




The Impact of Gender Identity, Medical Transition, and Other Substances on Marijuana Use for Transgender Adults


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Abstract

Transgender individuals have been identified as having greater rates of substance use. Previous research often focused on the intersection of HIV risk and substance use on specific age ranges or on how minority stress and discrimination relate to substance use. Using data from the 2015 United States Transgender Survey, our study is one of the first to explore the relationship among gender identity, age, the role of medical transition, and the use of marijuana within the transgender community. A deeper understanding of the relationship of these variables will benefit the transgender community by allowing for more thorough and accurate assessment protocols for individuals seeking medical transition. Our study used descriptive statistics to examine the intersection of gender identity, age, and use of alcohol, cigarettes, and marijuana. ANOVAs were completed to determine significant impact of gender identity, age, cigarette and alcohol use, and medical transition on the use of marijuana. Significantly, we found that 37% of marijuana use can be predicted by gender identity, age, medical transition, and alcohol and cigarette use. Individuals who experienced any surgical transition reported significantly more marijuana use compared with individuals with no history of surgical transition. Our study highlights the need for more in-depth research about the complicated factors that relate to the impact of transition-related medical care and the intersection of gender identity and age.

Keywords: *transition, transgender, marijuana use, alcohol use, gender identity*

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Introduction

With nearly 27,715 respondents, the 2015 United States Transgender Survey (USTS) is the largest survey to date that explores the experiences of transgender adults in the United States. It was readministered in 2020, but the data is not yet available to the public. Respondents came from all 50 states as well as Guam, Puerto Rico, American Samoa, and United States military bases abroad. This anonymous online survey asked respondents questions regarding employment, education, family life, physical and emotional health, interactions with the criminal justice system, and housing (USTS Executive Summary, 2016). The general findings of the 2015 USTS are concerning. One in 10 respondents had experienced violence from a family member after disclosing their transgender identity, while 40% reported attempting suicide at least once.

Our research explored the relationship among age, gender identity, substance use (specifically cigarettes, alcohol, and marijuana) and the role of medical transition within the transgender community. Previous studies have indicated a correlation between being transgender and an increase in alcohol and cigarette use (Coulter et al., 2015; Coulter et al., 2018; Hughto et al., 2021). Moreover, alcohol and cigarette use can increase the likelihood that an individual will engage in marijuana use (Roche et al., 2019). There is also a demonstrated association between being transgender and increased use of marijuana (Connolly et al., 2020; Ruppert et al., 2021). Similarly, there is a relationship between marijuana use and preexisting or co-occurring mental illness (Haines-Saah, 2019). Moreover, Goodyear et al. (2021) found increased cannabis use by transgender individuals correlated with suicidal thoughts. There have also been differences shown between marijuana usage rates for cisgender male and female individuals (Crocker & Tibbo, 2018). However, most studies group sexual minority individuals, particularly sexual minority youth, together in one category and use cisgender respondents as a comparison group when looking at marijuana use or to compare marijuana use with the use of other illicit substances (Coulter et al., 2018; Duncan et al., 2014; Kecojovic et al., 2012). The data from the survey allow for a more nuanced examination of the use of alcohol, cigarettes, and marijuana as they relate to subcategories of transgender individuals.

Literature Review

Substance Use

In general, transgender folx¹ are found to have higher rates of substance use and substance dependence than cisgender individuals of the same demographic category. Most research focuses on how harassment, discrimination, minority stress, and other forms of systemic oppression relate to substance use (Coulter et al., 2018; Watson et al., 2019). Other factors include demographic, mental health-related, and gender-related risk factors with a focus more on youth than adults (Coulter et al., 2018; Keuroghlian et al., 2015). However, research unrelated to risk factors and specific to transgender folx and substance use remains limited and is often challenged by limited and/or nonvalidated substance use measures, the absence of comparison groups, and an overall lack of measures related to identifying transgender respondents when gathering population health data (Connolly & Gilchrist, 2020; Keuroghlian et al., 2015; Scheim et al., 2016). Higher rates of substance use within this population are attributed to minority stress and negative coping skills (Clements-Nolle et al., 2001; Keuroghlian et al., 2015; Wolford-Klevinger et al., 2021). Much of the research relates to minority stress as well as HIV/AIDS risk with very few studies focusing exclusively on the intersection of age, gender identity, and substance use. Some of the limited findings include an exploration of risk and protective

¹ For the purposes of our study, we chose to use the inclusive term “folx” to reflect the diversity of identities of those who responded to the study as inclusively as possible.

factors related to gender identity and medical transition that report a higher prevalence of noninjection drug use in transgender women (Santos et al., 2014). Additional studies show that transgender women who live full-time as women and/or take hormones engage in heavier alcohol use (Azagba et al., 2019; Nuttbrock et al., 2014). Almazan and Keuroghlian (2021) looked at whether transition-related medical care serves as a protective factor for transgender women and found that it may reduce risk for substance use.

