Published by Te Rau Ora, 2026

Barriers and Opportunities for Increasing Pre-Exposure Prophylaxis (PrEP) Use Among Native American College Students

Volume 8 | Issue 1

Article 6, February 2026

Crystal Lee
University of New Mexico, Albuquerque, USA

Michelle Chino
University of Nevada, Las Vegas, USA

Erin Johns
Youth Coordinator, United Natives

Abstract

Limited research exists on pre-exposure prophylaxis (PrEP) awareness and uptake among Native American (NA) college students. This study explored NA students' knowledge and attitudes toward PrEP, identifying barriers similar to those faced by other minoritized groups, including limited information, stigma, and inadequate access to care. Unique challenges for NA populations stem from cultural, historical, and systemic factors, such as medical mistrust, culturally inappropriate communication, and constrained health services. Findings highlight the importance of culturally grounded strategies to improve PrEP uptake, including increased education, support, and stigma reduction. A promising approach may involve the creation of NA-led initiatives to bridge communication between providers and at-risk populations, facilitating tailored outreach and normalization of HIV prevention practices.

Keywords: Native Americans, American Indian, Indigenous, college students, HIV, Pre-exposure prophylaxis, HIV prevention

He Mihi – Acknowledgements:

The authors would like to acknowledge Native American college students who provided invaluable perspectives and assistance in developing and implementing the survey: Erin Johns (Dine'), Undergraduate Student, Arizona State University, College of Health Solutions; Brooke Betsuie (Dine') BS, Graduate Student, Northern Arizona University, Health Sciences; Renae Blackwater (Dine'/Lakota) BA, Undergraduate Student, Arizona State University. In addition, we would like to acknowledge our Cultural Specialist, Christina Lewis, for advising our project on cultural knowledge. Lastly, we would like to acknowledge the Native American and Alaska Native community nationwide who participated and/or contributed to this study.[1]

Introduction

Disparities in health outcomes among Native Americans and Alaska Natives (NA/AN) have persisted for decades and are shaped by a complex interplay of social, cultural, and structural determinants (Smith et al., 2008; Warne & Frizzell, 2014). Historical and ongoing marginalization influences individual behaviors, social and sexual networks, provider responses, and access to health services (IHS, 2022). The enduring effects of colonization, including genocide, land dispossession, forced relocation, and unfulfilled treaty obligations, have contributed to intergenerational trauma, discrimination, and poverty, all of which are associated with adverse health outcomes in NA/AN populations (Brave Heart et al., 2011; Walters & Simoni, 2002). Additional barriers, including limited access to culturally responsive health information, stigma, inadequate access to care, medical mistrust, and constrained health services in many NA/AN communities, further contribute to inequities in HIV prevention, diagnosis, and treatment (Williams, 1999; Lillie-Blanton et al., 2003; IHS, 2022; Warne & Frizzell, 2014).

There are more than 574 federally recognized Tribal Nations in the United States, as well as state-recognized Tribal Nations and other Indigenous communities that are not formally recognized by state or federal governments. Each Tribal Nation

[1] This study was supported by a grant from Gilead Sciences, Inc. a research-based biopharmaceutical company and the developers of the pre-exposure prophylaxis medications Descovy and Truvada.

and community are distinct, with its own culture, history, and knowledge systems. Federally recognized Tribal Nations maintain sovereign status and the inherent authority to govern their internal affairs. In this article, we use the term Native American and Alaska Native (NA/AN) in reference to national data and the broader literature. Study participants self-identified as Native American or American Indian and were enrolled members of federally recognized Tribal Nations. Individuals who identified as members of non–federally recognized Native American or American Indian communities, or who identified as Alaska Native, Native Hawaiian, or Pacific Islander, were not represented in the study sample.

NA/ANs hold a unique legal and political status in the United States (U.S.) as citizens of sovereign Tribal Nations, making NA/AN identity simultaneously political, racial, and ethnic (Wilkins & Lomawaima, 2001). Tribal Nations maintain government-to-government relationships with the federal government, which carries a legally mandated trust responsibility established through treaties, acts of Congress, Supreme Court decisions, and executive orders to provide funding, services, and support to federally recognized Tribal Nations (U.S. Commission on Civil Rights, 2018; NCAI, 2023). However, this trust responsibility has historically been inadequately fulfilled, as evidenced by chronic underfunding and insufficient investment in healthcare, housing, education, and infrastructure (U.S. Commission on Civil Rights, 2018; IHS, 2022). These structural conditions contribute to persistent health inequities and form a foundational context for understanding disparities affecting NA/AN populations (Warne & Frizzell, 2014).

