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Closing the Knowledge Gap for Advanced Practice Nurses on Medical Cannabis

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
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Walden University
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Abstract

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MS, Walden University, 2018

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Project Submitted in Partial Fulfillment

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Abstract

Since cannabis, also called marijuana, has been decriminalized or legalized as a prescription for medical purposes, more patients are using cannabis recreationally for medical purposes or as a holistic therapeutic approach in contrast to Western medicine. With increased use among patients, it has become important for the advanced practice nurse (APN) to have a basic knowledge of the therapeutic benefits of marijuana. The goal of this DNP project was to supply APNs with education on marijuana and cannabis to prevent poor patient assessment and education. Pre-and posttest data from 6 participants who work at a medical, ambulatory clinical site, were collected and compared to determine if there was an improvement after the educational presentation was provided. Three APNs had some knowledge of marijuana and cannabis and did exceptionally well compared to the others in the group. The expected outcome after the presentation was each participant would score 100% on their posttest, however, no participant scored 100% on their posttest. Participants increased their knowledge by 15%-45% from their pretest score. Additionally, implementing education on the therapeutic benefits of medical marijuana and medical cannabis in the nursing school core curriculum will provide a foundation that affects positive social change and removes future nurses' negative misconceptions about medical marijuana and cannabis as a gateway to illicit drug use.

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Dedication

      This DNP project is dedicated to my mom, Jerri Harris-Askew, who is not here to help me celebrate this milestone and journey. You have always given support to me in every decision I have made. I only wish you could be here to cheer me on to the finish line.

Acknowledgments

I want to acknowledge Jonathan N. Gibbs Sr. for your constant support and for giving me a shoulder to cry on in my darkest days when I wanted to give up.

Dr. Mary Martin, you always made yourself available when I needed your help and guidance. You were part of my cheerleading squad that helped cheer me to the finish line. Thank you.

I would also like to acknowledge my cheerleading squad of friends and family: you never allowed me to quit. Everyone cheered me on to continue this journey, and thank you, for your support.

Table of Contents

Section 1: Nature of the Project

Introduction

Marijuana has been illegal and a criminal offense throughout the United States,
but has since been legalized in 33 states, including the District of Columbia. Nine states
have passed legislation to decriminalize marijuana and have approved it for recreational
use (Bridgeman & Abazia, 2017). Since the legalization of marijuana and cannabis, more
patients are using it recreationally or for medicinal purposes as a holistic therapeutic
approach in contrast to Western medicine (Pettinato, 2017). Advanced practice nurses
(APNs) need to address their deficit of knowledge about marijuana and cannabis because
lack of understanding of its therapeutic benefits could lead to poor patient assessment and
patient education. With the increased incidence of opioid addiction and the opioid crisis,
patients are seeking alternatives to Western medicine, and cannabis has become the
alternate choice over the prescribed use of opioids or medication having opiates as part of
its pharmacokinetics (Konieczny & Theisen, 2019).

The legalization of marijuana and cannabis has increased in many states for
medicinal purposes and recreational use; however, controversy continues to exist
regarding the health benefits related to the legalization of marijuana and cannabis
(Balneaves, 2018). As more states begin to legalize cannabis, health care professionals
believe and agree that further evidence-based research and education on cannabis are
required (Alraja & Balneaves, 2019).

Health care professionals have stated that formal training and core content added to nursing schools' existing curriculum about marijuana and cannabis use would be beneficial (Alraja & Balneaves, 2019). If health care professionals were surveyed, most would admit to limited knowledge about cannabis and receiving information about cannabis from the media or other clinicians (Capriotti, 2016). APNs are aware that some states passed legislation and laws for medicinal purposes but had no knowledge of how to assess patients for the use of marijuana and cannabis (Staff, 2018).

Problem Statement

With the legalization of marijuana and cannabis, APNs in a nonprofit, ambulatory, health care facility in the southeastern United States were found to have a knowledge gap about the safety and efficacy of prescribing marijuana and cannabis. APNs at the project site reported patients have substituted marijuana for tobacco, alcohol, and pharmaceutical medication. In personal communication with a supervisor at the project site, we discussed the past 2 decades of change that had resulted in an increased interest in cannabis and its therapeutic benefits from the patients seen in the facility. Lucas and Walsh (2017) surveyed 271 registered marijuana users in Canada and found that "63% of patients use Cannabis for pain, 30% substitute Cannabis for opioids, 12% use Cannabis as a substitute for tobacco, and 25% reported substituting Cannabis for alcohol" (p. 32).

More than 60% of the U.S. population lives in states that have legalized marijuana and cannabis. Each of these states has developed medical cannabis programs that are highly regulated. An estimated 2 million people use cannabis to treat the following

conditions: pain (64%), anxiety (50%), and depression (34%) (Kosiba et al., 2019).

Cannabis is noted to be an effective analgesic with 80% efficacy, and the National

Academy of Science endorses cannabis to have therapeutic benefits (Kosiba et al., 2019).

