Summer 2024

The Effect of First-Person Testimonial Versus Didactic Video Interventions on Attitudes and Behavioral Intentions Toward Buprenorphine

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THE EFFECT OF FIRST-PERSON TESTIMONIAL VERSUS DIDACTIC VIDEO INTERVENTIONS ON ATTITUDES AND BEHAVIORAL INTENTIONS TOWARD BUPRENORPHINE

By

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ABSTRACT

Emerging adults exhibit disproportionately elevated levels of substance use disorders (Substance Abuse and Mental Health Services Administration [SAMHSA], 2021), opioid misuse (SAMHSA, 2021), and opioid use (Hu et al., 2017; Jones et al., 2015) compared to other age cohorts. If left untreated, opioid misuse and opioid use disorder can lead to various negative consequences, including premature death (Strang et al., 2020). Prior research indicates emerging adults have higher opioid-related mortality rates compared to other age groups in the United States (Gomes et al., 2018). Buprenorphine, an opioid partial agonist medication, is an effective intervention for opioid use disorder (Mattick et al., 2014). However, research indicates emerging adults display poorer treatment outcomes with buprenorphine compared to other age cohorts (Dreifuss et al., 2013; Marcovitz et al., 2016; March et al., 2005; Schuman-Olivier et al., 2014b). One explanation for these poorer outcomes may be that emerging adults have more negative attitudes toward mental health treatment (Gonzalez et al., 2005) and psychiatric and substance use treatment medications (Bergman et al., 2020) compared to other age cohorts. Thus, attitudes toward medications may be an important barrier preventing emerging adults from engaging in treatment with buprenorphine. First-person storytelling (FPT), which involves individuals

sharing their lived experiences with others, is an effective intervention for modifying health-related attitudes and behaviors (Lipsey et al., 2020). This study involved a novel investigation of testing a fictionalized FPT video intervention versus a didactic video intervention to increase positive attitudes and positive behavioral intentions toward buprenorphine among emerging adults who reported a current or resolved substance use problem. The primary investigator (PI) hypothesized participants randomly assigned to the FPT video with buprenorphine would report greater increases in positive attitudes and behavioral intentions toward buprenorphine compared to participants assigned to the didactic educational video about treatment with buprenorphine. Contrary to hypotheses, participants randomly assigned to the didactic video (n = 69) reported greater increases in positive attitudes and behavioral intentions toward buprenorphine compared to participants randomly assigned to the FPT video (n = 73). This is the first study to use a FPT video to target attitudes and behavioral intentions toward buprenorphine.

INDEX WORDS: Emerging adults, opioid use disorder, buprenorphine, attitudes, behavioral intentions, first-person storytelling, didactic education

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B.S., Georgia Southern University, 2019

M.S., Georgia Southern University, 2021

A Dissertation Submitted to the Graduate Faculty of Georgia Southern University in partial Fulfillment of the Requirements for the Degree

Doctor of Psychology

THE EFFECT OF FIRST-PERSON STORYTELLING VERSUS DIDACTIC VIDEO INTERVENTIONS ON ATTITUDES AND BEHAVIORAL INTENTIONS TOWARD BUPRENORPHINE AMONG EMERGING ADULTS

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Electronic Version Approved:

May 2024

DEDICATION

This dissertation project is dedicated to my lovely fiancée, Allison Kornblatt. I love you very much, and thank you for all your patience, care, and support throughout this process.

ACKNOWLEDGMENTS

First and foremost, I want to thank my dissertation committee, Ryan Couillou, Ph.D., Brandon G. Bergman, Ph.D., and Larry Locker, Ph.D. Thank you all for your patience, mentorship, and support throughout this project. You all made this project possible.

Second, I want to thank my cohort mates who have become some of my closest friends. You know who you are. Thank you all for your friendship, support, laughs, and being willing to come over to share good food and bad reality television. I am very excited to see where our lives and careers take us.

Last but certainly not least, I want to thank my family. No matter what obstacles I face, I always know you all are in my corner. I love you all very much, and thanks for helping me navigate the tricky spots and celebrating the victories with me over the years.

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CHAPTER 1

INTRODUCTION

Rationale

Nearly 40.3 million individuals in the United States of America (U.S.) 12 years of age or older met criteria for a substance use disorder (SUD) in 2020 (SAMHSA, 2021). Compared to adolescents and adults 26 years of age and older, emerging adults aged 18 to 25 years had the highest percentage of illicit drug use disorders (SAMHSA, 2021). Moreover, emerging adults displayed the greatest levels of past-year opioid misuse (SAMHSA, 2021). These data indicate that SUD and opioid misuse are disproportionately prevalent among emerging adult populations.

Across time, emerging adults have exhibited significant increases in opioid use. For instance, emerging adults demonstrated a 108.6% rise in past-year heroin use from the 2002 to 2004 period to the 2011 to 2013 period (Jones et al., 2015). In this study, emerging adults displayed the greatest increase in past-year heroin use compared to all other age groups (Jones et al., 2015). Among individuals in the U.S. who engage in non-medical use of prescription opioids, emerging adults displayed the highest rates (7.6%) of use compared to adults between 26 and 34 years of age (6%) and adolescents (4.8%; Hu et al., 2017).

Untreated opioid use disorder (OUD) can potentially lead to a host of adverse consequences. At a societal level, OUD and fatal opioid poisoning cost the U.S. $1.02 trillion (Florence et al., 2021). These costs include healthcare, OUD treatment, legal system expenses, lost productivity, and death due to opioid misuse and OUD. Of note, nearly 85% of the societal costs are due to lowered quality of life due to OUD ($390 billion) and death due to opioid poisoning ($480.7 billion; Florence et al., 2021).

At the individual level, opioid misuse and OUD are associated with many potential adverse outcomes. If left untreated, individuals with OUD can face a host of negative consequences, such as opioid poisoning, premature death, chronic infections (e.g., contracting human immunodeficiency virus or hepatitis C; Mathers et al., 2008; Strang et al., 2020; Wang et al., 2011), and lower levels of educational attainment (Ellis et al., 2020). Younger adults, including emerging adults, have disproportionately higher opioid-related mortality rates compared to other age cohorts in the U.S. (Gomes et al., 2018). Prior to intake, emerging adults display increased symptoms severity (e.g., co-occurring mental health concerns) and consequences (e.g., legal, employment) compared to other age cohorts (Peck et al., 2020; Schuman-Olivier et al., 2014a).

Medical interventions, such as opioid receptor partial-agonist treatment with buprenorphine, are effective treatments for OUD and significantly lower the risk of continued illicit opioid use, overdose, and premature termination of treatment (Marsden et al., 2017; Mattick et al., 2014; Sordo et al., 2017). However, emerging adults, when compared to other age cohorts, exhibit worse treatment outcomes with buprenorphine (Dreifuss et al., 2013; Marcovitz et al., 2016; March et al., 2005; Schuman-Olivier et al., 2014b).

Prior findings indicate that young adults compared to older adults have more negative attitudes toward mental health treatment in general (Gonzalez et al., 2005). Additionally, in a more recent study focusing on attitudes toward OUD medications among individuals who have resolved a substance use problem, emerging adults aged 18 to 29 years compared to older adults reported more negative attitudes toward substance use and psychiatric medications broadly, including OUD medications (Bergman et al., 2020). Thus, negative attitudes toward OUD medications, including buprenorphine, are potentially an obstacle to utilizing potentially life-

saving treatment. Attitudinal barriers may also partially explain the vast discrepancy between treatment need and treatment utilization among emerging adults (SAMHSA, 2021).

Prior research indicates that first-person storytelling (FPS) interventions can significantly affect health-related attitudes across various medical conditions (Lipsey et al., 2020). FPS can be defined as "…narratives shared by individuals in their own words" (Lipsey et al., 2020, p. 1923). This approach goes beyond traditional didactic methods and can foster social connection between storytellers and listeners in terms of shared lived experiences and identities. Moreover, FPS overcomes health literacy barriers commonly faced by individuals who only receive didactic health-related information (Lipsey et al., 2020).

Despite buprenorphine's reported effectiveness in treating OUD (Marsden et al., 2017; Mattick et al., 2014; Sordo et al., 2017), many individuals who have resolved a prior alcohol or drug problem hold negative attitudes toward opioid agonist and partial-agonist medications (Bergman et al., 2020). These negative attitudes may serve as barriers to engagement with medication-assisted treatment (MAT) with medications like buprenorphine, especially among emerging adult populations.

Purpose

The primary purposes of the current study were twofold. First, the primary investigator (PI) aimed to examine whether participants differ on their baseline attitudes toward buprenorphine as a function of their substance use and treatment history. Second, the PI aimed to test if attitudes and behavioral intentions toward buprenorphine can change to a greater degree after exposure to a first-person testimonial (FPT) video involving buprenorphine versus a didactic education video describing treatment with buprenorphine. Additionally, this study will examine if participants' baseline attitudes and behavioral intentions toward buprenorphine differ

as a function of their childhood geographic location, current geographic location, and substance use problem resolution status. Specifically, the current study answered the following questions:

1. Do certain demographic variables (e.g., past treatment utilization, drug court participation, OUD medication use history) correlate with baseline positive attitudes toward buprenorphine among emerging adults who report history of a substance use problem?
2. Is a FPT video more effective than a didactic education video for increasing positive attitudes and behavioral intentions toward buprenorphine among emerging adults who report history of a substance use problem?
3. Do childhood and current geographic location (i.e., continuum of rural to urban locations) correlate with baseline attitudes and behavioral intentions toward buprenorphine?
4. Do participants who report an unresolved substance use problem differ from participants who report a resolved substance use problem on baseline attitudes and behavioral intentions toward buprenorphine?

Significance

Despite the success of FPS interventions for other health conditions, such as diabetes (Lipsey et al., 2020), FPS has not yet been applied to SUD populations or individuals with a history of substance use problems outside of smoking cessation (Lipsey et al., 2020). Thus, the current study aimed to fill this gap in the literature by testing a FPS video versus a traditional didactic video intervention to increase positive attitudes and behavioral intentions toward buprenorphine among emerging adults with a history of substance use problems. This is the first instance in the empirical literature where FPS interventions have been applied specifically to a sample of emerging adults and the first instance of applying a FPS intervention to concerns

related to OUD. The results of this study may inform future brief interventions targeting attitudes and behavioral intentions toward medications for treating OUD. Interventions aiming to modify attitudes toward buprenorphine and other OUD medications may lead to greater service utilization and successful OUD treatment outcomes among emerging adults.

LITERATURE REVIEW

Emerging Adults with OUD

Theory of Emerging Adulthood

Arnett (2000) proposed emerging adulthood as a distinct phase of human development. Emerging adulthood is a period of life between the late teenage years and later adulthood that typically occurs between the ages of 18 to 29 (Arnett et al., 2014). This period of life is characterized by frequent changes and exploration of various life domains including relationships, values, and occupations (Arnett, 2000). In the U.S., demographic transitions since the mid-20th-century indicate individuals are marrying and reproducing later in life as well as spending more time pursuing higher education (Arnett, 2000; Arnett, 2005). Given that individuals in the U.S. are settling into major life roles (e.g., marriage, parenthood) in their late twenties or afterward, emerging adulthood becomes an opportunity to investigate various life options (Arnett, 2000). Emerging adulthood contains five core components, which include "identity explorations, instability, self-focus, feeling in-between, and possibilities or optimism" (Arnett, 2005; Arnett et al., 2014, p. 570).

Identity exploration refers to emerging adults' ability to experiment with various life roles, especially those involving romantic relationships, occupations, and worldviews, prior to settling down permanently (Arnett, 2000; Arnett, 2005; Arnett et al., 2014). During identity exploration, emerging adults may engage in sensation seeking, which is defined by Zuckerman

(1994) as “a trait defined by the seeking of varied, novel, complex, and intense sensations and experiences, and the willingness to take physical, social, legal, and financial risks for the sake of such experience” (p. 27). Additionally, emerging adulthood is a period of life associated with instability across life domains, including residence, work, school, friendships, and romantic partnerships (Arnett, 2005; Arnett et al., 2014).

The self-focus component of emerging adulthood refers to the opportunity between adolescence and long-term adult social roles (e.g., marriage, parenthood) where individuals can engage in decision-making free from the confines of commitments to others. This self-focus component goes together with the feeling of being in-between adolescence and complete adulthood. At this point, emerging adults are moving toward total financial independence and independent decision making (Arnett, 2000; Arnett et al., 2014). Finally, emerging adulthood is a time of great possibilities for individuals to pursue and experiment with various roles and life pathways and embrace change (Arnett et al., 2014).

Elevated substance use during this life stage (Arnett et al., 2014) can be explained through the theoretical lens of the five core components of emerging adulthood (Arnett, 2005). For instance, emerging adults may engage in substance use to alter their consciousness and to self-medicate any distress resulting from identity exploration. Moreover, the lack of stability may result in elevated levels of mood disturbances, such as anxiety and depression, and emerging adults may self-medicate to regulate their mood. Additionally, emerging adults may experiment with substances and engage in optimistic bias by perceiving themselves as less likely than the average person to have negative consequences (e.g., legal problems, development of a SUD) for substance use compared to the average person (Arnett, 2005).

Prevalence of OUD, Opioid Misuse, and Recovery Among Emerging Adults

Among emerging adults aged 18 to 25 years, nearly 286,000 or 0.9% met criteria for an OUD (SAMHSA, 2021). Furthermore, nearly 40,000 or 0.1% met past-year criteria for a heroin use disorder, and 269,000 or 0.8% met past-year criteria for a prescription pain reliever use disorder. Additionally, past-year OUD is greatest among emerging adults (0.9 percent or 286,000 individuals) and adults 26 years of age or older (1.1 percent or 2.3 million people) when compared to adolescents (0.3 percent or 80,000 individuals; SAMHSA, 2021). Past-year opioid misuse is greater among emerging adults aged 18 to 25 (4.1 percent or 1.4 million individuals) compared to adolescents aged 12 to 17 (1.6 percent or 396,000 individuals) or adults over 26 years (3.5 percent or 7.7 million individuals; SAMHSA, 2021).

According to the National Recovery Study (NRS), which was a nationally representative study of adults in the U.S. who have resolved an alcohol or drug problem, approximately 22.35 million Americans have resolved a past substance use problem, and 46% of these individuals self-identify as a person in recovery (Kelly et al., 2017). Among the sample, emerging adults aged 18 to 24 years were the least likely to adopt a recovery identity compared to older age groups (Kelly et al., 2018). These data are consistent with more recent findings that emerging adults aged 18 to 25 years are at a lower likelihood of perceiving themselves to be in recovery compared to adults 26 years and older (SAMHSA, 2021).

SUD Treatment Need among Emerging Adults

According to the SAMHSA (2021), need for treatment is defined by an individual meeting past-year diagnostic criteria for a SUD or reported past-year receipt of SUD treatment at a specialty facility. Nearly 8.2 million young adults needed SUD treatment in 2020. Compared to adolescents (6.4%) and adults older than 26 years (14.3%), a greater percentage of emerging

adults (24.6%) demonstrate a need for substance use treatment. However, despite the great need for substance use treatment among emerging adults, only 445,000 or 1.3% of emerging adults had some type of past-year substance use treatment. Despite greater need, compared to older age cohorts, emerging adults report a lower perceived need for treatment (SAMHSA, 2021). As displayed by these data, there is a tremendous gap between treatment services needed and treatment services provided for emerging adults with a SUD, such as OUD.

Clinical Recovery Support Services for Emerging Adults

As stated in the previous section, emerging adults exhibit disproportionately elevated levels of OUD and opioid misuse compared to other age cohorts (SAMHSA, 2021). Moreover, there is a great disparity between treatment need and treatment utilization among emerging adults with a SUD (SAMHSA, 2021). Thus, developing and implementing empirically supported treatments for emerging adults with SUD is of paramount importance. Informed by other reviews of emerging adults with SUD (Bergman et al., 2016), this section of the literature review provides an overview of effectiveness research, naturalistic research, and barriers and challenges to engaging emerging adults in OUD treatment and treatment with buprenorphine.

Effectiveness Research

Given previously reported poorer treatment outcomes for OUD among emerging adults compared to older adults (Dreifuss et al., 2013; Marcovitz et al., 2016), a group of researchers attempted to overcome previously reported adverse outcomes of buprenorphine treatment (Schuman-Olivier et al., 2014b) by using a technology-assisted Interim Buprenorphine Treatment (IBT) for emerging adults (Peck et al., 2020). IBT reduces barriers to care by administering buprenorphine at clients' homes via technology-assisted dispensing and not requiring professional counseling during waitlist delays for treatment (Peck et al., 2020). Prior

research indicates IBT results in significant decreases in intravenous substance use and illicit opioid use compared to typical waitlist conditions (Sigmon et al., 2016).

