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**BEHAVIORAL INTERVENTION TO INCREASE CONDOM USE AMONG MEN WHO  
TAKE PRE-EXPOSURE PROPHYLAXIS AND HAVE SEX WITH MEN**

by

**MAREK J PISZCZATOWSKI**

**EVIDENCE-BASED PRACTICE PROJECT REPORT**

Submitted to the College of Nursing and Health Professions

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For the degree of

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2022



Student

Date

 5/6/22

Advisor

Date



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## **DEDICATION**

This EBP project is dedicated to my parents Jadwiga and Mieczyslaw Piszczatowski, and my brother Andrzej for their unfailing love. To my friends: Ewa Bejnarowicz, Grazyna Ozorowska, Dorota Sepczynska and Anna Zieja for their unconditional friendship. To my friend, co-worker, and my “biggest cheerleader” Shelby Strong, DNP for her help and encouragement.

## **ACKNOWLEDGMENTS**

I would like to thank my academic advisor Dr. Nola A Schmidt, Ph.D., RN, CNE for her guidance and support. Thank you for seeing me as my strengths and not my weaknesses, for boosting my confidence, and for not giving up on the idea that one day I may be a good writer. I would like to extend my gratitude to Dr. Monica Mercon, MD, MPH, Ph.D for her support with the implementation of my project.

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## **ABSTRACT**

In the absence of an effective vaccine, the introduction of pre-exposure prophylaxis (PrEP) in 2012 offered a promising new approach to human immunodeficiency virus (HIV) prevention. However, the introduction of a single-pill regimen which helps to prevent HIV transmission created, in men who have sex with men (MSM) population, a phenomenon referred to as risk compensation resulting in PrEP replacing consistent condom use as a preventive measure (Freeborn & Portillo, 2018; Kumar et al., 2020; Montañó et al., 2018; Ramchandani & Golden, 2019; Traeger et al., 2018). The purpose of the evidence-based practice project was to implement a single, one-on-one behavioral counseling session to improve the frequency and willingness of condom use among MSM who take antiretrovirals for PrEP to prevent HIV infection. Participants were recruited from four HIV/PrEP clinics in Chicago, Illinois. Eligible participants included adult MSM who took antiretroviral medications for PrEP to prevent HIV infection and demonstrated risky sexual behavior, which was defined as having a high number of sexual partners, engaging in high-risk condomless sex acts, or being diagnosed with a sexually transmitted infection (STI) in the past 12 months. After the initial risk screening, which included participants' estimation of the percentage of condom carrying and use, the participants received a short behavioral intervention that had been "reframed" to focus on positive aspects of condom use. The risk reassessment, including the percentage of condom carrying and use, was reported by the participants at their 3-month follow-up visit. A statistical test will compare pre-and post-intervention scores. The primary outcome was to increase the frequency of condom use by the self-reported percentage of condom use. The secondary outcome was to increase the willingness of condom use as measured by the self-reported percentage of carrying condoms. Implications for practice will be discussed.

# CHAPTER 1

## INTRODUCTION

Pre-exposure prophylaxis (PrEP) in the form of Truvada (emtricitabine + tenofovir disoproxil fumarate) and Descovy (emtricitabine + tenofovir alafenamide) is a single pill regimen that helps to prevent Human Immunodeficiency Virus (HIV) transmission. With adherence to the medication regimen of at least 90 % of the time, PrEP can reduce the risk of HIV infection through sex by 92% (Centers for Disease Control and Prevention (CDC), 2018). The CDC recommends PrEP for men who have sex with men (MSM) who, in the past 6 months, engaged in one or more of the following practices or behaviors: (a) engage in sexual intercourse with a high number of sexual partners, (b) practice condomless anal intercourse (CAI), (c) contract a bacterial sexually transmitted infection (STI), (d) engage in sex with an HIV-positive partner, or (e) perceive themselves as potentially engaging in above-mentioned practices in the future (CDC, 2018).

Although PrEP protects from HIV acquisition, it does not provide any protection from STIs, which could be prevented only in three ways: (a) by sexual abstinence, (b) mutual monogamy, (c) or consistent condom use (Freeborn & Portillo, 2018). In recent years, despite declining numbers of new HIV infections, there has been an increase in bacterial STIs among men who have sex with men (Freeborn & Portillo, 2018; Kumar et al., 2020; Montaña et al., 2018; Ramchandani & Golden, 2019; Traeger et al., 2018). The data also show a decrease in condom use among MSM using PrEP (Freeborn & Portillo, 2018; Kumar et al., 2020; Montaña et al., 2018; Ramchandani & Golden, 2019; Traeger et al., 2018). These findings suggest changes in sexual behavior in MSM on PrEP population shifting toward more risky sexual conduct due to sexual risk compensation (Foley et al., 2021).

In theories about risk compensation, it is suggested, that people typically adjust their behavior in response to perceived levels of risk, taking a greater risk as a response to an

increased sense of protection (Marcus et al., 2019). Individual-level of sexual risk compensation can manifest in various ways: (a) less frequent condom use, (b) more rapid new partner gain, (c) more frequent engagement in sexual activity, (d) change from lower to higher risk sexual behavior, (e) switching from lower to a higher risk sex position, (f) shifting from lower to higher risk sexual partners, or (g) any combination of forementioned (Kumar et al., 2020). Sexual risk compensation is linked to the decline of condom use because MSM who are using PrEP have a decreased fear of becoming infected with human immunodeficiency virus (HIV), thereby resulting in the unintended consequence of increasing STIs rate because HIV and STIs transmission pathways overlap.

Nurses have an important role in preventing the transmission of STIs in MSM. Nurses have the power to lead innovative strategies to improve their patients' well-being. Nurses who are prepared at the doctoral level are equipped with a specific combination of clinical, organizational, economic, and leadership skills that allow a critical evaluation of nursing practice and approach to healthcare delivery what brings positive impact on healthcare outcomes (American Association of Colleges of Nursing (AACN), 2004). Doctorally prepared advanced practice registered nurses (APRNs) have an obligation to develop evidence-based protocols for treatment and prevention that would close the gap in the quality of patient care by providing standardized care and improvement of patient outcomes.

### **Data from the Literature Supporting Need for the Project**

Sexually transmitted infections are a major health issue with an estimated 357 million new infections worldwide each year which is about one million infections per day (World Health Organization (WHO), 2016). Each year, around the world, there are an estimated 127 million new cases of chlamydia, 87 million cases of gonorrhea, 6.3 million cases of syphilis, and 156 million cases of trichomoniasis. The MSM population is disproportionately affected by sexually transmitted infections (STIs), which continue to rise. The rates of STI treatment failure in MSM are reported to range from 13% to 21% (Freeborn & Portillo, 2018). The studies also report a re-

emergence of different, new strains of antibiotic-resistant gonorrhea or chlamydia, ophthalmic and otic syphilis, or neurosyphilis (Freeborn & Portillo, 2018). In the U.S., the incidence of STIs is higher in MSM compared to women and men who have sex with women only (MSW) (CDC, 2019). According to CDC (2019), in 2018 MSM accounted for 64.3% of reported cases of syphilis and 37.2% cases of gonorrhea. In 2016, of the 813 reported cases of syphilis in Chicago, 74.9% were among MSM (Chicago Department of Public Health, 2017).

The current epidemic of STIs among MSM is of great significance to both the individual and public health. Although bacterial STIs in men are rarely life-threatening, if untreated they may cause numerous complications in men such as arthritis secondary to gonorrhea or chlamydia, urethral stricture, epididymitis, and particularly in MSM proctitis, colitis, and enteritis (Holmes et al., 2017). Similarly, viral STIs can carry various consequences such as genital neoplasia, liver failure and liver cancer caused by hepatitis B virus (HBV) infection, myelopathy and lymphoma or leukemia secondary to human T-cell lymphotropic virus type 1, and central nervous system disease or meningoencephalitis secondary to syphilis or herpes simplex virus (HSV) infection (Holmes et al., 2017). Human papillomavirus (HPV) and HPV-associated oropharyngeal and anal cancer rates are higher among MSM (Oliver et al., 2018). About 3.5% to 8% of cases of early syphilis result in neuro-, oto-, and ocular syphilis infection that leaves a third of infected patients with some residual visual deficiency despite curative treatment and in more severe cases can lead to blindness (Ramchandani & Golden, 2019). Recent studies show that about half of patients who are newly diagnosed with syphilis have a confirmed hearing loss (Ramchandani & Golden, 2019).

In the US, the estimated direct medical cost is 3.2 billion dollars for 7 major STIs: (a) gonorrhea, (b) chlamydia, (c) syphilis, (d) trichomoniasis, (e) hepatitis B, (f) diseases associated with sexually transmitted HPV, and (g) genital herpes simplex virus type 2 HSV-2 (Holmes et al., 2017). Sexually transmitted infections inflict high productivity costs because they affect the younger population. According to CDC (2021), in 2018 45.5% of all new STI infections occur

among young people ages 15-24. The economic burden of STIs in low- and middle-income countries is so high that the treatment of curable STIs is considered one of the most cost-effective ways to improve health worldwide (Holmes et al., 2017).

Another consequence of the STIs epidemic among MSM is progressing antimicrobial resistance. Antibiotic-resistant *Neisseria gonorrhoeae* was identified by CDC as one of the top three most urgent problems in the field of drug-resistant microbes (Ramchandani & Golden, 2019). In 2017, of the gonorrhea isolates obtained from MSM, 5% showed reduced susceptibility to cefixime and 7% had a high resistance to azithromycin (Ramchandani & Golden, 2019).

### **Purpose of the Evidence-Based Project**

The purpose of this evidence-based practice (EBP) project is to increase condom use frequency among MSM taking daily antiretroviral medications for pre-exposure prophylaxis against HIV. Multiple studies have found decreased use of condoms among MSM following PrEP initiation (Freeborn & Portillo, 2018; Kumar et al., 2020; Montaña et al., 2018; Ramchandani & Golden, 2019; Traeger et al., 2018). Although the influence of PrEP on STI rates is not completely clear, the evidence shows that for MSM who are taking PrEP, there has been a 24% increase in the rate of bacterial STIs and a 59% increase in the risk of acquiring rectal STI (Ramchandani & Golden, 2019).

Sexual behavior and expression of sexuality are the natural human experience, but the context in which sexual behavior is demonstrated may make the behavior abnormal or risky (Chawla & Sarkar, 2019). Risky sexual behavior is defined as sexual activities which expose the person to the risk of contracting STIs, including HIV, therefore affecting their health (Chawla & Sarkar, 2019). The phenomenon of sexual risk behavior is very complex and difficult to be fully understood due to its highly complex framework of the physiological, intellectual, emotional, situational, social, cultural, moral, and legal aspects (Freeborn & Portillo, 2018). While it is unlikely that behavioral tendencies to a sexual risk compensation and increase in STIs prevalence among MSM who take PrEP will reverse on their own, there is evidence that supports

the practice of using health messages to change health-related decision-making and behavior (Garcia-Retamero & Cokely, 2011). As a result of recent pharmacological advancements in HIV prevention, threats of serious consequences such as disability or death have been reduced for MSM; however, the strategies for STI prevention and sexual risk reduction cannot be stagnant and need to evolve to address new challenges.