Health care professionals are counseling patients that use cannabis or are

requesting medical cannabis to cope with pain, anxiety, depression, or other debilitating

medical conditions. Clinicians do understand the importance of educating and providing

their patients with up-to-date, evidence-based information about marijuana and cannabis.

A group of Colorado family physicians supports training and education, proposing that it

should be a prerequisite for certifying patients for marijuana and cannabis (Alraja &

Balneaves, 2019). Kosiba et al. (2019) surveyed Canadian physicians and found that 80%

would like more information on cannabis, suggesting that providers' have limited

education or a lack of education about cannabis that contributes to their unwillingness to

prescribe or accept cannabis.

Purpose Statement

With the legalization of marijuana and cannabis, APNs at the project site were

found to have a gap in knowledge gap about the safety and efficacy of prescribing

marijuana and cannabis. Anecdotally, a manager in this facility believed that the APNs

do not have the evidence-based information necessary to provide safe and effective care

to patients who might currently use or want to use marijuana or cannabis for symptom

relief. This concern made the current project relevant to this facility.

The purpose of this project was to determine if an educational program for APNs

on marijuana and cannabis will close their knowledge gap and increase their knowledge

of marijuana and cannabis. As part of the nursing staff at the facility, I was able to develop and provide an educational presentation to the APNs on this topic.

Nature of the Doctoral Project

I conducted a literature review of articles on medical marijuana, recreational marijuana, cannabidiol (CBD), tetrahydrocannabinol (THC), and cannabis using the following search engines and databases accessed through the Walden University Library: Google Scholar, CINAHL & MEDLINE, CINAHL-PLUS, Cochrane, and Ovid Nursing Journal. In this Doctor of Nursing practice (DNP) project, I provided APNs in a sizeable, ambulatory, health care facility in the state of Maryland with evidence-based information about marijuana and cannabis to close their gap in knowledge on the topic. APNs will benefit from continuing education and professional development programs to improve their knowledge about marijuana and cannabis.

Specifically, the APNs took a pretest to determine their preexisting knowledge, then received an evidence-based education presentation that was followed by a posttest that determined their increase in knowledge after participating in the educational offering. I compared and analyzed the pre- and posttest results to determine if the predicted improvement in knowledge occurred. The predicted improvement showed that the APNs' gap in knowledge had decreased and that they had a better understanding of the appropriate use of marijuana and cannabis after the educational session.

Significance

APNs encounter and provide care to patients that are using marijuana for medicinal or recreational purposes. While APNs are a prominent stakeholder group that

this study will impact, patients are the most important stakeholder group since they are most likely to be directly impacted by addressing this issue. Research has indicated that patients with sclerosis, posttraumatic syndrome disease, cancer, Parkinson's disease, and chronic pain can benefit from medical cannabis (Palace & Reingold, 2019). As marijuana and cannabis become widely used, it is likely that other patient groups will be identified to benefit from the use of marijuana and cannabis.

Providing APNs with education on the topic has helped to close the knowledge deficit they face when providing care to patients considering the use of medical or recreational marijuana (Pettinato, 2017). In this DNP project, I provided APNs with evidence-based information about medical marijuana and cannabis to projectably decrease their gap in knowledge gap about the topic. This project is significant for providers because it helps them understand the criteria that makes a patient eligible for medical marijuana and cannabis as well as how to use the patient's health history to determine if the patient meets the criteria. Providing similar education to other health care providers to promote a more widespread acceptance of medical marijuana could provide an immense contribution to nursing practice because the appropriate use of marijuana and cannabis can become another tool to provide relief and comfort for patients who currently rely on opioids and other pain medications that are highly addictive. Medical marijuana and cannabis have a low risk of dependence (Klein & Clark, 2022) The Food and Drug Administration has drafted guidelines for marijuana dispensaries to follow to determine the correct dosage amount. High dosages of THC may increase the risk of dependence in some individuals if they exceed the 0.3% recommendation by the Food and Drug

Administration regulatory guidelines and pathway. CBD, another compound found in marijuana and cannabis, also has a low risk for dependence because it does not bind to the receptor site in the brain, which could cause dependence risk (Jazz Pharmaceuticals, Inc., 2021).

Although this project was conducted in an ambulatory health care facility, the results should readily transfer to other practice areas where similar patient populations are found. Specifically, hospice and rehabilitation units can be primary areas where the results of this project could be effectively used.

The social views of marijuana and cannabis have recently shifted since research has proven the therapeutic benefits. Families of patients with chronic illnesses who may benefit from the appropriate prescription of medical marijuana and cannabis support and advocate for more research on the therapeutic healing benefits of marijuana and cannabis (Balneaves, 2018).

Summary

In this section, I laid the foundation for this project by providing the problem statement, purpose of the project, nature of the project, and significance of this project for patients and the nursing profession. In Section 2, I will present background and context for the study by discussing the supporting theories, relevance to nursing practice, local context, and my role as the DNP student.