Peck and colleagues (2020) compared treatment effects and outcomes across emerging and older adults receiving IBT. The authors found emerging adults reported more severe presenting concerns (e.g., legal consequences, employment issues, intravenous substance use, psychiatric symptoms) during the intake compared to older adults. However, when tested for illicit opioid use via urine drug screens at weeks four, eight, and 12, emerging adults were just as likely as older adults to test negative. Though emerging adults had more severe clinical profiles at intake, throughout treatment, they made progress in the desired therapeutic direction related to illicit opioid abstinence and study retention. Additionally, emerging adults displayed significantly greater decreases in depressive symptoms, anxiety symptoms, legal issues, and employment issues when compared to older adults (Peck et al., 2020). However, these findings may be impacted by an internal validity issue of statistical regression to the mean given the emerging adult participants exhibited more severe symptoms at intake. These results indicate that reducing typical waitlist barriers and providing technology-assisted buprenorphine access during waiting periods may improve opioid use treatment outcomes among emerging adults.

Naturalistic Research

Another crucial arm of the existing literature on substance use treatment outcomes among emerging adults consists of naturalistic studies. The Community Reinforcement Approach (CRA), which is a behavioral treatment for SUD designed to help patients access non-substance-related environmental rewards (Meyers et al., 2011), is reportedly validated for application incorporating buprenorphine or methadone treatment for adults presenting with OUD (Abbott, 2009). Welsh and colleagues (2019) compared treatment retention and outcomes using an

Adolescent-CRA (i.e., an adaptation of the CRA for adolescent populations) protocol among an emerging adult sample divided by primary substances of choice: An opioid use (OU) group and an alcohol and marijuana (MAU) use group. Contrary to prior research findings indicating poorer treatment retention and outcomes among emerging adults in OUD treatment compared to other age groups (Schuman-Olivier et al., 2014b), the OU group displayed a high level of treatment retention and desirable therapeutic outcomes comparable to the MAU group (Welsh et al., 2019). Additionally, the OU group displayed a significant decrease in opioid, alcohol, and marijuana use when assessed three months after treatment initiation, and these treatment gains were maintained through the 12-month assessment. The results of this study provide preliminary evidence that A-CRA can be adapted successfully to treat OUD among emerging adults, and future studies should adapt this approach to be used simultaneously with medication treatments, such as buprenorphine (Welsh et al., 2019).

Moreover, prior naturalistic research indicates emerging adults with OUD who self-select into residential treatment programs may fare well clinically (Schuman-Olivier et al., 2014a). Compared to emerging adults presenting with opioid misuse (OM) and no opioid use (NO), emerging adults with OUD in abstinence-based residential substance use treatment displayed greater severity of symptoms at intake, progressed equally well toward therapeutic targets (e.g., abstinence self-efficacy) throughout treatment, and exhibited a more significant decrease in psychiatric conditions compared to the OM and NO groups. Additionally, the OM group displayed significantly higher rates of outpatient session attendance compared to the other groups. At a six-month assessment, the abstinence rates for the OM group (42.5%; Schuman-Olivier et al., 2014a) were comparable to another study of emerging adults receiving treatment for OUD with buprenorphine (38%; Schuman-Olivier et al., 2014b). Further research is

warranted to compare residential treatment outcomes for emerging adults prescribed buprenorphine versus without buprenorphine.

Barriers and Challenges to Treatment for Emerging Adults

Emerging adults present with unique barriers to successfully completing treatment and entering and sustaining substance use problem resolution and recovery. These may include residential instability and financial constraints (e.g., debt, low credit scores; Elswick et al., 2018), which is consistent with theoretical propositions of emerging adulthood being a time of great change, instability, and exploration between adolescence and adulthood (Arnett, 2000; Arnett, 2005). Other challenges facing emerging adults seeking or in substance use treatment include lower levels of motivation to resolve their substance use problems (Bergman et al., 2016; Sinha et al., 2003), more limited recovery-supportive social networks (Bergman et al., 2016), and an increased likelihood of presenting with co-occurring disorders (Bergman et al., 2016; Chan et al., 2008). These challenges are unsurprising given emerging adulthood is considered a distinct developmental period marked by increased instability and other unique life stressors (Arnett, 2005; Arnett et al., 2014).

Prior research on treatment with buprenorphine indicates that emerging adults are as high as four times more likely to prematurely drop out of treatment compared to older cohorts (Marcovitz et al., 2016). Similarly, another study found that emerging adulthood status is a significant predictor of early buprenorphine treatment dropout at three months and 12 months compared to older age cohorts (Schuman-Olivier et al., 2014b). In the same study, emerging adults displayed an increased likelihood to use illicit opioids during the first three months of treatment and relapse (2014b). Prior research has demonstrated trends (March et al., 2005) and significant findings (Dreifuss et al., 2013) indicating that older age is associated with better

opioid agonist treatment outcomes. These findings may be partially explained by older adults being at an increased likelihood of having greater consequences for their opioid use, thereby increasing their motivation to change their opioid use behaviors (Marsch et al., 2005).

Additionally, research conducted among emerging adults receiving buprenorphine treatment for OUD in northern India indicates that significant predictors of poor treatment retention may include past-month intravenous substance use, receiving daily doses of buprenorphine, and active substance use among first-degree family members (Dayal & Balhara, 2017). Future research should investigate cross-cultural comparisons (e.g., U.S. versus India) to determine overlapping and differentiating predictors of treatment retention and outcome among emerging adults receiving opioid use treatment with buprenorphine.

Attitudes Toward OUD and OUD Medications

Explicit Bias Studies

Following the lead of seminal work establishing the importance of language in impacting stigmatized attitudes toward individuals with SUD (Kelly et al., 2010; Kelly & Westerhoff, 2010), researchers have continued to investigate how language impacts stigmatizing attitudes toward individuals with OUD. One prior study randomly assigned Americans to three different types of vignettes: A control vignette, vignettes depicting untreated mental illness or OUD, and vignettes depicting successfully treated mental illness or OUD (McGinty et al., 2015). The findings indicate that participants who encountered untreated heroin use desired significantly greater social distance (e.g., lower willingness to be a coworker) from individuals with OUD compared to the control group. In contrast, participants who encountered vignette characters with successfully treated heroin use and prescription opioid use reported significantly more positive attitudes toward treatment effectiveness, desired significantly less social distance, and reported

significantly lower discriminatory attitudes toward individuals with OUD compared to the control group. These findings indicate that mentioning successful treatment in recovery messaging can possibly decrease stigma and negative public attitudes toward individuals with OUD (McGinty et al., 2015).

Later research using a vignette design took into consideration the impact of intersecting gender identity, stigmatizing versus non stigmatizing language, and precipitating events (i.e., first receiving opioids from a doctor versus a friend) on attitudes toward individuals with OUD (Goodyear et al., 2018). Like prior studies (Kelly, Dow, & Westerhoff, 2010; Kelly & Westerhoff, 2010), participants reported significantly greater stigmatizing attitudes toward vignette characters with stigmatizing labels (i.e., "drug addict") compared to non-stigmatizing labels (i.e., "opioid use disorder"). To elaborate, participants reported that characters labeled as a "drug addict" were significantly more responsible for their opioid use compared to characters with an "opioid use disorder," and participants reported significantly higher levels of negative affect toward "drug addict" characters compared to characters with an "opioid use disorder." Additionally, the researchers reported interaction effects in which participants perceived female characters with "opioid use disorder" as being significantly more dangerous compared to female characters described as a "drug addict" (Goodyear et al., 2018). This interaction effect may reflect that women with OUD represent a deviation from traditional gender norms and past findings that men typically engage in more substance use, exhibit more externalizing versus internalizing behavioral problems, and are more likely to develop a SUD compared to women (Hecksher & Hesse, 2009). In general, this research further reflects the role of language in impacting attitudes toward individuals with OUD.

Attitudes Toward OUD Medications Among Recovery Populations

Individuals in the U.S. who have resolved or are seeking to resolve a substance use problem are key stakeholders in the movement toward acceptance and use of medications to treat OUD (Bergman et al., 2020). Nearly half of these individuals identify as persons living in recovery (Kelly et al., 2018). Many of these individuals also fulfill important additional roles within the addiction recovery movement, such as peer recovery support specialists (Bassuk et al., 2016) and policymakers (Bergman et al., 2020). These individuals can potentially have a tremendous influence on attitudes toward buprenorphine and other OUD medications that are crucial medical forms of recovery support services among individuals seeking to resolve an opioid problem.

Attitudes Among Individuals with OUD. After receiving detoxification services, individuals with OUD are at an elevated likelihood to resume opioid use (Amato et al., 2011; Bailey et al., 2013). Thus, linking individuals with OUD to evidence-based treatment options, including medication-assisted treatment, is crucial for supporting remission and recovery from OUD. Prior findings indicate that following discharge from detoxification services, as high as 63% (Bailey et al., 2013) to 78% (Uebelacker et al., 2016) of individuals desired some form of medication-assisted treatment for OUD, such as treatment with buprenorphine. These findings demonstrate that there is a high level of demand for medication-assisted treatment services among individuals with OUD.

Compared to methadone, prior evidence suggests that individuals with OUD possess more positive attitudes toward buprenorphine (Schwartz et al., 2008; Uebelacker et al., 2016; Yarborough et al., 2016). For instance, one prior study that sampled individuals with OUD that were both currently in treatment and not in treatment found that regardless of treatment status,

individuals expressed significantly more positive attitudes toward buprenorphine compared to methadone (Schwartz et al., 2008). There are multiple possible explanations for more favorable attitudes toward buprenorphine compared to methadone. First, buprenorphine, unlike full agonist medications, is a partial agonist, which typically decreases the chances of overdose and misuse (Bergman et al., 2020; Lutfy & Cowan, 2004). Second, buprenorphine can be a prescription office-based treatment (Fiellin et al., 2004), which increases accessibility and contrasts with the typical daily administration protocols of methadone treatment programs (Bergman et al., 2020).

Despite the reported findings above, attitudes toward medications for OUD remain understudied, especially among individuals who have resolved a substance use problem. To address this gap in the literature, Bergman and colleagues (2020) conducted a study investigating OUD medication attitudes among a nationally representative sample of individuals who have resolved a substance use problem. The authors investigated attitudes toward agonist (e.g., buprenorphine, methadone) and antagonist (e.g., naltrexone) medications. Results showed that more recent substance use problem resolution was significantly associated with positive attitudes toward agonist medications. There was also a trend of higher treatment service utilization being associated with a greater degree of positive attitudes toward medications. History of participating in drug court emerged as associated with negative agonist medication attitudes. Additionally, young adults reported more negative attitudes toward psychiatric and addiction medications (Bergman et al., 2020). These findings indicate that unique individual characteristics and lived experiences, such as younger age and problem resolution history, impact attitudes toward opioid agonist medications.

Qualitative Studies among mutual help organization (MHO) Participants. There is a belief among some recovery circles, especially some 12-step MHO participants, that medication-

assisted recovery is not true recovery and merely constitutes “substituting one drug for another” (Krawczyk et al., 2018, p. 404). This is especially relevant to Narcotics Anonymous (NA) as NA explicitly allows clubhouses to restrict sharing rights and withhold leadership positions from members taking medications as a part of their recovery process (Krawczyk et al., 2018). Individuals taking buprenorphine in New York City reported that some of their peers in recovery consider using opioid partial agonists to be an illegitimate pathway to recovery (Allen & Harocopos, 2016). Another qualitative study found that individuals prescribed buprenorphine and engaging in 12-step mutual help organizations reported discontinuing attending meetings unsupportive of MAR, being cautious of disclosing their use of medication for fear of rejection and being told their use of medications invalidates their time in recovery (Monico et al., 2015). Thus, according to these qualitative data, negative attitudes toward OUD medications among peers in recovery can serve as a significant barrier to mutual-help organization involvement and peer support among emerging adults utilizing opioid medications as a component of their recovery pathway.

Attitudes Among Collegiate Recovery Program Students. Collegiate recovery programs (CRPs) provide an on-campus, recovery affirmative environment for students living in recovery from alcohol and SUDs (Bugbee et al., 2016; Laudet et al., 2014; Vest et al., 2021). Common services offered by CRPs include peer-based mutual help meetings, relapse prevention and life skills seminars, recovery housing, counseling services, and substance-free social events (Bugbee et al., 2016; Vest et al., 2021).

CRPs can be an important component of a recovery program for emerging adults taking buprenorphine and engaging in other MAT for OUD. A recent study found that among CRP students, more positive attitudes toward addiction medications (AM; i.e., medications prescribed

to reduce substance-related cravings and support recovery, especially for alcohol use disorder and OUD) and greater perceived effectiveness of AM are associated with perceived acceptability of utilizing AM as a part of one's pathway to recovery (Tuliao et al., 2023). Additionally, more positive attitudes toward AM, greater perceived effectiveness of AM, and higher perceived acceptability of utilizing AM were associated with a higher likelihood of CRP students reporting that they would encourage their peers to utilize AM (Tuliao et al., 2023). Despite a need for further investigation of attitudes toward buprenorphine and other AM among CRP students, these data highlight the potential importance of peer attitudes in providing an accepting space and encouragement to students considering or utilizing AM, such as buprenorphine.

Rurality. Individuals who live in rural geographic areas face unique barriers to accessing medications to treat OUD (Lister et al., 2020). These include lower numbers of licensed medical providers with buprenorphine waivers in rural areas (Kvamme et al., 2013; Rosenblatt et al., 2015) and distance and travel barriers to access care (Brown et al., 2018; Heil et al., 2008; Rosenblum et al., 2011). Another significant barrier to care is elevated levels of stigmatized attitudes in rural areas, and multiple qualitative studies document pervasive negative attitudes toward medications for OUD in rural areas (Beachler et al., 2021; Richard et al., 2020). Moreover, provider attitudes may be barriers to OUD medication-seeking, and prior studies indicate some rural providers lack belief in the effectiveness of medications to treat OUD, hold negative attitudes toward individuals seeking medications for OUD, and report general suspicion of patients with a SUD (Andrilla et al., 2017; DeFlavio et al., 2015). Taken together, structural and attitudinal barriers seem to have disproportionately negative impacts on rural individuals who seek medications or OUD. However, there is a dearth of research using quantitative or

experimental designs investigating associations between geographic status and attitudes toward OUD medications.

Gaps in the Literature

Though prior research examined attitudes toward OUD medications among adults who resolved an alcohol or drug problem (Bergman et al., 2020), the PI is unaware of any prior literature specifically investigating attitudes and behavioral intentions (i.e., the intent to execute a particular target behavior) toward opioid partial-agonist medications (i.e., buprenorphine) specifically targeting emerging adults. Moreover, though there are existing qualitative studies investigating rural attitudes towards OUD medications, the author was unable to find any current studies employing an experimental design investigating rurality as a potential factor impacting attitudes toward OUD medications including buprenorphine. Finally, there is an absence of literature incorporating potential interventions to change attitudes toward medications for OUD.

First-Person Storytelling, Didactic Education, and Changes in Health-Related Attitudes and Behaviors

Theory

Theory of Planned Behavior. The theory of planned behavior is a conceptual framework that aims to predict human behavior via three primary antecedents: Attitudes associated with the target behavior, subjective norms of the target behavior, and perceived control of the target behavior (Ajzen, 1991). According to the theory, attitudes toward target behaviors are the level of positive or negative evaluation of the target behavior. Subject norms are "...the perceived social pressure to perform or not to perform the behavior" (Ajzen, 1991, p. 188). Perceived behavioral control refers to the perceived degree of strenuousness of engaging with the target behavior, which is assumed to take into account prior experiences with the target behavior and

potential future consequences of engaging in the behavior. These three precedents interact with each other to form an intention to perform a target behavior, and the weightiness of each individual precedent in predicting behavioral intentions will vary across situations (Ajzen, 1991).

Transportation theory. Transportation theory refers to how narratives impact consumers' (e.g., listeners, readers) beliefs about a particular subject (Green & Brock, 2000). Past research reported that the transportation process involves "…an integrative melding of attention, imagery, and feelings" (Green & Brock, 2000, p. 701). Transportation can have three primary consequences on consumers: Acceptance of facts in the narrative even if they conflict with reality, the experience of heightened emotions and increased motivation, and a change in beliefs and attitudes after experiencing the narrative (Green & Brock, 2000). Prior research indicates that transportation is a crucial mechanism for changing attitudes and behavioral intentions that impact health disparities among Mexican Americans (Murphy et al., 2013) and a significant mediator impacting behavioral intentions to participate in cancer research (Neil et al., 2019).