Marijuana use. Most studies explored the use of a variety of substances without exclusively focusing on the use of marijuana. Gonzalez et al. (2017) conducted a secondary data analysis that divided substance use into three categories: excessive alcohol use, cannabis, and illicit noncannabis drugs. The study looked at gender dysphoria and cannabis use in transgender-identified men and women and found that a nonheterosexual orientation was associated with increased cannabis use within these two groups (Gonzalez et al., 2017). Connolly et al. (2020) found that transgender respondents were more likely to report cannabis dependence than cisgender respondents. Research specifically related to cannabis use remains extremely limited. It is our intention to address the dearth of research in this area and advance our knowledge by focusing on the relationship among risk factors, the use of marijuana, and the role of gender identity and transition.

Medical transition. Transition is the process some transgender folx go through to begin visibly living as the gender with which they identify. There are three different types of transition: social, legal, and medical transition (World Professional Association for Professional Health [WPATH], 2016). The study looks at the role of medical transition that includes physical interventions such as the use of hormone therapy, gender confirmation surgery, and other medical procedures. The overall transition process is often referred to as gender-affirming transition and/or gender-affirming medical care (WPATH, 2016). It is incredibly difficult to find the precise number of transgender folx who choose to pursue medical transition and/or may want to pursue medical transition but experience multiple barriers to achieving this goal.

Pursuing medical transition has been shown to contribute to psychological relief and serve as a protective factor against mental health concerns, substance misuse, and dependence (Almazan & Keuroghilan, 2021; Nguyen et al., 2018; Tordoff et al., 2022). However, not all studies support this claim (Bauer et al., 2015; Reisner et al., 2016; Rotundi et al., 2013). While some research has demonstrated that medical transition has been found to increase emotional well-being, it has also been determined, particularly based on the reaction of family members, medical/psychological gatekeeping, and continued stigmatization from others, to be a time in which increased negative sentiment can occur and a period through which increased depression and anxiety may remain (Haimson, 2019; Magalhães et al., 2020; van Doussa et al., 2020). For example, premedical transition is considered a risk factor due to what is known as “psycho-medical gatekeeping,” which is defined as the practice that requires transgender folx to obtain letters of authentication from at least one, but often two, mental health professionals before receiving blockers, hormones, and/or surgery (Brown et al., 2020; Preston, 2011).

Although medical providers have been encouraged to use an informed consent or harm reduction model for those utilizing hormones, receiving hormones or other transition-related care often depends on the insurance carrier, the medical practice, and the state of residence (Deutsch, 2012; Dickey & Singh, 2017). There are significant issues within healthcare settings, such as discrimination, unsafe treatment environments, limited access to transgender-specific care, and poor quality of care (Stewart et al., 2017). Challenges with medical transition may include co-occurring medical disorders, costs of accessing care, which can be prohibitive for those without employment or who are underinsured, and difficulty seeking care outside of institutionalized healthcare (Dickey & Singh, 2017; Grant et al., 2011; Tangpricha & den Heijer, 2017). While it appears that access to medical transition is an important protective factor, pursuing transition while also facing systemic oppression, traumatic experiences, and barriers to inclusive medical care may also bring significant risk. Findings related to substance use among those pursuing or those having pursued medical transition are inconsistent and mixed.

Purpose of the Study, Research Question, and Hypotheses

For our study, we hypothesized that the use of hormones, hormone blockers, and any type of surgical intervention would lead to lower rates of marijuana use. We also predicted that heavy alcohol and cigarette use would lead to higher rates of marijuana use. Finally, we predicted that age and gender identity would also impact marijuana use with younger respondents reporting higher rates of marijuana use and genderqueer/nonbinary (GQNB) individuals reporting higher rates of marijuana use than transgender folk.

Methods

Data

The 2015 USTS dataset includes the largest survey of transgender and gender-expansive adults who are more than 18 years of age and includes nearly 1,500 variables and 28,000 observations (Counselman-Carpenter & Redcay, 2022; USTS, 2015). The USTS survey includes data on demographics; mental health; substance use; and social, legal, and medical transition. Participants were recruited from approximately 800 locations and included LGBTQ social groups, health centers, and online communities.