Section 2: Background and Context

Introduction

APNs lack knowledge about cannabis, the endocannabinoid systems (ECS), and cannabis pharmacology (Balneaves et al., 2018). With the legalization of marijuana and cannabis, APNs at the project site were found to have gap in knowledge about the safety and efficacy of prescribing marijuana and cannabis. Anecdotally, a manager in this facility believed that the APNs do not have the evidence-based information necessary to provide safe and effective care to patients who might currently use or want to use marijuana or cannabis for symptom relief. This concern made the current project relevant to this facility. For this project, I developed and delivered an education program on cannabis, ECSs, and cannabis pharmacology to provide the APNs with the expertise needed to deliver excellent patient care. The following section includes a discussion of concepts, models, and theories significant to the nursing practice; the local background and context for the project; and my role in the project as the DNP student.

Concepts, Models, and Theories

Concepts are the foundation of nursing models and theories. Rodgers et al. (2018) stated that conceptual work is an essential component of progress in the knowledge base of a discipline. It is crucial to the discipline that nurses and researchers facilitate the progress in nursing science on a theoretical and conceptual level as part of the cohesive and systematic development of the discipline. Mukhalalati and Taylor (2019) stated that the conceptual framework defining an individual's attainment of knowledge, skills, and

attitudes to achieve changes in behavior, performance, and potential is supported through educational philosophy and learning theory that strengthens all educational practices.

When educating the adult learner, applying theories and concepts is vital to the success of health care professional education programs. Evidence-based educational practice foundation is built on concepts and theories because understanding theories and concepts will help the educator to provide an environment conducive to learning (Mukhalalati & Taylor, 2019). It also helps the educator determine the best approach or strategies for assessing and evaluating the adult learner. Concepts and theories can be incorporated into the learning process to assist the learner with understanding the information being delivered (Mukhalalati & Taylor, 2019).

I used Knowles's concept of andragogy (i.e., the art and science of helping adults learn) and the ADDIE model to develop the staff education project. This project involves the education of adult learners; therefore, Knowle's learning model and theory were the most appropriate. Knowles's adult learning theory addresses the unique learning needs of adults, including the need to determine what the learner already knows and what they need to learn (Mukhalalati & Taylor, 2019).

In this theory, it assumed that:

- Adult learners are mature enough to manage their learning.

- The experience of adult learners can be used to develop education.

- Adult learners are likely to value education and are ready to learn.

- When education is pertinent to adult learners, the learner recognizes the practical reasons for participation.

- As a result, adults are motivated to learn rather than driven by the promise of rewards or threats of punishment.

Knowles stated that educators should put the following into practice when educating the adult learner: (a) set a comfortable temperature in the room for learning; (b) assess the learner's specific needs and interests; (c) develop learning goals and objectives based on skill level and interests; (d) design consecutive activities to achieve the goals and objective; (e) work collaboratively with the learner to select methods, materials, and resources for instruction; and (f) evaluate the quality of the learning experience and adjust as needed while assessing the need for further learning (Mukhalalati & Taylor, 2019).

The ADDIE model is one of the most used models in educational learning. The model has five phases: analysis, design, development, implementation, and evaluation. The analysis phase is used to identify whether training is needed. During this phase, the educator will better understand the who, what, where, and why of educational training. Once the educator has analyzed the training, audience, and information needed to be taught, they can move to the design phase. The design phase is the blueprint the educator develops to use as the outline for the training. Develop is the next phase, where the educator puts the final touches on the education learning project. In the implementation phase, the information is presented to the learner. The evaluation phase comprises collecting data to analyze whether the learner gained knowledge and the training meets the goal (Drljača, 2017).

Relevance to Nursing Practice

Since the passing of legislation on the use of marijuana for medical purposes in 33 states, including the District of Columbia, Puerto Rico, the U.S. Virgin Islands, and Guam, patients have used cannabis and marijuana to self-medicate for several symptoms and reasons. APNs providing care to patients who are self-medicating with cannabis and marijuana "are left without evidence-based, clinical resources" (Alraja & Balneaves, 2019, p. 5). APNs should have some knowledge of the current legal status of marijuana and current, evidence-based information on marijuana and cannabis for future clinical nursing practice.

In July 2018, the National Council of State Board of Nursing Board of Directors employed the Nursing Guidelines Committee to create recommendations and guidelines to direct nurses in the care of patients using marijuana (Russell, 2019). The AACN's (2006) Essentials of Doctoral Education for Advanced Nursing Practice outlined eight foundational competencies to guide DNP students to graduate with advanced degrees. I used the following essential competencies in this project: Essential II: Organizational and Systems Leadership for Quality Improvement and Systems Thinking, Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice, Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes, and Essential VII: Clinical Prevention and Population Health for Improving the Nation's Health. DNP graduates contribute to nursing science by evaluating, translating, and disseminating research into practice. The Essentials of Doctoral Education for Advanced

Nursing Practice emphasize the DNP student's role in assimilating nursing science and practice with the complex needs of humankind (AACN, 2006).