### **PICOT Question**

PICOT framework was utilized to formulate a clinical question for this evidence-based project. This framework is used to describe the five key elements of a good clinical foreground: (a) population/patient/problem (P), (b) intervention (I), (c) comparison of interests (C), (d) outcome (O), and (e) time (T) (Dang & Dearholt, 2017).

P. The targeted population of interest for this intervention were men who have sex with men who take daily antiretroviral medication for PrEP to prevent HIV infection.

I. The intervention is evidence-based health education that aims to increase condom use during sex by MSM. Education was provided by health educators during a one-on-one session while patients wait for rapid HIV test results. The project leader (PL) taught health educators what assessments and content are to be included in the evidence-based education.

C. Comparison of interest was the pre-intervention condom use and carry versus post-intervention condom use and carry.

O. The desired primary outcome was behavior modification resulting in an increased percentage of condom use during sex by MSM on PrEP. A secondary outcome was an increase in the willingness of condom use by MSM on PrEP.

T. Time of the intervention was 12 weeks. This is a standard follow-up time for the PrEP patients.

Therefore, the PICOT for this EBP project is: Regarding men who have sex in men and take antiretrovirals for pre-exposure prophylaxis to prevent human immunodeficiency virus infection (P), will a single one-on-one behavioral counseling session (I) compared to current

practice protocol (C) improve their frequency and willingness of condom use (O) over 12 weeks period (T)?

### **EBP Project Description**

The project was implemented in four PrEP clinics within the Cook County Health system. All the clinical sites were located in Chicago, Illinois. Most of the clients were ethnic minorities, people of lower socioeconomic status, and uninsured or underinsured. Many of them received their PrEP medications through the state-funded Medication Assistance Program. Young MSM, age 18-25, represented the most significant number of PrEP patients, while there was a small number of heterosexual men or women who had an HIV-positive partner.

The intervention involved health education regarding safer sex practices, with an emphasis on consistent condom use. The participants were MSM who used oral retroviral medications to prevent HIV acquisition. The PL was a Doctor of Nursing Practice (DNP) student, who oriented health educators in the clinic to the practice change, which involved a short, one-on-one behavioral counseling with the use of gain-framed health messages (Foley et al., 2021; Garcia-Retamero & Cokely, 2011). Health educators were selected to provide the teaching because they were the patients' first contact at the clinic. A part of the PrEP visit at the clinic was a sexual risk assessment conducted by health educators. Health educators are individuals who provide rapid HIV testing, conduct brief risk screening, and make immediate referrals for PrEP/PEP (post-exposure prophylaxis), acute infection testing, or medical care. The patients were asked about the number of recent sexual partners, type of sexual activities they had engaged in, illicit drug use, sex in exchange for money/goods, recent STIs, and the percentage of condom use. The assessment was conducted while awaiting rapid HIV test results. Depending on the type of rapid test used in the clinic, the entire encounter with a health educator took from a few to 20 minutes.

After the initial assessment, the health educators provided the patient with an educational pamphlet and discussed condom use. Education was "reframed" to focus on positive aspects of

condom use, as this type of messaging has been shown to be successful (Foley et al., 2021). The participants were scheduled for a 3-month follow-up. During the follow-up visit, health educators performed risk reassessment, the percentage of condom use was reported by the participants and noted in their chart. The data necessary to measure the outcomes of the intervention were obtained by reviewing charts. Implementation of this practice change regarding condom use, this EBP project, led by the DNP student, could eventually improve both individual and public health by reducing the rate of STIs in MSM.

## **CHAPTER 2**

### **EBP MODEL AND REVIEW OF LITERATURE**

Evidence-based practice models provide nurses with the framework necessary to implement evidence into practice. The use of an EBP model allows nurses to approach evidence-based practice in an organized manner. Using a model also helps to fully maximize the use of time and resources to assure complete project implementation and sustainability. Although there have been multiple models developed over the years, most of them have typical phases that include: (a) identification of a clinical problem, (b) collecting best evidence, (c) critical appraisal and evaluation of evidence, (d) implementation of the change into practice, and (e) evaluation of the introduced practice changes (Gawlinski & Rutledge, 2008).

#### **Evidence-Based Practice Model**

After a thorough revision of various EBP models, the John Hopkins Nursing Evidence-Based Practice Model (JHNEBPM) (Dang & Dearholt, 2017) was selected to direct the development, planning, and implementation of this EBP project about behavioral intervention aiming to increase the willingness and frequency of condom use among MSM on PrEP. The permission to use the Johns Hopkins Evidence-Based Practice model and tools was obtained from the Institute for Johns Hopkins Nursing and can be found in the Appendix A. Created to reflect the organization's need to promote both the courage to explore and the environment of learning, the JHNEBPM supports questioning the status quo, seeking best practices, and implementing pioneering improvements (Dang & Dearholt, 2017). The literature search produced evidence that supports the need for practice change to encourage and increase the use of condoms among MSM using antiretroviral medications for pre-exposure prophylaxis. The best practice ideas were synthesized and included in the implementation of this project.

#### **Overview of EBP Model**

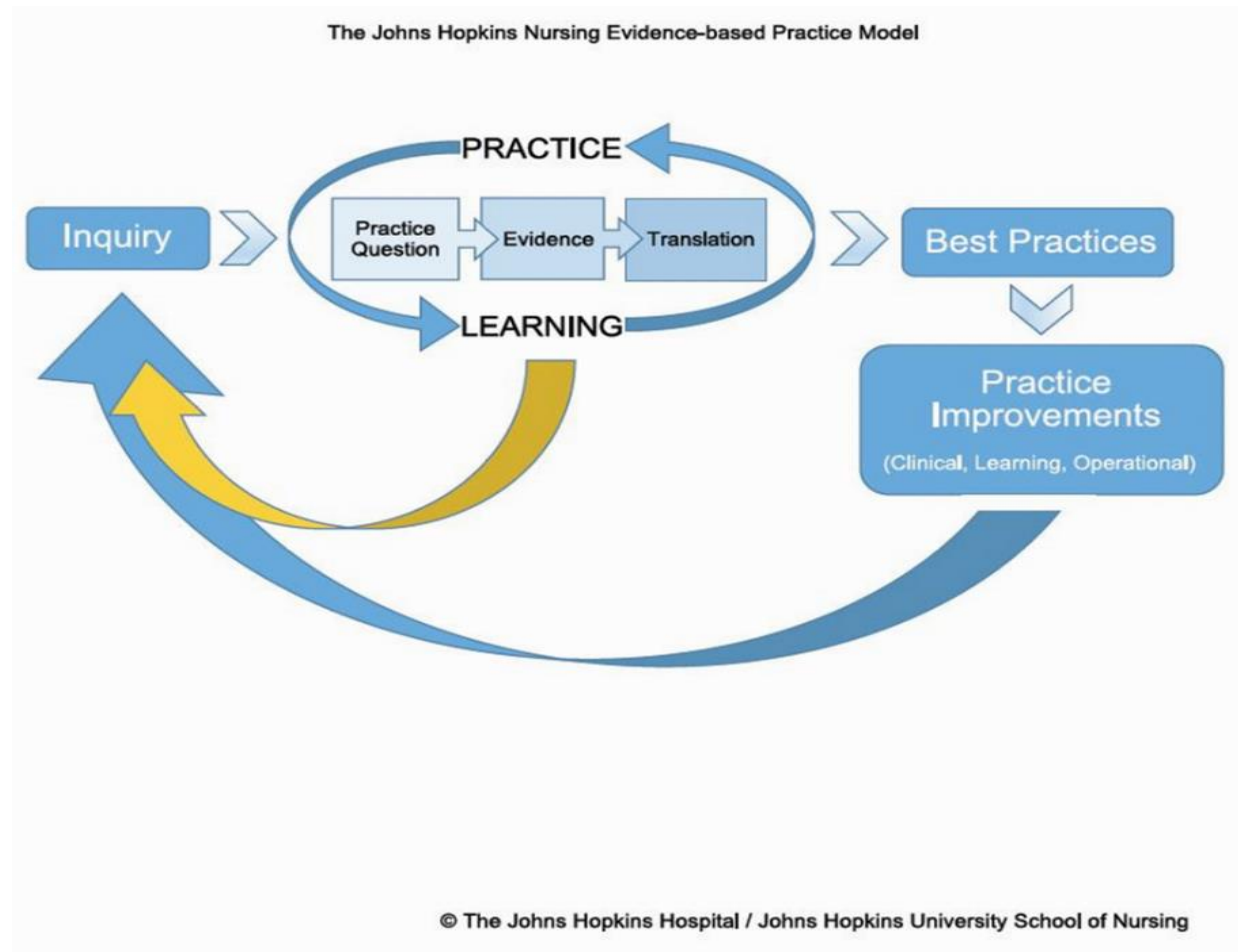
The JHNEBPM (Figure 2.1) was developed in 2002 after the leadership at the John Hopkins Hospital had noticed the inconsistency in implementing research results in nursing practice (Dang & Dearholt, 2017). The model was created through collaboration between clinical nursing staff and nursing faculty based on the idea that clinical-academic cooperation could result in the development of effective evidence practice. The goal was to pave the way for a more straightforward process of implementing evidence-based practice into routine nursing care. The JHNEBPM considers both organization's cultural factors, such as culture, values and beliefs, environment, staffing, equipment and supplies, and external factors like accreditation, legislation, standards, and quality measures (Dang & Dearholt, 2017; Melnyk & Fineout-Overholt, 2019). The 18 steps JHNEBPM were designed in 3 phases that are referred to as the PET process, where P stands for practice question of importance to the nurse or clinician, E means evidence search and appraisal, and T represents the translation of evidence into practice and evaluation of the outcome (Dang & Dearholt, 2017; Poe & White, 2010).

During phase 1 of the JHNEBPM, which includes steps one through five, a practice question is used to identify an EBP question. A clinical issue or concern is identified and then narrowed to a question using the PICOT approach. PICOT acronym stands for the patient, population, problem (P), intervention (I), comparison with other interventions, if applicable (C), and time frame (T). During this phase, an interprofessional team is created, and stakeholders are identified. The team meetings are conducted, responsibilities and accountabilities are assigned to team members, and a timeline of the process is established (Dang & Dearholt, 2017).

In the JHNEBPM, evidence refers to the evidence search, appraisal, and synthesis. During phase 2, which includes steps 6 to 10, the external and internal research is conducted, and the relevant evidence is gathered. Once the evidence is collected, the assessment of the quality and level of evidence takes place. The Research Evidence Appraisal Tool and the Non-Research Evidence Appraisal Tools are used to determine the type, quality, and level of evidence (Dang & Dearholt, 2017).

Figure 2.1

*The Johns Hopkins Nursing Evidence-based Practice Model*



*Note.* From *Ellis Medical Library*, by Ellis Medicine, 2016

(<https://www.ellismedlibrary.org/ebpmodel.html>).