Didactic Education

Didactic education traditionally utilizes messaging incorporating empirical evidence and facts to influence attitudinal and behavioral change (Lipsey et al., 2020). Prior research indicates that didactic education approaches are effective across different patient populations and health conditions and preventative techniques, such as various chronic health conditions (Andersson et al., 2015; Hanai et al., 2013), breast cancer self-examinations (Occa & Suggs, 2016), and type 2 diabetes (Fan & Sidani, 2017). However, there are limitations to didactic educational approaches, such as being less effective for populations with lower levels of health literacy (Lipsey et al., 2020) and its inability to target emotional processes underlying health behavior change (e.g., fear; Hinyard & Kreuter, 2007; Lipsey et al., 2020; Shelby & Ernst, 2013).

First-Person Storytelling

First-person storytelling (FPS) refers to an individual sharing a personal narrative about their unique lived experiences (Lipsey et al., 2020). Across randomized controlled trials (RCTs), first-person narrative interventions delivered via video significantly improved health-promoting attitudes and behaviors related to multiple medical conditions, including breast cancer (Kreuter et al., 2010; McQueen et al., 2011), type 2 diabetes (Campbell et al., 2015), hypertension (Bokhour et al., 2016), and smoking cessation (Cherrington et al., 2015). Additionally, prior RCTs found that FPS interventions outperformed didactic educational interventions on improving various health-related attitudes, behavioral intentions, and behaviors (Bokhour et al., 2016; Campbell et al., 2015; Kreuter et al., 2010). Available empirical evidence suggests that FPS is particularly promising for populations with lower educational attainment levels, lower income levels, and individuals who identify with racial and ethnic minority groups (Cherrington et al., 2015; Kreuter et al., 2010; Lipsey et al., 2020). Further research applied to other medical and mental health conditions is warranted to investigate the effectiveness and mechanisms of change of FPS on health-related behaviors, attitudes, and knowledge (Lipsey et al., 2020).

Gaps in the Literature

Despite its theoretical underpinnings and reported effectiveness in changing health-promoting attitudes and behaviors across medical conditions (Lipsey et al., 2020), FPS has not been evaluated empirically as a potential intervention to target attitudes toward medications to treat OUD, such as buprenorphine. Additionally, the PI is unaware of any studies in the literature using samples of emerging adults with a history of a substance use problem. The current study attempts to fill these gaps in the literature.

Current Study

Aims of the Proposed Study and Corresponding Hypotheses

Aim 1

The first aim of the study was to examine whether participants differ on their attitudes toward buprenorphine as a function of their substance use and treatment history.

Hypothesis 1. Participants who report higher levels of past treatment utilization will report more positive attitudes toward buprenorphine at baseline. This hypothesis was derived based on prior research on attitudes toward OUD medications among individuals who have resolved a prior substance use problem (Bergman et al., 2020).

Hypothesis 2. Participants who report prior use of OUD medications will report more positive attitudes toward buprenorphine at baseline. Prior research indicates that individuals with a lifetime history of utilizing agonist medications for OUD are more likely to report positive attitudes toward agonist medication (Hoffman et al., 2021).

Hypothesis 3. Participants who resolved their substance use problem more recently will report more positive attitudes toward buprenorphine at baseline. This hypothesis was derived based on prior research on attitudes toward OUD medications among individuals who have resolved a prior substance use problem (Bergman et al., 2020).

Hypothesis 4. Participants who report prior drug court involvement will report less positive attitudes toward buprenorphine at baseline. This hypothesis was derived based on prior research on attitudes toward OUD medications among individuals who have resolved a prior substance use problem (Bergman et al., 2020).

Aim 2

The second aim of the study was to test if attitudes and behavioral intentions toward buprenorphine can change to a greater degree after exposure to a FPT video involving buprenorphine versus a traditional didactic video describing treatment with buprenorphine.

Hypothesis 5. Participants exposed to the FPT video will report greater increases in positive attitudes toward buprenorphine than those randomized to the didactic video. This hypothesis was derived from prior evidence that FPS is an effective intervention for modifying health-related attitudes (Lipsey et al., 2020).

Hypothesis 6. Participants exposed to the FPT video will report greater increases in positive behavioral intentions toward buprenorphine than those randomized to the didactic video. This hypothesis was derived from prior evidence that FPS is an effective intervention for modifying health-related behaviors (Lipsey et al., 2020).

Exploratory Aims

Exploratory analyses will evaluate whether positive buprenorphine-related attitudes and behavioral intentions vary at baseline based on childhood geographic status, current geographic status, and substance use problem resolution status.

CHAPTER 2

METHODOLOGY

Participants

The current sample was composed of adults in the U.S. recruited via Prolific, which is a crowdsourcing research platform with 120,000 vetted research participants (Prolific, 2023). The following were the inclusion criteria for the study: (a) participants were required to report U.S. nationality, (b) participants were required to be living in the U.S., (c) participants were required to be between 18 and 29 years of age, and (d) participants were required to report a current or past substance use problem.

To ensure adequate sample size and optimal statistical power, the researcher conducted power analyses utilizing G*Power version 3.1.9.7 (Faul et al., 2007). Originally, the PI planned to conduct the primary analyses with a multivariate analysis of variance (MANOVA) due to the theoretical link between attitudes and behavioral intentions (Ajzen, 1991). It was determined that a sample size of 128 participants would be recruited for the present study. However, given that attitudes are predictors of behavioral intention outcomes (Ajzen, 1991), the PI and dissertation committee decided to conduct separate analyses for Hypothesis 5 and Hypothesis 6. To optimize the chances of valid participant responses, the researcher oversampled and aimed to collect data from 200 participants. Post hoc power analysis of the final sample (n =142) indicated adequate power (1-β = 0.998) given the effect size (partial η^2 = 0.04).

Materials and Measures

Videos

Participants were randomly assigned to either a first-person buprenorphine testimonial video or a traditional didactic video describing buprenorphine. To make the stimuli as similar as

possible across videos, each script was read by the same actor. The actor presented as a White female in her twenties. Each video was recorded on Zoom using a web camera within a laboratory at Georgia Southern University. To create the testimonial video, the primary investigator (PI) reviewed existing online videos depicting first-person recovery stories involving buprenorphine (Plan Your Recovery, 2016; Project Recovery, 2019). These buprenorphine testimonial videos followed a general pattern of describing what the individual's addiction was like before recovery, how the individual initiated their recovery journey, and how the individual is maintaining their recovery with buprenorphine. The PI used this structure to develop the first-person buprenorphine testimonial video. The testimonial video duration was 4 minutes 30 seconds. Please see Appendix A to view the first-person buprenorphine testimonial video script in its entirety.

To create the traditional didactic video, the PI used a SAMHSA (2015) brochure describing facts about buprenorphine and its use in treating OUD as well as existing literature on treatment with buprenorphine (Marsden et al., 2017; Mattick et al., 2014; Sordo et al., 2017). This video contained only fact-based information about buprenorphine and its use in treatment, and it did not include a first-person recovery story. The didactic video duration was 3 minutes 37 seconds. Please see Appendix A to view the didactic video script in its entirety.

Buprenorphine Attitudes and Behaviors Questionnaire

Participants were asked novel items intended to capture their degree of positive attitudes and degree of positive behavioral intentions toward buprenorphine. The creation of these items was informed by a measure previously used by Kelly and colleagues (2017) to capture attitudes toward medications to treat alcohol use, opioid use, and emotional problems. Participants were asked to rate their level of agreement with statements regarding their attitudes and behavioral

intentions (i.e., the intent to execute a particular target behavior) toward buprenorphine for themselves, family and friends, and the general public (i.e., someone they just met) regarding buprenorphine on a six-point Likert-type scale from 1 (*strongly disagree*) to 6 (*strongly agree*). Item 1 aims to capture general levels of positive attitudes toward buprenorphine, and items 2, 3, and 4 aim to capture the degree of positive behavioral intentions toward buprenorphine. The Buprenorphine Attitudes and Behaviors Questionnaire demonstrated a high degree of internal consistency ($\alpha = 0.94$) among the current sample at baseline. Please see Appendix A to view the questionnaire in its entirety.

Childhood and Current Geographic Status

Participants were asked to rate the degree of rurality related to their current and childhood living environments. The questions were presented as a Likert-type scale ranging from 1 (*rural*) to 10 (*urban*). Please see Appendix B to view a full copy of the measure.

Demographics Form

Participants were asked to report demographic information. Information requested included gender identity, sexual orientation, race, ethnicity, religious affiliation, past three-month living situation, marital status, level of education, and annual household income. These items were selected in order to compare characteristics of the current sample to a nationally representative sample of individuals who reported resolving an alcohol or drug problem (Kelly et al., 2017). Additionally, these demographics question items were adapted for use in the current study based on prior research by Kelly and colleagues (2017). Please see Appendix B to view all demographics items and response options.

Substance Use and Diagnostic History

Participants were asked to answer a question about their use of 15 substance classes (e.g., alcohol, marijuana) derived from the Global Appraisal of Individual Needs (GAIN-I; Dennis et al., 2002). Participants were asked to identify which substances that they used 10 or more times across their lifetime. Then, participants were asked to identify their substance of choice. The final question asks participants to identify their diagnostic history related to alcohol use disorder, other drug use disorders, or psychiatric disorders (e.g., generalized anxiety disorder), which was also derived from the GAIN-I (Dennis et al., 2002). These items were adapted for use in the current study based on prior work by Kelly and colleagues (2017) and used to compare characteristics of the current sample with a nationally representative sample of individuals who reported resolving a prior substance use problem. Please see Appendix B to view a full copy of the measure.

Criminal Justice System Involvement

Participants were asked to respond to items adapted from the Form-90 (Miller & Del Boca, 1994) regarding lifetime history of arrest, number of times arrested, history of participation in drug court, and current status of involvement with the criminal justice system. These items for this measure were adapted for use in the current study based on prior work by Kelly and colleagues (2017) and included to compare characteristics of the current sample with a nationally representative sample of individuals who reported resolving an alcohol or drug problem. Please see Appendix B to view a full copy of the measure.

Treatment History and Recovery Support Services

Participants were asked about their involvement in nine psychosocial treatment and recovery support services (Institute for Behavioral Research, 2002). These included inpatient or

residential treatment, outpatient treatment, state or local recovery community organizations, faith-based recovery services, recovery community centers, collegiate recovery programs, recovery high schools, sober living environments, and mutual help organizations. For outpatient addiction treatment, alcohol or drug detoxification programs, and inpatient or residential treatment, participants were asked how many times they have utilized these services in the past.

Next, participants were asked if they have ever used medications to treat alcohol or opioid use. If they reported using either or both types of medications, participants were asked to report lifetime use, current use, and the generic and brand names of the medication(s) in accordance with the Form-90 (Miller & Del Boca, 1994). Participants were also asked about lifetime use of medications for other psychiatric diagnoses.

Finally, participants were asked about their prior involvement with mutual help organizations (Kelly et al., 2011), which included Alcoholics Anonymous, Narcotics Anonymous, Marijuana Anonymous, Cocaine Anonymous, Crystal Meth Anonymous, SMART Recovery, LifeRing Secular Recovery, Moderation Management, Celebrate Recovery, Women for Sobriety, and Secular Organizations for Sobriety (S.O.S.). The items from this measure were adapted for use in the current study based on prior work by Kelly and colleagues (2017) and included to compare characteristics of the current sample with a nationally representative sample of individuals who reported resolving an alcohol or drug problem (Kelly et al., 2017). Please see Appendix B to view a full copy of the measure.

Problem Resolution and Recovery History

Participants were asked if they have a lifetime history of an alcohol or drug problem. Then, participants were asked how many “serious attempts” to resolve an alcohol or drug problem before they “overcame” it. Afterwards, they were asked how long it has been since they

resolved their alcohol or drug problem in years and months. Next, participants were asked about 12 various achievements (e.g., returned to school) they had attained since resolving their alcohol or drug problem.

Then, participants were asked to report if they identify as a person in recovery. If they responded "yes," then they were asked how many years and months they have been in recovery. Finally, participants were asked to identify the best fit of their personal definition of recovery. Response options included "abstinence from all drugs/alcohol;" "Abstinence from only those drugs/alcohol with which I had a problem, but non-problematic or moderate use of other drugs/alcohol is okay;" and "non-problematic or moderate use of drugs/alcohol including those with which I had a problem." These items were adapted for use in the current study based on prior work by Kelly and colleagues (2017). This measure was selected to compare characteristics of the current sample with a nationally representative sample of individuals who reported resolving an alcohol or drug problem (Kelly et al., 2017). Please see Appendix B to view a full copy of the measure.

Data Integrity Items

Participants will be presented with four items throughout the study to ensure data quality. Two items were instructional manipulation checks (e.g., "Please select Agree"), and two of the items were nonsensical items (e.g., "I regularly work 25 hours a day"). These items were embedded within the Buprenorphine Attitudes and Behaviors Questionnaire pretest, Buprenorphine Attitudes and Behaviors Questionnaire posttest, Demographics Form, and Problem Resolution and Recovery History measures. Please see the previously listed measures in Appendix B to view these items.

Comprehension Check Items

After watching the video, participants were asked to respond to two questions to demonstrate that they were paying attention and that they understood the video content. For instance, after viewing the FPT video, participants were asked, "Based on the video you just watched, what type of disorder is Buprenorphine prescribed to treat? You will have two opportunities to get this question correct." Participants had two opportunities to provide a correct response to each question. Please see Appendix B to view the comprehension check questions and response options for each condition.

Seriousness Question

At the end of the study, participants were asked if they answered the questionnaires seriously. The seriousness question was modeled after the approach used by Aust and colleagues (2013). The question states, "It would be very helpful if you could tell us at this point whether you have taken part seriously, so that we can use your answers for our scientific analysis, or whether you were just clicking through to take a look at the survey?" (Aust et al., 2013, p. 530). Please see Appendix B to view the Seriousness Question in its entirety.

Procedure

The measures and materials in the current study were presented to participants via Qualtrics. Participants were recruited through Prolific, which is a crowdsourcing marketplace where individuals can volunteer to participate in online research studies for a financial reward. Potential participants interested in participating in the study were prompted to read a brief study description on the Prolific website. If participants were interested in proceeding, they selected a link, which connected them to the Qualtrics survey.

Before proceeding with the study, participants were asked to complete a digital informed consent document. If participants provided consent, then they were asked to respond to the Buprenorphine Attitudes and Behaviors Questionnaire (BABQ; Pretest), Childhood and Current Geographic Region measure, and Demographics Form. The presentation order of the BABQ (Pretest), Childhood and Current Geographic Region measure, and Demographics Form were randomized to limit the potential for order effects. Additionally, the Buprenorphine Attitudes and Behaviors Questionnaire (Pretest) and Demographics form were randomized at the item level.

Afterwards, participants were randomly assigned to view the FPT video or didactic education video. Immediately after viewing the video, participants were asked to answer two comprehension check items. Then, participants were administered the BABQ (Posttest). The BABQ (Posttest) was randomized at the item level. Participants were then asked to respond to the Substance Use and Diagnostic History, Criminal Justice History, Treatment History and Recovery Support Services, and Problem Resolution and Recovery History measures. The presentation order of the Substance Use and Diagnostic History, Criminal Justice History, Treatment History and Recovery Support Services, and Problem Resolution and Recovery History measures was randomized to limit potential order effects. Afterwards, participants were debriefed and thanked for their participation in the study. As a reward for their participation, everyone who completed the study and met criteria for compensation as detailed in the informed consent document were paid $6.00.

Data Storage

All participant responses and data were stored digitally in Qualtrics with no identifying information. No Internet Protocol (IP) addresses were collected from participants. After

completing the data collection phase of the study, data will be transferred and stored on a password-protected hard drive for seven years.

Data Analytic Plan

The primary investigator (PI) established criteria for excluding participant data from final analyses. First, participants who failed both video comprehension check items were excluded. Second, participants who failed two or more attention check items were excluded. Third, participants who did not watch at least 90% of their randomly assigned video (i.e., FPT video or didactic educational video) were excluded. Fourth, participants who reported they have never had a problem with alcohol or drugs within the Problem Resolution and Recovery History measure were excluded. Fifth, the PI planned to exclude data from participants who reported they did not take the study seriously within the Seriousness Question measure.

To test Hypothesis 1, the PI used a Pearson's *r* correlation to test the association between levels of past treatment utilization and degree of positive attitudes toward buprenorphine at baseline. Levels of past treatment utilization was defined by the total sum of the frequency of times reported engaging in outpatient addiction treatment, alcohol or drug detoxification, and inpatient or residential treatment. Positive attitudes were defined as item 1 of the Buprenorphine Attitudes and Behaviors Questionnaire (i.e., "It is a good idea for someone who is experiencing a problem with opioid use to take the medication buprenorphine.").

