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Substance Use Screening, Brief Intervention, and Referral to Treatment (SBIRT) in Pregnant Women Living with HIV

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Documentation of Mastery of DNP Program Outcomes

Final Manuscript

Substance Use Screening, Brief Intervention, and Referral to Treatment (SBIRT) in Pregnant Women Living with HIV

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Abstract

TITLE: Substance Use Screening, Brief Intervention, and Referral to Treatment (SBIRT) in Pregnant Women Living with Human Immunodeficiency Virus (HIV)

BACKGROUND: According to the 2018 National Survey on Drug Use and Health, 5.4%, 9.9%, and 11.1% of pregnant women reported use of illicit drugs, alcohol, and tobacco, respectively, in the past month. In the same year, Centers for Disease Control reported 19% of new HIV diagnoses were among women. Substance use in pregnant women living with HIV increases risk of adverse outcomes for both mother and child including neonatal viral transmission and obstetrical complications. Universal screening for substance use during pregnancy identifies opportunities to implement interventions which can improve maternal and infant health.

PURPOSE: The purpose of this project is to implement standardized, universal substance use screening at a Mother Child Adolescent HIV Program's specialized obstetrics and gynecology clinic.

EVIDENCE BASED INTERVENTIONS: SBIRT is an evidence-based, comprehensive, public health approach to delivery of early intervention which identifies, reduces, and prevents problematic use of alcohol and illicit drugs. Utilizing a multidisciplinary, team-based approach, we plan to implement National Institute on Drug Abuse (NIDA) Quick Screen, a validated substance use screening tool recommended by American College of

Obstetricians and Gynecologists. Following screening, moderate and high-risk patients will receive a brief intervention and referral to substance use treatment.

EVALUATION/ RESULTS: During a 12-month period, SBIRT was universally applied to 15 pregnant women of a Mother Child Adolescent HIV clinic. The women were screened using NIDA Quick Screen and based on their responses, were stratified into risk categories for intervention if deemed necessary. Of 15 women screened, two were deemed moderate risk and none required referral. Prior to implementation of universal screening there was no standardized approach, which means there is no prior data for comparison.

Substance Use Screening, Brief Intervention, and Referral to Treatment (SBIRT) in Pregnant Women Living with HIV

Description of Clinical Problem

Substance use of any kind during pregnancy can lead to a myriad of social and medical problems for women and babies (World Health Organization, n.d.). Recent data show women are at highest risk of developing a substance use disorder during their reproductive years, which indicates women who are pregnant or about to be pregnant are at an increased risk (Forray, 2016). Data from the 2019 National Survey on Drug Use and Health (NSDUH) indicated use of marijuana has increased in all women surveyed between 2018 and 2019 but has also increased in pregnant women who were screened (NSDUH, 2020). The same survey found tobacco is the most common substance used in pregnancy at 9.6%, followed by alcohol at 9.5%, cannabis at 5.4%, and illicit drugs at 5.8% (NSDUH, 2020). Data indicate substance use in pregnancy is a critical public health concern and women need to be efficiently screened.

Perhaps one of the most vulnerable populations of women in regard to substance use are those living with HIV. Pregnancy is an extremely vulnerable time for women living with HIV. According to Center for Disease Control (Gonzalez et al., 2012), many women are diagnosed with HIV during their pregnancy, and are simultaneously struggling to cope with the new diagnosis, associated stigma, and potential impacts on interpersonal relationships. Other women reengage in HIV care because of a current pregnancy (Gonzalez et al., 2012). Substance use creates a significant challenge for women living with HIV because it contributes to low levels of engagement in treatment and poor medication adherence. Those who use substances intravenously are more than

twice as likely to stop antiretroviral therapy compared to those who do not and, in general, have a lower rate of viral suppression than those who do not use substances (Dawson-Rose et al., 2017). Furthermore, women living with HIV who are using substances have suboptimal adherence of their antiretroviral medications (Zhang et al., 2017). As most women strive to have a healthy baby, prenatal care presents a unique opportunity to address HIV, behavioral health/substance use issues, support retention in HIV care, and to optimize viral suppression (Melo et al., 2014). Women are also at high risk of falling out of HIV care following delivery, and effective behavioral health and substance use interventions have been shown to improve and support engagement in HIV primary care and treatment (Gonzalez et al., 2012).