Local Background and Context

During a one-on-one conversation with some of the APNs at the project site, it was clear there was a gap in knowledge regarding marijuana and cannabis among them. Their gap in knowledge included deficits regarding the safety and efficacy of prescribing marijuana and cannabis. The clinic manager expressed concerns that the staff could not answer patients' questions about marijuana and cannabis. Because this concern impacts the clinical practice and patient outcomes, the educational program project met the criteria for relevance. Providing safe and effective care to patients who currently use or want to try marijuana and cannabis for symptom relief should be based on current evidence in the literature and the laws of the state of Maryland Medical Cannabis Commission (MMCC, 2022). I used an educational program with a pre- and posttest approach to assess the staff's current educational levels and changes in knowledge following the lesson.

The setting for this DNP project was a large, nonprofit, ambulatory health care facility in the state of Maryland that has various medical specialty departments that provide various health care services, including laboratory, obstetrics-gynecology, pediatrics, primary care, internal medicine, urgent care, and oncology.

Six nurse practitioners are employed at this facility who provide primary care to patients of all ages. In the state of Maryland, nurse practitioners have prescriptive authority but are limited to oversight of the law (MMCC, 2022). In this project, I

developed and implemented an educational program for nurse practitioners who are patient care providers in a nonprofit, ambulatory facility to provide them with current, evidence-based information about marijuana and cannabis to increase their knowledge of the current conditions approved to meet the criteria for prescribing marijuana and cannabis.

In the state of Maryland where this project was implemented, marijuana and cannabis are legal, and APNs have the prescriptive authority to recommend patients for a medical ID card (MMCC, 2022). As such, APNs required evidence-based information to guide their practice. The practice-focused question that guided this project was: Will an education program for APNs on marijuana and cannabis increase their knowledge about the safety and efficacy of prescribing marijuana and cannabis for their patients?

Role of the DNP Student

My role in this project was to develop and implement the project and analyze feedback from the learners. In the Essentials of Doctoral Education for Advanced Practice, the AACN (2006) stated,

> A DNP student is prepared to develop and evaluate care delivery approaches that meet current and future needs of patient population based on the scientific finding in nursing and other clinical sciences as well as organizational, political, and economic sciences. (p. 13)

When considering a DNP project, my first consideration was obesity and how it affects the African American female body image. It was not until one of the patients at the project site asked about marijuana and if it would help with the side effects of

hemodialysis when it I realized I did not know much about marijuana or cannabis and could not answer the patient's question. At that point, I changed direction regarding my DNP project, realizing that APNs should have some knowledge about marijuana and cannabis and its therapeutic benefits. During the quest for information, I asked APNs about marijuana and cannabis, and they could not provide any information. I began my literature review to find information to answer the patient's question. The question made me wonder how many nurses and APNs found themselves in the same precarious situation without the necessary information and education about this topic.

During my review of the literature about marijuana and cannabis, I found a website for the American Cannabis Nurse Association (ACNA). I registered and became a member to further my research. After becoming a member, I received an email that the association was looking for members to participate on a committee for their upcoming conference. I applied for the education committee and the research committee. In April 2021, I received a call from the research committee chair to inform me that my application for the research committee was approved. During the interview process, I informed the committee that I was currently pursuing my DNP degree, and my project on marijuana and cannabis motivated me to become a member of the ACNA. The research committee chair was pleased that I was conducting my DNP project on marijuana and cannabis.

When I recognized my lack of knowledge in the area of marijuana and cannabis, I realized that nurses must be able to answer patient questions accurately and from evidence-based knowledge. Recognizing my personal biases about marijuana and

cannabis and the importance of this topic led me to close my knowledge gap by conducting this project. Because I was aware of my personal biases, I used a project team to review the education program and tests to ensure that this project was evidence based.

Role of the Project Team

When researching my idea for this DNP project, I approached my manager to get her thoughts about an educational presentation on marijuana and cannabis. I also wanted to present the educational session to the APNs that rounded in the facility. My manager provided positive feedback and thought an education presentation on marijuana and cannabis to the APNs could have a positive outcome for our patients that have questions about using marijuana and/or cannabis. My manager from the practice site gave me approval to develop and deliver an educational presentation on marijuana and cannabis, which would be an optional learning experience for the APNs at the practice site.

Summary

I asked APNs in the local setting about their knowledge of the prescription of marijuana and cannabis for a variety of physical and psychological complaints, which initiated this DNP project. In this section, I provided the background and context for the project, including information on the theories employed and the relevance to nursing practice. The local background and context that made this project relevant, my role as the DNP student, the role of the project team, and my motivation for completing the project were also addressed. In Section 2, I provided the information necessary to support the need for an educational program for APNs in the outpatient project setting. In Section 3, I discuss the sources of evidence, participants, procedures, analysis, and synthesis.