To test Hypothesis 2, the PI used an independent-samples t-test to test the difference between individuals who report opioid medication usage versus individuals who do not report opioid medication usage on the outcome variable of positive attitudes toward buprenorphine at baseline. The independent variable, use or nonuse of opioid use treatment medications, was captured by the following question: "Have you ever been prescribed a medication to help prevent

you from using opioids (e.g., heroin, OxyContin, Percocet)?" and participants can respond with "Yes" or "No." Positive attitudes, the outcome variable, was defined as item 1 of the Buprenorphine Attitudes and Behaviors Questionnaire (i.e., "It is a good idea for someone who is experiencing a problem with opioid use to take the medication buprenorphine.").

To test Hypothesis 3, the PI used a Pearson's *r* correlation to test the association between time since resolving a substance use problem and positive attitudes toward buprenorphine at baseline. Time since resolving the substance use problem was captured by an item asking, "How long has it been since you resolved your problem with alcohol/drugs?" Positive attitudes will be defined as item 1 of the Buprenorphine Attitudes and Behaviors Questionnaire (i.e., "It is a good idea for someone who is experiencing a problem with opioid use to take the medication buprenorphine.").

To test Hypothesis 4, the PI used an independent-samples t-test to test the difference between drug court involvement and non-involvement on the outcome variable of positive attitudes toward buprenorphine at baseline. Drug court involvement was captured by the following question: "Have you ever participated in a drug court?" and participants were asked to respond "Yes" or "No." Positive attitudes, the outcome variable, was defined as item 1 of the Buprenorphine Attitudes and Behaviors Questionnaire (i.e., "It is a good idea for someone who is experiencing a problem with opioid use to take the medication buprenorphine.").

To test Hypothesis 5 and Hypothesis 6, the PI used two mixed-model analyses of variances (ANOVA). Participants were administered a pretest and posttest measure, the Buprenorphine Attitudes and Behaviors Questionnaire, which contains two primary outcome variables, buprenorphine-related positive attitudes and buprenorphine-related positive behavioral

intentions. Participants were randomly assigned to the control video condition or the positive buprenorphine treatment (i.e., experimental) video condition.

To test the exploratory aim of associations between childhood geographic status, current geographic status, levels of positive attitudes, and levels of positive behavioral intentions toward buprenorphine, the PI conducted Pearson's *r* correlations. Additionally, to test the exploratory aim involving differences in buprenorphine-related attitudes and behavioral intentions between individuals who have resolved their substance use problem versus individuals who have not resolved their substance use problem, the PI conducted independent-samples t-tests.

CHAPTER 3

RESULTS

Participants

Participants in the current study consisted of adults aged 18 to 29 years of age who reported U.S. nationality, residency in the U.S., and a self-reported substance abuse problem. A total of 199 individuals participated in the study, and 142 participants met criteria to be included in final data analysis. Among these 199 participants, 57 were excluded from final analyses. Reasons for excluding data included technical failures to capture video watch time duration (n = 10), denying consent (n = 1), exceeding maximum time limit to complete the study (n = 3), failing two attention check items (n = 1), withdrawing submissions (n = 3), denying a history of an alcohol or drug problem (n = 20), failing to complete the study (n = 1), failing both FPT video comprehension check items (n = 3), failing to watch at least 90% of the FPT video (n = 6), and failing to watch at least 90% of the didactic education video (n = 9). All 142 participants included in the final analyses reported they took part in the study seriously.

Sample Demographics

Age, Gender Identity, and Sexual Orientation

As a general note, all percentages listed in parentheses in the Sample Demographics sections below refer to percentages of the entire sample of the current study (n = 142).

Participants ranged in age from 18 to 29 years. The lowest participant age was 19 years, the highest participant age was 29 years, and the average participant age was 25.70 years (SD = 2.73). In response to the gender identity item, 58 participants (40.85%) identified as female, 64 (45.07%) identified as male, 6 (4.23%) identified as transgender male to female, 7 (4.93%) identified as transgender female to male, 1 (0.70%) indicated a preference to not answer, and 6

(4.23%) indicated their gender identity was not listed and elected to write in a response. Among the 6 participants (4.23%) who reported their gender identity was not listed, 1 participant (0.70%) identified as gender nonconforming, 4 (2.82%) identified as nonbinary, and 1 (0.70%) identified as agender.

In response to the sexual orientation item, 57 participants (40.14%) identified as bisexual, 9 (6.34%) identified as gay or lesbian, 69 (48.59%) identified as heterosexual or straight, 1 (0.70%) indicated a preference not to answer, and 6 (4.23%) indicated their sexual orientation was not listed. Among the 6 participants (4.23%) who reported their sexual orientation was not listed, 1 (0.70%) identified as asexual, 3 (2.11%) identified as pansexual, and 2 (1.41%) identified as queer.

Table 1

Gender Identity and Sexual Orientation of the Sample

Variable	*n*	%
Gender Identity		
Female	58	40.85
Male	64	45.07
Trans Male to Female	6	4.23
Trans Female to Male	7	4.93
Prefer Not to Answer	1	0.70
Not Listed	6	4.23
Sexual Orientation		
Bisexual	57	40.14
Gay or Lesbian	9	6.34
Heterosexual	69	48.59
Prefer Not to Answer	1	0.70
Not Listed	6	4.23

Race, Ethnicity, and Religious Affiliations

In response to the racial identity item, 112 participants (78.87%) identified as White, 7 (4.93%) identified as Black or African American, 5 (3.52%) identified as Asian, 5 (3.52%) indicated their racial identity was not listed in the response options, 2 (1.41%) identified as American Indian or Alaska Native, 1 (0.70%) indicated a preference not to answer, and 10 (7.04%) participants reported multiracial identities. In response to the ethnicity item, 26 (18.31%) participants identified as Hispanic or Latino, 115 (80.99%) identified as not Hispanic or Latino, and 1 (0.70%) indicated a preference not to answer. In response to the religious affiliation item, 92 participants (64.79%) reported no religious affiliation, 14 (9.86%) reported Christian affiliation (non-denominational or not specified), 5 (3.52%) reported identifying as Jewish, and the rest of the sample (21.83%) reported some other religious affiliation or multiple religious affiliations.

Table 2

Race and Ethnicity of the Sample

Variable	*n*	%
Race		
White	112	78.87
Black	7	4.93
Asian	5	3.52
American Indian or Alaska Native	2	1.41
Multiracial	10	7.04
Not Listed	5	3.52
Prefer Not to Answer	1	0.70
Ethnicity		
Hispanic or Latino	26	18.31
Not Hispanic or Latino	115	80.99
Prefer Not to Answer	1	0.70

Living Environment and Marital Status

In response to the living environment item, 87 participants (61.27%) reported living with family or other relatives, 18 (12.68%) reported living with a friends or non-family members (non-institutional), 24 (16.90%) reported living alone in their own dwelling, 3 (2.11%) reported living in a sober living environment (e.g., halfway house, Oxford house, sober dorm), and 10 (7.04%) reported some other living situation. Among the 10 participants who reported living in some other environment, 9 (6.34%) reported living with their partner in a dwelling and 1 (0.70%) reported living in a "home."

In response to the marital status item, 15 participants (10.56%) reported being married, 1 (0.70%) reported being divorced, 3 (2.11%) reported being separated, 68 (47.89%) reported never marrying, 52 (36.62%) reported living with their partner, 1 (0.70%) reported a preference not to answer, and 2 (1.41%) reported some other marital status and elected to write in a response. Among the 2 participants who reported some other marital status, 1 participant (0.70%) reported being engaged, and 1 (0.70%) reported being single.

Table 3

Living Environment and Marital Status of the Sample

Variable	*n*	%
Living Environment		
Family or Relatives	87	61.27
Friends or Non-Family	18	12.68
Alone	24	16.90
Sober Living	3	2.11
Other	10	7.04
Marital Status		
Married	15	10.56
Divorced	1	0.70
Separated	3	2.11
Never Married	68	47.89
Living with Partner	52	36.62
Other	2	1.41
Prefer Not to Answer	1	0.70

Education and Annual Income

In response to the educational attainment item, 3 participants (2.11%) reported attending some high school, 30 (21.13%) reported obtaining a high school diploma or general educational equivalency (GED) certificate, 64 (45.07%) reported attending some college, 35 (24.65%) reported obtaining a bachelor's degree, 7 (4.93%) reported attending some graduate school, 2 (1.41%) reported obtaining a master’s degree, and 1 (0.70%) reported obtaining a doctoral degree.

In response to the income item, 40 (28.17%) participants reported earning less than $10,000 annually, 9 (6.34%) reported earning between $10,000 and $15,000 annually, 18 (12.68%) reported earning between $15,000 and $25,000 annually, 33 (23.24%) reported earning between $25,000 and $50,000 annually, 26 (18.31%) reported earning between $50,000 and $75,000 annually, 8 (5.63%) reported earning between $75,000 and $100,000 annually, 3

(2.11%) reported earning between $100,000 and $150,000 annually, and 5 (3.52%) reported they would prefer not to answer.

Table 4

Education and Annual Income of the Sample

Variable	*n*	%
Education		
Some High School (HS)	3	2.11
HS Diploma or GED	30	21.13
Some College	64	45.07
Bachelor's Degree	35	24.65
Some Graduate School	7	4.93
Master's Degree	2	1.41
Doctoral Degree	1	0.70
Annual Income		
< $10,000	40	28.17
$10,000-$15,000	9	6.34
$15,000-$25,000	18	12.68
$25,000-$50,000	33	23.24
$50,000-$75,000	26	18.31
$75,000-$100,000	8	5.63
$100,000-$150,000	3	2.11
Prefer Not to Answer	5	3.52

Childhood and Current Geographical Region

All participants were asked to rate their childhood and current geographic status using a sliding scale from 0 (*rural)* to 10 (*urban*). The minimum reported value for childhood geographic status was 0 (*rural),* and the maximum reported value for childhood geographic status was 10 (*urban*). The mean childhood geographic status among the sample was 5.65 (*SD* = 2.67). The minimum reported value for current geographic status was 0 (*rural*), and the maximum reported value for current geographic status was 10 (*urban*). The mean current geographic status among the sample was 6.22 (*SD* = 2.83). Overall, across childhood and current geographic region, the sample was slightly more urban.

Substance Use and Diagnostic History

In response to the substance use history item, alcohol, marijuana, and amphetamines were the most endorsed substance classes. 137 participants reported using alcohol 10 times or more throughout one's lifetime (96.48%); 134 reported using marijuana 10 times or more throughout one's lifetime (94.37%); and 75 reported using amphetamines 10 times or more throughout one's lifetime (52.82%). Most participants reported historical patterns of polysubstance use (136 participants or 95.77% of the sample), and 6 participants reported only using 1 class of substances 10 or more times in their lifetime (4.23%). Among these 6 participants, 4 reported only using alcohol 10 or more times (2.82%), and 2 reported only using marijuana 10 or more times (1.41%). To view a complete list of the substance classes and frequencies, please see Table 5 below.

Table 5

Substances Used 10 or More Times by the Sample

Substance	*n*	%
Alcohol	137	96.48
Marijuana	134	94.37
Cocaine	54	38.03
Heroin	21	14.79
Narcotics other than Heroin	69	48.59
Methadone	14	9.86
Suboxone/Subutex/Buprenorphine	15	10.56
Amphetamine	75	52.82
Methamphetamine	32	22.54
Benzodiazepines	69	48.59
Barbiturates	17	11.97
Hallucinogens	65	45.77
Synthetic Marijuana/Synthetic Drugs	19	13.38
Inhalants	30	21.13
Steroids	3	2.11
Other	3	2.11

In response to the substance of choice item, alcohol, marijuana, and narcotics other than heroin were the most endorsed substance classes. 87 participants reported alcohol is their substance of choice (61.27%), 75 reported marijuana is their substance of choice (52.82%), and 29 participants reported narcotics other than heroin are their substance of choice (20.42%). Most participants selected two or more substances of choice (91 participants or 64.08%), and 51 participants (35.92%) reported a single substance of choice. To view a complete list of the substance of choice classes and frequencies, please see Table 6 below.

Table 6

Substances of Choice of the Sample

Substance of Choice	*n*	%
Alcohol	87	61.27
Marijuana	75	52.82
Cocaine	10	7.04
Heroin	15	10.56
Narcotics other than Heroin	29	20.42
Methadone	2	1.41
Suboxone/Subutex/Buprenorphine	1	0.70
Amphetamine	15	10.56
Methamphetamine	17	11.97
Benzodiazepines	28	19.72
Barbiturates	1	0.70
Hallucinogens	11	7.75
Synthetic Marijuana/Synthetic Drugs	0	0
Inhalants	3	2.11
Steroids	0	0
Other	2	1.41

In response to the diagnosis item, 36 participants reported a lifetime diagnosis of alcohol use disorder (25.35%), and 23 participants reported a lifetime diagnosis of some other drug use disorder (16.20%). 4 participants reported only being diagnosed with AUD in their lifetime (2.82%), and 1 participant only reported being diagnosed with some other SUD in their lifetime

(0.70%). 49 participants reported lifetime co-occurring substance use and mental health disorders (34.51%). To view a complete list of the disorder classes and their frequencies, please see Table 7 below.

Table 7

Diagnostic History of the Sample

Diagnosis	*n*	%
Alcohol Use Disorder	36	25.35
Other Drug Use Disorder	23	16.20
Agoraphobia	8	5.63
Anorexia	11	7.75
Bipolar Disorder	26	18.31
Bulimia	5	3.52
Delusional Disorder	0	0
Dysthymic Disorder	0	0
Generalized Anxiety Disorder	85	59.86
Major Depressive Disorder	82	57.75
OCD	14	9.86
Panic Disorder	23	16.20
Personality Disorder	10	7.04
PTSD	44	30.99
Schizoaffective Disorder	2	1.41
Schizophrenia	1	0.70
Social Anxiety Disorder	41	28.87
Specific Phobia	3	2.11
Other Mental Health Disorder	19	13.38
I have never been diagnosed with any of these conditions	12	8.45
I am not sure if I have been diagnosed with any of these conditions	3	2.11
Prefer Not to Answer	0	0

Treatment History and Recovery Support Services

The top three most utilized treatment services reported by participants included outpatient addiction treatment (45 participants or 31.69%), inpatient or residential treatment (41 participants or 28.87%), and detoxification services (31 participants or 21.83%). 57 participants (40.14%) reported no lifetime history of utilizing recovery support services. To view a complete list of the recovery support services and their frequencies, please see Table 8 below.

Table 8

Recovery Support Service History of the Sample

Recovery Support Service	*n*	%
Sober Living	17	11.97
Recovery High School	4	2.82
Collegiate Recovery	5	3.52
Recovery Community Centers	11	7.75
Faith-based recovery services	13	9.15
Recovery Community Organizations	11	7.75
Outpatient	45	31.69
Detoxification	31	21.83
Inpatient/Residential	41	28.87
None	57	40.14
Other	9	6.34

Among the sample, 22 (15.49%) participants reported lifetime prescriptions of medications to prevent alcohol use. Medications prescribed included Campral (2 participants or 1.41%), Revia (14 or 9.86%), Selincro (1 or 0.70%), Topamax (1 or 0.70%), Antabuse (2 or 1.41%), Lioresal (1 or 0.70%), and 1 (0.70%) preferred not to say. Among these participants, 1 (0.70%) reported currently taking Campral, 3 (2.11%) reported currently taking Revia, and 1 (0.70%) reported currently taking Selincro.

Among the sample, 20 (14.08%) participants reported lifetime prescriptions of medications to prevent opioid use. Medications prescribed included Methadone (6 participants or

4.23%), Orlaam (1 or 0.70%), Suboxone (13 or 9.15%), Subutex (9 or 6.34%), Revia (1 or 0.70%), Vivitrol (4 or 2.82%), and Clonidine (1 or 0.70%). Among these participants, 1 (0.70%) reported currently taking Methadone, 1 (0.70%) reported currently taking Orlaam, 4 (2.82%) reported currently taking Suboxone, 3 (2.10%) reported currently taking Subutex, and 1 (0.70%) reported currently taking Clonidine. Additionally, among the current sample, 115 participants (80.99%) reported a lifetime history of being prescribed psychiatric medication for a mental health condition.

When asked about lifetime self-help group attendance, 74 participants (52.11%) reported no history of engagement with self-help groups, 45 (31.69%) reported a history of attending Alcoholics Anonymous, and 33 (23.24%) reported a history of attending Narcotics Anonymous. Please see Table 9 below for further information on lifetime engagement in self-help groups among the current sample.

