appendix B and C) were collected immediately before and after the 6 weeks of videos. The pre-and post-test surveys (Appendix B and C) were used to determine the intervention's effectiveness on clinician engagement and patient outcomes.

Data Analysis

Data was analyzed using Excel. Prior to analysis, data was inspected and cleaned appropriately for quality control. Data analysis was guided by a statistician on faculty at the University of North Carolina Greensboro, School of Nursing. Descriptive statistics were used

to describe percentages and frequencies of CRNA participants' responses on the pre-intervention and post-intervention surveys.

Tables were created to show demographic data as well as pre-intervention engagement. Paired sample t-tests were used to analyze data between pre- and post-intervention survey results regarding nurse anesthesia engagement in evidence-based literature as well as modification of practice due to these guidelines. Charts were created to present the data recorded from Likert scales used for participants to rate their use of the individual recommendations as well as their perceived patient benefit after said intervention was implemented.

Human Rights Protection and Ethical Considerations

This project was granted approval from University of North Carolina at Greensboro Institutional Review Board prior to implementation. Potential participants were given information about the study during recruitment. Voluntary consent was obtained from each participant. Participants were provided with a consent page that encompassed specific details of the project. Participants were informed that their participation was voluntary, that they could withdraw from study participation at any time, and that they may receive no direct benefit from participating in the project other than potentially increasing their knowledge through an increased interest in evidence-based practice literature. They were informed in the consent that there would be no monetary compensation for study participation and that there would be minimal risks to them for participating. Pre-intervention and post-intervention online surveys were gathered using a password-protected website.

The pre-intervention and post-intervention online surveys were stored on a password-protected website. Identifier information was de-identified, and confidentiality of study data was maintained to minimize the risk of breach of confidentiality. Data was stored in a UNCG approved data storage location. Email addresses were shared only with those directly involved in the project and only approved collaboration tools such as UNCG Outlook email were used. Data will be deleted, and any physical information will be shredded and recycled, 5 years after the end of the project within accordance to the UNCG policy.

Results

A total of 25 individuals participated in the study initially. Of the 25 participants, 5 failed to provide email addresses which excluded the data they provided from being used for pre-and post-survey comparison (n=5). Thus, the pre-intervention sample consisted of 20 participants, and of those 20 participants responded to the post-intervention survey. Participant demographic data was collected and included sex, age, degree, years in anesthesia practice, primary practice setting, and anesthesia practice model.

Most participants were female (85%). Ages of participants ranged from 25-65 years with a majority (60%) falling in the 25-35 age range, followed by 35% in the 36-45 range, and the remaining 5% 46-65 years. Of the participants, 90% either had completed their doctorate degree or were pursuing it, while 10% were practicing with a master's degree. Primary practice setting included, 25% in academic medical centers, 20% in community hospitals, and 55% rotated frequently between all the options. Of note, none of the

participants primarily worked in an outpatient/procedural clinic. Sixty-five percent of the participants were currently students in their clinical rotation, and they rotated through different facilities. Distribution for years in practice included, 65% current students. 15% of participants had been in practice for 1-5 years, 15% for 6-10 years, and 5% had over 20 years of clinical experience practice. When asked about type of anesthesia practice model that participants worked in, 90% worked in anesthesia care team models while 10% worked in a CRNA only model (independent practice).

Participants were asked about their current evidence-based practice literature engagement, time spent on social media, learning styles. A majority (60%) of participants reported that they typically read 1-3 articles a month, while 15% read 4-6 articles a month, and 0% read more than 6 articles. Twenty five percent stated that they typically did not read any articles on a month frequency. When asked about the effects of updated practice guidelines on their individual practice, 50% reported that updated guidelines had a moderate effect. Twenty percent stated that guidelines had a minor effect, 15% said there was no effect, and 15% said their practice was strongly affected by updated guidelines. Most participants identified with visual learning styles (50%), kinesthetic was the next most popular (35%), reading/writing (10%) and auditory (5%) were least common amongst anesthetists. Participants were asked to report how much time they spent on social media a day with most reporting 1-3 hours (75%), 10% stated 3-5 hours, 5% greater than 5 hours, and 10% less than one hour. Of note, none of the participants said that no time was spent on social media.