Between 2018 and 2022, new HIV diagnoses among NA/AN individuals increased by approximately 30%. In 2022, the rate of new HIV diagnoses among NA/AN populations was 10.6 per 100,000, nearly twice the rate among White populations (CDC, 2024). Among NA/AN individuals, newly diagnosed with HIV in 2022, males accounted for 73% of cases, primarily through male-to-male sexual contact, whereas females accounted for 27%, with injection drug use representing a leading transmission category (CDC, 2024; Office of Minority Health, 2026; CDC, 2024). Despite these trends, NA/AN individuals were less likely to be diagnosed with HIV than the overall U.S. population in 2023, suggesting persistent gaps in testing, screening, and access to care (CDC, 2024).

The historical relationships among NA/AN communities, the U.S. government, and mainstream institutions have significantly shaped NA/AN perceptions of and

interactions with health systems and healthcare providers. Federal policies, including forced relocation, boarding schools, and termination policies, contributed to longstanding mistrust of government and medical institutions (Warne & Frizzell, 2014; U.S. Commission on Civil Rights, 2018). Social and structural factors shaped by these historical conditions, such as stigma, medical mistrust, and limited access to culturally responsive health communication, further affect engagement with mainstream health systems (Walters & Simoni, 2002). Although these historical and structural factors contribute to disparities, a growing body of research highlights the role of cultural connectedness and traditional practices as protective factors that support resilience and health-promoting behaviors in NA/AN communities.

Culture has been defined as "the sum of attitudes, behaviors, customs, and beliefs of a people, including thoughts, styles of communication, ways of interacting, and views of roles and relationships" (Nakai et al., 2004, p. 1). In NA/AN communities, culture and tradition are often considered key variables in prevention and health promotion. Cultural pride has been shown to strengthen youths' perceptions of self-worth and encourage the adoption of healthier behaviors in everyday life (Napier et al., 2014). Studies have also found that Native American youth report that engagement with their culture increases self-respect and supports positive decision-making (Lee et al., 2018). More broadly, research demonstrates that social and cultural factors play an important role in shaping health behaviors and improving health outcomes (Napier et al., 2014).

Reluctance to seek care among NA/ANs based on historical and contemporary experiences and concerns have been linked to fatalistic health beliefs and perceptions of limited control over health outcomes (Ramirez et al., 2002; Keim et al., 2004; Paradies et al., 2013; Samuel-Nakamura & Hodge, 2016). Fatalism has also been associated with HIV risk perception and engagement in prevention behaviors (Akande, 1997). Further, current HIV prevention messaging often emphasizes individual responsibility through recommendations to "know your risk," "get tested," and "educate your provider about PrEP." However, for a condition shaped by stigma, shame, fear of disclosure, and social isolation, such individual-centered approaches may not align with the help-seeking behaviors and communication patterns observed among NA/AN youth (Ramirez et al., 2002). These factors have important implications for the adoption of biomedical HIV prevention strategies, such as PrEP.

PrEP is a highly effective biomedical strategy that prevents HIV acquisition when taken as prescribed (HIV.gov, 2017). Daily oral PrEP has been shown to reduce sexual transmission of HIV by up to 99% and injection-related transmission by at least 74% (CDC, 2024; Turner et al., 2018; Storholm et al., 2021). Despite its effectiveness and increasing national awareness, substantial disparities in PrEP awareness, access, and uptake persist among racial and ethnic minoritized populations, including NA/AN communities (Pinto et al., 2018; CDC, 2024).

PrEP uptake is limited by patient, provider, and system-level barriers, including gaps in communication, awareness, funding, and access (Pinto et al., 2018). Many of these barriers are influenced by structural limitations within the Indian Health Service (HIS (2022), the primary federally funded healthcare provider for many NA/AN populations (Vernon, 2007). Chronic underfunding of IHS contributes to workforce shortages and high provider turnover, which can disrupt continuity of care and place additional burdens on patients to navigate complex health systems. Although PrEP is approved for use within IHS, it is not consistently available across facilities. In addition, the IHS serves less than half of the eligible NA/AN population, and many individuals who do not use IHS facilities are underinsured or underserved. In addition, providers in IHS facilities may lack cultural and social competence, may have limited training in HIV prevention, or may hold misconceptions about PrEP and HIV, all of which can further limit patient education, counseling, and uptake (Turner et al., 2018; Storholm et al., 2021).