Institutional Review Board (IRB)

The original 2015 USTS research was approved after a full review from the University of California at Los Angeles IRB. We conducted a secondary analysis of the qualitative and quantitative data for our study. An IRB application for full review was submitted to the Southern Connecticut State University IRB and received approval. The independent variables described are modeled after Counselman-Carpenter and Redcay (2022).

Predictor Variables

Age. Participants were organized into three age groups: 18–29 years, 30–40 years, and 41 years and older.

Gender identity. Participants reported that their gender identity was one of four categories: (1) GQNB assigned male at birth (AMAB), (2) GQNB assigned female at birth (AFAB), (3) transgender man, or (4) transgender woman. Individuals who reported cross-dressing were excluded from the study.

Medical transition. Medical transition consists of two different elements: hormones and surgery.

Hormones. The hormones dichotomous variable consisted of two questions. For example, “have you ever had a desire to take hormones?” and “are you currently taking either?” (Yes = 1, No = 0). This variable had a minimum score of 0 (no) to a maximum score of 1 (yes). The final variable was no desire for hormones and no use of hormones (0), no desire but use of hormones (1), desire but no use of hormones (2), desire and use of hormones (3).

Surgery. Participants reported whether they did or did not desire or complete any surgical intervention, such as phalloplasty, electrolysis, vaginoplasty, hysterectomy, trachea shave, etc. Since surgeries consist of different procedures based on the sex assigned at birth, individuals were placed into two groups: AFAB or AMAB. Participants were also organized into two groups that included individuals who had no desire and did not participate in any surgical interventions (0) or individuals who participated in any type of surgical intervention (1).

Cigarette use. Cigarette use ranged from never used = 0, smoked previously = 1, current use = 2, and daily use = 3. Higher numbers indicated greater substance use.

Alcohol use. Alcohol use ranged from never drank = 0, drank previously = 1, current use = 2, binge use at least once in the last 30 days = 3, and heavy use (i.e., more than four binge episodes in the last 30 days) = 4. Higher numbers indicated greater substance use.

Dependent Variable

Marijuana use. Marijuana use ranged from never used = 0, smoked previously = 1, and current use = 2. Higher numbers indicated greater substance use.

Data Analysis

Descriptive statistics were completed to examine the differences between transgender and GQNB participants. ANOVAs were completed to determine if age, gender identity, hormone use, and alcohol and cigarette use significantly impacted marijuana use. The objective of our study was to examine the impact of age, gender, medical transition, and alcohol and cigarette use on marijuana use.

Descriptive Statistics

Gender identity and age. Participants reported four gender identities: transgender women (33.3%, $N = 9,238$), transgender men (28.7%, $N = 7,950$), GQNB AMAB (6.9%, $N = 14,925$), and GQNB AFAB (28.3%, $N = 7,844$). The majority of participants were 18–29 years old (60.5%, $N = 16,778$) and the remaining participants were 30–40 years old (18.3%, $N = 5,071$) and more than 41 years old (21.2%, $N = 5,866$).

Medical transition. Nearly half of the participants wanted and were currently using hormones (46.1%, $N = 12,787$) while approximately one of three participants wanted but were not currently taking hormones (31.8%, $N = 8,811$). One of five participants indicated that they had no desire to take hormones (21%, $N = 5,816$). The majority of participants reported that they had never had any surgical intervention (65.3%, $N = 18,104$) while one of three participants reported that they had had some type of surgical intervention (31.1%, $N = 8,622$).

Substance use. On average, the majority of participants reported using some type of substance with only 9% of participants reporting no use at all (see Table 1).

Table 1. Substance Use

Alcohol use	%	<i>N</i>	Cigarette use	%	<i>N</i>	Marijuana use	%	<i>N</i>
Never drank	10.3	2,857	Never smoked	43.9	12,157	Never smoked	37.2	10,301
Drank previously	27.6	7,647	Smoked previously	35.3	9,772	Smoked previously	38.7	10,719
Current use	37.1	10,285	Current use	12.3	3,396	Current use	23.4	6,478
Binge use	18.0	4,877	Daily use	8.0	2,222	Missing	0.8	217
Heavy use	6.8	2,222	Missing	0.6	168			
Missing	0.2	55						
Total	100%	27,943	Total	100%	27,715	Total	100%	27,715

Results

The objective of our study was to examine the impact of age, gender identity, medical transition, and alcohol and cigarette use on marijuana use. An ANOVA was completed to determine if age, gender identity, hormone

use, and alcohol and cigarette use significantly impacted marijuana use. The model was significant ($F(1, 1153) = 1.37; p < .001, n = 25,735$) and predicted 37% of marijuana use. The model had a medium effect size ($\eta^2 = .06$; power = .99). A small effect size is $\eta^2 = .01$, a medium effect size is $\eta^2 = .06$, and a large effect size is $\eta^2 = .14$ (Cohen, 1988).