Barriers

A free text question was in the pre-intervention survey for participants to identify the barriers that prevented them from being more engaged in evidence-based literature. Most

frequently lack of time was noted in conjunction with the lengthiness of articles. Difficulty in analyzing takeaway points was also mentioned by multiple participants. Some felt bored by reading articles as they did not necessarily care about the formulation of evidence, rather they wanted to know the overall takeaway of the study. Some stated that a condensed summary would be helpful. One anesthetist stated "Articles are extensive and feel convoluted. I often feel that the benefit does not outweigh the effort put into it."

Changes in Practices

A Likert scale was used to determine anesthetist habits in the pre-intervention survey and another Likert scale in the post-intervention survey, to determine if there was any significant change after the intervention was implemented. Likert scale survey items scored from 1 (strongly disagree) to 5 (strongly agree). Paired t-test analysis revealed statistically significant increases in engagement and practice modification in nurse anesthetists. There was a significant different in the pre-intervention (M=1.5, SD=0.69) and post-intervention (M=4.55, SD=0.6) scores for the statement "I feel engaged in recent evidence-based literature." t=2.09, p=0.028, this is shown in table 3. There was a significant difference in the pre-intervention (M=2.3, SD=0.86) and post-intervention (M=3.95, SD=1.1) scores for the statement "I modify my practice based on evidence-based recommendations." t=2.09, p=0.049, shown in table 4.

One statement in the pre-intervention survey was "In the past month I have started reading a journal article and lost interest". Half of the participants (50%) said that they somewhat agreed with this statement and 20% said that they strongly agreed, and 30% stated that they neither agreed nor disagreed. This is in contrast with the post-intervention survey statement "I watched the entirety of the videos posted to Instagram", which 35% said that they somewhat

agreed and 55% said that they strongly agreed. This was also measured using the statement "I followed the link to the articles after watching the videos and read the entirety of the article". However, only 35% stated that they somewhat agreed and 10% stated that they strongly agreed. 5% stated that they neither agreed nor disagreed, 25% somewhat disagreed and 25% strongly disagreed. Despite many anesthetists still not reading the full article, these questions did still indicate an improvement in the sense of the entire video being watched, as opposed to how they previously were not engaging with the articles at all.

Another Likert scale was used in the post-intervention survey to ask about implementation of practice changes as suggested by the articles, and improved patient outcomes. The scale (Appendix C) included these questions about each of the topics presented on. Videos on "Application of Data Science to Quantify the Effect of Propofol Infusion on Postoperative Nausea and Vomiting" and "Use of Single-Dose Dexamethasone in Patients with Diabetes Undergoing Surgery: A Systematic Review and Meta-Analysis" showed the greatest utilization with anesthetists (50% and 50% respectively) stating that they strongly agreed that they implemented the practice changes.

Efficacy and Patient Outcomes

Perceived patient outcomes were evaluated in the post-intervention survey. Anesthetists were asked to evaluate patient outcomes after implementation of each individual evidence-based practice recommendation. Most anesthetists reported improved patient outcomes after watching the video "Application of Data Science to Quantify the Effect of Propofol Infusion on Postoperative Nausea and Vomiting". Of the respondents, 45% reported that they strongly agreed that they saw improvements, while 25% reported that they somewhat agreed that they saw

improvements in their patients. Nurse anesthetists reported improved student/preceptor interactions based on recommendations from "Innovating Student Registered Nurse Anesthetist Clinical Learning through United States Air Force Pilot Training Practices" with 35% reporting that they strongly agree that there were improved outcomes in patients while 35% stated that they somewhat agreed. Anesthetists saw significant changes in patient outcomes with the changes recommended in the study "Use of Single-Dose Dexamethasone in Patients with Diabetes Undergoing Surgery", as 75% said that they agreed that they saw improvement and 25% stated that they neither agreed nor disagreed that improvement occurred.