Young adults remain a priority population for HIV and STI prevention. Individuals aged 13–24 account for approximately one-fifth of new HIV diagnoses nationally and represent a population disproportionately affected by STIs (CDC, 2024; CDC, 2025). Research indicates that NA/AN youth experience disparites in STI rates, lower testing rates, and inconsistent condom use compared with non-Hispanic White youth (Kaufman et al., 2022). Within this population, NA/AN college students represent an important but understudied subgroup. In 2020, NA/AN students accounted for 0.6% of all postsecondary enrollment, and only 22% of NA/AN individuals aged 18–24 were enrolled in college compared with 40% of the overall U.S. population (National Center for Education Statistics, 2022). Students who do enroll often face challenges related to retention, cultural isolation, and limited culturally safe spaces on campuses, factors that may influence health information access, help-seeking behaviors, and engagement with prevention services (Shotton et al., 2013).

Despite documented disparities in HIV risk and structural barriers to care, little is known about how effectively knowledge of PrEP is reaching NA/AN college students or how willing and able they are to access preventive medications. Studies suggest that many NA/AN individuals rely on family and social networks for health information and may be less likely to seek formal care for stigmatized conditions such as HIV (Gone & Calf Looking, 2011). Lower levels of HIV knowledge and limited discussion of sexual health within families may contribute to lower perceived risk and delays in seeking care (Negin et al., 2015). To address this gap, this study aimed to examine Native American college students' knowledge of PrEP, sources of health information and care, and preferred methods for receiving HIV prevention and intervention messaging.

METHODS

This study was given ethical approval by the University of New Mexico Institutional Review Board. Informed consent was obtained from all individual participants included in the study.

A convenience sample of Native American (NA) college students from across the U.S. was surveyed to assess knowledge, attitudes, and behaviors related to HIV and HIV prevention medications, including post-exposure prophylaxis (PEP) and pre-exposure prophylaxis (PrEP). A convenience sample, defined as a nonprobability sampling method in which participants are recruited based on accessibility and willingness to participate, was used to facilitate recruitment across geographically dispersed populations (Etikan et al., 2016). Eligibility criteria included being an enrolled member of a federally recognized NA tribe, being a current college student, and being 18 years of age or older. A web-based survey was used to reach students attending public, private, and Tribal Colleges and Universities (TCUs) across all regions of the country.

The survey instrument incorporated existing and adapted items from the National College Health Assessment (ACHA, 2006), the National HIV Behavioral Surveillance Survey (CDC, 2003), and the Pre-Exposure Prophylaxis for Prevention of HIV Survey (Gersh et al., 2014). Additional questions were developed to assess cultural and social indicators relevant to NA/AN populations. Survey development was informed by twelve NA/AN experts affiliated with the National Native HIV Network, a national network that provides guidance to the IHS and other agencies in efforts to improve HIV, STI, and hepatitis C virus (HCV) testing, prevention, treatment, and harm reduction strategies in NA

communities. Additional contributors included survey developers and community experts with experience in survey design, statistical evaluation, and HIV/STI/HCV prevention and treatment programs.

The predominantly ordinal data were examined using methods for variable reduction and bivariate analysis, in preparation for more focused analyses. Factor analysis was used to select the variables that best reflect the phenomena of interest including underlying themes, dimensions, and relationships. Variable reduction for this study focused on the study's original objectives, providing a framework for analysis. Ordinal regression and Chi-Square analysis were then used to explore associations between family, cultural, and school factors and what students know about HIV and HIV medications.

The primary statistical limitation for the analysis is the structure of the variables. With two exceptions (age and number of sexual partners) the variables are ordinal and nominal. The analyses, therefore, were limited to mostly non-parametric statistics. Due to a high degree of multicollinearity among many of the questions, ordinal regression analysis was limited in its interpretation. An additional limitation was the limited number of questions addressing some of the latent variables suggested in the study objectives. Estimations using available variables were able to identify potential relationships and shed light on key issues.