Substance use during pregnancy is as common as many medical conditions routinely screened for in pregnancy, including cystic fibrosis, anemia, perinatal depression, gestational diabetes, or preeclampsia (Wright et al., 2016). Not only is substance use during pregnancy common, it leads to costly and adverse outcomes including, but not limited to, preterm deliveries, low birthweight, birth defects, miscarriages, antepartum hemorrhage, and lengthy antepartum and NICU admissions (Wright et al., 2016). Due to increased rates of perinatal opioid use disorder, there has been a 3-fold increase in neonatal abstinence syndrome (NAS). NAS treatment requires weeks to months in the hospital depending on severity of symptoms (Wright et al., 2016). Some long-term effects on both mother and infant can be lifelong and require routine medical follow up.

Several governmental and professional organizations offer evidence-based guidelines to minimize potential public health impacts of substance use in pregnant

women living with HIV. According to the CDC, universal screening for substance use during pregnancy identifies opportunities to implement interventions which improve maternal and infant health (Wright et al., 2016). United States Preventive Services Task Force (USPSTF) and American Congress of Obstetricians and Gynecologists (ACOG) recommend universal screening (S) for substance use during pregnancy, brief intervention (BI), and referral to treatment (RT) for those who screen positive (American Congress of Obstetricians and Gynecologists, 2017; Chasnoff et al., 1990). Screening, Brief Intervention, and Referral to Treatment (SBIRT) is an evidence-based intervention designed to identify, reduce, and prevent problematic use of alcohol and drugs. SBIRT allows for tailored services based on risk level reference. Addressing substance use helps improve medication adherence, viral suppression of the mother, and improve postpartum retention in HIV care reference.

Description of Project

The Maternal Child and Adolescent HIV Program (MCAP) at a large medical center serves women and children living with HIV. Its mission is to provide family centered and comprehensive HIV care to women, children, and adolescents. Using a multidisciplinary team of HIV specialists, the clinic provides medical care, patient education, counseling, and case management. The paper will not identify the name of the medical center to protect the identities of those it serves. The MCAP program has a specialized OB/GYN clinic for pregnant and postpartum women living with HIV. This specialized clinic is composed of an OBGYN, nurse practitioner, and licensed social workers.

Historically, clinic substance use screening and assessment was composed of provider specific questions about substance use. Lack of an evidence-based substance use policy resulted in large variation in substance use screening and assessment practices. Therefore, the clinic sought to enhance services currently provided to pregnant women living with HIV by implementing more effective universal screening, brief intervention, and referral to treatment.

The new protocol proposed involved the same social worker conducting the screening during a patient's prenatal intake appointment with the OBGYN. For the project to be successful, the company selected a new assessment tool. The NIDA Quick Screen is a questionnaire of three open ended questions related to drug, alcohol, and tobacco use (National Institute on Drug Abuse, 2012). This DNP student chose the NIDA Quick Screen because providers are familiar with it because it is used in other facilities of the hospital with success. If the patient screens negative for substance use, then screening is finished. If a patient screens positive for substance use, then screening expands into NIDA Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST) and asks specifics about lifetime and recent substance use.

This approach allowed for women to be stratified into risk zones based on their pattern of use and by provider discretion. Per SBIRT guidelines, a woman who scores 0–3 is considered low risk (no past usage of alcohol, tobacco, or other drugs, or low levels of use were stopped prior or immediately after discovery of pregnancy), has continued the offered support and remained abstinent from substances (Wright et al., 2016). The women score deemed moderate risk (4–26), which are those who have low level of usage during pregnancy or who have used high quantities of substances in their pregnancy, are

given a brief intervention, have motivational interviewing performed and will have frequent follow ups with their provider (Wright et al., 2016). Women identified in the high-risk category (>27), who are those who are actively using illicit substances in their pregnancy and meet criteria for Substance Use Disorder (SUD), are referred to specialized treatment.

Literature Review

The author conducted a literature review to inform this project. The initial literature search involved CINAHL and PubMed databases. Keywords used for this search included pregnant woman, expecting mother, SBIRT, substance use, HIV, brief intervention, reproductive health, and screening. SBIRT research specific to women living with HIV is limited. The following section reviews literature on SBIRT efficacy.

