CASE REPORT

Vaping disparities and minority stress among transgender adolescents: A case-based analysis

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Received: June 20, 2025 **Accepted:** August 7, 2025 **Online Published:** August 13, 2025
DOI: 10.63564/jnep.v15n8p68 **URL:** https://doi.org/10.63564/jnep.v15n8p68

ABSTRACT

The rapid growth of vaping, particularly among priority populations such as transgender individuals, is a significant public health concern. This article examines vaping behaviors and associated health risks within the transgender community through the case of Jordan, a 16-year-old Black transgender male. Using recent studies and validated resources, we explore the drivers of vaping in this population and propose targeted intervention strategies for healthcare providers, particularly psychiatric and mental health professionals. Additionally, we emphasize the importance of inclusive public health policies and educational initiatives tailored to the transgender community.

Key Words: Minority stress theory, Transgender adolescents, E-cigarette use, Vaping, Health disparities, Targeted marketing, Prevention and treatment

1. INTRODUCTION

The rising use of electronic cigarettes has become a prominent public health issue.[1] E-cigarettes, known to many as vaping products, are battery-operated devices developed to deliver nicotine or other chemicals in an aerosolized form to consumers.[2] In a national survey of transgender adults, 30.1% reported current use of e-cigarettes or vaping products, with prevalence highest among transgender men (42.7%).[3] While this dataset does not include youth, national estimates suggest approximately 300,000 minors in the U.S. identify as transgender.[4] These estimates raise concern about an increased risk for e-cigarette use among transgender populations, underscoring the need for targeted prevention and intervention efforts for this vulnerable population.

Transgender and gender-diverse individuals face unique identity-related stressors, including stigma, discrimination, and marginalization, which are strongly associated with increased rates of substance use as a coping mechanism.[5] These compounded stressors highlight the need for a multidimensional and culturally responsive approach to care. As numbers continue to increase in the population of those identifying as transgender, tobacco and vaping companies have disproportionately targeted this group since the 1990s through strategic marketing efforts. These efforts have historically included giveaways of products and coupons at Pride events, public campaigns through publications and organizations, and targeted advertisements on social media platforms such as Facebook and Instagram.[6]

To frame the elevated rates of vaping and substance use among transgender populations, it is important to first examine the theoretical underpinnings that explain these disparities. Minority Stress Theory provides a useful lens to explore how chronic social stressors uniquely impact transgender individuals and contribute to maladaptive coping behaviors

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such as vaping.

2. Minority stress theory

Minority stress theory provides a useful framework for understanding these disparities.[7,8] Application of the minority stress theory suggests that individuals of stigmatized groups experience unique stressors which ultimately predispose them to negative health outcomes. In this context, minority stress may increase the vulnerability of marginalized populations, such as transgender individuals, to targeted marketing by companies leading them to use vaping products as a means of symptom relief.[6] As such, transgender adolescents use vape products at greater rates than their cisgender counterparts with the highest use in this population being adolescents of color. This places transgender adolescents of color into one of the of the most vulnerable populations to vaping disparities. Transgender black adolescents were 6 times more likely for frequent vaping than cisgender black peers and almost 3 times that of their transgender white counterparts.[9]

While many studies have evaluated vaping in the general population, there is limited research focused on transgender individuals. This article addresses a gap in the literature by exploring vaping trends in the transgender population, illustrated through the case of Jordan, a transgender male patient who seeks care at a local health clinic. It also examines implications for public health interventions, particularly those relevant to Psychiatric-Mental Health Nurse Practitioners (PMHNPs) and Advanced Practice Registered Nurses (APRNs) to aid in providing comprehensive, person-centered care for the transgender individual.

3. Case study: Jordan's story

3.1 Patient profile

Jordan, a 16-year-old Black transgender male presented to a community health clinic with a persistent cough, chest discomfort, and worsening symptoms of anxiety and depression. He began vaping at the age of 14 after being able to secure vaping product samples at a Pride event he learned about through a Facebook marketing campaign. Jordan used these products to cope with stress resulting from bullying and harassment at school after coming out with his change in gender identity.

While his nicotine use was initially intermittent, over time his consumption increased, progressing to higher doses and more frequent use. In addition, he has begun vaping tetrahydrocannabinol (THC) products. Although Jordan attempted to quit, he has struggled due to the stress relief he associates with vaping.