Table 9

Lifetime Self-Help Group Engagement Among the Sample

Group Type	*n*	%
Alcoholics Anonymous	74	52.11
Narcotics Anonymous	45	31.69
Marijuana Anonymous	5	3.52
Cocaine Anonymous	1	0.70
Crystal Methamphetamine Anonymous	3	2.11
SMART Recovery	14	9.86
LifeRing Secular Recovery	2	1.41
Moderation Management	4	2.82
Celebrate Recovery	9	6.34
Women for Sobriety	2	1.41
Secular Organizations for Sobriety	1	0.70
Other	3	2.11
No Self-Help History	74	52.11

Problem Resolution and Recovery History

All 142 participants included in the final analyses endorsed a current or past problem with alcohol and/or drugs. Among the sample, 56 participants (39.44%) reported they have not resolved their problem with alcohol and/or drugs, and 86 participants (60.56%) reported they have resolved a past problem with alcohol and/or drugs. Among these 86 participants, the lowest number of attempts to resolve their alcohol or drug problem was 2, the highest number of attempts was 102, and the mean was 6.27 (*SD* = 11.00). Among these 86 participants, 85 reported the amount of time since resolving their alcohol or drug problem with a mean of 2.65 years (*SD* = 2.08). Among these participants, 23 (16.20%) reported at least 1 achievement (e.g., a new job) since resolving their alcohol or drug problem, and 62 (43.66%) reported 2 or more achievements since resolving their problem with alcohol or drugs.

Among the 86 participants who reported problem resolution, 32 (22.54%) denied considering themselves to be in recovery, whereas 54 (38.03%) reported considering themselves to be in recovery. Among these 54 participants, 48 participants reported the amount of time they have been in recovery with a mean of 3.04 years (*SD* = 2.28). Among the participants who identified as being in recovery, 32 (22.54%) defined recovery as abstinence from all drugs and alcohol, 25 (17.61%) defined recovery as abstinence from problematic substances and moderate use of non-problematic or other alcohol or drugs, and 9 (6.34%) defined recovery as non-problematic or moderate use of alcohol or drugs including those which were problematic in the past.

Criminal Justice System Involvement

In response to the item asking about lifetime arrest history, 95 (66.90%) participants reported they have never been arrested, 45 (31.69%) reported a lifetime history of arrest, and 2

(1.41%) reported they preferred not to answer. Among the 45 participants who reported a lifetime history of arrest, 22 (15.49%) participants reported 1 arrest, 12 (8.45%) reported 2 arrests, 1 (0.70%) reported 3 arrests, 3 (2.11%) reported 4 arrests, 2 (1.41%) reported 5 arrests, 2 (1.41%) reported 7 arrests, 1 (0.70%) reported 8 arrests, 1 (0.70%) reported 9 arrests, and 1 (0.70%) reported 20 arrests.

Among the 45 participants (31.69%) reporting a history of arrest, 33 participants (23.24%) reported no history of drug court involvement, 11 (7.75%) reported a history of drug court involvement, and 1 participant (0.70%) did not respond to the drug court item. Among the 45 participants (31.69%) who reported a history of arrest, 36 participants (25.35%) reported they are no longer involved in the justice system, 4 (2.82%) reported they are still involved in the justice system and awaiting a court hearing, and 5 (3.52%) reported they are currently on probation.

Primary Analyses

Past treatment utilization and positive attitudes toward buprenorphine. The PI used a Pearson's *r* correlation to assess the relationship between the degree of past treatment utilization and the degree of positive attitudes toward buprenorphine at baseline. The PI hypothesized that participants who reported higher levels of past treatment utilization would report more positive attitudes toward buprenorphine at baseline. The Kolmogorov-Smirnov test was used to test the assumptions of normality and goodness-of-fit of distribution. The assumptions for a Pearson's *r* correlation were violated; thus, the researchers proceeded with testing Hypothesis 1 by using a Spearman's rank correlation coefficient (i.e., Spearman's ρ). Spearman's ρ indicated the presence of a nonsignificant correlation between degree of past treatment utilization and degree of positive attitudes toward buprenorphine at baseline, $r_s(140) =$

0.15, $p = 0.07$, two-tailed, $n = 142$. Thus, these findings indicate that past treatment utilization and attitudes toward buprenorphine are not significantly related.

OUD medication usage and positive attitudes toward buprenorphine. The PI completed an independent-samples t-test to determine if individuals who reported OUD medication usage ($n = 20$) differed from individuals who did not report opioid medication usage ($n = 122$) on the outcome variable of degree of positive attitudes toward buprenorphine at baseline. The PI hypothesized that participants who reported prior OUD medication use would report more positive attitudes about buprenorphine at baseline compared to those who denied OUD medication use. The Kolmogorov-Smirnov test was used to test the assumptions of normality and goodness-of-fit of distribution. The assumptions for an independent-samples t-test were violated. However, t-tests are considered robust against normality assumptions if the sample is reasonably large (i.e., $n \geq 30$; Mordkoff, 2016). Levene's test was not significant ($p = 0.31$) indicating that the assumption of homogeneity of variance was not violated. There was no significant difference in scores for individuals who reported OUD medication usage ($M = 4.80$, $SD = 1.51$) compared to individuals who did not report OUD medication usage ($M = 4.34$, $SD = 1.17$; $t(140) = -1.58$, $p = 0.12$, two-tailed, Cohen's $d = 0.34$). Thus, these findings indicate a nonsignificant difference in buprenorphine-related attitudes between individuals who report past OUD medication usage versus nonusage.

Problem resolution time and positive attitudes toward buprenorphine. The PI used a Pearson's *r* correlation to assess the relationship between the amount of time since a substance use problem was resolved and the degree of positive attitudes toward buprenorphine at baseline. The researchers hypothesized that participants who resolved their substance use problem more recently would report more positive attitudes toward buprenorphine at baseline. The

Kolmogorov-Smirnov test was used to test the assumptions of normality and goodness-of-fit of distribution. The assumptions for a Pearson's *r* correlation were violated. Thus, the researchers proceeded with testing Hypothesis 3 by conducting a Spearman's ρ. There was no correlation between time since resolving a substance use problem and the degree of positive attitudes toward buprenorphine at baseline, $r_s(84) = 0.07$, $p = 0.50$, two-tailed, $n = 86$. Thus, these findings indicate that problem resolution time and attitudes toward buprenorphine are not significantly related.

Drug court involvement and positive attitudes toward buprenorphine. The researchers completed an independent-samples t-test to determine if there is a difference between participants who report drug court involvement ($n = 11$) versus non-involvement ($n = 131$) on the outcome variable of positive attitudes toward buprenorphine at baseline. The researchers hypothesized that participants who report drug court involvement will report less positive attitudes toward buprenorphine at baseline compared to participants who did not report drug court involvement. The Kolmogorov-Smirnov test was used to test the assumptions of normality and goodness-of-fit of distribution. The assumptions for an independent-samples t-test were violated for the drug court non-involvement ($n = 131$) group, but not for the drug court involvement ($n = 11$) group. However, t-test is considered robust against normality assumptions if the sample is reasonably large (i.e., $n \geq 30$; Mordkoff, 2016). Levene's test was not significant ($p = 0.73$) indicating that the assumption of homogeneity of variance was not violated. The results indicated no significant difference in scores between individuals who reported drug court involvement ($M = 4.91$, $SD = 1.04$) versus non-involvement ($M = 4.36$, $SD = 1.24$; $t(140) = -1.44$, $p = 0.15$, two-tailed, Cohen's $d = 0.48$). Thus, these findings indicate that there are no

differences in buprenorphine-related attitudes between individuals who report drug court involvement versus non-involvement.

Didactic versus testimonial videos and attitudes toward buprenorphine. A repeated measures ANOVA was conducted to compare the main effects of testimonial (n = 73) versus didactic videos (n = 69) as well as their interaction effects on the change (i.e., pretest versus posttest) of positive attitudes toward buprenorphine. It was hypothesized that participants exposed to the FPT video will report greater increases in positive attitudes toward buprenorphine than those randomized to the didactic video. The Levene's test of homogeneity showed that the variances of the didactic group and testimonial group were equal at the pretest, $F(1, 140) = 0.02$, $p = 0.89$, and unequal during the posttest, $F(1, 140) = 4.23$, $p = 0.04$. However, due to the moderate sample size and the groups being approximately equal, the ANOVA is robust to violations of the equal variances assumption (Allen et al., 2018).

A significant main effect for change in positive attitudes toward buprenorphine was obtained, $F(1, 140) = 36.66$, $p < 0.01$, partial $\eta^2 = 0.21$, with positive attitudes posttest (M = 4.92, SD = 1.23) being significantly greater than positive attitudes pretest (M = 4.40, SD = 1.23). A significant main effect for the intervention (i.e., testimonial versus didactic) was not obtained, $F(1, 140) = 0.43$, $p = 0.52$, partial $\eta^2 = 0.00$. The interaction effect between testimonial versus didactic and change of positive attitudes toward buprenorphine was significant, $F(1, 140) = 6.49$, $p = 0.01$, partial $\eta^2 = 0.04$, indicating there was a combined effect for testimonial versus didactic on the change of positive attitudes toward buprenorphine.

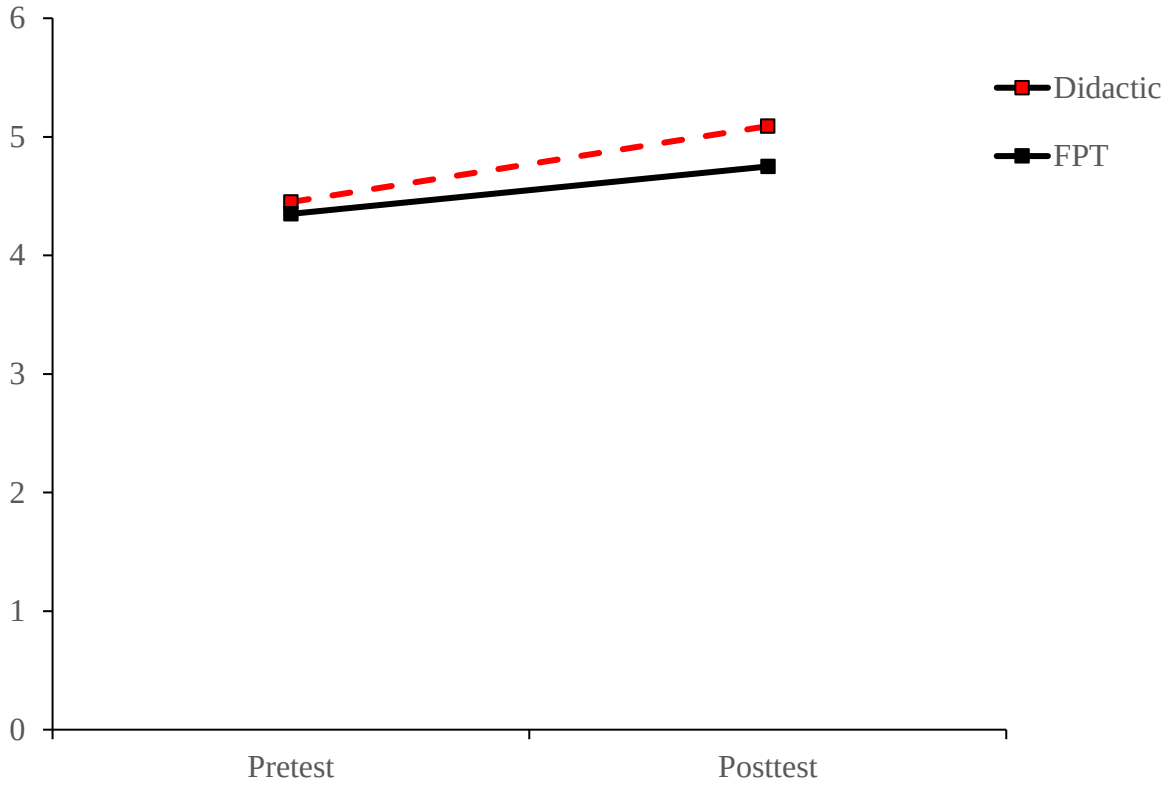
An analysis of simple effects showed that there was not a significant difference in positive attitudes at pretest between testimonial (M = 4.35, SD = 1.21) and didactic (M = 4.45, SD = 1.25); $t(140) = -0.51$, $p = 0.62$, Cohen's $d = -0.08$. An analysis of simple effects showed

that there was not a significant difference in positive attitudes at posttest between testimonial (M = 4.75, SD = 1.22) and didactic (M = 5.09, SD = 0.95); $t(135.08) = 1.82$, $p = 0.07$, Cohen's d = -0.31. Within the didactic group, there was a significant change in positive attitudes toward buprenorphine from pretest to posttest, $t(68) = -5.42$, $p < .01$, which indicates positive attitudes toward buprenorphine increased after exposure to the didactic intervention. Within the testimonial group, there was also a significant change in positive attitudes toward buprenorphine from pretest to posttest, $t(72) = -2.84$, $p = 0.01$, which indicates positive attitudes toward buprenorphine increased after exposure to the testimonial intervention.

Taken together, these data indicate that participants' positive attitudes toward buprenorphine significantly increased for both the testimonial condition and didactic condition. Notably, there was a significantly greater degree of change in the positive attitude scores in the didactic group from pretest (M = 4.35, SD = 1.21) to posttest (M = 5.09, SD = 0.95).

Figure 1

Interaction Effect of Video Type on Attitudes Toward Buprenorphine



Didactic versus testimonial videos and behavioral intentions toward buprenorphine. A mixed ANOVA was conducted to compare the main effects of testimonial (n = 73) versus didactic videos (n = 69) as well as their interaction effects on the change (i.e., pretest versus posttest) of positive behavioral intentions toward buprenorphine. It was hypothesized that participants exposed to the FPT video will report greater increases in positive behavioral intentions toward buprenorphine than those randomized to the didactic video. Levene's Test for Equality of Error Variances showed that variances of the didactic group and testimonial group were equal at the pretest, $F(1, 140) = 0.29$, $p = 0.59$, and unequal at the posttest, $F(1, 140) = 4.39$, $p = 0.04$. However, due to the moderate sample size and the groups being approximately

equal, the ANOVA is not sensitive to violations of the equal variances assumption (Allen et al., 2018).

A significant main effect for change in positive behavioral intentions toward buprenorphine was obtained, $F(1, 140) = 67.86$, $p < .001$, partial $\eta^2 = 0.33$, with positive behavioral intentions posttest ($M = 14.15$, $SD = 3.44$) being significantly greater than positive behavioral intentions pretest ($M = 12.33$, $SD = 3.67$). A significant main effect for the intervention (i.e., testimonial versus didactic) was not obtained, $F(1, 140) = 1.38$, $p = 0.24$, partial $\eta^2 = 0.01$. The interaction effect between testimonial versus didactic and change in positive behavioral intentions toward buprenorphine was significant, $F(1, 140) = 5.11$, $p = 0.03$, partial $\eta^2 = 0.04$, indicating there was a combined effect for testimonial versus didactic on the change in positive behavioral intentions toward buprenorphine.