Discussion

This project results offer insight into the barriers that nurse anesthetists face when attempting to stay up to date with evidence-based practice. Findings revealed an increase in CRNA/SRNA post-intervention engagement. It is important to note that these findings support the effectiveness of short videos posted to social media, in increasing providers' knowledge and use of EBP. The ARCS instructional model was successfully used to create videos to engage learners through focusing on attention, relevance, confidence, and satisfaction. (Keller, 2010)

Barriers noted with nurse anesthetists to evidence-based learning included lack of interest, obscurity of scientific writing, and time constraints. The results showed a statistically significant increase in engagement with evidence-based literature as well as practice modification based on that literature. Despite watching the videos however, over half of nurse anesthetists in the study did not read the article after watching the video. As leaders in medicine, anesthetists need to be encouraged to continue growing their knowledge base. Ideally this would

Include reading the literature to get the full nuance of each study. However, it is an improvement for them to be informed of the general trends in evidence-based practice due to their exposure to the videos. As nurse anesthetists increase their knowledge on current practices, they will partake in development of appropriate protocols and guidelines in practice regarding anesthesia. CRNAs and SRNAs will continue to establish best current and evidence-based practices in anesthesia to promote safe and quality patient care in their practice. The statistically significant findings from the assessment revealed that after watching the six videos on evidence-based practice literature, anesthetists implemented change and saw improvements in patient outcomes.

Results of the pre-intervention survey support the literature review findings that while clinicians have positive attitudes towards evidence-based practice, they are not actively in it. (Melnyck, 2017) However, the videos presented in this project helped to increase implementation of evidence-based practice which improved patient outcomes. Previous evidence found in the literature review stated that following evidence-based recommendations improves patient outcomes and reduces mortality. (Paton, 2022) Results of provider-reported improvements in engagement and patient outcomes support what was also suggested in the literature review-that American adults now get their information from social media. (Shearer, 2021) Using these outlets to disperse evidence-based practice literature showed an increase in provider engagement and therefore improved patient outcomes. While the evaluation of patient outcomes was based on participants' approximations and clinical judgement, and the true nature of these incidences were not ably measured through an objective chart review, it is still important and clinically relevant that providers do perceive a noticeable improvement in patient outcomes.

The free-text question in the pre-intervention survey gave some insight as to the challenges that face anesthetists as they attempt to stay up to date with current literature. The reported barriers included length of articles and the fact that information can be convoluted. Nurse anesthetists stated that they wanted to focus on learning about the recommendations and did not have as much interest in how the data was gathered. The evidence-based videos offered in this project offer an alternative to the challenges brought up by the participants. The videos offered a concise review of the literature and focused on recommendations that would be helpful in practice. Participants responded well to these methods and overall, engagement was increased.

Strengths and Limitations

Strengths of this project include its focus on optimal education of nurse anesthetists and its evaluation of current engagement with evidence-based literature. This project showed an increase in engagement with evidence-based literature with the use of short educational videos. This project also examined common barriers that anesthesia providers face regarding their intake of evidence-based materials. These findings can be helpful in leading further research for optimizing education of anesthetists and other healthcare providers.

A significant limitation was the small sample size of participants. A larger sample size may have yielded more meaningful results. Additionally, many of the respondents were student nurse anesthetists. While this is still valuable information, it would be particularly helpful to have a study that focused on certified nurse anesthetists as they are the ones who typically have less exposure to the current best practice literature.

The pre- and post- intervention surveys were created by the DNP project student, and although they were content reviewed by the faculty advisor, there was no reliability or validity scores established for the surveys. Therefore, it is difficult to evaluate whether the surveys truly measured the most important issues. Additionally, the results for this project were self-reported by anesthetist participants. Reported improvements in patient outcomes were recorded by the same anesthetists who implemented the interventions, which obviously can lead to bias in data collection. A retrospective chart review to evaluate patient outcomes regarding efficacy of the interventions would have strengthened the rigor of the study. For the qualitative data, the free-text responses to the open-ended questions in the pre-intervention survey provided insight into barriers of the nurse anesthetists in their engagement with evidence-based literature. However, there were not sufficient responses to conduct a meaningful thematic analysis.