Age and gender moderated the impact on marijuana use. Individuals who were between 30 and 40 years old drank significantly more ($M = .99, N = 4,767$) when compared with individuals who were 18–29 years old ($M = .83, N = 16,142$) and 41 years old or older ($M = .85, N = 4,835$). Additionally, gender moderated the impact on alcohol use. AMAB GQNB ($M = .96, N = 1,826$) had significantly higher substance use when compared with AFAB GQNB ($M = .81, N = 7,652$) who had the lowest alcohol use.

Medical transition also moderated the impact of marijuana use. Individuals who reported current use of hormones ($M = .98, N = 12,114$) reported significantly more marijuana use when compared with individuals who were not taking hormones ($M = .75, N = 8,113$). Individuals who reported any surgical transition ($M = .95, N = 8,414$) reported significantly more marijuana use when compared with individuals who had no surgical transition ($M = .82, N = 17,321$).

Alcohol and cigarette use impacted marijuana use. Individuals who reported heavy alcohol use ($M = 1.37, N = 1,873$) reported significantly more marijuana use when compared with individuals who denied alcohol use ($M = .11, N = 2,844$). Individuals who reported current cigarette use ($M = 1.41, N = 3,370$) reported significantly more marijuana use when compared with individuals who denied cigarette use ($M = .43, N = 12,115$). Individuals who had the highest levels of marijuana use were 30–40 years old, had an AMAB GQNB gender identity, were taking hormones, had any type of surgical intervention, and reported heavy alcohol and current cigarette use.

Table 2. *Marijuana Use*

	Never smoked		Smoked previously		Current use	
	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>
Gender identity						
Transgender women	37.9	3,471	39.6	3,625	22.5	2,065
Transgender men	32.9	2,592	42.2	3,326	25.0	1,969
AFAB GQNB	42.1	3,283	34.8	2,711	23.1	1,799
AMAB GQNB	32.2	615	39.3	750	28.5	544
Age						
18–29 years old	41.7	6,957	33.1	5,517	25.2	4,192
30–40 years old	27.9	1,406	46.2	2,323	25.9	1,304
41 years or older	33.4	1,938	49.6	2,879	16.9	982
Hormones						
No desire, no use	44.4	2,561	35.2	2,032	20.4	1,175
No desire but hormone use	31.8	95	45.8	137	22.4	67
Desire, no use	45.2	3,950	34.2	2,982	20.6	1,799
Desire and hormone use	29.1	3,695	43.8	5,568	27.1	3,437
Surgical transition						
No surgical transition	41.1	7,389	35.8	6,426	23.1	4,148
Any surgical transition	29.5	2,530	45.7	3,916	24.7	2,120
Cigarette use						
Never smoked	67.0	8,129	22.5	2,725	10.5	1,270
Smoked previously	16.4	1,584	57.9	5,610	25.7	2,493
Currently smoke	9.6	324	39.8	1,341	50.6	1,708
Daily smoker	10.8	238	45	993	44.2	976
Alcohol use						
Never drank	91.9	2,616	4.9	139	3.3	93
Drank previously	43.3	3,281	41.7	3,161	15	1,135
Current use	32.7	3,340	43.3	4,430	24	2,451
Binge drinker	17.4	859	44.1	2,184	38.5	1,907
Heavy drinker	10.5	197	42.5	798	47	884

Discussion

These findings demonstrate the nuanced complexity of demographic factors, such as age, gender identity, type of medical transition, and nonillicit substance use, such as alcohol and cigarette use, as related to marijuana use. These findings and the disparities related to gender identity and transition-related medical care demonstrate the challenges that occur when conducting research within the transgender community. Overall, the variables explored in our study have a low effect size and demonstrate the need for more research. The relationships and patterns discussed do not fully explain why the transgender community has higher overall rates of substance use and why those who have completed transition have higher rates of marijuana use.

The primary outcome of our study is that respondents with the highest reported use of marijuana identified as AMAB, transgender, and GQNB; were taking hormones; had any type of surgical intervention; were between 30 and 40 years old; and concurrently reported heavy alcohol and cigarette use. While prior research often focused on heavier rates of substance use by transgender youth than cisgender youth, few studies focused on age-related differences within the transgender community. Our study supports the claim by Hughes and Eliason (2002) that age-related declines in substance use may be less “steep” among the transgender community. These findings also support the call of Gonzalez et al. (2017) for a more nuanced exploration of the psychological factors that relate specifically to transgender-related minority stress and how these psychological factors relate to overall risk factors.