Research from Hostage et al. (2020) demonstrated SBIRT offers a standardized approach showing screening gaps and areas for improvement. Martino et al. (2018) conducted a randomized control trial (RCT) between September 2011 and January 2015 and randomly placed women using nicotine, alcohol, illicit drugs, or misusing prescription medications into two groups. One group received the standard of care and the other received electronic SBIRT. The researchers performed assessments of the two groups at one, three, and six months after a baseline was established. Implementing SBIRT decreased days of primary substance use in women and did not result in more treatment than those who received usual care (Martino et al., 2018). The implication for practice is an SBIRT tool facilitates substance use documentation and can get targeted treatment to patients in need to decrease their days of substance use.

In a cross-site evaluation of 11 sites and more than one million patients, Babor et al. (2017) employed a multimethod evaluation design to evaluate processes, cost, and outcome of implementation of SBIRT. Pre and post differences were clinically and statistically significant, showing a decrease in substance use and positive outcomes, so 67% of sites continued with SBIRT after grant funding ended (Babor et al., 2017). Notably, SBIRT also contributed to treatment equity, efficiency, and cost effectiveness.

A two-arm RCT from Dawson-Rose et al. (2017) examined effects of a computerized self-administered SBIRT intervention compared to a provider administered SBIRT intervention in an HIV primary clinic. Dawson-Rose et al. (2017) scored patients using the World Health Organization's Alcohol, Smoking and Substance Involvement Screening Test to assess Specific Substance Involvement Scores (SSIS) before intervention and then at one, three, and six months. Based on those scores, patients were stratified into low, moderate, or high- risk categories. The study concluded substance use in the patient population was near universal with moderate risk being the most common category (Dawson-Rose et al., 2017). Among patients who received in-person SBIRT invention, SSIS decreased among moderate-high risk baseline participants but increased in the baseline low risk group over six months (Dawson-Rose et al., 2017). The implication for practice is there might need to be more interventions to help support low risk patients to maintain their healthy behaviors and engagement.

In a meta-analysis of 13 RCTs from Glass et al. (2015), there was no evidence brief intervention for alcohol use was effective in increased use of referral care. Though this meta-analysis did not find SBIRT to be effective, it did show patients with higher severity of substance use and those recruited from more acute settings were more likely

to use referral services than those with lower severity scores (Glass et al., 2015). None of the studies analyzed an association between clinical outcomes and treatment use. The RCTs included in this meta-analysis were not designed with the primary focus on referral to treatment. This means there was a lack of data to evaluate whether or not referral and receipt of treatment improved clinical outcomes in brief intervention recipients. Future researchers need to include are clinical trials focusing on referral to treatment as the primary outcome and sufficiently track referral processes.

Another study from Tassiopoulos et al. (2010) looked at self-reporting of substance use in a cohort of women living with HIV compared to meconium results. The study evaluated substance use in pregnancy in Surveillance Monitoring for ART Toxicities Study in HIV-uninfected Children (SMARTT), a group of 22 clinic sites in 12 states. Mothers were enrolled after 23 weeks of gestation through 72 hours after delivery. If an infant was found to be HIV infected, the dyad was discontinued from the study and referred to HIV care. Enrolled mothers completed a substance use questionnaire and meconium was collected from their infants. Results found self-reported substance use was reliable when compared to meconium. The implication for practice is this patient demographic can be relied upon with their self-disclosure about substance use. In fact, self-reporting is an even more valuable tool for assessing substance use than meconium collection due to substances such as alcohol and tobacco not being detectable in meconium (Tassiopoulos et al., 2010). The other notable finding is use of illicit substances is low, but alcohol and tobacco exposure is relatively common in pregnancy.

Research on effects of recreational drug use on medication adherence among women is scant. A multicenter RCT from Zhang et al. (2017) assessed adherence of

taking a single tablet antiretroviral (STR) versus multi-tablet antiretroviral regimen (MTR) in HIV+ women who use substances. The study found substance use other than marijuana only was associated with suboptimal medication adherence in both STR and MTR users and marijuana use was associated with suboptimum STR adherence (Zhang et al., 2017). This is relevant for practice because substance use was found to be connected to issues with medication adherence in general. Moreover, marijuana specifically impairs STR adherence. This finding significantly impacts patient outcomes, particularly in states with legalized recreational marijuana use.