Conclusion

In summary, this doctoral project sought to increase the engagement of nurse anesthetists with evidence-based literature. It also aimed to encourage practice modification based on evidence-based recommendations, and ultimately to improve patient outcomes. All three of these specific aims of the project were met. Nurse anesthetists felt more engaged with evidence-based literature after 6-weeks of short educational videos being posted to Instagram. Nurse anesthetists stated that they implemented the practice changes suggested in the videos and reported improvements in patient outcomes from these changes.

Emerging research is pointing to the efficacy of short educational videos in engaging their audience and efficiently conveying messages. The results from this project support this small body of research. As social media has become such a relevant part of our lives, further research

should be conducted to determine the best ways to use it for educational purposes. These strategies could revolutionize the way that healthcare professionals learn and update their practice to provide the most evidence-based care, resulting in optimal patient outcomes.

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Table 1

Demographic Characteristics of Participants

	Frequency	Percent	Cumulative Percent
Sex	17	85	85
Female			
Male	3	15	100
Total	20	100	
Age	12	60	60
25-35 years			
36-45 years	7	35	95
46-55 years	1	5	100
Total	20	100	
Degree	2	10	10
Masters			
Doctorate	18	90	100
Total	20	100	
Years in Practice	13	65	65
Student			
1-5 years	3	15	80
6-10 years	3	15	95
11-15 years	0	0	95

16-20 years	0	0	95
>20 years	1	5	100
Total	20	100	

Practice Setting Academic Hospital	5	25	25
Community Hospital	4	20	45
Student/Rotating	11	55	100
Total	20	100	

Table 2

Habits and Learning Styles of Participants

	Frequency	Percent	Cumulative Percent
Learning Styles Visual	10	50	50
Auditory	1	5	55
Reading/Writing	2	10	65
Kinesthetic	7	35	100
Total	20	100	

Time on Social Media <1 hour	2	10	10
1-3 hours	15	75	85
3-5 hours	2	10	95
>5 hours	1	5	100
Total	20	100	

Articles Read in Past Month None	5	25	25
1-3 articles	12	60	85

4-6 articles	3	15	100
>6 articles	0	0	100
Total	20	100	

Table 3

*Participant response to statement "**I feel engaged in recent evidence-based literature.**" pre-and post-intervention:*

	Frequency	Percent	Cumulative Percent
Pre-Intervention Strongly agree	0	0	0
Somewhat agree	0	0	0
Neither agree nor disagree	3	15	15
Somewhat disagree	7	35	50
Strongly disagree	10	50	100
Total	20	100	

Post-Intervention Strongly agree	10	50	50
Somewhat agree	8	40	90
Neither agree nor disagree	2	10	100
Somewhat disagree	0	0	100
Strongly disagree	0	0	100
Total	20	100	

Table 4

*Participant response to statement **"I modify my practice based on evidence-based recommendations."** pre- and post- intervention:*

	Frequency	Percent	Cumulative Percent
Pre-Intervention Strongly agree	0	0	0
Somewhat agree	1	5	5
Neither agree nor disagree	9	45	50
Somewhat disagree	6	30	80
Strongly disagree	4	20	100
Total	20	100	

Post-Intervention Strongly agree	7	35	35
Somewhat agree	8	40	75
Neither agree nor disagree	3	15	90
Somewhat disagree	2	10	100
Strongly disagree	0	0	100
Total	20	100	

Table 5

*Participant response to the statement "**I followed the link to the attached literature and read a majority of the article."** post-intervention:*

	Frequency	Percent	Cumulative Percent
Post-Intervention Strongly agree	2	10	10
Somewhat agree	7	35	45
Neither agree nor disagree	1	5	50
Somewhat disagree	5	25	75
Strongly disagree	5	25	100
Total	20	100	