3.2 Clinical presentation

Jordan reported daily vaping with nicotine concentrations averaging 20 mg/ml, particularly during periods of heightened stress or gender dysphoria. Additionally, he admitted to occasional marijuana and alcohol use concomitantly. A review of systems was positive for persistent dry cough, shortness of breath and mild pleuritic chest pain. His symptoms worsened with physical activity such as walking prolonged distances or climbing stairs. Additionally, it was becoming increasingly difficult for him to participate in his routine group fitness classes at the local recreational center due to these symptoms. Upon assessment, Jordan was noted to be anxious and fidgety but did not appear to be in any acute distress. Physical examination revealed bilateral wheezing and reduced breath sounds, while mental health assessments indicated moderate to severe anxiety and depressive symptoms.

3.3 Assessment and diagnosis

Pulmonary function tests revealed diminished lung capacity, and a chest X-ray demonstrated bilateral infiltrates. Mental health evaluations suggested that his vaping behavior was exacerbating his preexisting anxiety and depression, which were rooted in experiences of harassment and minority stress. In addition, Jordan was diagnosed with nicotine dependence and chronic bronchitis.

3.4 Treatment strategy

The foundation for treatment strategies begins with tailored patient education to the intended population of interest. Research shows that transgender individuals are disproportionately exposed to e-cigarette advertising, which may increase the likelihood of use and reduce the effectiveness of generic anti-vaping messages.[10] Some marketing research has demonstrated that the transgender community does not respond well to anti-tobacco campaigns unless it is targeted specifically toward community values including individuality, autonomy, and community relationship pride. However, educational messages targeting the harm caused by vaping products were found to be more beneficial in reducing use than strategies directed at wellness and pride-themed messages.[11] This emphasizes the importance of providing transparent messages about the health risks associated with vaping while respecting the values of transgender individuals and presenting information in a relatable and sensitive manner.

Jordan's treatment plan addressed both his physical and mental health needs through an integrated, patient-centered approach:

3.4.1 *Nicotine replacement therapy (NRT)*

A regimen of 21 mg/day nicotine patches and 4 mg gum (as needed) was initiated to alleviate withdrawal symptoms

and taper nicotine use over 12 weeks. NRT has proven efficacy in reducing nicotine dependence and is associated with increased cessation rates, decreased withdrawal symptoms, and improved long-term cessation outcomes when combined with behavioral support.[12]

3.4.2 *Cognitive behavioral therapy (CBT)*

Tailored CBT sessions.

3.4.3 *Support groups*

Jordan joined a transgender-specific support group that provided a structured and safe environment where members could openly discuss experiences related to gender identity, mental health, and substance use cessation strategies for emotional connection. These group sessions included guided discussions on resilience, coping with stigma, and shared strategies for vaping cessation, promoting accountability and motivation. Participation in peer-led groups fostered a sense of community, reduced isolation, and offered emotional validation, key protective factors for transgender individuals facing marginalization. As highlighted by Kia et al. (2023), social support networks play a pivotal role in improving mental health, enhancing treatment adherence, and sustaining recovery in LGBTQ+ populations.[13] Facilitators trained in trauma-informed care ensured the space remained psychologically safe, which further encouraged consistent attendance and engagement.

3.4.4 *Pharmacotherapy*

To support Jordan's mental health, sertraline (50 mg/day for 10 days, titrated to 100 mg/day) was prescribed to address anxiety and depressive symptoms, both common comorbidities among transgender individuals with substance use disorders.[14, 15] These medications are most effective when delivered as part of a culturally competent, affirming care model that mitigates stigma and supports adherence. Evidence suggests that combining SSRIs with CBT improves functional outcomes more consistently than either modality alone.[15, 16]

3.4.5 *Integrated care model*

Jordan's recovery was supported through an integrated care model that brought together a multidisciplinary team including a primary care provider (PCP), mental health clinician, pulmonologist, and community-based peer support. This model ensured holistic attention to both physical and psychological health, streamlining communication between providers and reducing the fragmentation often experienced by transgender patients.[17] This model enabled:

• Collaborative care between his PCP, mental health clinician, pulmonologist, and peer navigator.

• Coordinated support across psychiatric, primary, and respiratory health services.

• Cultural and trauma-informed approaches tailored to Jordan's identity.