The overall strength and quality of the collected body of evidence is synthesized by taking into consideration multiple factors such as level, quantity, consistency of findings, and applicability to the population and clinical settings (Dang & Dearholt, 2017). Based on the evidence synthesis, recommendations for practice change are developed.

During phase 3, evidence is translated into practice during steps 11 to 18 (Dang & Dearholt, 2017). After the strength and quality of evidence has been determined sufficient, a practice change is recommended. The practice change is often implemented in the form of a small-scale pilot before it is considered for implementation throughout the entire organization (Poe & White, 2010). The outcomes of the EBP project are reported, and if the outcomes are met, the proposed change can be introduced on a larger scale.

### **Literature Search**

To identify publications containing project-related evidence, an extensive literature search was conducted in the Cumulative Index of Nursing and Allied Health Literature (CINAHL), American Psychological Association (APA) PsychInfo, Medline with full text via EBSCO, Cochrane Library, the Joanna Briggs Institute (JBI) EBP Database, and Turning Research into Practice (TRIP) electronic databases (Table 2.1). These databases were searched using a Boolean search strategy for truncated words followed by an asterisk and full keywords related to interventions: ("increas\* condom use" or "condoms utilization") AND ("sexually transmitted diseases" OR "sexually transmitted infections" OR sti or std). The limiters used for the CINAHL, APA PsychInfo, Medline were: (a) scholarly (peer-reviewed) journals, (b) English language, and (c) published between 2016 and 2021. The JBI EBP Database search limiters were published between 2019 and 2021 and type of publication: all.

While conducting a search within Cochrane Library, the following keywords were used: condom AND ("sexually transmitted diseases" OR "sexually transmitted infections" OR sti or std). The limiters for this search were publication date 2016 to 2021 and type: intervention. The publications relevant to the project in the TRIP database were found by using the following

Table 2.1

*Literature Search Results*

Database Restrains	Keyword(s)	Limiters	Date	Results	Relevant Evidence
CINAHL	("increas* condom use" or "condoms utilization") AND ("sexually transmitted diseases" or "sexually transmitted infections" or sti or std)	English Peer reviewed	2016 – 2021	224	5
APA PsycInfo	("increas* condom use" or "condoms utilization") AND ("sexually transmitted diseases" or "sexually transmitted infections" or sti or std)	English Peer reviewed	2016 – 2021	24	1
Medline	("increas* condom use" or "condoms utilization") AND ("sexually transmitted diseases" or "sexually transmitted infections" or sti or std)	English Peer reviewed	2016 – 2021	38	0
Cochrane Library	condom AND ("sexually transmitted diseases" or "sexually transmitted infections" or sti or std)	Intervention	2016 - 2021	6	0
JBI EBP Database	("increas* condom use" or "condoms utilization") AND ("sexually transmitted diseases" or "sexually transmitted infections" or sti or std)	All	2016 – 2021	6	0
TRIP	(Title: condom*) AND ("sexually transmitted diseases" OR "sexually transmitted infections" OR sti or std)		from 2017	80	0
Hand search	MSM, PrEP, condom			1	1

keywords: (Title: condom\*) AND ("sexually transmitted diseases" OR "sexually transmitted infections" OR sti or std). A limiter used in TRIP was set to from 2016 (Table 2.1). In the final phase, reference sections of obtained articles were examined. Citation chasing was conducted as an adjunct to searching bibliographic databases. The citation search brought up one article that had not been previously identified by database search because it was published before 2016.

The search yielded 379 results of potentially relevant to the EBP project evidence (Figure 2.2). A total of 346 articles was removed for various reasons, such as geographical location, type of publication, type of intervention, and seven pieces of evidence were removed as duplicates. Available abstracts of the remaining 26 pieces of evidence were screened using the inclusion criteria. Inclusion criteria were: (a) interventions increasing condom use frequency in men, (b) condom use for STI prevention, and (c) behavioral counseling. There were no restrictions on the age of the targeted population. The studies regarding female condom use, male condom use as a form of contraception, and studies involving serodiscordant couples were excluded. Out of 19 records, 15 full-text reports were retrieved. Eight records were found unrelated to the EBP project, leaving a total of seven pieces of evidence included in the review. A summary of these can be found in Appendix B.

### **Levels of Evidence**

The level of evidence was evaluated using the JHEBPM appraisal tools (Dang & Dearholt, 2017). The appraisal toolkit mentioned above was used with permission from the Johns Hopkins Nursing Center for Evidenced-Based Practice. According to Dang and Dearholt (2017), the JHNEBPM evidence appraisal tool recognizes five levels of evidence based on study design. The final seven pieces of evidence used for the implementation of the EBP project are listed in Table 2.2. Two meta-analyses (Covey et al., 2016; Sangherian et al., 2016) and one randomized control trial (RCT) (Garcia-Retamero & Cokely, 2011) were identified as level I. Two systematic reviews (Henderson et al., 2020; Whiting) and a quasi-experimental study (Macapagal et al.,

Figure 2.2

*PRISMA Diagram of Literature Search*

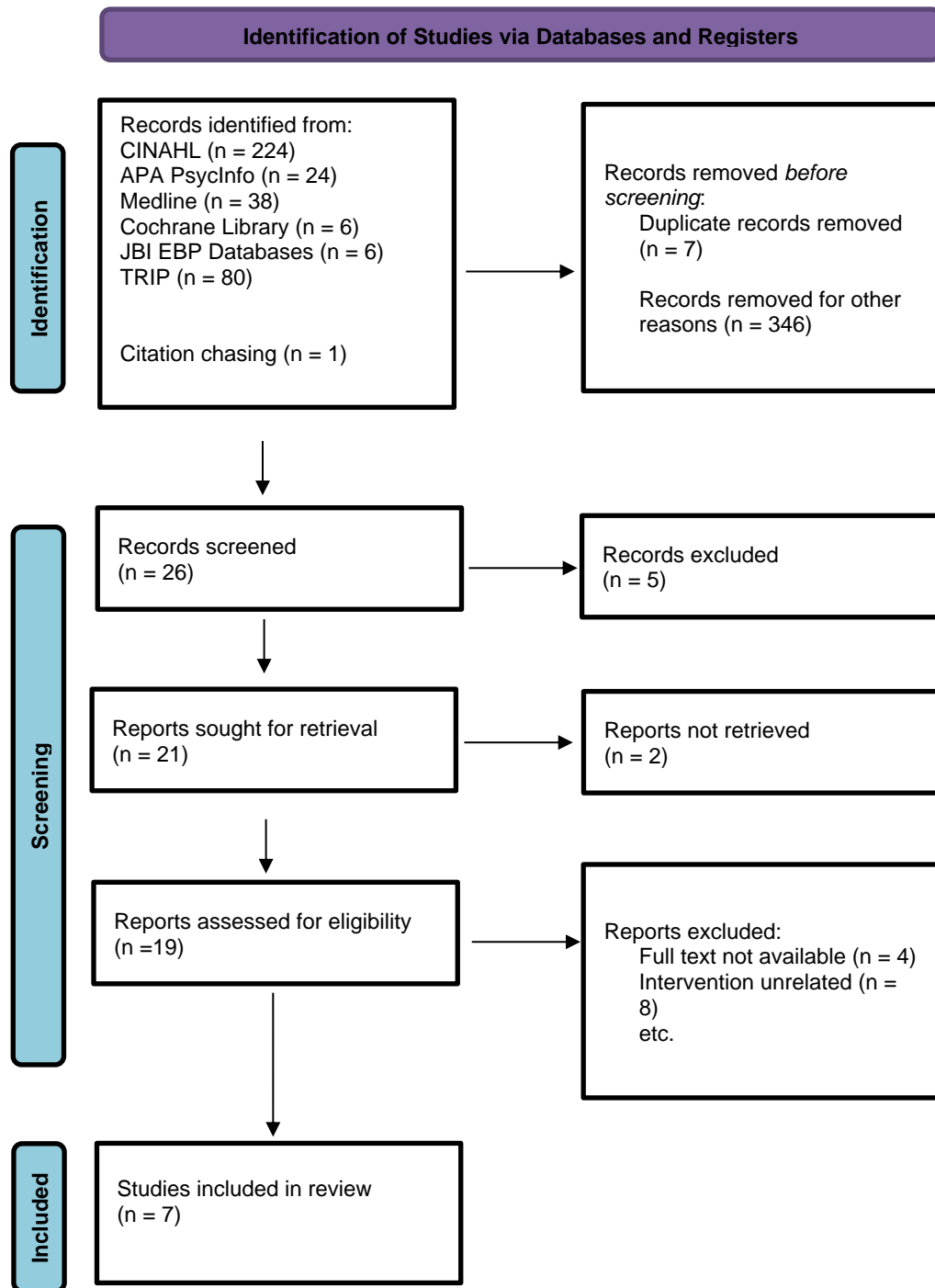


Table 2.2

*Summary of Evidence*

Author/yr	Database	Level of Evidence/Type	Quality/Tool
Covey et al. (2016)	APA PsycInfo	I / Meta-analysis	A - High/ Johns Hopkins
Garcia-Retamero & Cokely (2011)	PubMed	I / RCT	A - High/ Johns Hopkins
Sagherian et al. (2016)	CINAHL	I / Meta-analysis	A - High/ Johns Hopkins
Henderson et al. (2020)	CINAHL	II / Systematic Review	A - High/ Johns Hopkins
Macapagal et al. (2017)	CINAHL	II / Quasi-Experimental	A - High/ Johns Hopkins
Whiting et al. (2019)	CINAHL	II / Systematic Review	A - High/ Johns Hopkins
Foley et al.(2021)	CINAHL	III / Qualitative study	A - High/ Johns Hopkins

2017) were identified as level II grade A pieces of evidence. The final piece of evidence was a qualitative study at level III grade A (Foley et al., 2021).

### **Appraisal of Relevant Literature**

Further evaluation was related to evidence quality. The quality of the included studies was also evaluated by JHNEBPM tools for their validity, reliability, credibility, and applicability to the EBP project, and the grades A, B, or C were assigned based on high, good, or poor evidence quality, respectively (Dang & Dearholt, 2017). All of the selected evidence was determined to be grade A-high-quality evidence (Table 2.2) because of their consistent, generalizable results with a sufficient sample size for the study design. The studies also had adequate control, well-defined and definitive conclusions, and consistent recommendations drawn from a comprehensive literature review that includes thorough reference to scientific evidence.

### **Construction of Evidence-based Practice**

#### **Synthesis of Critically Appraised Literature**

Evidence shows that behavioral counseling is the most effective intervention for improving condom use and willingness to use condoms by MSM (Covey et al., 2016; Foley et al., 2021; Garcia-Retamero & Cokely, 2011; Henderson et al., 2020; Macapagal et al., 2017; Sagherian et al., 2016; Whiting et al., 2019). For behavioral counseling to be effective, attention needs to be given to the mode of delivery, communicator, content, and message framing.