RESULTS

This study examined knowledge and attitudes towards PrEP among NA college students. A total of n=304 participants (i.e. students), representing over 100 tribes nationwide, completed the survey. Students were 57% male and 43% female, aged 18-57 years (mean = 22.5 +/- 4.6 years). Twenty-three percent of students identified as LGBTQ, a proportion higher than national population estimates (<10%), strengthening analyses related to HIV, PrEP, and gender identity. Students were enrolled in over 100 two-and four-year institutions, including public, private, and TCUs. Most (71%) were in undergraduate or technical/vocational programs. Most of the students said they lived off campus while attending school, either with family (35%), with roommates (37%) or alone (27%).

Culture

Tribe and culture remain important for most NAs, regardless of upbringing or educational setting. A majority of students agreed or strongly agreed that their tribal culture (73%), tribe (72%), and tribal

language(s) (68%) were important. Cultural affiliation was further reflected in healthcare preferences, 54.3% preferred primarily traditional practices for physical health, while this preference was stronger for mental health, with 58.6% preferring traditional practices.

Knowledge of HIV and PrEP

Most students, especially younger ones, reported knowing "quite a bit" (50%) or "a lot" (10%) about HIV, while others knew little or nothing. Despite this, 88% had been tested and 53% believed they were at low or no risk; 35% perceived moderate risk. Greater HIV knowledge was associated with using student health centers over IHS or other providers ($\chi 2$ = 71.197, 5df, p<.001); those using student health centers were 12 times more likely to report high HIV knowledge. Perceiving moderate/high HIV risk ($\chi 2$ = 19.133, 1df, p<.001) and having more sexual partners in the past three months ($\chi 2$ = 6.647, 1df, p<.010) were linked with a higher likelihood of knowing one's HIV status. Alcohol or drug use before sex was not significantly associated with HIV knowledge or HIV status awareness.

Among students, stronger ties to family and culture were significantly associated with greater HIV knowledge and awareness of HIV status ($\chi 2$ = 45.145, 11 df, p<.001). While only 15% of students definitively agreed they were comfortable talking about sex with their family, these students knew more about HIV ($\chi 2$ = 15.637, 4df, p<.004), and were more likely to have been tested for HIV ($\chi 2$ = 14.564, 4df, p<.006). Additionally, students who attributed a higher importance to tribal affiliation, native culture, and native language knew more about HIV than those with less strong connections to their culture ($\chi 2$ = 11.185, 1df, p<.001).

Greater HIV knowledge was associated with increased likelihood of knowing about PrEP (OR=2.625, 95%CI [1.163-4.213]). Overall, 56% of students had heard of PrEP prior to the survey. Awareness was higher among younger students ($\chi 2$ = 5.735, 1df, p<.017), males ($\chi 2$ = 54.780, 1df, p<.001) and those not identifying as LGBTQ ($\chi 2$ = 9.387, 1df, p<.002). Students who tested for HIV ($\chi 2$ = 47.722, 1df, p<.001) and those perceiving moderate or high risk ($\chi 2$ = 36.621, 45df, p<.001) were also more likely to know about PrEP. Notably, students who attended TCUs were less likely to have heard about PrEP ($\chi 2$ = 20.505, 4df, p<.001).

Figure 1. Variables Associated with Students Knowing A Lot or Quite a Bit about HIV