• Faster access to mental health support, reduced stigma, and improved continuity of care—a model proven to enhance access, systematic coordination, and patient satisfaction.[17]

4. LIFESTYLE MODIFICATIONS

To support Jordan's physical and emotional well-being, these tailored behavioral changes were introduced.

4.1 Physical activity

Yoga, walking, and stretching designed to enhance respiratory health, reduce anxiety, and gently rebuild cardiovascular endurance—essential after prolonged vaping-related lung impairment.[18]

4.2 Nutritional support

Guidance from a dietitian helped replenish weight and energy levels with culturally appropriate, calorie-dense, nutrient-rich foods—addressing issues related to appetite suppression and stress-induced weight loss.

4.3 Mindfulness & stress reduction

Grounding exercises, guided imagery, and mindful breathing served as tools for managing cravings, dysphoria, and emotional turbulence—techniques that complement CBT and support relapse prevention.[19]

4.4 Routine and habit-building

Structured sleep and self-care routines were encouraged to stabilize circadian rhythms and promote emotional resilience, essential during cessation and identity-related stress.

5. FOLLOW-UP

Jordan demonstrated improved mood stability and reduced anxiety symptoms with the initiation of sertraline and weekly CBT sessions. He reported a significant decrease in vaping frequency and expressed increased motivation to pursue tobacco cessation fully. Jordan also began attending a local LGBTQIA+ support group, which he described as a positive source of connection and accountability. A multidisciplinary team continues to monitor his progress and adjust treatment goals collaboratively. This holistic, high quality, affirming coordination reduces healthcare fragmentation often experienced by transgender patients and fosters a cohesive, personalized treatment environment.

6. Discussion

6.1 Transgender populations and vaping: Prevalence and patterns

It is estimated up to 35.5% of transgender populations are smokers which is 15% higher than their cisgender counterparts.[20] In addition to higher rates of combustible cigarette use, transgender individuals report disproportionately higher rates of e-cigarette use (Sandhu et al, 2023). Although there is little scholarly inquiry into vaping in the transgender community, it is known that the highest rate increase in adolescent transgender vaping was 11% to 21% from 2017-2018. This disparity among transgender youth stems from unique stressors such as gender dysphoria, discrimination, and minority stress.[8] As exemplified in Jordan's case, these interconnected psychological and social mechanisms significantly increase the risk for e-cigarette use as both a coping mechanism and a social activity.

Studies show that transgender adolescents are 2.5 times more likely than cisgender peers to vape, with higher rates of concurrent substance use, including alcohol and marijuana.[21] In addition, there are several other risk factors consistent with Jordan's case that are attributed to increased use of vaping products including visual nonconformity, disclosing gender identity to social network, and discrimination/harassment.[3] These findings highlight the need for targeted interventions addressing the specific vulnerabilities of this population.

6.2 Health risks

Vaping poses significant health risks, including respiratory dysfunction, cardiovascular complications, and increased likelihood of nicotine dependence. A recent 5-year longitudinal study found that exclusive e-cigarette use was associated with a 2.1-fold increased risk of physician-diagnosed COPD and a 1.3-fold increased risk of hypertension, reinforcing the serious long-term health consequences of vaping—even in the absence of combustible tobacco use.[22] Complementing these findings, quantitative lung imaging has demonstrated that even nicotine-free vaping can result in immediate reductions in pulmonary oxygenation, ventilation abnormalities, and airway inflammation, patterns distinct from those seen with traditional smoking.[23] These physiological impacts are especially concerning for vulnerable populations, including transgender individuals, who already face elevated rates of anxiety, depression, and chronic stress that may compound the health consequences of nicotine addiction.

Due to persistent exposure to structural stigma and discrimination, transgender individuals often experience elevated rates of depression, anxiety, and suicidality, which may increase their use of substances like e-cigarettes as maladaptive coping strategies.[14,15] Importantly, nicotine dependence itself can worsen mental health, contributing to a feedback loop of psychological distress, heightened emotional reactivity, and decreased life satisfaction. When combined with existing barriers to healthcare and limited access to affirming mental health support, these factors further increase the risk for poor health outcomes among transgender individuals.[17,24] Nicotine addiction is known to impact mental health and can contribute to stress, potentially exacerbating underlying conditions.[25] As a result, transgender individuals are disproportionately affected due to preexisting health disparities ultimately contributing to poorer health outcomes.[24]

7. Clinical implications for PMHNPs and APRNs

7.1 Psychological implications

Recent trends in evidence from the literature suggest transgender populations encounter healthcare access problems through both interpersonal and structural barriers. Healthcare providers must routinely screen transgender patients for use of vaping products and provide tailored cessation support. This includes the need to target psychological distress in cessation methods.[24] Integrated care models, combining mental health and substance use interventions, have shown effectiveness. Providers should also employ evidence-based strategies such as cognitive behavioral therapy (CBT) and motivational interviewing while advocating for culturally competent cessation resources.[17] CBT can help patients identify distorted thinking patterns contributing to emotional distress and maladaptive behaviors.