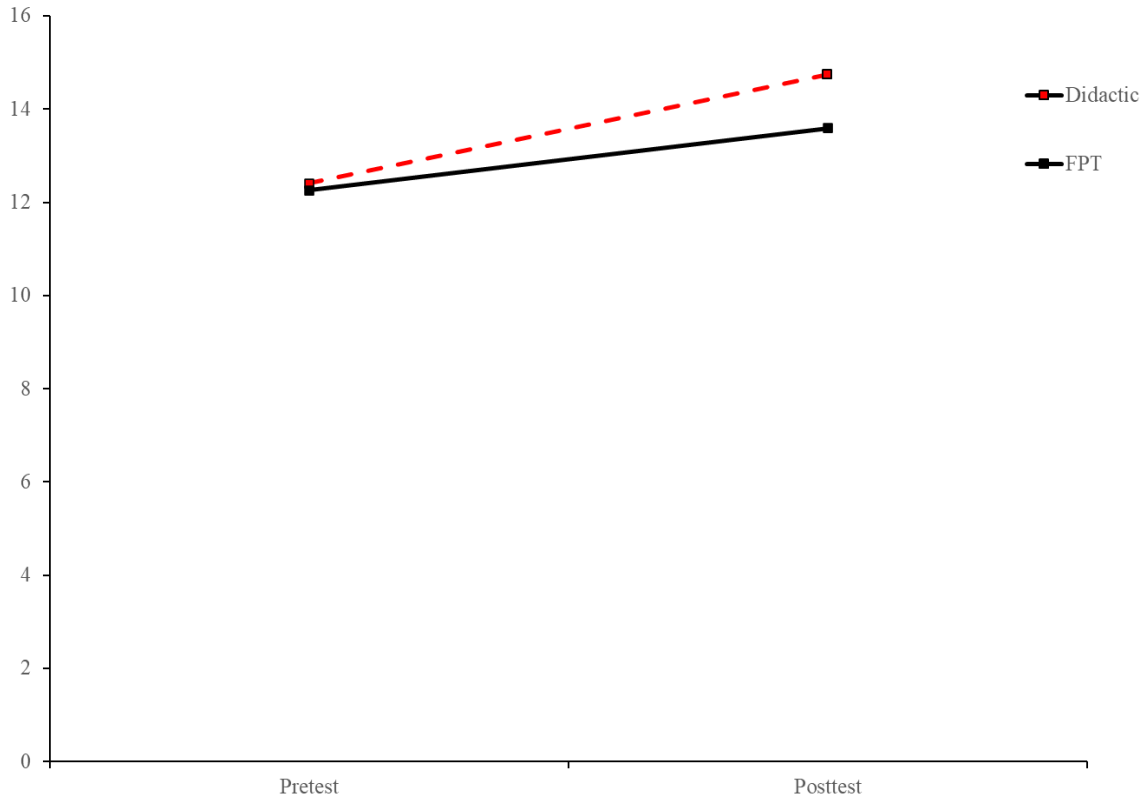
An analysis of simple effects showed that there was not a significant difference in positive behavioral intentions toward buprenorphine at pretest between testimonial ($M = 12.26$, $SD = 3.81$) and didactic ($M = 12.41$, $SD = 3.54$); $t(140) = 0.24$, $p = 0.59$, Cohen's $d = -0.04$. At posttest, Levene's Test for Equality of Error Variances showed that variances of the didactic group and testimonial group were unequal, $F(1, 140) = 4.39$, $p = 0.04$. An analysis at of simple effects showed that there was a significant difference in positive behavioral intentions toward buprenorphine at posttest between testimonial ($M = 13.59$, $SD = 3.87$) and didactic ($M = 14.74$, $SD = 2.82$); $t(135.52) = 2.03$, $p = 0.04$, Cohen's $d = -0.34$. Within the didactic group, there was a significant change in positive behavioral intentions toward buprenorphine from pretest to posttest, $t(68) = -6.44$, $p < .001$, which indicates positive behavioral intentions toward buprenorphine increased after exposure to the didactic education video. Within the testimonial group, there was a significant change in positive behavioral intentions toward buprenorphine

from pretest to posttest, $t(72) = -5.04$, $p < .001$, which indicates positive behavioral intentions toward buprenorphine increased after exposure to the testimonial video.

Taken together, these data indicate that participants' positive behavioral intentions toward buprenorphine significantly increased for both the testimonial condition and didactic condition. Notably, there was a greater degree of change in the positive behavioral intention scores in the didactic group from pretest ($M = 12.41$, $SD = 3.54$) to posttest ($M = 14.74$, $SD = 2.82$).

Figure 2

Interaction Effect of Video Type on Behavioral Intentions Toward Buprenorphine



Subsidiary Post Hoc Analyses

To further explore possible contributing factors to the finding that participants exposed to the didactic video intervention reported a greater magnitude of increases in positive attitudes and behavioral intentions toward buprenorphine, the PI conducted a subsidiary post hoc analysis investigating the potential impact of annual income. Additional variables were created to divide the sample into participants with an annual income of less than $15,000 per year ($n$ = 49) and participants with an annual income of greater than $15,000 per year ($n$ = 93). These groups were created in accordance with the federal poverty level for individuals in the U.S., which is $15,060 in 2024 (U.S. Centers for Medicare and Medicaid Services, 2024).

A factorial ANOVA was conducted to investigate the potential contributing factor of income level on the results of analyses for Hypothesis 5 and Hypothesis 6. The interaction effect between income group and intervention group was not statistically significant for positive attitudes across time (Hypothesis 5), $F(1, 138) = 0.02$, $p = 0.90$. The interaction effect between income group and intervention group was not statistically significant for positive behavioral intentions across time (Hypothesis 6), $F(1, 138) = 0.06$, $p = 0.81$.

Exploratory Analyses

Rurality and buprenorphine-related attitudes and behavioral intentions. The PI planned to use a Pearson's *r* correlation to examine the strength of the correlation between childhood geographic status, current geographic status, levels of positive attitudes, and levels of positive behavioral intentions toward buprenorphine. The Kolmogorov-Smirnov test was used to test the assumptions of normality and goodness-of-fit of distribution. The assumptions for a Pearson's *r* correlation were violated for all four proposed analyses. Thus, the researchers completed Spearman's ρ to examine the strength of the correlation between childhood

geographic status, current geographic status, levels of positive attitudes, and levels of positive behavioral intentions toward buprenorphine. There was a nonsignificant correlation between childhood geographic status and the degree of positive attitudes toward buprenorphine as baseline, $r_s(140) = -0.04$, $p = 0.66$, two-tailed, $n = 142$. There was a nonsignificant correlation between childhood geographic status and the degree of positive behavioral intentions toward buprenorphine at baseline, $r_s(140) = 0.02$, $p = 0.80$, two-tailed, $n = 142$. There was a nonsignificant correlation between current geographic status and positive behavioral intentions toward buprenorphine at baseline, $r_s(140) = -0.03$, $p = 0.70$, $n = 142$. Finally, there was a nonsignificant correlation between current geographic status and positive behavioral intentions toward buprenorphine at baseline, $r_s(140) = -0.04$, $p = 0.64$, $n = 142$. Thus, these findings indicate childhood geographic status, current geographic status, buprenorphine-related attitudes, and buprenorphine-related behavioral intentions are not significantly related.

Problem Resolution and buprenorphine-related attitudes and behavioral intentions. The researchers completed independent-samples t-tests to examine group differences in buprenorphine-related attitudes and behavioral intentions between individuals who reported resolving their alcohol and drug problem ($n = 86$) versus those reported not resolving their alcohol or drug problem ($n = 56$). The Kolmogorov-Smirnov test was used to test the assumptions of normality and goodness-of-fit of distribution. The assumptions for an independent-samples t-test were violated for the resolved and unresolved groups on the buprenorphine-related attitudes measure and for the resolved group on the buprenorphine-related behavioral intentions measure. Levene's test was insignificant for buprenorphine-related attitudes ($p = 0.31$) and buprenorphine-related behavioral intentions ($p = 0.58$), thereby indicating that the assumption of homogeneity of variance was not violated. There was not a

significant difference in buprenorphine attitude scores between the resolution group (M = 4.22, SD = 1.31) versus non-resolution group (M = 4.68, SD = 1.05; $t(140) = 2.20$, p = 0.31, two-tailed, Cohen's d = -0.39). Additionally, there was not a significant difference in behavioral intention scores between the resolution group (M = 11.98, SD = 3.83) versus non-resolution group (M = 12.88, SD = 3.36; $t(140) = 1.431$, p = 0.58, two-tailed, Cohen's d = 0.25). Thus, these findings indicate that there are insignificant differences in buprenorphine-related attitudes and behavioral intentions between individuals who report substance use problem resolution versus those who report unresolved substance use problems.

CHAPTER 4

DISCUSSION

Review of Purpose

The purposes of this study were twofold. First, the PI examined whether participants differ on their baseline attitudes toward buprenorphine as a function of their substance use and treatment history. Second, the PI tested if attitudes and behavioral intentions toward buprenorphine can change to a greater degree after exposure to a FPT video involving buprenorphine versus a didactic education video describing treatment with buprenorphine.

This study aimed to answer the following research questions: (1) Do certain demographic variables (e.g., past treatment utilization, drug court participation, OUD medication use history) impact baseline positive attitudes toward buprenorphine among emerging adults who report history of a substance use problem? (2) Is a FPT video more effective than a didactic education video for increasing positive attitudes and behavioral intentions toward buprenorphine among emerging adults who report history of a substance use problem? (3) Do childhood and current geographic location (i.e., continuum of rural to urban locations) correlate with baseline attitudes and behavioral intentions toward buprenorphine? (4) Do participants who report an unresolved substance use problem differ from participants who report a resolved substance use problem on baseline attitudes and behavioral intentions toward buprenorphine?

Review of Findings

Current Sample Compared to Nationally Representative Sample

In the current study, Hypotheses 1 through 4 related to baseline attitudes toward buprenorphine were largely informed from findings by Bergman and colleagues (2020), which drew from the National Recovery Study (NRS), a nationally representative sample of individuals

in the U.S. who reported resolving a past alcohol or drug problem (Kelly et al., 2017). Below is a brief comparison between Kelly and colleagues' (2017) nationally representative sample and the sample in the current study.

First, it should be noted that the current sample consisted of individuals with a resolved (60.56%) or current (39.44%) substance use problem, whereas the comparison sample consisted entirely of adults who have resolved a past alcohol or drug problem. Regarding gender identity, the NRS (2017) sample consisted of more male-identifying (60%) than female-identifying (40%) participants. The smallest age cohort consisted of emerging adults aged 18 to 24 years (7.1%), and most participants were 25 years or older (92.9%; Kelly et al., 2017). Like the NRS sample, the present study sampled a higher percentage of male-identifying (45.07%) compared to female-identifying participants (40.85%). In contrast, the present study only sampled emerging adults aged 18 to 29 years, whereas the NRS (Kelly et al., 2017) sampled adults of all ages. Moreover, emerging adults were the least-represented group in the NRS (Kelly et al., 2017), which contrasts greatly with the focus of the current study and age range of the present sample. The NRS (Kelly et al., 2017) sample was primarily White-identifying (61.4% of participants identified as White, Non-Hispanic). Similarly, the current sample consisted of 78.87% of White-identifying participants. Additionally, 17.3% of the NRS (Kelly et al., 2017) sample identified as Hispanic or Latino, which is similar to the current sample (18.31%).

Regarding substance use history among the NRS (Kelly et al., 2017) sample, 26.8% of participants reported using only 1 substance type 10 or more times in their lifetime, 23.1% reported using 2 substances 10 or more times, and 49.5% reported using 3 or more substances 10 or more times. Like the NRS (Kelly et al., 2017) the current sample primarily engaged in lifetime polysubstance use. In contrast, the present sample featured a much lower percentage (4.23%) of

participants who used 1 substance 10 or more times in their lifetime. Additionally, 9.15% of the current sample used 2 substances 10 or more times, and 86.62% reported using 3 or more substances 10 or more times. Thus, the current sample appears to have engaged in much greater lifetime polysubstance use compared to a nationally representative sample (Kelly et al., 2017).

When assessed for diagnostic history, 17% of the NRS sample reported a lifetime SUD diagnosis (Kelly et al., 2017). However, 38.03% of the current sample reported a lifetime SUD diagnosis, thereby suggesting the current sample has a much higher prevalence of lifetime SUD compared to a nationally representative sample. Additionally, the current sample featured a greater overall percentage of participants (14.08%) participants who reported lifetime prescriptions of medications to prevent opioid use (14.08%) and alcohol use (15.49%) compared to the NRS (Kelly et al., 2017) sample, which was 4.4% for opioid medications and 4.8% for alcohol medications.

In summary, there are multiple demographic similarities (e.g., racial and gender identity) between the NRS (Kelly et al., 2017) sample and the current sample. However, the current sample appears to report higher levels of polysubstance use, lifetime SUD diagnosis, and MAT engagement compared to the nationally representative NRS (Kelly et al., 2017) sample.

Past Treatment Utilization and Positive Attitudes Toward Buprenorphine

Hypothesis 1 was not supported, but there was a positive correlation approaching significance and trending in the expected direction between degree of past treatment utilization and degree of positive attitudes towards buprenorphine at baseline, $r_s(140) = 0.15$, $p = 0.07$, two-tailed, $n = 142$. This hypothesis was aligned theoretically with the health beliefs model (Humphreys et al., 1994; Rosenstock, 1990), which hypothesizes that when an individual perceives their substance use problem to have greater severity, then they are more likely to seek

out clinical services and other resources to treat their substance use concern. Additionally, this hypothesis was informed by prior research finding that greater past treatment service utilization is associated with more positive attitudes toward medications for OUD (Bergman et al., 2020).

This insignificant result may be partially due to how the PI assumed that greater past treatment utilization would be closely related to perceived problem severity. To be more closely aligned with the health beliefs model (Humphreys et al., 1994; Rosenstock, 1990), it could have been hypothesized that participants who perceived their past substance use concern to be more severe would have a greater degree of positive attitudes toward buprenorphine. Future research should capture both the degree of past treatment utilization in addition to participants' subjective perceptions of current or past problem severity. Moreover, emerging adults are at a lower likelihood to perceive past substance use as problematic when compared to older age cohorts (SAMHSA, 2023). An individual's perception of past problem severity may be more indicative of positive attitudes toward various recovery pathways, such as those involving treatment with buprenorphine, among older adults.

OUD Medication Usage and Positive Attitudes Toward Buprenorphine

Hypothesis 2, which predicted that participants who reported prior usage of OUD medications would report more positive attitudes towards buprenorphine, was not supported. Of note, there was a sizable difference between groups in that there was a greater number of participants who reported no past OUD medication usage (n = 122) than those who reported past OUD medication usage (n = 20). This large discrepancy increases the probability of a Type II error and that a significant difference between groups was potentially undetected meaning that there was a higher likelihood that attitudinal differences between participants with lifetime OUD medication usage versus those who reported no lifetime medication usage were not detected.

Additionally, the present study did not capture participants' perceptions of effectiveness or satisfaction with their OUD medication regimen. There is a chance that participants who reported lifetime OUD medication usage did not have a positive or desired experience with those medications, which may impact their current attitudes toward medications like buprenorphine.

There was a small effect size (Cohen's $d = 0.34$) of lifetime OUD medication usage in that participants with prior OUD medication usage reported more positive attitudes ($M = 4.80$, $SD = 1.51$) toward buprenorphine compared to individuals who did not report past OUD medication usage ($M = 4.34$, $SD = 1.17$). Though the results were nonsignificant, these data were trending in the expected direction. Prior research indicates that individuals with a lifetime history of utilizing agonist medications for OUD are more likely to report positive attitudes toward agonist medication (Hoffman et al., 2021). This finding is consistent with prior research that individuals with a stigmatized identity are more likely to have positive attitudes toward their ingroup (Rüsch et al., 2009). Given individuals utilizing MAT are a highly stigmatized subgroup of recovery populations (Allen & Harocopos, 2016; Krawczyk et al., 2018; Monico et al., 2015), participants in the current study who have engaged in MAT may generally have more positive attitudes toward medications like buprenorphine as well as individuals engaging in MAT.

Problem Resolution Time and Positive Attitudes Toward Buprenorphine

Hypothesis 3, which predicted that participants who resolved their substance use problem more recently would report more positive attitudes toward buprenorphine, was not supported. This hypothesis was derived from a study by Bergman and colleagues (2020) that found an association between more recent problem resolution and positive attitudes toward agonist medications. Of note, the current study featured a smaller sample of individuals who reported resolving an alcohol or drug problem ($n = 86$) and was not nationally representative, whereas the

study by Bergman and colleagues (2020) drew from a significantly larger nationally representative sample (n = 1946). Additionally, the current study only sampled emerging adults between the ages of 18 and 29 years, whereas the sample from Bergman and colleagues (2020) sampled adults of all ages. These notable differences in samples between the current study and the study by Bergman and colleagues (2020) may be the primary reason for the discrepancy in findings regarding attitudes across the studies.

Drug Court Involvement and Positive Attitudes Toward Buprenorphine

Hypothesis 4, which predicted that participants who reported lifetime drug court involvement would report less positive attitudes toward buprenorphine compared to participants with no history of drug court involvement, was not supported. This hypothesis was derived from prior research that found past drug court participation is associated with more negative attitudes toward agonist medications (Bergman et al., 2020). Of note, there were multiple sample differences between the participants in the current study and Bergman and colleagues' (2020) sample. Key differences in the present sample include that the sample was not nationally representative; the sample included individuals with current and resolved substance use problems; and the sample only included emerging adults between 18 to 29 years of age. Thus, there are notable differences in demographics and lived experiences across these samples, which may account for differences in attitudes.

Additionally, there was a large discrepancy in the number of participants between the drug court involvement group (n = 11) versus non-involvement group (n = 131). This large discrepancy increases the probability of a Type II error and that a significant difference between groups was potentially undetected meaning that there was a higher likelihood that attitudinal differences between participants with lifetime drug court involvement versus participants with no

history of drug court involvement were not detected. In contrast with prior findings (Bergman et al., 2020), there was a moderate relationship between drug court involvement and degrees of positive attitudes toward buprenorphine between the groups, such that on average the participants with lifetime drug court involvement reported more positive attitudes (M = 4.91, SD = 1.04) toward buprenorphine compared to participants with no history of drug court involvement (M = 4.36, SD = 1.24). This could be interpreted as a reflection of increased utilization and greater degrees of positive attitudes toward buprenorphine in drug courts over time, though it should be noted that drug courts are still in the initial phases of implementing MAT across the nation (Farago et al., 2023). However, any interpretations of this finding should be made with great caution given the small sample size, vast discrepancy between group sizes, and lack of significance of findings.