Unexpectedly, the findings did not support our hypothesis that marijuana use would be lower in respondents who were taking hormones, hormone blockers, and/or had any type of surgical interventions. These unexpected results could be explained by individuals using marijuana for postoperative pain management. Struik et al. (2018) examined the complex effect certain hormones can have on marijuana sensitivity, which could support our findings on this relationship.

Finally, our findings support that gender identity plays an important role in marijuana use. These findings do support some prior research including the work of Scheim et al. (2016) that found that transmasculine (female-to-male gender spectrum) individuals are more likely to engage in substance use, such as heavy episodic drinking.

Typically, studies looking at the role of medical transition have focused on individuals who identify as female-to-male, sometimes referred to as AFAB, and male-to-female, sometimes referred to as AMAB, and do not highlight the unique needs of individuals who identify as both transgender and GQNB (Nguyen et al., 2018). Findings indicate the critical importance of intersectionality when developing assessment protocols for transgender folx seeking medical transition, support for substance use, and behavioral health programming and recovery models. Extra care should be taken when providing psychological health interventions, developing supportive groups, and establishing healthcare policies when working with GQNB individuals versus transgender adults. These interventions and policies should strongly consider the role age may play with rates of marijuana use. The findings also highlight the needs of the adult and older adult transgender population. There needs to be a deeper understanding of the influence that continued stressors and risk factors, ones that do not relate to the transition and gender-affirmation experience, have on transgender adults. These conclusions should lead healthcare professionals to proceed with care and to gain a better understanding of the multitude of differences related to age group and gender identity.

Healthcare professionals need to be fully informed when advocating for medical interventions. Additionally, transgender folx need to investigate these medical procedures fully before participating. All steps in the gender-affirmation medical transition process should not be automatically assumed as a protective factor that will help resolve any mental health or substance use issues.

From an institutional and structural perspective, these findings demonstrate the need to have inclusive

medical providers that include thorough substance use assessment, particularly related to alcohol, cigarette, and marijuana use, in their overall holistic understanding of their patients. Medical professionals must also be able to provide any necessary referrals and services to their patients as their patients proceed toward and undergo gender-affirmation procedures.

These conclusions also continue to support the call for alcohol and marijuana use recovery and support programs to include affirmative care models, to consider age-delineated support groups, to use inclusive intake forms, and to be aware of different recovery needs during different stages of the transition process. Perhaps the most important outcome of our study is that transgender respondents are a diverse group of people who cannot easily be understood through one particular lens. Thus, further research that looks exclusively at substance use not related to HIV and STIs and exclusively at respondents that identify as GQNB transgender individuals is warranted.

Limitations

The first main limitation of our study is the low effect size for most results, which limited our ability to interpret the impact of medical transition on substance use. However, results were clear that the elements of medication transition (hormones and surgical intervention) had some type of impact on substance use and that impact was moderated by demographic factors, particularly gender identity and age. While we may be able to identify that one age group may moderate the impact of hormones on substance use differently than another age group, the second main limitation is that we cannot determine the impact of time, specifically the onset and duration of the intervention. For example, we may assume that hormones were used prior to the survey commencement, but this onset could range in time from 4 to 40 years ago. Likewise, participants who have only taken (duration) hormones for 1 year versus those who had taken hormones for 5 years may feel differently about their use. Thus, individuals who were prescribed hormones just recently could feel less satisfied with their use whereas individuals who had been on hormones for many years may be more satisfied. More research needs to occur to understand how age impacts the two elements of medical transition.

Conclusion

Our study highlights the need for continued, in-depth research related to the impact of transition-related medical care and the intersection of gender identity and age. Marijuana use rates do differ by gender identity, age, and the process of medical transition, whether it is hormone blockers, gender-affirmative hormone care, and surgical intervention, and directly relate to heavier rates of alcohol and cigarette use. Medical schools, mental health counseling training programs, recovery and behavioral health services, and healthcare insurance companies need comprehensive psychoeducation surrounding substance use within the transgender population. They also need to be aware that the relationship between experiences with medical transition, age, and personal gender identity may impact rates of substance use within the transgender community. The development of specific transgender-related models of minority stress that acknowledge the nuanced differences between those who identify as transgender and GQNB are also warranted.

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