Table 6

*Participant response to **"I implemented tips from 'Innovating Student Registered Nurse Anesthetist Clinical Learning through United States Air Force Pilot Training Practices: A Review of the Literature' in my practice either as a student or as a preceptor."** Post-intervention:*

	Frequency	Percent	Cumulative Percent
Post Intervention Strongly Agree	6	30	30
Somewhat Agree	5	25	55
Neither agree nor disagree	5	25	80
Somewhat disagree	2	10	90

Strongly disagree	2	10	100
Total	20	100	

Table 7

Participant response to ***"Implementation of interventions from 'Innovating Student Registered Nurse Anesthetist Clinical Learning through United States Air Force Pilot Training Practices: A Review of the Literature' led to an improved learning environment."*** *Post-intervention:*

	Frequency	Percent	Cumulative Percent
Post Intervention Strongly Agree	7	35	35
Somewhat Agree	7	35	70
Neither agree nor disagree	4	20	90
Somewhat disagree	1	5	95
Strongly disagree	1	5	100
Total	20	100	

Table 8

*Participant response to "****I utilized recommendations from 'Use of Single-Dose Dexamethasone in Patients with Diabetes Undergoing Surgery: A Systematic Review and Meta-Analysis' in my care of diabetic patients."*** *Post-intervention:*

	Frequency	Percent	Cumulative Percent
Post Intervention Strongly Agree	10	50	50
Somewhat Agree	8	40	90
Neither agree nor disagree	2	10	100
Somewhat disagree	0	0	100
Strongly disagree	0	0	100
Total	20	100	

Table 9

Participant response to ***"I saw improved outcomes in my patients after implementing recommendations from "Use of Single-Dose Dexamethasone in Patients with Diabetes Undergoing Surgery: A Systematic Review and Meta-Analysis' in care of my diabetic patients."*** *Post-intervention:*

	Frequency	Percent	Cumulative Percent
Post Intervention Strongly Agree	6	30	30
Somewhat Agree	9	45	75

Neither agree nor disagree	5	25	100
Somewhat disagree	0	0	100
Strongly disagree	0	0	100
Total	20	100	

Table 10

Participant response to ***"I utilized recommendations from 'Application of Data Science to Quantify the Effect of Propofol Infusion on Postoperative Nausea and Vomiting' on patients with high risk for PONV."*** *Post-intervention:*

	Frequency	Percent	Cumulative Percent
Post Intervention Strongly Agree	10	50	50
Somewhat Agree	5	25	75
Neither agree nor disagree	4	20	95
Somewhat disagree	1	5	100
Strongly disagree	0	0	100
Total	20	100	

Table 11

Participant response to ***"I saw improved outcomes in my patients after implementing recommendations from 'Application of Data Science to Quantify the Effect of Propofol Infusion on Postoperative Nausea and Vomiting' on patients with high risk for PONV."*** Post-intervention:

	Frequency	Percent	Cumulative Percent
Post Intervention Strongly Agree	9	45	45
Somewhat Agree	5	25	70
Neither agree nor disagree	5	25	95
Somewhat disagree	1	5	100
Strongly disagree	0	0	100
Total	20	100	

Appendix A

Recruitment Message for Study Participation

Dear Certified Registered Nurse Anesthetist or Student Registered Nurse Anesthetist:

You are invited to participate in an exploratory study entitled: "*Use of Social Media Videos in Nurse Anesthetist Evidence-Based Practice.*" The purpose of this study is to explore the use of videos on social media to increase engagement with evidence-based practice literature. This study is conducted by Azelin Buttitta, SRNA to fulfill her requirements for the Doctor in Nursing Practice degree in the University of North Carolina at Greensboro Nurse Anesthesia Program.

All actively practicing CRNAs and SRNAs who practice anesthesia are invited to participate. The study is composed of 3 parts:

1) Online Pre-intervention Survey (5-10 minutes).
2) Online Educational Presentation (1-3 minutes a week) – a short video will be available for you to view on Instagram weekly.
    - Attached to the online presentations will be optional articles to read, reading these articles are encourage but would take additional time.
3) Online Post-intervention Survey (5-10 minutes) –after the 6 weeks of videos, a link will be provided to you via email to complete a follow-up survey.