Section 3: Collection and Analysis of Evidence

Introduction

I conducted this project to develop and implement an educational program for APNs who are patient care providers in a large, outpatient, ambulatory facility that lacked knowledge about cannabis, marijuana, the ECSs, cannabis pharmacology, and cannabinols. APNs reported frequent encounters with patients who preferred a holistic approach to medicine and have considered the use of marijuana and cannabis or are already using them as a treatment for numerous medical conditions (Carroll, 2018).

With the legalization of marijuana and cannabis in the state of Maryland, APNs at the project site found themselves with a gap in knowledge about the safety and efficacy for prescribing marijuana and cannabis. APNs at the project site stated that more patients are reporting substituting marijuana and cannabis for tobacco, alcohol, and pharmaceutical medication. I conducted this project to determine if an education program for APNs on marijuana and cannabis would close their gap in knowledge to provide appropriate care to their patients.

Practice-Focused Question

The practice-focused question was: Will an education program for APNs on marijuana and cannabis increase their knowledge about prescribing marijuana and cannabis for their patients?

Sources of Evidence

Literature and data sets published within the past 5 years provided evidence for this project. I searched the following databases, accessed through the Walden University

Library, to find literature for my review: CINAHL, MEDLINE, CINAHL-PLUS, Cochrane, and Ovid Nursing Journal.

Key Terms

Cannabis: A flowering herb used in the production of marijuana, hemp, and CBD (Clark, 2021).

Cannabinols: The compounds (primarily THC and CBD) that are the active ingredients of cannabis (Clark, 2021).

CBD: Short for cannabidiol, CBD is one of the cannabinols of the cannabis plant (Clark, 2021) .

ECS: The neurological system that plays a role in synaptic plasticity and response to insults to the body (Clark, 2021).

Hemp: The fiber of the cannabis plant from the stem of the plant (Clark, 2021).

Marijuana: The greenish mixture of the dried flowers of cannabis (Clark, 2021).

THC: One of the cannabinols of the cannabis plant (Clark, 2021).

Participants

The participants in the education program project were six APNs at the medical, ambulatory, clinical site. I sent a departmental email to each APN encouraging their participation in the educational program and inviting them to the online PowerPoint presentation. As part of the project, they were also asked to take a pre- and posttest and complete an evaluation of the program itself.

Procedures

I employed the expertise of certified cannabis nurses who reviewed the content of my DNP project for content validity and to ensure the information that was presented was evidence based. Prior to delivering the educational session, I forwarded the educational PowerPoint, pretest, and posttest to the facility's nursing education department who gave final approval for the educational program. The clinical educator from the facility's nursing education department guided me in local best practices for implementing this education presentation. I asked that the nursing education department complete their review and provide suggestions for implementation within 2 weeks of receiving my project information. Revisions were made after receiving feedback from the facility's nursing education department, which also provided feedback on the appropriate length of presentation.

Feedback from facility educators indicated that one or more voice-over presentations (of 30–45 slides in length) was needed to be created. At this time, the six APNs were invited to participate in the educational class. The class consisted of the following topics: a brief history of marijuana, cannabis, and the ECS; identification of qualifying conditions; informed and shared decision making; and ethical considerations. The learners accessed the course through a saved file in Microsoft Teams, and they also had access to me via virtual live methods using Microsoft Teams to discuss, clarify content, and answer questions before, during, and after the educational presentation.

I asked each learner to provide two letters from the alphabet as an identifier for the pre- and posttests they submitted before and after the presentation. I explained to the

group that there would be an evaluation following the presentation as well and that it would be anonymous, so they did not have to use identifying markers. Before the presentation, each learner was given the opportunity to introduce themselves and briefly explain their nursing career.

Each learner received a pretest, posttest, and evaluation of the education program to complete. I uploaded the PowerPoint presentation, pretest, posttest, and evaluation into a file in Microsoft Teams, which is a communication application the practice site uses for meetings, that was available for viewing and review at any time.

I used a Likert-type scale for the pre- and posttest analysis. Using statistical programs in Microsoft Excel, I evaluated the data using descriptive and inferential statistics to describe the participants and show if there was an improvement in knowledge after attending the educational session.

Protections

I obtained project site approval from the management of the practice site using Form A, found in the *Walden University Manual for Staff Education*. No patient information was accessed or used for this project. I asked each participant to create a unique identifier to be used on their pre- and posttests so that statistical analysis could be conducted to determine if there was an improvement in knowledge. Institutional Review Board approval number for this study is 08-24-22-0407330. was obtained from both the practice site and Walden University. No data were collected prior to the approval of the doctoral project proposal. I kept all data in a password-protected computer accessible only to me.

Summary

I developed and delivered a staff education program to provide APNs with the knowledge needed to assess, recommend, and educate patients about marijuana and cannabis. The education program aligned with the AACN's Doctor of Nursing Practice Essentials and the *Walden University Manual for Staff Education*. With the educational presentation, I aimed to close the APN's gap in knowledge regarding marijuana and cannabis. In the session, the APNs learned about the ECS, cannabis pharmacology, assessment, recommendations for marijuana identification cards, and educating patients on the safe use of marijuana and cannabis for chronic medical issues.