Evidence Based Practice Model

This Evidence Based Project (EBP) was framed by the IOWA model. The IOWA model is specifically engineered toward evidenced based change inclusive of the entire medical team including physicians, nurses, and allied healthcare providers. Interdisciplinary teamwork is already a value of the MCAP clinic because they rely on it to manage and optimize their patients' healthcare. Additionally, the project uses one social worker to screen patients, but other medical providers need to be kept informed on the status of screening and whether or not patients are referred to further treatment. As discussed by Hostage et al. (2020), SBIRT relies on interdisciplinary approaches to decrease days of primary substance use.

The project implemented evidence-based practice to identify HIV positive pregnant mothers who are at moderate to high risk for substance use with a universal screening tool. Before implementation, there was no standardized approach or questionnaire to identify women at risk for substance use in their pregnancy. Consequently, there was a risk of substance-using patients who were not being identified.

Lack of identification increases risk of ARV adherence which further increases risk of prenatal care adherence which further increases the risk of prenatal care adherence. This ultimately jeopardizes their adherence to prenatal care thereby risking both maternal and newborn health. One of the strengths of the IOWA model is its use of feedback loops (Doody & Doody, 2013), which allow plenty of opportunities for team-based feedback and interdisciplinary feedback. Feedback loops are essential in determining effectiveness and ease of proposed changes for involved personnel. Additionally, this model has been shown to be very effective in development of curriculums for Quality Improvement (QI) projects, EBP research and training/education, and showing positive effect in improvement projects which is the overall goal of evidence-based projects such as this. Several times over the course of the project, a DNP student was in contact with the screening social worker to inquire about progress, any suggestions for project improvement, and to offer moral support. There were also two opportunities for other members of the clinic team (e.g., physician, nurse practitioner, other licensed social workers) to offer feedback to this student. The author presented the evidence for change prior to the implementation of the project and then disseminated the data at the end. Both opportunities led to brainstorming sessions on how to improve the project moving forward.

Practice Change Process

This evidence-based project was initiated based on identified need of the Maternal, Child, and Adolescent HIV clinic in the summer of 2019. The MCAP clinic's lead social worker performed a needs assessment and received a small grant to implement SBIRT to improve substance use screening process for patients. The lead social worker

involved the DNP student and her faculty advisor to choose a validated screening tool and develop protocols for use. The author chose the National Institute Drug Abuse (NIDA) Quick Screen as the validated screening tool due to success and familiarity in other facilities. The designated social worker gave patients with a positive screening on the initial tool were given NIDA-Modified ASSIST to continue the screening. Modified ASSIST looks at lifetime substance use and scored patients in one of three categories based on their assessed risk level. The author chose the IOWA model as the framework for the project. The hallmarks of the IOWA model are interdisciplinary and feedback foci. Because this project relied heavily on teamwork and constant communication between MCAP providers and this student, it seemed an appropriate model.