#### **Mode of Delivery**

There is limited evidence that interventions of longer duration or a higher number of sessions are more efficacious in increasing condom use, protected sex, or STI incidence (Covey et al., 2016). Single-session interventions can produce a sustained long-term behavioral change regarding engagement in sexual health protective behaviors (Henderson et al., 2020; Sagherian et al., 2016). The studies of group interventions efficacy brought inconclusive results (Covey et al., 2016). Tailoring the intervention to a specific target group to amplify its applicability and

acceptability brought more positive effects than interventions tailored to each individual recipient (Covey et al., 2016).

### **Communicator**

There are mixed results regarding peer versus expert intervention delivery on intervention effectiveness (Covey et al., 2016). However, Whiting et al. (2019) found that interventions utilizing peer-educators were effective. In addition, in most cases, matching the person delivering the intervention according to the ethnicity, gender, or age of the recipient had a positive effect on condom use (Covey et al., 2016).

### **Content**

The information content has a positive effect on the increase of condom use or condom use intentions (Covey et al., 2016; Whiting et al., 2019). The most consistent moderator effect was the skill component that included training about condoms and intra- and interpersonal skills for younger men (Covey et al., 2016; Sagherian et al., 2016; Whiting et al., 2019). Since the use of alcohol and illicit drugs are related to high-risk sexual behavior and inconsistent condom use, Foley et al. (2021) suggest using messages containing information about STIs and the role that substance use plays in condomless sex.

### **Message Framing**

Health messages delivered during behavioral interventions have a substantial effect on health choices and behavior. Health messages can be presented in terms of benefits afforded when accepting health behavior, known as a gain-framed message, or in terms of costs associated with failing to adopt health behavior, known as a loss-framed messages (Garcia-Retamero & Cokely, 2011). For example, a gain-framed message would be: "Using a condom protects you and your partner(s) from STIs". While a loss-framed message is "Unprotected sex exposes you and your partner(s) to STIs". Evidence shows that gain-framed messages result in greater compliance with preventive measures, while loss-framed messages effectively strengthen illness-detecting behaviors such as screening procedures (Garcia-Retamero &

Cokely, 2011). Consistently, the evidence indicates gain-framed message intervention promotes consistent condom use among individuals who are on PrEP (Foley et al., 2021; Garcia-Retamero & Cokely, 2011). The research also shows a more significant influence of framed messages when visual aids, such as brochures, pamphlets, videos, websites are utilized to enhance comprehension of health messages (Garcia-Retamero & Cokely, 2011).

### **Recommendation for Best Practice**

For the practice of APRNs and other health care providers (HCPs), the evidence reviewed for this EBP project provides support for a single session behavioral intervention being an effective intervention to promote condom use (Foley et al., 2021; Garcia-Retamero & Cokely, 2011; Henderson et al., 2020; Macapagal et al., 2017; Sagherian et al., 2016; Whiting et al., 2019). In addition, findings from the studies show that using gain-framed messages could promote consistent condom use in PrEP users reporting non-monogamous sexual behavior (Foley et al., 2021). Gain-framed messages can be more persuasive in advocating preventive behaviors such as condom use and are easier to internalize (Macapagal et al., 2017). According to Garcia-Retamero and Cokely (2011), the effect of gain-framed messages on condom promotion is amplified when used concurrently with written information. Because they are expert clinicians, DNP prepared nurses are positioned to support practice changes that can improve the health of MSM by assuring that behavioral counseling is evidence-based.

## **CHAPTER 3**

### **IMPLEMENTATION OF PRACTICE CHANGE**

Graduates of DNP programs are prepared to function at the most advanced practice level, creating evidence-based strategies by implementing new knowledge to improve clinical practice, which produces optimizing health outcomes (Paplham & Austin-Ketch, 2015). The purpose of the EBP project was to evaluate the effectiveness of a short, one-on-one behavioral intervention that aimed to increase the frequency of condom use among MSM taking PrEP against HIV infection. Recent studies showed an increase in the frequency of high-risk sexual behavior and decreased frequency of condom use among the targeted population (Freeborn & Portillo, 2018; Kumar et al., 2020; Montaña et al., 2018; Ramchandani & Golden, 2019; Traeger et al., 2018). This project aimed to introduce and evaluate a new interprofessional effort that could improve health outcomes in the targeted population.

#### **Setting and Participants**

##### **Setting**

The EBP project was conducted in 4 clinics operating within a large public health system in Cook County, Illinois. The PL was a DNP student who is a nurse practitioner (NP) board-certified in family practice. The NP had over 30 years of experience in nursing, of which 3 years as a medical provider. The PL was closely cooperating with the site facilitator – Internal Medicine/Infectious Diseases board-certified attending physician who had over 21 years of clinical experience in HIV medicine, internal medicine, and epidemiology. The site facilitator's areas of expertise included HIV care and prevention, HIV co-infection, viral hepatitis, social medicine, and global health.

The PL worked on the project implementation with the PrEP Coordinator and a team of healthcare educators. The PrEP Coordinator had a Bachelor of Science degree, and she had been working with PrEP patients for almost 3 years. The PrEP Coordinator facilitates various

activities, manages resources, organizes events and services related to PrEP as an HIV prevention method, increases awareness of PrEP to high-risk patients, provides non-clinical linkage to care for individuals seeking PrEP, coordinates services related to PrEP through education and advocacy, collects data, and evaluates reports to ensure patients access to PrEP. Health educators provide HIV and STI counseling and testing, deliver health education and information regarding clinics programs and services, perform rapid HIV testing and explain test results, ensure linkage to PrEP services and STI treatment, ensure proper specimen collection, deliver effective HIV/STI prevention intervention, and document encounters in the Electronic Health Record System (EHRS).

### **Participants**

The participants of this EBP project were recruited during their 3-month PrEP follow-up appointment. The targeted population were MSM who take antiretroviral medications for PrEP to prevent HIV infection and exhibited risky sexual behavior such as a high number of sexual partners, engaging in high-risk condomless sex acts, or had had an STI in the past 12 months. Age, race, and ethnicity were not qualifying criteria. The project's sample size was 44 participants. For this project, heterosexual men, serodiscordant monogamous same-sex couples were excluded. In addition, individuals who had been diagnosed with substance abuse, dementia, mental or physical incapacitating medical conditions were excluded from the project.

### **Pre-Intervention Group Characteristics**

Demographic and outcome data were collected and recorded in the EHRS during the initial assessment conducted by a health educator. These data gathered during the initial evaluation included: (a) demographics – male, trans female, trans-male, genderqueer, gender nonconforming, unknown, unspecified, other; (b) number of different sex partners in the past two months – male partners, female partners, transgender partners; (c) a number of high-risk condomless sex acts in the past two months – MSM anal receptive, MSM anal insertive, other; (d) evidence of risk – number and type of STIs in the past 12 months; (e) condom use

willingness as a self-reported percentage of carrying condoms, and (f) self-reported percentage of condom use; (g) relationship status – single, partnership, married, open relationship; and (h) if in a relationship, HIV status of the partner. A data collection form (Appendix C) was created to collect this information from the EHRS. Information about clinic site and appointment times were noted on the data collection form, and code numbers appeared on the forms to protect patient confidentiality.

## **Intervention**

The intervention was a short, face-to-face, single-session behavioral counseling for MSM on PrEP that utilized gain-framed messages to increase knowledge levels with respect to the positive health consequences of condom use because this type of information had been shown to be effective (Foley et al., 2021; Garcia-Retamero & Cokely, 2011; Henderson et al., 2020; Macapagal et al., 2017; Sagherian et al., 2016; Whiting et al., 2019). For example, a gain-framed message such as “Condom use is a very effective way to prevent sexually transmitted infections” was used in place of a loss-framed message: “Inconsistent condom use can expose you to sexually transmitted infections” which focused on the negative effect of condomless sex. Behavioral counseling took place after the completion of the initial evaluation by a health educator. The key points of the behavior counseling are summarized in Table 3.1.

The intervention was delivered by 10 healthcare educators who had been trained by the PL. The training, which took approximately 90 minutes, was provided during a video conference. The video conference was chosen as a time-saving strategy for the PL. The training included the description of the project, the description of the intervention, key points of behavioral counseling, model language to discuss MSM sex health, documentation, and the protection of sensitive information. Health educational materials in the form of a brochure (Appendix D), which the PL had created, were used to increase message apprehension (Garcia-Retamero & Cokely, 2011). The information brochure was reviewed by the Medical Director. Once approved, the brochure

Table 3.1

Key Points Included in Behavioral Counseling

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- You will protect yourself from sexually transmitted infections
  - You will protect your partner from sexually transmitted infections
  - You will be protected from urinary tract infection
  - You will show responsibility
  - You will be able to enjoy sex “all the way” – condoms let you focus on pleasure and your partner without “mood-killing” stress
  - You can make it a part of foreplay
  - You can last longer
  - Suitable for unplanned sex (no perfect preparation)
  - Condoms come in various shapes and textures that can increase sensation for both partners
  - Condoms catch semen – no mess to clean
  - Condoms are easily accessible, inexpensive, small, and can be carried comfortably and discreetly
-

was printed by a commercial company. The PL paid for the cost of printing the brochures and distributed them to the clinics. Brochures were kept by health educators in their offices.

Consistent with the literature (CDC, 2019), a kit including a condom carrying case, condoms, and lubricant (Appendix E) was provided to the participants at the end of the intervention. The kits were assembled by PL with the help of health educators. The kits were stored in education rooms. There were 80 kits prepared - double the number of expected participants in the project.

Healthcare counselors who delivered the behavioral counseling and the brochure placed a sticker containing participant information on a data sheet next to the corresponding code to assure patient data protection (Appendix F), and these forms were kept separately from the project data. This information included: (a) full name, (b) date of birth, and (c) medical record number (MRN). This information was used by the PL to monitor the intervention process: the number of participants and interventions delivered, follow-up schedule, etc.

Patients who are on PrEP are evaluated every 3 months. At the follow-up visit 3 months later, the same data were collected to determine if the project outcomes had improved. The PL collected that data from the EHRS.

## **Comparison**

The project aimed to compare the percentage of condom carrying and the percentage of condom use by MSM taking PrEP before the project implementation with the percentage of condom carrying and the percentage of condom use in the target population 3 months after behavioral counseling delivery.

## **Outcomes**

The primary targeted outcome for this project was a behavioral change among MSM on PrEP as measured by an increase in frequency of condom use as measured by the self-reported percentage of condom use. The secondary outcome was increase in the willingness of condom use as measured by the self-reported percentage of carrying condoms. For this project, the self-

reported percentage of both the condom use and carrying condoms were compared prior to the intervention and 12 weeks after the intervention.

The sign test was used to test for a post-test difference in condom carrying behavior. Since skewness and kurtosis calculated for condom usage were both less than an absolute value of two - the Wilcoxon-sign test was used to detect statistical evidence of a difference between the pre-intervention and post-intervention periods.

## **Time**

The project implementation began in the middle of September 2021 and continued over 3 months. After that time the post-intervention data was collected from the participants returning for their follow-up PrEP visits. Therefore, the following 3 months involved the collection and analysis of the post-intervention data. A Gantt chart for the implementation of the project can be found in Appendix G.