In Section 4, I will provide the results of the education program and recommendations for changes to the program to improve it for future learners.

Section 4: Findings and Recommendations

Introduction

With the legalization of marijuana and cannabis in the state of Maryland, APNs at the project site found themselves with a gap in knowledge about the safety and efficacy of prescribing marijuana and cannabis. APNs at the project site stated that more patients are reporting substituting marijuana for tobacco, alcohol, and pharmaceutical medication. With this project, I aimed to determine if an education program will provide APNs with the information necessary to close their gap in knowledge gap regarding marijuana and cannabis to provide appropriate care to their patients. The practice-focused question was: Will an education program for APNs on marijuana and cannabis increase their knowledge about prescribing marijuana and cannabis for their patients.

A review of literature and data sets published within the past 5 years provided evidence for this project. I searched for literature in the following databases, accessed through the Walden University Library: CINAHL, MEDLINE, CINAHL-PLUS, Cochrane, and Ovid Nursing Journal. Keyword search terms used were *cannabis, marijuana, endocannabinoid system, cannabinols, THC, CBD,* and *hemp*.

Findings and Implications

Reviewing the results of the participants' pretests, three APNs had some knowledge of marijuana and cannabis and did exceptionally well compared to the others in the group. Participant KD scored 75%, while CV and KW scored 70% on a grading scale of 100% (with each question worth 5 points). Overall, all participants' pretest scores indicated that they could benefit from some education on marijuana and cannabis.

After the presentation, I compared each participants' pretest score to their posttest score. The expected outcome after the presentation was that each learner would score 100% on their posttest. However, no participant scored 100% on their posttest. Each learner increased their knowledge by 15%–45% based from their pretest scores.

The data for this project were only collected from a small group of APNs from a single, medical, ambulatory, clinical site, thus limiting the transferability of the results. Based on the results of this project, I recommend that not only should APNs be educated about marijuana and cannabis, but nurses, social workers and other health care professionals should also be educated on this topic.

The ambulatory facility can potentially influence this project's outcome by implementing a protocol for marijuana and cannabis in the form of a document with information that can be issued to patients who have questions about using marijuana and cannabis. The document can include the Maryland Medical Cannabis Commission website, qualifying conditions, and a list of registered providers (MMCC, 2022).

During the evaluation process of this DNP project, recommendations were made to add information on Raphael and Mechoulam, the individuals who discovered cannabinoid and endocannabinoid receptors in the human body and cannabis plants to the presentation. Adding evidence-based research articles into the presentation for the learner to read will also help increase their knowledge of marijuana and cannabis.

Recommendations

A manager from the practice site provided approval for me to develop and deliver this educational presentation on marijuana and cannabis, which was an optional learning

experience for all the APNs and nursing staff at the project site. The manager and the education department of the project site discussed implementing a toolbox on the topic with a self-learning pamphlet for the nursing staff and an informational pamphlet for patients. Future projects can be designed to provide further education on the legality of cannabis. According to federal law, cannabis is illegal, and APNs need to understand their legal authority in the state of Maryland to prescribe cannabis for medicinal purposes (MMCC, 2022). An educational presentation on prescriptive authority could help APNs understand their state's laws to ensure they stay within the scope of practice.

Strengths and Limitations of the Project

The project site only employs six APNs who took part in this project, which limits the transferability of the results if given to a broader group of people. The strengths of this DNP project were the willingness of the six APNs to participate in the project and the support the project received from the supervisor of the ambulatory practice site. Another strength of the project was the existing process for the online education of employees at the project site. There were no serious limitations that affected this DNP project. I evaluated the data from the pre- and posttests using descriptive and inferential statistics to determine whether an improvement in APNs' knowledge about medical marijuana and cannabis occurred.

Section 5: Dissemination Plan

APNs are in an excellent position to disseminate research into practice. They are trained to increase their skills, think critically, and make quick decisions in patient care (AACN, 2006). I plan to schedule a 30-minute meeting with my facility manager to discuss the findings from the educational presentation. In the meeting, I will discuss adding an online component to the presentation so another health care provider could participate. After each health care provider has participated in the online presentation, they will be able to submit their pretests, posttests, evaluations, and any feedback via email. Each year, the practice site has an annual conference and asks staff to submit new, innovative ideas to present. I plan to submit my education presentation for approval to present at this conference.

Analysis of Self

Role as a Nurse

Reflecting on the beginning of this DNP journey, I had doubts about Cannabis' therapeutic benefits. I believed in the negative propaganda that marijuana was the gateway to more potent drugs. It was not until I began the research to support the educational program that I began to change my opinion about cannabis.