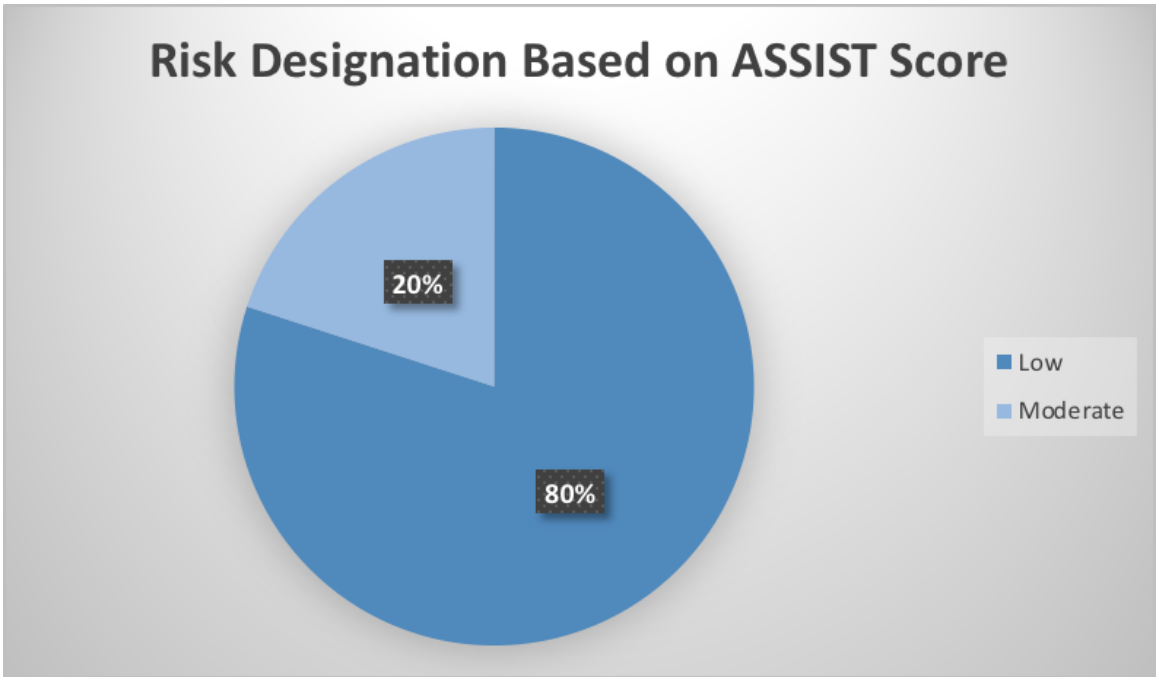
The author presented the clinical benefits of implementing SBIRT to the clinic's social workers, physicians, and nurse practitioner to receive their support and inform them of upcoming changes. The project then obtained approval from the hospital's Institutional Review Board (IRB) and university-affiliated IRB prior to implementation. The clinic designated a specific social worker to perform SBIRT on all the clinic's patients during their initial prenatal appointment. Implementation began in January 2020 and continued through January 2021. At three, six, and nine months I asked for feedback from designated social workers to make any changes or adjustments based on her feedback. The feedback centered on trying to gain access and information from referral sites. Due to being overwhelmed with impacts of COVID-19, referral sites were requiring contact from prospective patients and not the clinic. The DNP student attempted contact with referral sites also but was unsuccessful. The author collected data in January 2021 and a stakeholder presentation was performed in March 2021 to disseminate results.

Data Analysis

Between January 2020 and January 2021, all 15 of the clinic's pregnant patients were included in screening. They ranged from 21–38 years old. Variables assessed included age, screening results, and whether or not they were referred to specialized treatment if deemed high risk. No patients were deemed high risk, 20% (three of 15) were moderate risk, and 80% were assessed as low risk (see Figure 1).