7.2 Physiological implications

Best approaches to education strategies have demonstrated effectiveness when incorporating transgender community values rather than relying solely on wellness or Pride-themed messaging. When it comes to visual messaging, images of female couples have been shown to be more effective in conveying the risks associated with vaping than the use of cartoons or similar drawings.[11] Additionally, e-cigarette aerosol exposure has been linked to increased airway inflammation, respiratory symptoms, and higher incidence of asthma in adolescents and young adults, highlighting the importance of screening and prevention counseling in this population.[18]

7.3 Policy and educational implications

In 2016, the U.S. Food and Drug Administration included vaping products in extended tobacco rule regulations, but this action did not include oversight of product marketing. As such, vaping products are often marketed as a safe alterna-

tive with continued targeting of transgender populations for use. Notably, prevention measures often focus on the general population, rather than transgender individuals, missing the mark for messages which best resonate with this special population.[20]

Policies limiting targeted marketing of vaping products to LGBTQ+ populations and promoting non-discrimination protections can reduce stressors associated with substance use. Public health campaigns and school-based initiatives should focus on educating transgender youth about the risks of vaping and fostering supportive environments.[26] There is a demonstrable amount of evidence that creating welcoming or safe spaces for encouraging acceptance of transgender youth is quite beneficial in both prevention and treatment.[17] In addition, future studies should re-examine how to tailor and reframe wellness and pride messaging to see benefits similar to that of harmful effects marketing.[11]

Variability in vaping device design and the relative lack of standardization in liquid nicotine concentrations contribute to significant inconsistencies in nicotine flux, with levels often surpassing those of combustible cigarettes.[27] For example, Soule et al. (2023b) reported that popular disposable vapes had a mean predicted nicotine yield of 4.98 mg per 10 puffs—more than double that of a typical cigarette. To provide a standardized reference point, prior studies estimate that a typical cigarette delivers 1–2 mg of nicotine systemically, while many disposable vaping devices yield 3–5 mg of nicotine per 10 puffs—often exceeding cigarette nicotine exposure.[27,28] These data underscore the need for targeted education and regulatory strategies that specifically address the potency and risks of vaping products marketed to transgender populations.

8. Conclusion

Adolescent use of vaping products is now considered a public health emergency as it is often associated with use of cigarettes and co-occurring use of alcohol, cannabis, and other drugs.[9] Vaping in the transgender population is a multifaceted public health issue requiring compassionate, evidence-based interventions. PMHNPs and other APRNs are uniquely positioned to lead these efforts through holistic care, routine screenings, and advocacy for inclusive policies. This would include overcoming of limited supportive resources in schools particularly those targeting the special populations with the greatest disparities particularly those who identify as transgender. Fostering the development or participation in empowerment groups often contributes to lower levels of victimization, harassment, and bullying by creating greater receptivity for transgender acceptance. This can promote lower use of vaping products.[9] Addressing the health risks of vaping within this population is an essential step toward advancing health equity and improving outcomes for transgender individuals.

Acknowledgements

Not applicable.

Authors contributions

Dr. R. Lee Tyson and Dr. Jason A. Gregg developed the topic and concept, framed the case scenario, contributed to the initial manuscript structure, and provided substantial clinical expertise, with Dr. Gregg further refining the manuscript through significant enhancements and redactions. Dr. Lindsay Davis provided critical review, revisions, and insight during the final stages of manuscript development. Dr. Lisa M. Hachey conducted the updated literature review and contributed structural and evidence-based revisions throughout the drafting and revision process.

Funding

Not applicable.

Conflicts of Interest Disclosure

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Informed consent

Obtained.

Ethics approval

The Publication Ethics Committee of the Association for Health Sciences and Education. The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

Provenance and peer review

Not commissioned; externally double-blind peer reviewed.

Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

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