Impact of Didactic Versus Testimonial Videos on Attitudes and Behavioral Intentions Toward Buprenorphine

Hypothesis 5, which predicted that participants exposed to the FPT video will report greater increases in positive attitudes toward buprenorphine than those randomized to the didactic video, was not supported. Rather, the opposite was found in that there were significantly greater increases in positive attitudes toward buprenorphine found among participants who watched the didactic video compared to participants who watched the testimonial video. Though the didactic video resulted in greater increases in positive attitudes, both the didactic and FPT videos resulted in significant increases in positive attitudes toward buprenorphine.

Hypothesis 6, which predicted that participants exposed to the FPT video will report greater increases in positive behavioral intentions toward buprenorphine than those randomized to the didactic video, was not supported. Similar to the findings for Hypothesis 5, the opposite

was found in that there were significantly greater increases in positive behavioral intentions toward buprenorphine found among participants who watched the didactic video compared to participants who watched the testimonial video. Also similar to the results for Hypothesis 5, though the didactic video resulted in greater increases in positive behavioral intentions, both the didactic and FPT videos resulted in significant increases in positive behavioral intentions toward buprenorphine.

As stated previously, some studies indicate FPS interventions outperform traditional didactic methods in improving various health-related attitudes, behavioral intentions, and behaviors (Bokhour et al., 2016; Campbell et al., 2015; Kreuter et al., 2010). However, available research suggests that FPS is particularly effective for individuals who identify with low-income or racial or ethnic minority groups who may be more likely to have lower levels of health literacy (Bokhour et al., 2016; Kreuter et al., 2010; Lipsey et al., 2020). The vast majority of the current sample identified as White (78.9%), approximately two-thirds of the current sample (93 or 65.49% of participants) reported an annual income of $15,000 or greater, and 139 participants (97.89%) reported educational attainment levels of high school diploma or GED or greater, which starkly contrasts with samples of prior studies where FPS outperformed other interventions (Bokhour et al., 2016; Campbell et al., 2015; Kreuter et al., 2010; Lipsey et al., 2020). It is likely that the current sample had higher levels of health literacy, which may have resulted in the fact-based, didactic video intervention being more impactful regarding buprenorphine-related attitudes and behavioral intentions.

The PI conducted subsidiary post hoc analyses utilizing a factorial ANOVA to investigate the potential contributing factors of annual income on the findings of Hypothesis 5 and Hypothesis 6. As stated previously, the results were nonsignificant, which indicates annual

income level was not a contributing factor for changes in positive attitudes and behavioral intentions toward buprenorphine. Though these findings were nonsignificant, there are multiple other potential indicators of health literacy levels which were not explored in post hoc analyses, such as educational attainment levels and identifying with marginalized cultural groups (Lipsey et al., 2020). These other potential health literacy indicators can be explored in future analyses to assess for their potential impact on the results of the study.

Consistent with the theory of planned behavior (Ajzen, 1991), the findings of Hypothesis 5 mirrored the findings of Hypothesis 6. In other words, increases in positive attitudes coincided with increases in positive behavioral intentions among the sample. Though there were significantly greater degrees of increases in positive attitudes and behavioral intentions toward buprenorphine in response to the didactic video, both intervention types were successful in significantly increasing positive attitudes and behavioral intentions. Given these findings, both intervention types appear to be viable avenues for future exploration for increasing engagement in treatment with buprenorphine among emerging adults.

Exploratory Findings

Exploratory findings indicated childhood geographic status, current geographic status, buprenorphine-related attitudes, and buprenorphine-related behavioral intentions are not significantly related. Please see the Rural Implications section below for further discussion regarding these findings.

Furthermore, other exploratory findings indicated that there are no significant differences in buprenorphine-related attitudes and behavioral intentions between individuals who report substance use problem resolution (n = 86) versus those who report unresolved substance use problems (n = 56). There was a general pattern in that participants with current substance use

problems reported more positive attitudes and behavioral intentions toward buprenorphine compared to participants who reported substance use problem resolution. However, any data trends here should be observed with caution given the small overall sample size and notable differences in size between problem resolution and unresolved problem groups.

Clinical Implications

The findings of the current study contain multiple potential implications for mental health professionals and multidisciplinary teams. First, mental health professionals commonly provide psychoeducation, which can be defined as "… a brief process of therapy focused on the communication of varied aspects of disease- and/or treatment-related information" (Magill et a., 2021, p. 4). When incorporated into treatment, psychoeducation is associated with beneficial outcomes including lower relapse rates (Kargin & Hicdurmaz, 2020), decreased self-stigma (Mehel Tutuk & Budak, 2023), and increased motivation to change substance use behavior (Yeh et al., 2017). The didactic intervention video developed for the purposes of this study is aligned with typical psychoeducation interventions in that it was brief, provided information about OUD, and provided information on treatment with buprenorphine as a potential component to one's treatment and recovery process. If providers more purposefully incorporate psychoeducation into the treatment process, clinicians may be more successful in engaging emerging adult populations in treatment with buprenorphine.

Second, peer recovery support specialists, which can be defined as non-clinical professionals in recovery from SUD who provide education and support to peers, often share their lived experiences with their peers in or seeking addiction recovery (Reif et al., 2014). Though the current research base is limited, current evidence suggests that peer recovery support specialists may be helpful in aiding peers in lowering relapse rates, greater treatment retention,

and more positive relationships with SUD treatment providers (Eddie et al., 2019). Despite a lack of studies, current evidence suggests that individuals receiving treatment with buprenorphine may display increased engagement in treatment if also receiving peer recovery support services (Mills Huffnagle et al., 2022). Given the current study's testimonial video intervention was successful in increasing positive attitudes toward buprenorphine, this further supports the argument for utilizing peer recovery support specialists within multidisciplinary team settings. By increasing treatment engagement with buprenorphine among emerging adults, this may help decrease the disproportionate negative effects of opioid misuse and OUD among this population (Gomes et al., 2018).

Rural Implications

As part of the exploratory analyses, the strength of the correlation between childhood geographic status, current geographic status, levels of positive attitudes, and levels of positive behavioral intentions toward buprenorphine were examined. As stated previously, no significant associations were found between participants' childhood or current geographic status (i.e., rural to urban) and attitudes or behavioral intentions toward buprenorphine. In general, the current sample was slightly more urban in terms of childhood and present geographic status. Available data indicates that rural populations display lower educational attainment and income levels compared to urban populations (Byun et al., 2012), which may predispose rural individuals to be generally more receptive to FPT interventions as opposed to more fact-based, didactic interventions (Lipsey et al., 2020).

Future research efforts should seek to evaluate attitudes toward OUD medications and MAT recovery pathways utilizing quantitative methods. Previous research seems to primarily rely on qualitative methods (Beachler et al., 2021; Richard et al., 2020). Additionally, future

studies could more specifically test didactic education versus FPS interventions on attitudes toward medication-assisted treatment among rural populations. FPS is particularly effective among populations with lower educational attainment and lower socioeconomic status (Lipsey et al., 2020). Given the hardships endured by many rural communities due to the opioid epidemic (Rigg et al., 2018), future studies developing interventions to increase positive attitudes toward MAT among rural populations are warranted. To better target rural populations in future studies, researchers can utilize predetermined demographic filters in online studies, such as those found on Prolific, to efficiently access high quality, vetted participants from rural geographic areas.

Limitations

Multiple limitations were identified in the present study. First, after further review of the FPS literature, prior studies utilized actual patients who shared their lived experience (Lipsey et al., 2020). The PI was unable to find a volunteer with lived experience of using buprenorphine in recovery. Thus, the PI hired a volunteer and wrote a fictionalized script informed by currently available FPS videos available online involving buprenorphine. However, prior research indicates that fictionalized narratives are also effective in changing health-related attitudes and that these changes are partially explained through the mechanisms of transportation theory (Murphy et al., 2013).

Second, there was a discrepancy between the lengths of the didactic (3 minutes 37 seconds) versus FPS (4 minutes 30 seconds) videos. This discrepancy suggests participants randomly assigned to the FPS video may have needed to utilize more cognitive resources when compared to the participants assigned to the didactic video. Additionally, the FPS video was more accessible (Flesch Reading Ease = 71.6, Flesch-Kincaid Grade Level = 5.5) as compared to the didactic video (Flesch Reading Ease = 34.6, Flesch-Kincaid Grade Level = 10.2). To control

for these differences, participants were asked comprehension check questions immediately following viewing the video. Participants were excluded from analyses if they failed both comprehension check items. Despite these differences, the didactic video was associated with greater change than the FPS video.

Third, across the analyses for Hypothesis 2 and Hypothesis 4, there were large discrepancies between groups in terms of sample size. These large between-group sample size discrepancies increased the probability of Type II errors such that significant between-group differences were potentially undetected. For instance, regarding the findings for Hypothesis 4, this means there was a higher likelihood that attitudinal differences between drug court (n = 11) involved versus non-involved (n = 131) participants were not detected.

Future Directions

Notably, both video intervention types were successful in significantly improving positive attitudes toward buprenorphine, though the didactic video resulted in an attitudinal increase of greater magnitude. This finding may be further informed by literature on persuasion (e.g., Fabrigar & Petty, 1999). Studies have found a relationship between general needs and specific persuasion interventions (Fabrigar & Petty, 1999). Specific needs can include cognition, a personal gravitation toward engaging in challenging thinking tasks and finding understanding in the world (Cacioppo & Petty, 1982), and affect, a personal gravitation toward engaging in emotional material (Maio & Esses, 2001). Individuals with greater general need for affect are more persuaded by interventions targeting affect-based attitudes, and individuals with greater general need for cognition are more persuaded by interventions targeting cognition-based attitudes (Finkel & Baumeister, 2019; Haddock et al., 2008). The persuasion intervention was more successful when the style (i.e., cognitive versus affective) of persuasion attempts matched

with the primary base of the attitude (i.e., cognitive versus affective; Fabrigar & Petty, 1999). Future research can investigate if need for affect versus need for cognition impacts participants' responses to didactic versus testimonial video interventions targeting attitudes and behavioral intentions toward buprenorphine.

To investigate the research question regarding lifetime OUD medication usage and attitudes toward buprenorphine in future studies, it may be worth pursuing different sampling methods, such as stratified random sampling, where participants could be randomly selected from subgroups consisting of individuals with lifetime OUD medication usage versus individuals with no lifetime OUD medication usage. Using this method, researchers can examine differences between relatively evenly sized groups of participants. Additionally, to access samples of individuals with a lifetime history of OUD medication usage, it may benefit researchers to engage in creative recruiting strategies, such as recruiting participants from recovery community organizations or treatment programs that provide MAT. Similar sampling strategies could also be utilized to target the research question regarding lifetime drug court history and attitudes toward buprenorphine.

Finally, as stated previously, FPS interventions appear to be particularly effective when targeting populations with lower levels of health literacy (Lipsey et al., 2020). The current sample featured participants who were primarily White-identifying and reported higher levels of income and educational attainment, which contrasts greatly with the demographics of samples of under-resourced populations commonly targeted in health-related FPS studies (Lipsey et al., 2020). The current study could be replicated sampling primarily individuals with lower levels of health literacy or who identify with under-resourced or marginalized groups. For instance, a future study could test a FPS intervention featuring a person in recovery utilizing buprenorphine

who identifies with the Black or Hispanic community, which are communities who have reported more negative attitudes toward agonist medications for OUD (Bergman et al., 2020). Members of marginalized communities may hold more negative attitudes toward medications for OUD given systemic issues regarding greater resources being allocated to combating the opioid crisis in communities that are primarily White and with greater socioeconomic resources (Stein et al., 2018). Interventions featuring and targeting members of marginalized groups may help increase engagement in treatment with buprenorphine and reduce the harms associated with OUD among these underserved populations.

Conclusion

The purpose of the present study was twofold. First, the study aimed to examine whether participants differ on their baseline attitudes toward buprenorphine as a function of their substance use and treatment history. Second, the study aimed to test if positive attitudes and behavioral intentions toward buprenorphine can change to a greater degree after exposure to a FPT video involving buprenorphine versus a didactic education video describing treatment with buprenorphine. This study was a randomized controlled trial featuring an experimental design. No significant findings emerged from the analyses related to associations between participant substance use and treatment history and baseline attitudes toward buprenorphine. However, both the didactic and FPT videos resulted in significant increases in positive attitudes and behavioral intentions toward buprenorphine, though there was a greater magnitude of increases reported among participants randomized to the didactic video intervention. This indicates that both intervention types can increase positive attitudes and behavioral intentions toward buprenorphine, but the didactic video was more effective among the current sample. It should be noted that given the size and the lack of a nationally representative current sample, the

generalizability of these findings should be interpreted with caution. Future studies should incorporate need for affect versus need for cognition, alternative sampling strategies, and target under-resourced communities in the exploration of FPT versus didactic video interventions on buprenorphine-related attitudes and behavioral intentions.

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APPENDIX A

VIDEO SCRIPTS AND BUPRENORPHINE ATTITUDES AND BEHAVIORS QUESTIONNAIRE

First-Person Testimonial Video Script:

Actor: Hi there, I just would like to share a little bit about my personal experience with recovery from opioid use disorder and my experience taking buprenorphine. During college, I started using opioids occasionally at parties, like painkillers including hydrocodone and Oxycodone. I mainly just used painkillers on weekends to have fun and get high with my friends. For the first two years of college, everything was going OK. I studied hard during the week for class and partied on the weekends. Over time, classes became harder, and I started getting really stressed. My partner broke up with me around that time – I thought we might get married. It was pretty serious – so that just added to my stress levels. Pretty soon I started using painkillers just to decompress during the week, cope with the stress, and relax a little bit. After a few months, I noticed that I was starting to crave painkillers when I woke up in the morning. So, I would just use a little bit before class. After a few months of that, I began feeling sick, almost like I had a cold, whenever I would go a few hours without using. By the time I hit my senior year, I was using all of my money from my part-time job on painkillers. I would borrow money from my friends and then make up excuses when I couldn't pay them back. My grades slipped, and I was placed on academic leave by my university. My friends were getting really worried about me, though I kept telling them everything was OK – that I just needed to figure out better ways to deal with stress. Things came to a head when my parents caught me trying to pawn some of their jewelry so I could afford to keep using. I felt really guilty about this, and I tried to quit on my own multiple times, but the withdrawals were too painful.

About a year and a half ago I decided it was time to do something about my problem. First, I went to a local therapist. After a few sessions of their help, I realized I had a pretty serious substance use problem. They offered some referrals, helped me make a few phone calls, and then I went to an outpatient program – meaning they helped people during the day – people didn't stay overnight like they do in rehab. I talked to the therapist there about my struggles with painkillers and how I tried to quit on my own a bunch of times. After we talked, they shared their recommendations. One of them was to get involved in group therapy and individual therapy. Another suggestion was for me to take a medication that lots of people call suboxone. They called it buprenorphine because that's what the active ingredient is, so that's what I'll call it here. Because, as they told me, taking medications like buprenorphine are the most tried and true way to reduce my risk of overdose and would help reduce cravings to help me get back to the life that I wanted to live. I was initially skeptical because I had never taken a medication before, and I had heard that the medication itself was an opioid; it made me nervous. When I talked to the nurse practitioner-she was the one who prescribes it, she reassured me that it was not the same as using painkillers the way I used to. It would help with cravings without the problems that come with getting high from painkillers. She also warned me about potential side effects-like dizziness and feeling tired-but assured me we would work together to make sure I was on the right dose. I gave it some thought and decided to give it a try-I was willing to do whatever it took to get my life back on track. It was the best decision I ever made.

Things got better very quickly. I started taking a couple classes again, made some new friends, and was going to therapy. At the same time, I was still struggling with cravings. I thought maybe

I just had to deal with them because that was a part of the process. One day I was at a party, someone offered me a painkiller, I was having a bad day and I took one. After that for a little while I was using painkillers again. My life started getting worse again, and I was feeling guilty. Luckily, I was still connected to the outpatient program I went to at first, and I asked the nurse practitioner for an appointment. Together we decided to try increasing the dose to help with my cravings. She also helped me enroll in outpatient groups so that I could get some additional support and develop more coping skills with people going through a similar situation. I was also able to find a recovery support meeting to go to a few times a week to get more involved in my local recovery community. I even volunteer there sometimes. Now, about a year and a half after I started treatment with buprenorphine, I'm back in school full time, I've got a part time job, and my family and friends are all really proud of me. Buprenorphine was a crucial tool in helping me get back to living the life I want to live.