Figure 1

Risk Assessment

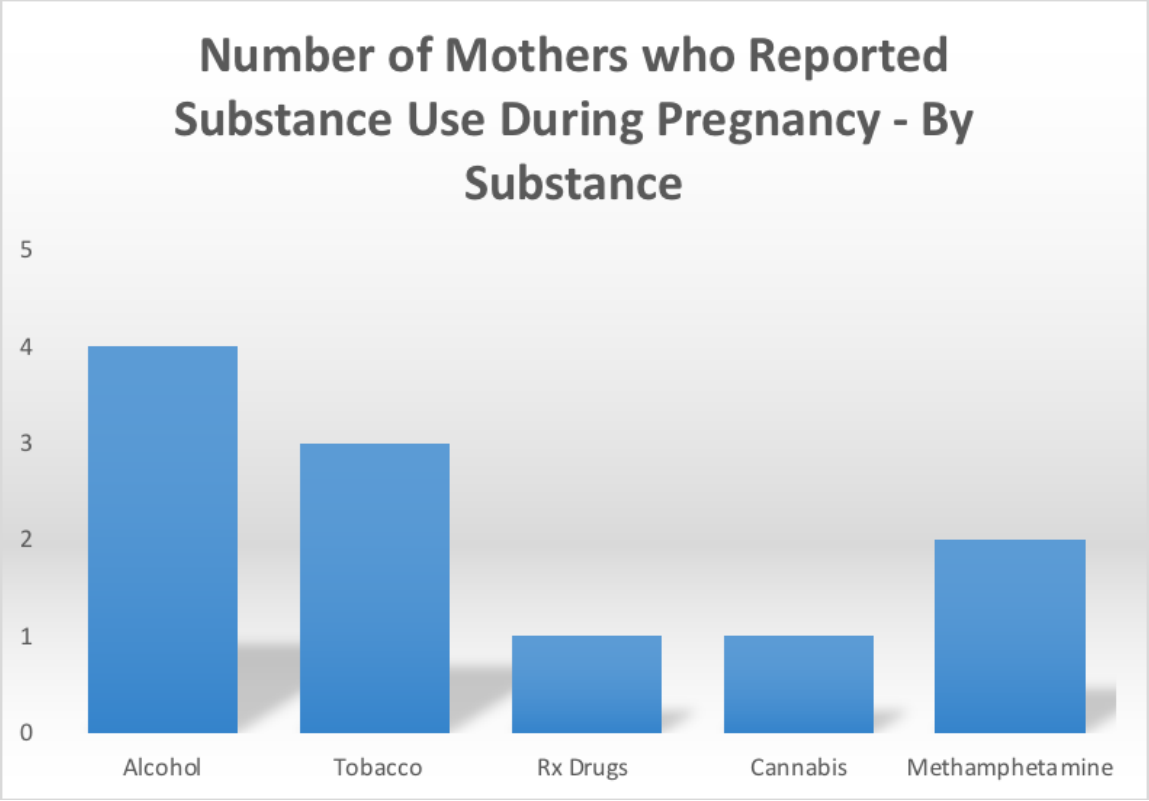


The Modified ASSIST identified four patients who used alcohol during their pregnancies and three patients who smoked cigarettes (see Figure 2). Social Worker documentation clarified these patients had stopped smoking upon discovering they were pregnant but screened positive due to NIDA assist's assessment of recent and lifetime use. Two patients indicated methamphetamine use and one was using marijuana with no intention of quitting. Patients who admitted to methamphetamine and marijuana use

scored as moderate risk and ultimately scored under the threshold for referral to treatment.

Figure 2

Substance Use Scores During Pregnancy



Cost-Benefit Analysis

The financial benefit of SBIRT implementation is mainly looked at in terms of cost avoidance. By avoiding consequences of substance use, there is a cost savings for patients and hospital systems alike. One meta-analysis considered costs of HIV medication nonadherence and found patients spent anywhere between $1,300 and $2,000 per month on nonadherent treatment depending on their viral load, which translates to a range of $16,957–$30,068 per year (Gonzalez et al., 2011). That is not an insignificant

amount to most people, let alone when raising children. Another study showed applying SBIRT was associated with a general reduction in Medicaid costs per member, per month of $366 for those who received a referral and $542 per member, per month for those who received only a brief intervention (Estee et al., 2010). The same study also showed SBIRT has potential to reduce resource consumption among Medicaid patients in hospitals.

Other prospective costs prudent to avoid are those associated with maternal and neonatal complications. Between 2006 and 2012, rates of maternal and neonatal hospitalizations related to substance use increased 33% and 71%, respectively (Agency for Healthcare Research and Quality, 2015). It is safe to assume rates have steadily increased in the near decade since. The same study showed costs of neonatal stays increased by 135% over that time frame from $253.4 million to $594.6 million and cumulatively to $944 million for mothers and neonates (Agency for Healthcare Research and Quality, 2015). Of maternal hospital stays related to substance use in 2012, one-third involved marijuana use and one-fourth involved opioids (Agency for Healthcare Research and Quality, 2015). This supports use of a validated screening tool to identify which substance is being used and how frequently to treat patients properly and avoid unnecessary and costly complications.

The benefit of implementing SBIRT is not solely about cost avoidance. American Medical Association (AMA) has approved several billing codes for SBIRT reimbursement. Reimbursement ranges from $24–$48 for 15 min screenings (American Society of Addiction Medicine, 2017). The screening tool is free to use and, other than one hour for staff training offered during lunch and dedicating a social worker to

administering screenings, there is no cost to continue with SBIRT once implemented. Overall, it is a cost-effective way to improve maternal and neonatal outcomes.

Discussion, Challenges, and Implications

This section will review discussion, challenges and implications of this project. There were significant challenges to implementation of this project. There were significant challenges to implementation of the project, such as the global pandemic. We did not expect issues such as remote versus in person assessments, cannabis use, COVID-19 impact on referral sites, and comfort level of IRB presented issues. The following section will address each issue.

The first and most notable difficulty was the COVID-19 global pandemic. In March 2020, the clinic moved to a telemedicine platform. The social worker found the change from screening a patient in-person to over phone or Zoom hampered ability to form trust and patients did not fully disclose their substance use. In one instance, the social worker had a patient's chart and substance use history in front of her while conducting the screening and was aware the patient was not being honest with her answers. However, the social worker expressed in person she is able to use eye contact, therapeutic communication, and other techniques to encourage a patient to be open.