## **Protection of Human Subjects**

The PL completed the Collaborative Institutional Training Initiative (CITI) program (Appendix H), and the certification was presented as required for Institutional Review Board (IRB) approval. There was no perceivable risk of harm to the participants receiving the intervention. The study did not include vulnerable populations such as children, pregnant women, prisoners, or institutionalized individuals.

In August 2021, the PL completed the Human Subjects Research Determination Questionnaire. Upon completing the questionnaire, Valparaíso University IRB determined that the project was not subject to IRB review. At the organization's level, the PL discussed the project with the Medical Director first. After receiving his approval, the PL met with the Chair of the organization's IRB and the Director of HIV research. Since the EBP project had a quality improvement design, it did not require IRB approval. Data regarding participants were protected to assure confidentiality. The data obtained from the project participants were recorded in a password-protected EHRS. The collected data were later extracted from the medical records and

transferred into the PL's private computer. The access to the PL's computer was fingerprint protected, and the data was encrypted and stored in password-protected file storage.

## **CHAPTER 4**

### **FINDINGS**

The EBP project was designed to determine the effect of a behavioral intervention on condom use among MSM using PrEP to prevent HIV infection. The best practice recommendations supported the use of a single session behavioral intervention that utilized gain-framed messages to promote condom use. The primary outcome of the project was to increase condom use among MSM on PrEP, which was measured by the self-reported percentage of condom use. The secondary outcome was to increase their willingness to condom use as measured by the self-reported percentage of carrying condoms. The data provided by the participants was recorded in EHMR and then transcribed into the data collection sheets. Pre- and post-intervention results of both: (a) the primary and secondary outcomes were compared, and (b) statistical analysis was performed to determine the significance of the results.

#### **Participants**

Of the 44 participants recruited for this evidence-based project, 40 individuals completed the project. Of the four (9%) lost to attrition, one person relocated to a different state, two people were lost to follow-up, and one person discontinued PrEP use. Ages of the participants ranged from 20 to 59, with a mean age of 35 (SD = 10.2) years of age. Enrolled participants had a median age of 33.5 (IQR = 13.25) years of age (Table 4.1). Over one-third (37.5%,  $n = 15$ ) self-identified as African American or Black, a little less than one-third (32.5%,  $n = 13$ ) of participants self-identified as Hispanic, and 6 participants (15%) self-identified as Caucasian or White. One participant (2.5%) self-identified as Asian and 12.5% ( $n = 5$ ) participants self-identified as other race. Eighty-two and a half percent ( $n = 33$ ) of participants considered themselves to be single. Three participants (7.5%) considered themselves in a partnership, and four participants (10%) reported being in an open relationship.

Table 4.1

*Participant Demographic Data (N = 40)*

Demographic	n	(%)
Race:		
African American	15	(37.5)
Hispanic	13	(32.5)
Caucasian	6	(15.0)
Asian	1	(2.5)
Other	5	(12.5)
Relationship status:		
Single	33	(82.5)
Relationship	3	(7.5)
open relationship	4	(10.0)

Participants stated they had an average number of 7 (SD = 7.8) sex partners with a median of 4 (IQR = 6) sex partners. The minimum number of sex partners reported was 1, and the maximum number of sex partners was 30. There was an average of 7 (SD= 7.3) male sex partners. The median number of male sex partners was 4 (IQR= 6). The minimum number of male sex partners was 1, and the maximum number of sex partners reported was 30. The average number of female sex partners was 0 (SD = 0.9). The median number of sex partners and the interquartile range were the same, zero or none. The minimum of female sex partners was zero, and the maximum number of female sex partners was five. Results were similar for transsexual sex partners. The mean number of transsexual sex partners was 0 (SD = 0.4), with 0 for the median and interquartile range and 0 for a minimum and a maximum of two transsexual sex partners. None of the participants reported having a partner who was HIV positive.

### **Changes in Outcomes**

The primary outcome of interest for this project was a behavioral change that aimed to increase the frequency of condoms among MSM on PrEP. The outcome was measured by the comparison of the self-reported percentage of condom use before and after the intervention. The secondary outcome was to increase the willingness of condom use in the targeted population measured by the self-reported percentage of carrying condoms prior to and after the intervention. Due to asymmetrical data distribution, non-parametric tests were utilized to compare the outcomes prior to and post the intervention.

### **Statistical Testing and Significance**

Pre-intervention and post-intervention data were tested for normality. Both condom usage behavior and condom carrying were judged to be not normally distributed graphically and by the Anderson-Darling, Shapiro-Francia, and Shapiro-Wilk tests ( $p < .001$ ). The kurtosis of post-test/pre-test differences of both outcomes was greater than the absolute value of two; therefore, the Wilcoxin sign test was used to test for post-test differences in condom use and condom carrying behaviors (Gravetter & Wallnau, 2016).

## Findings

### ***Primary Outcome***

Results concerning condom usage were determined by the comparison of self-reported frequency in condom use prior to and after the behavioral counseling. Condom usage increased by 22% after the intervention (Figure 4.1). Before the intervention, condom usage averaged 51% (SD = 33.1) with a median value of 50% (IQR = 60%). Condom usage frequency ranged from 0% to 100% (Table 4.2). Twelve weeks post-intervention, condom usage averaged 62% (SD = 31.3) with a median value of 73% (IQR = 40%). Out of 40 participants, 29 (72.5%) reported an increase in condom use, 10 men (25%) reported no change, and 1 participant (2.5%) reported a decrease in condom use. There was a statistically significant difference between pre-intervention and post-intervention times ( $Z = 4.589$ ,  $p < .001$ ) (Table 4.3).

### ***Secondary Outcome***

Before the intervention, participants reported carrying condoms a little of half of the time (57%, SD = 38.2%) with a median value of 50% (IQR = 80) (Figure 4.2). Literally, half of the participants carried condoms half of the time. The condom carrying frequency ranged from 0% to 100% (Table 4.4). Post-intervention participants reported carrying condoms almost 75% of the time (74%, SD = 32.7%) with a median value of 95%. Ninety-five percent of the participants carried condoms half of the time (IQR = 50). Among 40 participants who were interviewed after 12 weeks, an increase in condom carry was reported by 23 (57.5%) men and 17 (42.5%) men reported no change in condom carry. Not a single participant (0%) decreased their frequency of carrying condoms. The Wilcoxon-sign test was used to detect statistical evidence of a difference between the pre-intervention and post-intervention periods ( $Z = 4.211$ ,  $p < .001$ ) (Table 4.5).

Figure 4.1

*Pre- and Post-intervention Frequency of Condom Use*

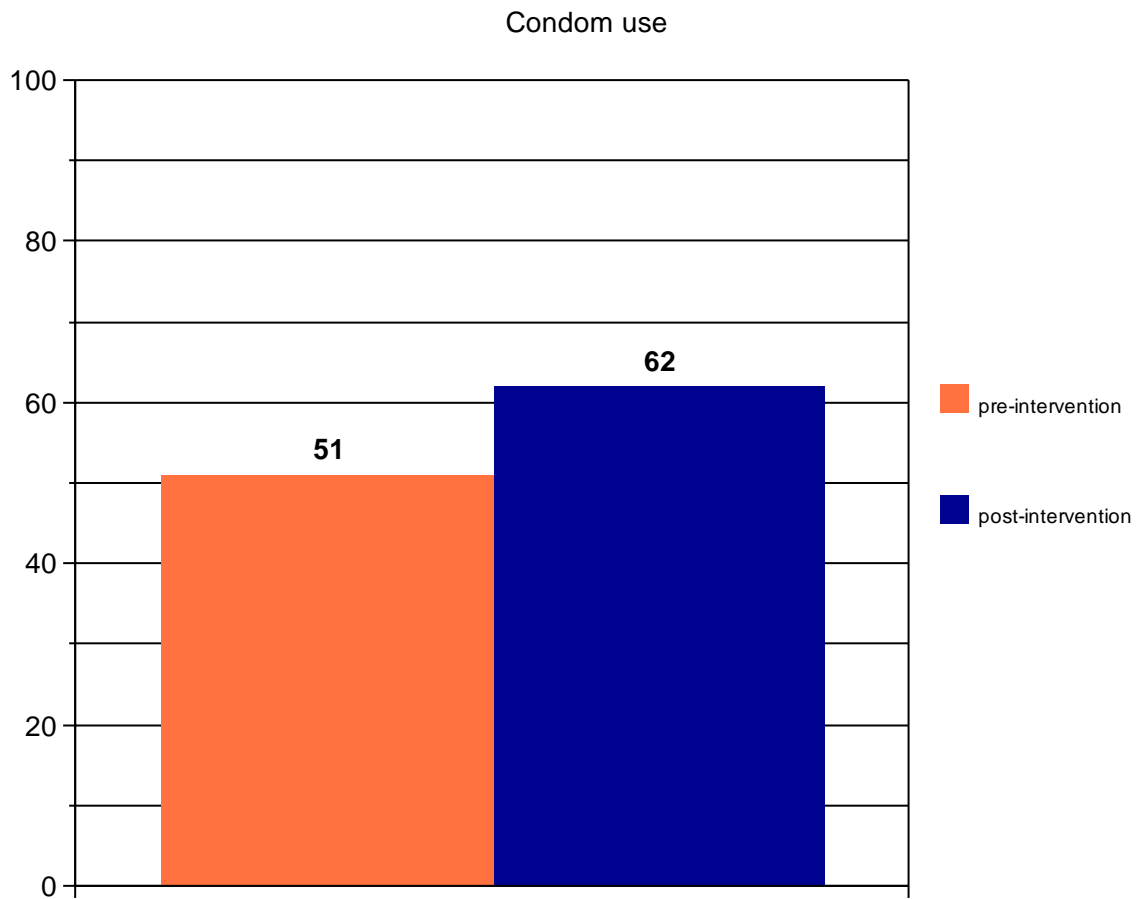


Table 4.2

*Frequencies of Condon Usage (N = 40)*

Condom Usage	Pre-intervention		Post-intervention	
	n (%)	Cumulative %	n (%)	Cumulative %
0%	6 (15%)	15%	3 (7.5%)	7.5%
10%	0 (0%)	15%	1 (2.5%)	10.0%
15%	2 (5%)	20%	1 (2.5%)	12.5%
20%	4 (10%)	30%	2 (5%)	17.5%
25%	0 (0%)	30%	1 (2.5%)	20.0%
30%	0 (0%)	30%	0 (0%)	20.0%
40%	1 (2.5%)	32.5%	0 (0%)	20.0%
50%	12 (30%)	62.5%	8 (20%)	40.0%
60 %	2 (5%)	67.5%	3 (7.5%)	47.5%
70%	2 (5%)	72.5%	1 (2.5%)	50.0%
75%	1 (2.5%)	75%	8 (20%)	70.0%
80%	3 (7.5%)	82.5%	1 (2.5%)	72.5%
90%	2 (5%)	87.5%	3 (7.5%)	80.0%
98%	1 (2.5%)	90%	0 (0%)	80.0%
99%	1 (2.5%)	93.5%	0 (0%)	80.0%
100%	3 (7.5%)	100%	8 (20%)	100.0%