Duration: 4 minutes 30 seconds

Didactic Video Script:

Actor: Hi there, I just wanted to take a few moments to tell you a little bit about buprenorphine. Buprenorphine is a partial opioid agonist medication used to treat opioid use disorder. Opioid use disorder is a disease where individuals become impaired or distressed due to their pattern of opioid use. Common symptoms of opioid use disorder include cravings or urges to use opioids, increased physical tolerance, or needing greater amounts of opioids to achieve a desired effect, physical or psychological withdrawals, and impaired performance across different areas of life, such as work or school. One of the main signs of opioid use disorder is a loss of control of using opioids where individuals keep craving and using despite negative consequences. Fortunately, opioid use disorder is treatable. An effective and common form of treatment for opioid use disorder is medication-assisted treatment.

Buprenorphine is commonly prescribed as a part of a medication-assisted treatment plan for opioid use disorder, which also involves other forms of support, such as counseling and support group meetings. Contrary to popular belief, people who take buprenorphine feel like their normal selves-they do not experience a high or any form of intoxication when taken as prescribed. Rather, Buprenorphine allows patients to minimize or eliminate opioid withdrawal symptoms and reduces cravings for opioids. The available research suggests that individuals who take buprenorphine as prescribed are at lower risk for things like continuing to use illicit opioids, death by overdose, and leaving treatment prematurely. There are different types of Buprenorphine formulations including tablets, sublingual (under the tongue) films, or injections. Two of the most popular brand name medications containing buprenorphine include Suboxone and Subutex. As mentioned previously, taking Buprenorphine is just one part of a full treatment

plan for opioid use disorder. It is highly recommended for patients to also participate in individual or group counseling and to develop behavioral coping skills to deal with stressors in a healthy way. Additionally, some patients' family members and loved ones may benefit from attending support groups and counseling to receive their own support and to learn how they can support the patients' recovery.

In summary, medications such as Buprenorphine are just one part
of a larger treatment or recovery plan, which may also include support groups and counseling. When beginning a treatment plan with Buprenorphine, patients are advised to take their first dose after experiencing physical withdrawal symptoms. Prescribers and their patients work together over time to find a dose that works best for the patient to reduce their withdrawal symptoms and cravings to the desired point. The length of time that a patient takes Buprenorphine is collaboratively decided between the patient, prescriber, and other treatment providers. Some people take Buprenorphine for a few days to manage withdrawals, whereas others take Buprenorphine for multiple years as a part of their long-term recovery. If a patient is maintaining long-term recovery and wants to stop taking Buprenorphine, then they can work with their prescriber to gradually reduce their dosage over time. As with any other medications, some may experience side effects, such as body aches, dizziness, constipation, sweating, and fatigue. More serious side effects may include but are not limited to respiratory distress, overdose, liver problems, and withdrawal. Patients who experience side effects should consult with their prescriber as soon as possible. However, in general, buprenorphine is a highly effective and safe medication for treating opioid use disorder.

Duration: 3 minutes 37 seconds

Buprenorphine Attitudes and Behaviors Questionnaire: Pretest

Instructions: Buprenorphine is a medication commonly prescribed for individuals with opioid use disorder. Please rate your level of agreement with each statement below.

1. It is a good idea for someone who is experiencing a problem with opioid use to take the medication buprenorphine.
2. If I was experiencing a problem with opioid use, I would take the medication buprenorphine.
3. I would suggest the medication buprenorphine to a family member or friend who was experiencing a problem with opioid use.
4. I would suggest the medication buprenorphine to someone I just met who was experiencing a problem with opioid use if they asked me my opinion.
5. Please select Agree.

Response Options:

1. Strongly disagree
2. Disagree
3. Somewhat disagree
4. Somewhat agree
5. Agree
6. Strongly agree

Buprenorphine Attitudes and Behaviors Questionnaire: Posttest

Instructions: Buprenorphine is a medication commonly prescribed for individuals with opioid use disorder. Please rate your level of agreement with each statement below.

6. It is a good idea for someone who is experiencing a problem with opioid use to take the medication buprenorphine.
7. If I was experiencing a problem with opioid use, I would take the medication buprenorphine.
8. I would suggest the medication buprenorphine to a family member or friend who was experiencing a problem with opioid use.
9. I would suggest the medication buprenorphine to someone I just met who was experiencing a problem with opioid use if they asked me my opinion.
10. Please select Disagree.

Response Options:

7. Strongly disagree
8. Disagree
9. Somewhat disagree
10. Somewhat agree
11. Agree
12. Strongly agree

APPENDIX B

ADDITIONAL QUESTIONNAIRES

Rurality

How would you rate the geographical region where you spent the majority of your childhood?

1. Rural
2.
3.
4.
5.
6.
7.
8.
9.
10. Urban

How would you rate your current geographical region?

1. Rural
2.
3.
4.
5.
6.
7.
8.

9.

10. Urban

Demographics Form

What is your age in years?

- Dropdown box, range 18 to 29

What is your gender?

- Female
- Male
- Transgender Male to Female
- Transgender Female to Male
- Not Listed (please specify): [Open-ended response option]
- Prefer not to answer

Do you consider yourself to be:

- Bisexual
- Gay or lesbian
- Heterosexual or straight
- Not Listed (please specify): [Open-ended response option]
- Prefer not to answer

What is your race? Please select all that apply.

- American Indian or Alaska Native
- Asian
- Black or African American
- Native Hawaiian or Other Pacific Islander
- Middle Eastern or North African
- White

- Not Listed (please specify): [Open-ended response option]
- Prefer not to answer

What is your ethnicity?

- Hispanic or Latino
- Not Hispanic or Latino
- Prefer not to answer

Do you consider yourself a member of a religious group? If so, which of the following best describes it? Select ALL that apply.

- No/None
- Baptist
- Buddhist
- Catholic
- Evangelical
- Hindu
- Jewish
- Lutheran
- Methodist
- Mormon
- Muslim
- Presbyterian
- Other Protestant
- Shinto
- Native American Church

- Traditional Native American
- Christian (non denominational or not specified)
- Some other group (please describe): [Open-ended response option]
- Prefer not to answer

Where have you been living or staying most of the time in the last 90 days (3 months)?

- With family or other relatives
- With group of friend(s) or non-family members (non-institutional)
- Alone in own dwelling
- Homeless
- Hospital or rehabilitation facility
- Jail, prison, or other correctional facility
- Sober living environment (e.g., halfway house, Oxford house, sober dorm, etc.)
- Other (please specify): [Open-ended response option]
- Prefer not to answer

What is your marital status?

- Married
- Widowed
- Divorced
- Separated
- Never married
- Living with partner
- Other (please specify): [Open-ended response option]
- Prefer not to answer

What is your highest level of educational attainment?

- Some high school
- High school diploma or general educational development (GED)
- Some college
- Bachelor's degree
- Some graduate school
- Masters degree
- Doctoral degree
- Prefer not to answer

I regularly work 25 hours a day.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

What best describes your yearly income?

- Below $10,000 a year
- Between $10,000 and $15,000 a year
- Between $15,000 and $25,000 a year
- Between $25,000 and $50,000 a year
- Between $50,000 and $75,000 a year
- Between $75,000 and $100,000 a year
- Between $100,000 and $150,000 a year
- Between $150,000 and $250,000 a year

- More than $250,000 a year
- Prefer not to answer

Testimonial Video Comprehension Check Items

Based on the video you just watched, what type of professional prescribed Buprenorphine to the individual in the video? You will have two opportunities to get this question correct.

- Psychiatrist
- Social Worker
- Nurse Practitioner
- Licensed Professional Counselor

Based on the video you just watched, what type of treatment program did the individual in the video attend? You will have two opportunities to get this question correct.

- Outpatient
- Inpatient
- Residential
- Crisis Stabilization Unit

Didactic Video Comprehension Check Questions

Based on the video you just watched, what type of disorder is Buprenorphine prescribed to treat? You will have two opportunities to get this question correct.

- Obsessive-compulsive disorder
- Opioid use disorder
- Cannabis use disorder
- Generalized anxiety disorder

Based on the video you just watched, what is a popular brand name medication containing Buprenorphine? You will have two opportunities to get this question correct.

- Zoloft
- Neurontin
- Xanax
- Suboxone

Substance Use and Diagnostic History

Please select the substances that you have used ten times or more in your lifetime.

Some of these substances may have been prescribed to you by a physician. Only select them if you have used the substance not as prescribed or without a prescription. Do not include medications that you took exactly as prescribed.

- Alcohol
- Marijuana
- Cocaine (e.g., coke, crack, freebase)
- Heroin
- Narcotics other than heroin (e.g. Codeine, Darvocet, Fentanyl, Morphine, OxyContin, Oxycodone, Percocet, Vicodin, Speedball (heroin and cocaine), Opium)
- Methadone
- Suboxone/Subutex/Buprenorphine
- Amphetamine (uppers) (e.g., Amphetamine (uppers, speed), Ecstasy/MDMA (molly), Adderall, Concerta, Ritalin)
- Methamphetamine (crank, meth, crystal)
- Benzodiazepines (sedatives/tranquilizers) (e.g., Ativan, Fiorinal, Klonopin, Librium, Phenobarbital, Valium, Xanax)
- Barbiturates (downers) (e.g., Clonidine, Phenobarbital, Soma (muscle relaxant), Butalbital, Quaaludes)
- Hallucinogens (e.g., Ketamine (special K), LSD (acid), Mescaline (peyote), Mushrooms, PCP (angel dust))
- Synthetic Marijuana/Synthetic Drugs (e.g., Spice, K2, mephedrone, bath salts)

- Inhalants (e.g., fumes from gasoline/glue, aerosols, amyl nitrates (poppers, rush), nitrous oxide (whippets))
- Steroids
- Other (please specify): [Open-ended response option]

Please select your primary substance(s) or drug(s) of choice. Please select all that apply for you.

- Alcohol
- Marijuana
- Cocaine (e.g., coke, crack, freebase)
- Heroin
- Narcotics other than heroin (e.g. Codeine, Darvocet, Fentanyl, Morphine, OxyContin, Oxycodone, Percocet, Vicodin, Speedball (heroin and cocaine), Opium)
- Methadone
- Suboxone/Subutex/Buprenorphine
- Amphetamine (uppers) (e.g., Amphetamine (uppers, speed), Ecstasy/MDMA (molly), Adderall, Concerta, Ritalin)
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- Hallucinogens (e.g., Ketamine (special K), LSD (acid), Mescaline (peyote), Mushrooms, PCP (angel dust))
- Synthetic Marijuana/Synthetic Drugs (e.g., Spice, K2, mephedrone, bath salts)

- Inhalants (e.g., fumes from gasoline/glue, aerosols, amyl nitrates (poppers, rush), nitrous oxide (whippets))
- Steroids
- Other (please specify): [Open-ended response option]

Which of the following substance use and/or mental health conditions have you ever been diagnosed with?

- Alcohol Use Disorder
- Other Drug Use Disorder (e.g., opioid) Please specify which drug: [open-ended response option]
- Agoraphobia
- Anorexia
- Bipolar Disorder (I or II)
- Bulimia
- Delusional Disorder
- Dysthymic Disorder
- Generalized Anxiety Disorder
- Major Depressive Disorder
- OCD (Obsessive-Compulsive Disorder)
- Panic Disorder
- Personality Disorder
- PTSD (Posttraumatic Stress Disorder)
- Schizoaffective Disorder

- Schizophrenia
- Social Anxiety Disorder
- Specific Phobia
- Other mental health diagnosis (please specify): [Open-ended response option]
- I have never been diagnosed with any of these conditions
- I am not sure if I have been diagnosed with any of these conditions

Criminal Justice System Involvement

Have you ever been arrested?

- Yes
- No

How many times?

- Dropdown box: 1-50, more than 50

Have you ever participated in a drug court?

- Yes
- No

Are you currently involved in the criminal justice system?

- No
- Yes, awaiting court hearing
- Yes, on probation
- Yes, on parole
- Yes, other (please specify): [Open-ended response option]

Treatment History and Recovery Support Services

Which of the following recovery support services or treatment programs have you ever participated in?

- Sober living environment (e.g., halfway house, Oxford house, sober dorm, etc.)
- Recovery high schools
- College recovery programs/communities
- Recovery community centers
- Faith-based recovery services (e.g., an addiction recovery support group provided by a church, synagogue, mosque, etc.)
- State or local recovery community organization (RCO)
- Outpatient addiction treatment
- Alcohol/drug detoxification services
- Inpatient or residential treatment
- None
- Other, please specify: [Open-ended response option]

*Note: Ask the following question if [Outpatient addiction treatment] is selected above.

How many times have you participated in outpatient addiction treatment?

- [Number box]

*Note: Ask the following question if [Alcohol/drug detoxification programs] is selected above:

How many times have you participated in alcohol/drug detoxification programs?

- [Number box]

*Note: Ask the following question if [Inpatient or residential treatment] is selected above?

How many times have you participated in inpatient or residential treatment?

- [Number box]

Have you ever been prescribed a medication to help prevent you from drinking alcohol?

- Yes
- No

*Note: Ask following two questions if answered [Yes] to previous question

Which of the following medications have you ever used to prevent you from drinking alcohol?

- Campral (Acamprosate)
- Revia (Naltrexone)
- Selincro (Nalmefene)
- Topamax (Topiramate)
- Antabuse (Disulfiram)
- Lioresal (Baclofen)
- Other (please specify): [Open-ended response option]

*Note: Ask the following question for each medication selected above:

Are you currently still taking [medication name] to prevent yourself from drinking alcohol?

- Yes
- No

Have you ever been prescribed a medication to help prevent you from using opioids (e.g., heroin, OxyContin, Percocet)?

- Yes
- No

*Note: Ask following two questions if answered [Yes] to previous question

Which of the following medications have you ever used to prevent you from using opioids?

- Methadone
- Orlaam (Levomethadyl acetate)
- Suboxone (Buprenorphine-naloxone)
- Subutex (Buprenorphine)
- Revia (Oral naltrexone)
- Vivitrol (Long-acting injectable naltrexone)
- Other (please specify): [Open-ended response option]

*Note: Ask the following question for each medication selected above:

Are you currently still taking [medication name] to prevent yourself from using opioids?

- Yes
- No

Have you ever been prescribed a psychiatric medication for a mental health condition?

- Yes
- No

Which of the following self-help groups have you ever attended to help you with your alcohol/drug problem?

- Alcoholics Anonymous (AA)
- Narcotics Anonymous (NA)
- Marijuana Anonymous (MA)
- Cocaine Anonymous (CA)
- Crystal Methamphetamine Anonymous (CMA)
- SMART Recovery
- LifeRing Secular Recovery

- Moderation Management
- Celebrate Recovery
- Women for Sobriety
- Secular Organizations for Sobriety (S.O.S.)
- Other, please specify: [Open-ended response option]
- I have never attended a self-help group

Problem Resolution and Recovery History

Have you ever had a problem with alcohol and/or drugs?

- Yes
- No

*Note: Ask the following question if the participant responds “Yes” to the question above.

Have you resolved your problem with alcohol and/or drugs?

- Yes
- No

*Note: Ask the following question if the participant responds “Yes” to the question above.

Approximately how many serious attempts did you make to resolve your alcohol/drug problem before you overcame it?

- Dropdown box, range 0-100

How long has it been since you resolved your problem with alcohol/drugs?

- Drop down with years
- Drop down with months (range: 0-12)

Which of the following have you achieved since you stopped having a problem with alcohol/drugs? Please select all that apply.

- Promotion in my old job
- A new job
- Returned to school
- Completed technical school, college degree, or graduate degree
- Bought a new car
- Purchased a home

- Helped financially support my family
- Regained custody of my children
- Voted
- Contributed to charities
- Helped others who were having problems
- Did volunteer service in my local community
- Other (please specify): [Open-ended response option]
- None

Do you consider yourself to be in recovery?

- Yes
- No

*Note: Ask the following question if the participant responds “Yes” to the question above.

How long have you been in recovery?

1. Year [Drop down box]
2. Month(s): [Drop down box, Range 0 to 12]

Recovery can mean many things to many people, but regarding substance use specifically, which option best fits your own definition of recovery?

- Abstinence from all drugs/alcohol
- Abstinence from only those drugs/alcohol with which I had a problem, but non-problematic or moderate use of other drugs/alcohol is okay
- Non-problematic or moderate use of drugs/alcohol including those with which I had a problem

I swim across the Atlantic Ocean to get to work every day.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

Seriousness Question

It would be very helpful if you could tell us at this point whether you have participated seriously in this study, so that we can use your answers for our scientific analysis, or whether you were just clicking through to take a look at the survey.

- I have taken part seriously.
- I have just clicked through, please throw my data away.