There were other implications to remote screening. For some patients, having internet access or a phone is cost prohibitive, which can make telemedicine inequitable. Many clinic patients have less access to resources and have to rely on library computers or public hotspots for internet connectivity, which is obviously not conducive for telemedicine clinical appointments (Kronenfield & Penedo, 2020). Conducting a substance use screening in an office greatly reduces risk of confidentiality being

compromised. Additionally, patients may be impacted by attending telemedicine visits at home with children or other family members present.

Another unseen complication of the global pandemic was impact on referral sites. Clinic staff has historically had difficulties communicating with referral ties prior to COVID-19, but sites became even less communicative after March 2020, likely due to an increase in volume for need in services from patients. Researchers and academics have already been discussing how COVID-19 has caused an increase in substance use and surged interest in treatment (Abramson, 2021). Patients were also impacted and voiced frustration about lack of returned phone calls and inquiries. No patients screened during this project required referral to treatment, but it is a complication deserving consideration and a strategy. Lack of communication is definitely problematic because, even prior to COVID-19, referral sites were limited to offering intakes on certain days of the month. Limited number of possible days for an intake can be difficult to plan around for women with children in traditional situations. However, delayed communication presents an even bigger challenge for mothers if sites no longer offer childcare due to COVID-19 precautions and childcare needs to be arranged quickly.

Screening for cannabis use also posed an interesting challenge. In California, cannabis is a legal substance, but it has not been federally decriminalized. This presents another difficulty because screening tools do not account for illicit substances and require a separate question. However, not following exact verbiage of a screening tool as directed can invalidate results. Proper and accurate assessment of marijuana use is important in this patient population because research is clearly showing an increase in use. The Substance Abuse and Mental Health Services Administration (SAMHSA) 2019 survey of

substance use in the past month among pregnant women showed marijuana was the only substance to have a clear increase in use from 2018 to 2019 (2020). Results also showed daily or near daily marijuana use among nonpregnant women increased by 4.4%, from 2.2 million to 2.7 million women, and in pregnant women from 35,000 to 36,000 women (SAMHSA, 2020). Women in their reproductive years are at high risk of using substances and data presented by SAMHSA not only corroborates that but shows which substances are trending upward.

No patients endorsing marijuana scored high enough for referral. However, in our final feedback session, clinic staff discussed how patients who endorsed cannabis use were often referred to Child Protective Services. These referrals caused some disconcertion between both staff and patients because marijuana use has become more commonplace, so individuals are viewing it less as an illicit drug and more as a natural alternative to pharmaceuticals. Many patients were unaware disclosing their cannabis use would trigger a CPS referral. Importantly, there is not a specific protocol pertaining to cannabis use and CPS referrals at this facility. California also does not have a clear policy about CPS referral for prenatal marijuana use. Additionally, the lead OB/GYN of the clinic does not consider marijuana to be as concerning as other illicit drugs and he does not routinely follow up on cannabis use in his patients.

The project highlighted this wide variation in clinical practice and could be followed up on by a future student. Although more research needs to be done about consequences of cannabis use in pregnancy, current meta-analyses have linked prenatal cannabis use to low birth weight and preterm labor (Zhang et al., 2017). Potential impacts

on neurocognitive and behavioral problems are unknown although several researchers have pointed toward deleterious sequala (Jaques et al., 2014).

Another challenge involved the organization's Human Research Protections Program and IRB. Given how vulnerable this population is, IRB was very rigorous in ensuring patient's protected information stayed confidential. Initially given "exempt" status, the clinic supervisor requested IRB was made aware the DNP student was no longer an employee of the facility to see if this was still acceptable. Several IRB administrators were unfamiliar with EBP projects and thus unsure whether or not we were conducting research. To ensure IRB administrators were comfortable, we were only given deidentified variables of age, SBIRT score, and whether or not the patient was referred for further treatment.

A limitation to analyzing project outcomes was the previous screening system was provider specific and not universal. Thus, there was no pre data to compare findings. In addition to a very small sample size (which does not matter with EBP), data collected were much more limited to original outcome variables, birth outcomes, postpartum follow up SBIRT scores, and viral loads.

In conclusion, substance use has been shown to be a consistent barrier to HIV medication adherence. It is also attributed to costly and deadly maternal and neonatal complications and hospitalizations which have become more expensive over time. Implementing SBIRT to standardize treatment of pregnant women living with HIV is a cost effective, efficient, and evidence-based method to ensure substance use is properly assessed and treated.

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