If you decide to partake in this study, you will be asked to consent to participation prior to beginning the survey. Participation is voluntary and your confidentiality will be maintained. You may choose to decline to answer any of the questions, but we would appreciate if you did not.
You may withdraw your participation at any time. This study has no more than minimal risks associated with participation.

If you have any questions/concerns or would like additional information about this study, please contact Azelin Buttitta at (252)-717-9476 or email at ajbuttitta@uncg.edu or faculty advisor Vadim Korogoda DNP, CRNA at v_korogoda@uncg.edu.

Thank you for taking the time to view this message! Your participation is appreciated.

Azelin Buttitta,
RN, SRNA
University of
North Carolina
at Greensboro

Appendix B

Pre-Intervention Survey

This survey will be translated to the SurveyMonkey website.

Consent Page …	By clicking "NEXT" and moving on to the survey, I confirm that I reviewed and understand this consent information, and I am giving consent to my voluntary participation in this study.

Please enter your email address: (this will enable you to receive the follow-up survey) *(As stated in the consent page, survey data will be de- identified and will not be linked to your email.)*	

General Demographic Information

Are you a CRNA or SRNA currently in practice? (*Screening question*)	☐ Yes ☐ No (If "no", the survey will conclude at this point and display a thank you message.)

1. Sex	□Male □Female □Other
2. Age	□<25 □25-35 □36-45 □46-55 □56-65 □>65
3. Degree	□Certificate □Masters □Doctorate □Other
4. Number of years in practice as a CRNA	□Student□<1 □1-5 □6-10 □11-15 □16-20 □>20
5. Primary practice setting	☐ Academic medical center ☐ Teaching hospital ☐ Private hospital ☐ Community hospital ☐ Other ___
6. Type of Anesthesia Practice Model you work in	☐ All-CRNA (Independent practice) ☐ Anesthesia Care Team (MD+CRNA) ☐ Other (specify/explain)

Reading and Implementing Evidence-Based Practice Guidelines

In your practice of anesthesia, please mark according to your current habits regarding evidence-based literature.	
1. In the past month how often did you read evidence-based literature from journals such as the American Association of Nurse Anesthesiology (AANA)?	□None □1-3 times □4-6 times □≥ 7 times
2. Updated guidelines from AANA guide my practice to the following extent:	□No effect □Minor effect □Moderate effect □Strong effect □ Very strong effect
3. Which of the 4 main learning styles do you most identify with?	□Visual □Auditory □Read/Write □Kinesthetic
4. How much time a day do you spend on social media?	□≤ 1hour □4-6 hours □1-3 hours □≥ 7 hours

Barriers to Reading and Implementing Evidence-Based Practice Guidelines

Please read each statement as related to your beliefs and personal experiences that influence your clinical practice and indicate how strongly you agree or disagree with each statement below.

	Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree	Not Applicable
1. In the past month I have started reading a journal article and lost interest (If you have not read a journal article in the past month select "Not Applicable").	□	□	□	□	□	
2. I would read more evidence-based literature if I had more time.	□	□	□	□	□	
3. I would read more evidence-based literature if it was more attention grabbing.	□	□	□	□	□	
4. I watch short videos regularly on social media applications such as TikTok, Instagram, or Twitter.	□	□	□	□	□	

1. Please describe any recognized barrier(s) to reading evidence-based literature that you encounter:

Appendix C

Post-Intervention Survey

This survey will be translated to the SurveyMonkey website.

Are you a CRNA or SRNA currently in practice? (*Screening question*)	☐ Yes ☐ No (If "no", the survey will conclude at this point and display a thank you message.)