My research led me to a study by the National Academies of Science, Engineering, and Medicine (2017) that reviewed scientific research published from 1999 to 2017 about the impact cannabis has on a person's health. The National Academies of Science, Engineering, and Medicine gave recommendations on cannabis research, suggested improvement of the quality of cannabis, and presented barriers to cannabis

research. I also learned the human body has an ECS and cannabis is made up of endocannabinoid (Clark, 2021). The endocannabinoid from cannabis binds to the receptor sites of the body's ECS, targeting specific cannabinoid receptors to treat illness without upsetting the body's endocannabinoid hemostasis. Becoming a member of the ACNA's Nurse Research Committee, I was able to close my own gap in knowledge on cannabis by listening and learning from nurse scholars who were experts on cannabis.

Role as a Scholar

When I think of a scholar, I think of someone that is highly intellectual. According to the Cambridge Dictionary (2022), a scholar is a person with great knowledge, usually of particular subject. A scholar also refers to as a person of learning. I consider myself as a person of learning. My DNP project has provided me with a learning experience showing that medical marijuana and cannabis have therapeutic properties that patients are finding beneficial. Conducting this project has allowed me to share scholarship with other health care providers and expanding their knowledge on medical marijuana and cannabis. As a nurse scholar, this project has given me new knowledge that can be used to improve patient care.

As a nurse scholar, I hope that the information included in this educational presentation project will result in other APNs expanding their own scholarship and wanting to learn more about medical marijuana and cannabis. I hope that this project would encourage other nurse scholars to expand on the information provided in the presentation and lead to the development of a screening tool that can be used in their practice. A future endeavor I hope to accomplish as a nurse scholar would be to speak at

a medical conference to educate other nurse scholars about the therapeutic benefits of medical marijuana and cannabis.

Role as a Project Manager

My role as the project manager was to gain authorization to present my project to upper leadership and stakeholders on the importance of the medical staff at the project site having a basic knowledge of medical marijuana. By communicating to leadership and stakeholders and providing the medical staff with the basic concepts of medical marijuana, APNs would be able to assess their patients better and provide them with evidence-based education on medical marijuana.

By conducting this project, I met the following AACN (2006) DNP competencies: Essential II: Organizational and Systems Leadership for Quality Improvement and Systems Thinking, Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice, Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes, and Essential VII: Clinical Prevention and Population Health for Improving the Nation's Health.

I presented this DNP project to leadership and stakeholders to advocate for change in in the clinical practice to implement evidence-based guidelines, policies, and protocols to increase patient safety. Ongoing education and assessment for medical staff and patient is key to the decision-making discussions regarding medical marijuana and cannabis (Klein & Clark, 2022).

Through this research, I have gained a great deal of insight into the benefits of cannabis and how it is helping patients with chronic pain and other health-related

problems. I have also learned that more health care professionals should increase their knowledge of cannabis and support their patients who choose to use marijuana for medicinal purposes. From this DNP project, I have learned that rescheduling marijuana will be challenging, and the medical profession will have to continue to advocate and lobby the federal government to reschedule marijuana because evidence-based research has proven there are therapeutic properties in marijuana that can help patients (Bridgeman & Abazia, 2017).

Another significant insight that I have gained from this project is that more evidence-based research is needed to prove the use of marijuana is beneficial to some patients. My long-term goal for the future is to continue working with the research committee of the ACNA on cannabis research.

Summary

With the legalization of marijuana and cannabis, society at large is beginning to see its value, especially among health care professionals. Including the therapeutic benefits of marijuana and cannabis in the core curriculum of nursing schools will help to increase social awareness and remove the damaging misconceptions about marijuana and cannabis. The National Council of State Boards of Nursing has set forth guidelines for nurses to follow when providing care for patients who use marijuana and cannabis (Bonn-Miller et al., 2017). The National Council of State Board of Nursing establishing these guidelines is the first step for nurses to advocate for their patients and increase their knowledge. APNs are skilled health care professionals that participate in the plan of care

of patients and can help bridge the knowledge gap on marijuana and cannabis in the

health care field.

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Appendix A: Pretest/Posttest

Pretest/Posttest

1. Does the body have an Endocannabinoids System?

    a. True

    b. False

2. How do the Endocannabinoids System work?

3. What is Cannabis?

    a. Dried leaves

    b. Flowers

    c. Stems

    d. Seeds

    e. All of the above

4. Name at least 2 Cannabis cannabinoids receptors?

    a.

    b.

5. Name four benefits of Medical Cannabis?

    a.

    b.

    c.

    d.