Table 4.3

*Post Intervention Condom Usage Wilcoxon-sign rank test Data*

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Total	n = 40
Test statistic	454.500
Standard error	48.375
Standardized test statistic	4.589
Asymptotic Sig.(2-sided test)	.000

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Figure 4.2

*Pre- and Post-intervention Frequency of Condom Carry*

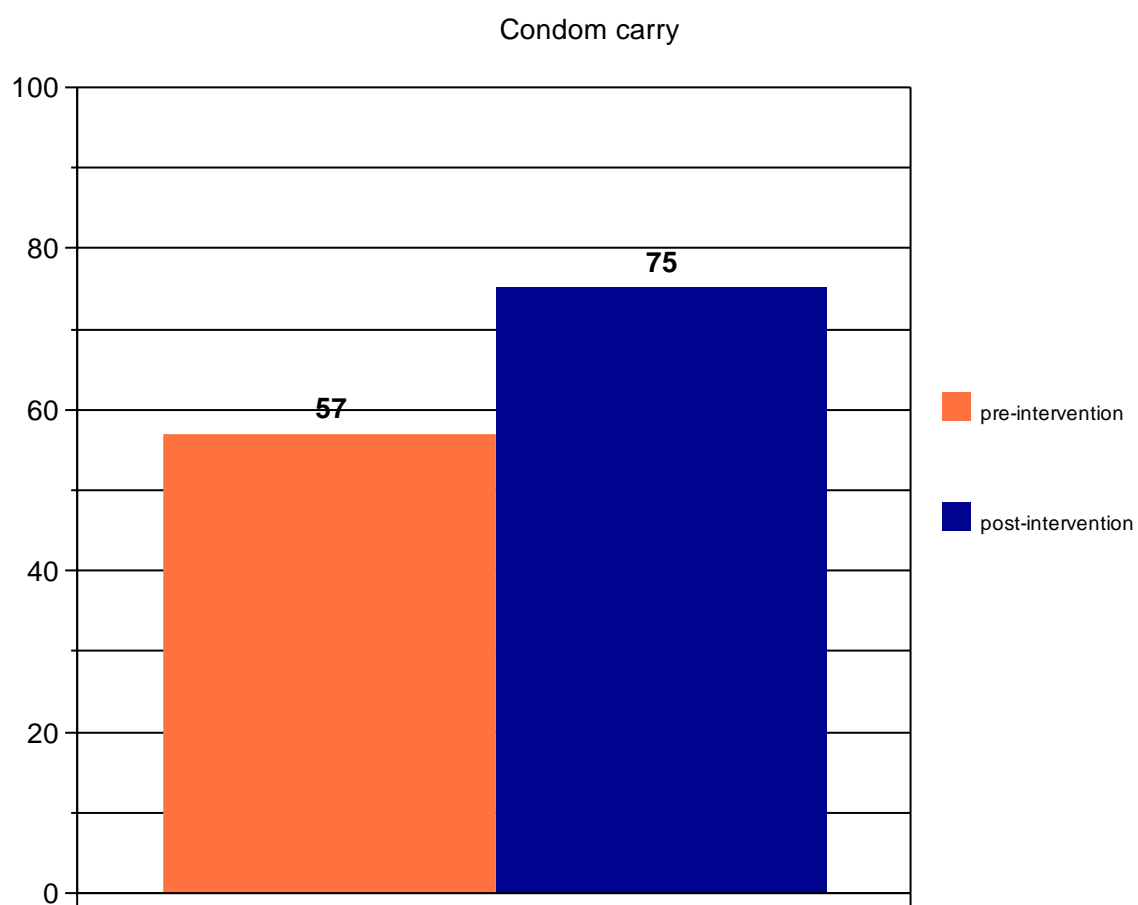


Table 4.4

*Frequencies of Condon Carry (N = 40)*

Condom Carry	Pre-intervention		Post-intervention	
	n(%)	Cumulative %	n(%)	Cumulative %
0%	7 (17.5%)	17.5%	3 (7.5%)	7.5%
10%	0 (0%)	17.5%	0 (0%)	7.5%
20%	5 (12.5%)	30.0%	2 (5%)	12.5%
30%	0 (0%)	30.0%	0 (0%)	12.5%
40%	2 (5%)	35.0%	0 (0%)	12.5% <sup>f</sup>
50%	7 (17.5%)	52.5%	9 (22.5%)	35.0%
60%	0 (0%)	52.5%	1 (2.5%)	37.5%
70%	2 (5%)	57.5%	0 (0%)	37.5%
75%	0 (0%)	57.5%	3 (7.5%)	45.0%
80%	3 (7.5%)	65.0%	0 (0%)	45.0%
90%	3 (7.5%)	72.5%	2 (5%)	50.0%
95%	1 (2.5%)	75.0%	0 (0%)	50.0%
100%	10 (25%)	100.0%	20 (50%)	100.0%

Table 4.5

*Post Intervention Condom Carry Wilcoxon-sign rank test Data*

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Total	n = 40
Test statistic	276.000
Standard error	32.772
Standardized test statistic	4.211
Asymptotic Sig.(2-sided test)	.000

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## CHAPTER 5

### DISCUSSION

The purpose of this EBP project was to identify and implement the best practice to increase the willingness and the frequency of condom use among MSM taking PrEP against HIV infection. The PL conducted an extensive literature search to identify the most current evidence-based practice in order to improve current clinical processes and patients' health outcomes. This project served to answer the following PICOT question: Regarding men who have sex in men and take antiretrovirals for pre-exposure prophylaxis to prevent human immunodeficiency virus infection (P), will a single one-on-one behavioral counseling session (I) compared to current practice protocol (C) improve their frequency and willingness of condom use (O) over 12 weeks period (T)? The findings, strengths, and limitations, as well as the implications for future practice, will be discussed in this chapter.

#### Explanation of Findings

##### ***Primary Outcome***

The project findings considerably supported the effectiveness of a short, one-on-one behavioral intervention that aimed to increase the frequency of condom use among MSM taking PrEP against HIV infection. The results of the project showed an increase of condom use from pre-intervention average use of 51% (SD = 33.1) with a median value of 50% (IQR = 60%) to post-intervention average use of 62% (SD = 31.3) with a median value of 73% (IQR = 40%). These results were consistent with supportive evidence found in the literature (Covey et al., 2016; Foley et al., 2021; Garcia-Retamero & Cokely, 2011; Henderson et al., 2020; Macapagal et al., 2017; Sagherian et al., 2016; Whiting et al., 2019). Overall, condom usage among participants increased by 22%.

Reflecting on the findings one could relate them to the transtheoretical model of behavior change (TTM). This theoretical framework was found to be effective in achieving positive health

behavior changes with a variety of health problems such as tobacco smoking, alcohol abuse, addictions, weight control, condom use, sunscreen use, etc. (Prochaska et al., 1992). This model is based on the assumption that behavior change is a process and individuals are at varying levels of motivation or readiness to change (Prochaska et al., 1992). The transtheoretical model assesses readiness for change and guides the individual through the process of change (Prochaska & Diclemente, 2005). For example, the use of gain-framed messages accompanied by a brochure was successful in moving MSM from the stage of contemplation to the stages of preparation and action as shown by their increased use of condoms.

The brochure provided to the participants brought out ten important advantages of condom use and, in that way, outweighed the disadvantages of condom use and therefore created decisional balance by increasing participants' awareness of the "pros" of the desired behavioral change. The intervention also addressed the majority of the 10 processes of change: consciousness-raising – by providing information and education, dramatic relief – by alleviating stress and anxiety caused by the potential consequences of unhealthy behavior, self-reevaluation – by making the individual realize that healthy behavior is an important element of who he desires to be, environmental reevaluation – by realizing positive effects of the health behavior on others, social liberation – by becoming aware that society supports healthy behavior.

### ***Secondary Outcome***

The secondary outcome of the project was the increase in willingness to use condoms by MSM using PrEP for HIV prevention. The secondary outcome was measured by the self-reported percentage of carrying condoms. The statistical analysis confirmed the effectiveness of the intervention implemented among the targeted population. Pre-intervention data showed that the participants were carrying condoms 57% of the time (SD = 38.2%). Half of the participants carried condoms 50% of the time (IQR = 80). Post-intervention data showed a positive change in sexual behavior: participants reported carrying condoms 74% of the time (SD = 32.7%), and

95% of participants carried condoms 50% of the time. The percentage of condom carry increased on average by 30%.

### **Strengths and Limitations of the DNP Project**

#### **Strengths**

Several different strengths were identified during the EBP project development and implementation. A major recognized strength was the relevance of this project to the clinical site and the participants. The PL noticed that there was no uniform protocol within the organization's PrEP program that addressed condom use as an effective STI prevention. Not without significance was the fact that the PL and other providers at the clinic observed a higher rate of STIs among MSM taking PrEP for HIV prevention. This observation is consistent with studies reports found in recent literature (Jansen et al., 2020; Kumar et al., 2020; Nguyen et al., 2018).

Another strength of the project was the fact that the existing settings, staffing, and clinics' workflow were utilized without the need of making any major changes. Risk assessment was an integral part of a PrEP note which allowed easy data collection and data recording in participants' EMRS. Having the data records in EMRS assured the data proper storage and protection. It also provided the PL with easy access to the records through a Virtual Private Network (VPN).

One more strength worth mentioning was the use of gain-framed health messages. The public health community commonly uses either gain-framed or loss-framed messages to effectively influence their target audience. Although loss-framed health messages such as fear appeals seem to be favored by public health professionals, the effectiveness of the message depends on the perception and thought process of the target audience (Wansink & Pope, 2014). According to Wansink and Pope (2014), loss-framed messages are more powerful in the case when people fear the losses related to their risky behavior. Due to risk compensation caused by an increased sense of protection offered by PrEP, MSM shifted towards more risky sexual behavior (Freeborn & Portillo, 2018; Kumar et al., 2020; Montaña et al., 2018; Ramchandani & Golden, 2019; Traeger et al., 2018). This change in behavior suggests that MSM taking PrEP

accepted the risk of STIs in exchange for individually perceived benefits of condomless sex. In this scenario, the use of loss-framed messages would be counterproductive.

One final strength of the project was a strong retention strategy. Recruitment and retention of the underserved population are challenging, especially if it involves monitoring the impact of an intervention (Leonard et al., 2003). At the start, there were 44 participants enrolled in the project and 40 of them remained to the end which means the retention rate was 90.9%. It is rather high considering the fact that retention rates range from 25 to 85% with most between 45 to 65% (Leonard et al., 2003).

### **Limitations**

As far as the project limitations, all the participants were recruited from four clinics within one large health system that served the uninsured and underinsured population and the population of low-socioeconomic status. Men who have sex with men who obtain PrEP from other clinics/resources could not be reached out to, and for that reason, they could not participate in the project. That, unintentionally, gave the sampling populations a homogenous character. Although grouped together into one epidemiological category, MSM is highly diversified by age, ethnicity, or socioeconomic status population. There are significant differences in HIV prevention and condomless anal sex across sociodemographic characteristics (Schnarrs et al., 2020) The small sample of participants and various levels of their knowledge regarding STI risks and condom use might have been an influential factor in how the participants reacted to and retained the presented intervention materials.