1. Sex	□Male □Female □Other
2. Age	□<25 □25-35 □36-45 □46-55 □56-65 □>65
3. Degree	□Certificate □Masters □Doctorate □Other
4. Number of years in practice as a CRNA	□ Student □<1 □1-5 □6-10 □11-15 □16-20 □>20
5. Primary practice setting	☐ Academic medical center ☐ Teaching hospital ☐ Private hospital ☐ Community hospital ☐ Other ___
6. Type of Anesthesia Practice Model you work in	☐ All-CRNA (Independent practice) ☐ Anesthesia Care Team (MD+CRNA) ☐ Other (specify/explain)

Utilization of Reading and Implementing Evidence-Based Practice Guidelines

Please read each statement as related to your beliefs and personal experiences that influence your clinical practice and indicate how strongly you agree or disagree with each statement below.

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Not Applicable
1. I watched the entirety of the videos posted to Instagram.	☐	☐	☐	☐	☐	
2. I followed the link to the articles after watching the videos.	☐	☐	☐	☐	☐	
3. I read the article attached after reading the article.	☐	☐	☐	☐	☐	
4. I feel overall more engaged in evidence-based literature after watching the videos.	☐	☐	☐	☐	☐	
5. I implemented interventions that I learned from the videos into my practice.	☐	☐	☐	☐	☐	

6. I would like to continue watching videos with evidence-based practice material.	□	□	□	□	□	
7. The videos posted to Instagram captivated my attention.	□	□	□	□	□	
8. Since modifying my practice based on recommendations	□	□	□	□	□	

For the following questions, please answer based on your implementation of recommendations from the evidence-based journal articles provided. If you did not implement recommendations please select "Not Applicable".

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Not Appliclable
1. I implemented tips from "Innovating Student Registered Nurse Anesthetist Clinical Learning through United States Air Force Pilot Training Practices: A Review of the Literature" in my practice either as a student or as a preceptor.	□	□	□	□	□	
2. Implementation of interventions from "Innovating Student Registered Nurse Anesthetist Clinical Learning through United States Air Force Pilot Training Practices: A Review of the Literature" led to an improved learning environment.	□	□	□	□	□	
3. I utilized the "Understanding Pain in Alzheimer's Disease in Anesthesia" in my practice.	□	□	□	□	□	
4. Use of "Understanding Pain in Alzheimer's Disease in Anesthesia" helped me to prepare better for care of patients with multiple comorbidities.	□	□	□	□	□	
5. I utilized recommendations from "Use of Single-Dose Dexamethasone in Patients with Diabetes Undergoing Surgery: A Systematic Review and Meta-Analysis".	□	□	□	□	□	
6. I saw improved outcomes in my patients after implementing recommendations from "Use of Single-Dose Dexamethasone in Patients with Diabetes Undergoing Surgery: A Systematic Review and Meta-Analysis".	□	□	□	□	□	
7. I utilized recommendations from "Sustained Implementation of an Evidence-Based Extubation Checklist".	□	□	□	□	□	
8. I saw improved outcomes in my patients after implementing recommendations from "Sustained Implementation of an Evidence-Based Extubation Checklist".	□	□	□	□	□	
9. I utilized recommendations from "Application of Data Science to Quantify the Effect of Propofol Infusion on Postoperative Nausea and Vomiting".	□	□	□	□	□	

10. I saw improved outcomes in my patients after implementing recommendations from “Application of Data Science to Quantify the Effect of Propofol Infusion on Postoperative Nausea and Vomiting”.	□	□	□	□	□	
11. I utilized recommendations from “Implementing Preoxygenation in Obese Patients Prior to Esophagogastroduodenoscopy Procedures in a Fast-Paced Ambulatory Gastrointestinal Endoscopy Center: A Quality Improvement Project”.	□	□	□	□	□	
12. I saw improved outcomes in my patients after implementing recommendations from “Implementing Preoxygenation in Obese Patients Prior to Esophagogastroduodenoscopy Procedures in a Fast-Paced Ambulatory Gastrointestinal Endoscopy Center: A Quality Improvement Project”.	□	□	□	□	□	

1. If unable to implement practices, please elaborate as to why. Please include if there was improper equipment available, colleagues were unsupportive of changes, not enough information provided to implement the change, or any other factors that were barriers to practice change.