6. True or false methods of consumption for medical cannabis is (smoke, edibles, oils).

    a. True

    b. False

7. Does the state of Maryland have a Medical Cannabis Program?

    a. Yes

    b. No

8. Select the correct website a patient can register for a medical cannabis identification card?

    a. Maryland.gov

    b. mmcc.maryland.gov

    c. pharmacy.umaryland.edu

    d. mcgintyintegrative.com/Maryland-medical-cannabis-program.com

9. Select the qualifying conditions for medical cannabis?

    a. Chronic Pain

    b. Diabetes

    c. Post-Traumatic Stress Disorder

    d. Cachexia

10. Can a patient caregiver register with the Maryland Medical Cannabis Commission on behalf of his or her designated patient (s)?

    a. True

    b. False

11. Medical Cannabis evaluated for potency and purity,

    a. Yes

    b. No

12. Select all that apply approved test regulation for Medical Cannabis random sample?

    a. Microbiological contaminants

    b. Mycotoxins

    c. Pesticide Active Ingredients

    d. Residual Solvents

    e. None of the above

    f. All the above

13. Who eligible to register in the Maryland Medical Cannabis Program select all that apply?

    a. Adult over the age 21

    b. A patient care giver

    c. Anyone with an approved condition

14. Can a minor under the age of eighteen register in the Maryland Medical Cannabis Program?

    a. Yes

    b. No

15. What documents are acceptable forms of identification need to enroll in the

Maryland Medical Cannabis program? Select all that apply.

    a. Driver's license

    b. State issue photo identification

    c. A valid, accessible email account

    d. Proof applicant lives in Maryland.

    e. Birth certificate

    f. U. S. passport

    g. A and E

16. Do the provider and the patient determine the amount of cannabis allowed for

purchased?

    a. True

    b. False

17. The amount of cannabis available for purchase by the patient is based on how

many days cycle.

    a. 120 rolling day cycle

    b. Sixty rolling day cycle

    c. Thirty rolling day cycle

    d. Ninety rolling day cycle

18. Medical Cannabis sold in grams?

    a. True

    b. False

19. How are Medical Cannabis products such as oils and lotions measured?

    a. Amount of THC

    b. Grams

    c. Both A and B

20. In the state of Maryland who is eligible to register as a Provider.

    a. Physician only

    b. Physician Assistant

    c. Podiatrist

    d. Cannabis Care Nurse

    e. Dentist

    f. Nurse Practitioner/Nurse Midwife

    g. B, C, D, E, F

Appendix B: Answer Key

Answer Key

1 Does the body have an Endocannabinoids System?

True

2. How do the Endocannabinoids System work?

The endocannabinoid system is involved in regulating a variety of physiological process including, appetite, pain, pleasure sensation, immune system, mood, and memory.

3. What is Cannabis?

All of the above

4. Name at 2 Cannabis cannabinoids receptors?

CB1 Nervous System

CB2 Immune System

5. Name at least four benefits of Medical Cannabis?

 Relieves pain.

 Aids in sleep

Stimulates appetite.

 Reduce nausea and vomiting.

6. True or false methods of consumption for medical cannabis is (smoke, edibles, oils).

True

7. Does the state of Maryland have a Medical Cannabis Program?

Yes

8. Select the correct website a patient can register for a medical cannabis identification card?

 mmcc.maryland.gov

9. Select the qualifying conditions for medical cannabis?

 Chronic Pain

 Post-Traumatic Stress Disorder

 Cachexia

10. Can a patient caregiver register with the Maryland Medical Cannabis Commission on behalf of his or her designated patient (s)?

 True

11. Medical Cannabis evaluated for potency and purity,

 Yes

12. Select all that apply approved test regulation for Medical Cannabis random sample?

 All the above

13. Who eligible to register in the Maryland Medical Cannabis Program select all that apply?

 Adult over the age 21

 A patient care giver

 Anyone with an approved condition

14. Can a minor under the age of eighteen register in the Maryland Medical Cannabis
    Program?

    No

15. What documents are acceptable forms of identification need to enroll in the
    Maryland Medical Cannabis program? Select all that apply.

    Driver's license

    State issue photo identification

    A valid, accessible email account

    Proof applicant lives in Maryland.

    U. S. passport

16. Do the provider and the patient determine the amount of cannabis allowed
    purchased?

    False

17. The amount of cannabis available for purchase by the patient is based on how
    many days cycle.

    Thirty rolling day cycle

18. Medical Cannabis sold in grams?

    True

19. How are Medical Cannabis products such as oils and lotions measured?

    Both A and B

20. In the state of Maryland who is eligible to register as a Provider.

Physician Assistant

Podiatrist

Cannabis Care Nurse

Dentist

Nurse Practitioner/Nurse Midwife

Appendix C: Evaluation

Presentation Evaluation Form

Evaluate Presentation of Presentation	Yes	No	Comments
Was Presentation Informative?			
Would You Recommend Presentation to Yor Colleague?			
Is There Anything You Would Change About the Presentation			
The Presented Information Would It Be Useful in Your Practice Area?			
Overall Did Presentation Meet Expectation?			

Appendix D: Test Results

Attendees	Pre-Test Score	Post-Test Score	Point Differences Between Per and Post Test Score
CV	70	90	30
SD	45	85	40
KD	75	90	15
DR	50	80	30
DK	35	80	45
KW	70	95	25
JG	50	95	40

Appendix E: Graph of Test Results

'Pre-Test Score', 'Post-Test Score', 'Point Differences Between Per and Post Test Score' by 'Attendees'