The pre- and post-intervention data collection depended profoundly on retrospective self-reporting. That system could lead to data being a subject of recall bias and misreporting. Future interventions should consider the use of intensive longitudinal methods such as daily diary studies to help participants report their sexual behavior in real-time and therefore reduce self-reporting biases and improve the quality of collected data (Bolger & Laurenceau, 2013). It is also possible that the participants felt "obligated" to show improvement in condom carry and use

when reporting post-intervention data to a person who previously had delivered intervention to them. Nonetheless, some of the participants reported no changes in the frequency of condom use and carry despite receiving the intervention, which suggested that they were willing to disclose sensitive information truthfully even though their responses might have been different from what they thought had been expected from them.

Lastly, the project was limited to the resources available for the intervention development. Therefore, the brochure (Appendix D) that summarized the primary keys of the behavioral intervention was created entirely by the PL. The cost of brochure printing was also covered by the PL. Professional design and improved graphics could have made the format of the intervention more appealing to the participants.

### **Sustainability**

Sustaining the efforts of the implementation of evidence-based practice secures patients' best care and health outcomes. It also guarantees that investments made in knowledge acquisition and its translation into practice are not wasted. To promote the sustainability of the project the PL made sure the results have been disseminated to the leadership and the clinical staff. The PL discussed the evidence, the current STI incidence in the targeted population, and the outcomes of the project with the main stakeholders. The EBP project was in alignment with the existing organization's mission, goals, and standard operating procedures which bodes well for the project's sustainability. As mentioned previously, the project utilized the existing workflow and, therefore, did not increase the staff's workload burden. According to Durham et al. (2019), an intervention that does not add to the staff's workload and is seen by the staff as valuable has a higher chance to be adopted and sustained.

Despite the positive outcomes of the project, it is not clear if the intervention will be adopted as best practice. One of the barriers is the organization's complexity which requires the change to be adopted on both individual and institutional levels. Another issue is the recent introduction of injectable PrEP which requires 2-month follow-ups, and research on long-acting

injectable PrEP that would require only 2 clinic visits per year. These new developments may require reevaluation and changes to the intervention to assure its effectiveness.

### **Relevance for EBP Model**

The JHNEBP model was used to guide the development, evidence selection, and translation of this EBP project. The JHNEB model focuses on clinical problem-solving and offers user-friendly tools to guide its use (Dang & Dearholt, 2017). The first five steps of phase 1 of the model allowed the PL to identify the practice problem. The utilization of the PICOT method helped to develop an answerable and researchable question, describe the population of interests, formulate the desired change in practice, and define the anticipated outcome. In this phase, the stakeholders were identified, including a nurse practitioner, health educators, medical assistants, and the patients. The meetings were held with stakeholders, an interprofessional team was established, and the responsibilities were assigned to each team member. During the team meeting, the supporting change in practice evidence was discussed with the key stakeholders, giving them a chance to ask questions about the project and make suggestions. The list of qualifying participants was created, and an initial medical chart reviewing was conducted.

The second phase of the model consisted of steps related to the evidence search in the literature and the evidence appraisal and synthesis. An extensive search was conducted to obtain the most current and most relevant EBP project supporting evidence. The evidence gathered was then appraised with the use of John Hopkins evidence appraisal tools. The PL shared the synthesized results with the team members to support the change in practice.

The third part involved the translation of evidence into practice. This phase required developing an intervention that leads the behavioral change in the targeted population. This part called for the collective effort and close collaboration between team members. A small-scale 3-month pilot program was conducted, introducing practice change based on the best available evidence. The necessary data was collected, and post-intervention chart reviewing performed.

Finally, the intervention outcomes were gathered and analyzed to evaluate how applied evidence improved the practice.

There are compelling strengths involving the use of JHNEBPM with this EBP project. Although the JHNEBPM was initially developed as a clinical decision-making tool for bedside nurses, it has been used for administrative, operational, or educational purposes (Poe & White, 2010). The most appealing advantage of the JHNEBPM is the fact that it simplifies the EBP process, which allows nurses quick and relevant application of current research and best practices in both inpatient and outpatient settings. In addition, the JHNEBPM includes a well-designed tool kit that equips clinicians with guidance for developing the clinical question, evidence rating, and appraisal instruments for varied types of evidence.

Another important strength of the JHNEBPM is the idea of an open system model, which means that learning and practice are not only influenced by the evidence but also by external factors and internal factors of the organization (Dang & Dearholt, 2017). As those involved moved through the PET process, they continued learning by acquiring new knowledge, gaining new skills, and improving their understanding of the problem. While moving forward through the learning and practice cycle, new insights triggered new EBP processes that lead to discovering another specific population or new practice challenges that needed to be addressed. This constant cycle of inquiry, learning, and practice always calls for searching for best evidence and practice improvement implementation what makes the JHNEBPM a dynamic and interactive process (Dang & Dearholt, 2017).

Despite its strengths, the JHNEBPM is not free from limitations. The weakness of this model is its detailed and complex framework. The openness component of the JHNEBPM can also be perceived as a weakness of the model. With various factors influencing a project itself, recognizing and addressing new issues could be helpful and time-consuming and cause the project to change altogether (Melnik & Fineout-Overholt, 2019). Considering the fact that the time for implementing the EBP project was limited to 12 weeks only, any unforeseen issues

would have jeopardized the ability to successfully complete the project in the allotted time. In addition, the 19-step process could be challenging and discouraging compared to fewer steps involving EBP models.

### **Recommendations for the Future**

The findings from this EBP project have provided valuable information regarding a single-session behavioral intervention using gain-framed messages as an effective sexual risk reduction method. In the targeted population that exhibited risky sexual behavior due to adjustments in the perceived level of risk, the intervention created a positive sexual behavior change by increasing the frequency of condom use and willingness to use a condom.

### **Research**

The EBP project aimed to evaluate the influence of a single short behavioral intervention with the use of gain-framed messages on attitude towards condom use among MSM who take PrEP for HIV prophylaxis. The post-intervention results were measured at a 3-month follow-up visit. The 12-week duration of the project allowed only on checking the effect of the intervention only once. It would be beneficial to continue following up with the participants to assess if the single-session intervention could result in sustained long-term behavioral change.

Another research problem is the comparison of a single session intervention versus multiple interventions. The remaining participants could be divided into two groups of which one would receive a single intervention and the other would receive the same intervention at every follow-up visit. Both groups could be reassessed regarding condom use and carry at 3-month intervals. The findings could be used to answer the question of whether repeated intervention creates stronger behavioral modification resulting in higher STI risk reduction.

### **Education**

Sexually transmitted infections are still a significant public health problem in the US. Nurses constitute the largest health provider group and work in a variety of healthcare settings such as hospitals, outpatient clinics, schools, etc. They have a unique opportunity to promote

healthy sexual behavior and reduce STI frequency. There is a space in nursing education for affirmative and effective behavioral counseling. Counseling that would not only cover the signs and symptoms, and treatment, but also the prevention of the most common STIs such as chlamydia, gonorrhea, HPV, genital herpes, syphilis, and HIV/AIDS. Nurses need to learn about evidence-based counseling methods, modes of information delivery, and the context dimension that make STI prevention and STI incidence reduction most successful at increasing protected sex through consistent condom use.

In 2018, the American Nurses Association (ANA) issued a statement recognizing the nurses' obligation to provide competent and culturally sensitive care and advocate for lesbian, gay, bisexual, transgender, queer, or questioning (LGBTQ+) populations. Unfortunately, research shows that nurses lack the proper education to adequately provide safe and competent care to the LGBTQ+ community since many baccalaureate programs do not cover LGBTQ issues in their nursing curriculum (Eickhoff, 2021; Kroning, 2018). Nursing schools in the US report spending about 2 hours discussing LGBTQ+ health-related topics throughout baccalaureate nursing programs (Lim, Johnson & Eliason, 2015). Graduate-level nursing programs also failed to include adequate LGBTQ+ related education in advanced degree nursing curricula (Sherman et al., 2021). Including LGBTQ+ specific issues in nursing education plays a crucial role in addressing barriers and disparities in healthcare in that population.

### **Conclusion**

Our society faces many health issues that require the implementation of EBP in both clinical settings and public health. Many of them aim to create behavioral change and promote healthy lifestyles in specific populations. Nurses with a doctorate in nursing have the knowledge and skill necessary to translate research into practice. A nursing doctoral degree allows a better understanding of coordinated sets of activities needed to design interventions that guide health professionals to implement a change considered to be best practice.

Sexually transmitted infections prevention requires the adaptation of effective behavioral interventions that create positive condom use outcomes. The results of this DNP student-led project support the effectiveness of a short, face-to-face, single-session behavioral counseling for MSM on PrEP that involved gain-framed messages to increase knowledge levels with respect to the positive health consequences of condom use. Statistical significance was found regarding the increased frequency of condom use and condom carry. A single-session behavioral intervention saves resources and helps improve retention which could be a problem in multi-session program design. As the project results showed, single-session counseling can create a positive behavioral change among MSM using PrEP if the appropriate content and format are implemented.

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## **BIOGRAPHICAL MATERIAL**

### **Marek J. Piszczatowski**

Mr. Piszczatowski graduated from the School of Nursing in Bialystok, Poland with an associate degree in the science of nursing in 1989. He worked in intensive care settings and operating room at Medical University Hospital and Children's Clinical Hospital in Bialystok at Medical University Hospital and Children's Clinical Hospital in Bialystok. In 1993 he enrolled in a program at the School of Anesthesiology and Intensive Nursing Care and graduated in 1995 as a Nurse Anesthetist. He worked as a Nurse Anesthetist until he immigrated to the United States in 1996. In 2012 Mr. Piszczatowski obtained his nursing license in the state of Illinois. In the same year, he returned to school for his master's degree. In 2015 he graduated from Walden University and was certified through the American Nurses Credentialing Center as a Family Nurse Practitioner. Since 2018, Mr. Piszczatowski has been practicing as a nurse practitioner at the Ruth M. Rothstein CORE Center, providing primary and specialty care to people living with HIV/AIDS. Additionally, he is an Assistant Professor at Oak Point University in Chicago, where he teaches nursing. Mr. Piszczatowski was inducted to Phi Theta Kappa International Honor Society in 2002 and Sigma Theta Tau Honor Society of Nursing in 2014. He was also recognized for his humanitarian work during the 1991 Persian Gulf War by being awarded the Kuwait Liberation Medal by King Fahd ibn Abdulaziz of Saudi Arabia. Mr. Piszczatowski is currently attending Valparaiso University in Valparaiso, Indiana to earn his Doctor of Nursing Practice degree with an anticipated graduation date in May 2022.

## ACRONYM LIST

AACN: American Association of Colleges of Nursing

ANA: American Nurses Association

APA: American Psychological Association

APRN: Advanced Practice Registered Nurse

CAI: condomless anal intercourse

CDC: Centers for Disease Control

CINAHL: Cumulative Index of Nursing and Allied Health

CITI: Collaborative Institutional Training Initiative

DNP: Doctor of Nursing Practice

EBP: Evidence-Based Practice

EHRs: Electronic Health Record System

HBV: hepatitis B virus

HCP: healthcare provider

HIV: human immunodeficiency virus

HPV: human papillomavirus

HSV: herpes simplex virus

HSV-2: herpes simplex virus type 2

IRB: Institutional Review Board

IQR: interquartile range

JI: Joanna Briggs Institute

JHNEBPM: John Hopkins Nursing Evidence-Based Practice Model

LGBTQ+ : lesbian, gay, bisexual, transgender and queer or questioning

MSM: men who have sex with men

MSW: men who have sex with women only

MRN: medical record number

NP: nurse practitioner

PEP: post-exposure prophylaxis

PL: project leader

PrEP: pre-exposure prophylaxis

RCT: randomized controlled trial

SD: standard deviation

STI: sexually transmitted infection

TRIP: Turning Research into Practice

TTM: Transtheoretical Model

US: United States

VPN: virtual private network

WHO: World Health Organization

## APPENDIX A

### John Hopkins EBP Model and Tolls Permission

## JOHNS HOPKINS EBP MODEL AND TOOLS- PERMISSION



Thank you for your submission. We are happy to give you permission to use the Johns Hopkins Evidence-Based Practice model and tools in adherence of our legal terms noted below:

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- You may not modify the model or the tools without written approval from Johns Hopkins
- All reference to source forms should include “©The Johns Hopkins Hospital/The Johns Hopkins University.”
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Would you like to join us? Group rates available, [email ijhn@jhmi.edu](mailto:ijhn@jhmi.edu) to inquire.

### **EBP Boot Camp**

EBP Boot Camp: We are offering a 5-day intensive Boot Camp where you will learn and master the entire EBP process from beginning to end. Take advantage of our retreat-type setting to focus on your project, collaborate with peers, and get the expertise and assistance from our faculty.

### **EBP Skill Build**

EBP Skill Build: This 3-day virtual workshop gives you a front-row seat to our EBP training and provides every participant with the guidance and support they need to get their EBP projects started.

## APPENDIX B

### Summary of the Evidence

Citation	Purpose	Design/Level  Quality Rating	Sample	Measurements/  Outcomes	Results/Findings
Covey et al. (2016)	To identify the mode of delivery, communicator, and contact dimension that make STI prevention interventions most successful at increasing condom use and reducing STI incidence	Meta-analysis Level: I Quality: A	37 meta-analyses inclusion criteria: published in the peer-reviewed journal since 2000, and reported moderator analysis with significance testing for at least one of the intervention futures, or sexual risk behavior, or STI/HIV incidence rates	To compare which types of interventions are associated with greater intervention effect leading to reduce the risk of STI's by increasing condom use and/or reducing unprotected sex.	Interventions targeting a specific group or tailored to enhance their applicability and acceptability to a particular group are more likely to produce positive effects. Loss-framed inducing thread/fear information produce negative, rather than positive, effects.
Garcia-Retamero & Cokely (2011)	To examine the efficacy of gain- and loss-framed health messages in promoting health behaviors relating to prevention and	Randomized control trial Level: I Quality: A	Undergraduate students (n = 744) age range 18 to 21 years old. Eligible participants had to report at least one sexual intercourse during the three months before the study.	Reported attitudes toward condom use pre-and six weeks post intervention.	Gain-framed messages induced greater adherence to condom use. Health messages emphasizing the benefits of condom use were found

	<p>detection of STI's. The second aim was to document influential factors regulating the effect of gain- and loss-framed the messages and to investigate the efficacy of visual aids on sexual health communication</p>				<p>more persuasive. Framed messages can be more influential when accompanied by visual aids.</p>
<p>Sagherian et al. (2016)</p>	<p>To estimate the efficacy of single- session, behavioral interventions in reducing unprotected sex or increasing condom use</p>	<p>Meta-analysis Level: I Quality: A</p>	<p>67 interventions (52 unique reports; n = 20,039) describing outcomes on condom use and/or unprotected sex</p>	<p>The primary outcome was overall sex risks as calculated by the combination of unprotected sex and condom use outcomes, or either condom use or unprotected sex alone. Positive effect sizes indicated increased condom use or decreased unprotected sex among participants compared to control group</p>	<p>The findings of this meta-analysis found single-session interventions to be effective in reducing STI incidents and increasing condom use.</p>

Henderson et al. (2020)	To update evidence for day US Preventive Services Task Force on the effectiveness of behavioral counseling interventions for preventing STIs	Systematic Review Level: II Quality: A	37 randomized trials and 2 non-randomized control intervention studies (n = 65,888)	Differences in STI diagnoses, self-reported condom use, and self-reported unprotected sex at three months or more after baseline	Behavioral counseling interventions were associated with reduced incidence of STI's.
Macapagal et al. (2017)	To examine the impact of gain- and loss-framed messages on sexual decision making.	Quasi-Experimental Level: II Quality: A	Male and female participants (n= 127)	The participants' ability to adopt or internalize the messages was measured using a 5-point Likert scale (1= not at all; 5= extremely)	Gain-framed messages were found to be substantially easier to internalize which was indicated by the large effect size.
Whiting et al. (2019)	To identify behavioral interventions that increased condom use behaviors and/or condom use intentions	Systematic Review Level: II Quality: A	Seven studies included in the synthesis. Inclusion criteria: peer-reviewed, written in English, full text available, intervention focused on increasing condom use or the intention to use condoms, published between January 1, 2006 and December 2016		Behavioral interventions that elicited positive associations to work condoms resulted in increased condom use or intention to use condoms. Interventions that used peer educators were found effective in increasing the likelihood of condom use.

Foley et al. (2021)	To assess suitability and acceptability of framed message intervention to increase condom use frequency with PrEP.	Qualitative Level: III Quality: A	PrEP users (n= 29) 18 years or older, HIV-negative, currently taking antiretroviral medications for PrEP, sexually active, English-speaking, mentally capable, agreed to be audio-recorded.	Self-rated motivation to use condoms with PrEP assessed on the Likert scale (1= not at all strong to 5= extremely strong) and relative frequency of condom use assessed using 6-point Likert scale (1= never to 6= every time)	Participants in the gain-framed group achieved greater educational effects in comparison to the lost framed group. Gain-framed message intervention created a larger effect on condom use motivation. The study provided evidence that a gain-framed message intervention helps promote inconsistent condom use among PrEP users who report non-monogamous sexual behaviors
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## APPENDIX C

### Data Collection Sheet

Location:    CORE CTR.            AUSTIN            NORTH RIVERSIDE            BLUE ISLAND

Seen on:

Follow up appointment on:

**CODE**

	Pre-intervention	Post-intervention
Age		
Race	1. Caucasian 2. African-American/Black 3. Hispanic 4. Asian 5. Other _____	
Number of different sex partners past 2 months:	<div style="display: flex; justify-content: space-around;"> <span># male</span> <span># female</span> <span># transgender</span> </div> TOTAL	<div style="display: flex; justify-content: space-around;"> <span># male</span> <span># female</span> <span># transgender</span> </div> TOTAL
Number of high risk condom-less sex acts past 2 months:	#	#
Evidence of Risk:	# STD in the past 12 months:	# STD in the past 12 months:
Carries condoms: % of the time		
Condom use: % of the time		
Relationship status:	<div style="display: flex; justify-content: space-around;"> <span>Single</span> <span>Partnership</span> </div> <div style="display: flex; justify-content: space-around;"> <span>Married</span> </div> <div style="display: flex; justify-content: center; margin-top: 10px;"> <span>Open relationship</span> </div>	<div style="display: flex; justify-content: space-around;"> <span>Single</span> <span>Partnership</span> </div> <div style="display: flex; justify-content: space-around;"> <span>Married</span> </div> <div style="display: flex; justify-content: center; margin-top: 10px;"> <span>Open relationship</span> </div>
In a relationship with HIV + partner? (circle)	<div style="display: flex; justify-content: space-around;"> <span>YES</span> <span>NO</span> </div>	<div style="display: flex; justify-content: space-around;"> <span>YES</span> <span>NO</span> </div>

## Appendix D

### The Brochure



### ADVANTAGES OF USING A CONDOM

1. PROTECTS YOU FROM STIs
2. PROTECTS YOUR PARTNER(S) FROM STIs
3. PROTECTS YOU FROM URINARY TRACT INFECTION
4. LETS YOU ENJOY SEX "ALL THE WAY" BY ALLOWING YOU TO FOCUS ON YOUR OWN AND YOUR PARTNER'S PLEASURE WITHOUT STRESS (THAT COULD BE A "MOOD KILLER")
5. SHOWS YOU AS A RESPONSIBLE, TRUSTWORTHY PERSON
6. CAN MAKE YOU LAST LONGER
7. CAN MAKE SEX MORE FUN IF YOU MAKE IT A PART OF FOREPLAY
8. RIBBED, STUDDED, OR OTHER TEXTURED CONDOMS CAN ENHANCE SEXUAL PLEASURE
9. IT IS SUITABLE FOR UNPLANNED SEX (NO PERFECT ANAL SEX PREPARATION)
10. IT CATCHES SEMEN - NO MESS TO CLEAN

And besides all that, condoms are easily accessible, inexpensive small, and can be carried comfortably and discretely.

## APPENDIX E

### Condom Carry Case, Condoms and Lubricant Kit



## APPENDIX F

### Coding sheet

The sticker	CODE
	001
	002
	003
	004
	005
	006
	007

## APPENDIX G

### Gantt Chart

PROJECT TITLE: Behavioral Intervention to Increase Condom Use Among Men Who Take Pre-Exposure Prophylaxis and Have Sex with Men																																									
PROJECT LEADER: Marek J. Piszczatowski																																									
TASK	Assign ed to	June 2021				July 2021				August 2021				September 2021				October 2021				November 2021				December 2021				January 2022				February 2022				March 2022			
		WEEK				WEEK				WEEK				WEEK				WEEK				WEEK				WEEK				WEEK				WEEK							
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4								
Identifying potential projects	Project Leader																																								
Identifying and meeting stakeholder	Project Leader																																								
Project design/ PICOT	Project Leader																																								
Assembling the team	Project Leader																																								
Project developmen t	Project Leader																																								
Team training	Project Leader																																								
Project implementa tion	Health educat ors																																								
Data collection	Team																																								
Data evaluation	Project Leader																																								
Disseminati on of the results	Project Leader																																								

## APPENDIX H

### CITI Certificate



Completion 21Apr  
Expiration N/  
Record 313726

This is to certify

**MAREK**

Has completed the following CITI Program

**Group 1: Social Behavioral Educational**  
(Curriculum )

**Group 1: Social Behavioral Educational**  
(Course Learner)  
**1 - Basic**  
(Stage)

Under requirements

**Valparaiso**

Not valid for renewal of  
through

**CITI**  
Collaborative Institutional Training Initiative

Verify [www.citiprogram.org/verify/?w624a17f6-3a57-4b1d8b9df-](http://www.citiprogram.org/verify/?w624a17f6-3a57-4b1d8b9df-)