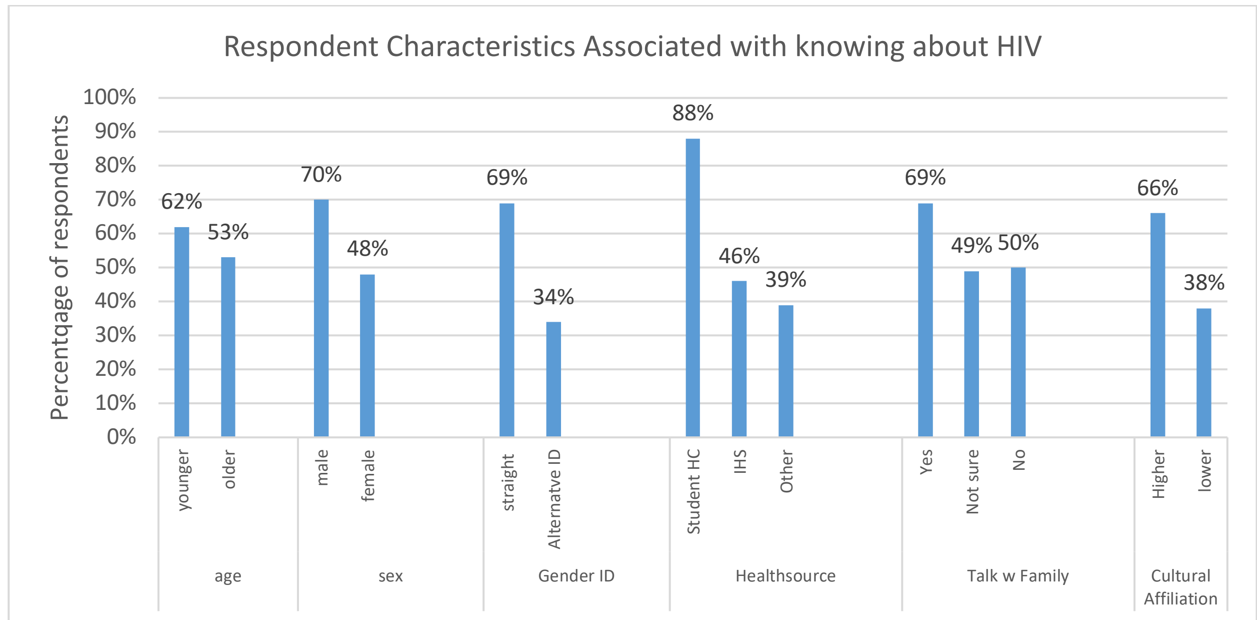
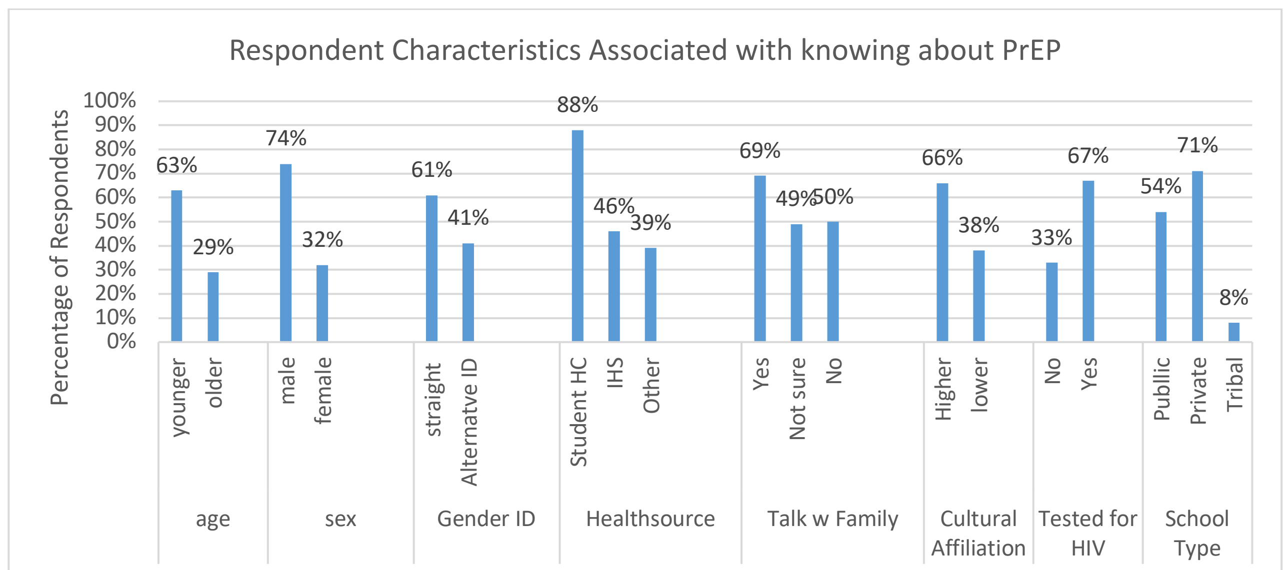


Figure 2. Student Knowledge of PrEP



Despite many students reporting high levels of HIV and PrEP knowledge, peer influence was a major information source. Nearly 29% (28.62%) learned about sex from peers, but these students had less HIV knowledge than those who learned from adult relatives or medical providers ($\chi 2 = 35.634$, 6df, $p<.001$). Further, students living with roommates were more likely to report knowing "quite a bit" about

HIV ($\chi2$ = 17.329, 2df, p<.001) and were also more likely to know about PrEP ($\chi2$ = 16.149, 2df, p<.001). However, the accuracy of peer-shared information remains unclear.

About 1 in 5 students (17%) indicated they had taken PrEP at some point in time. These individuals were nearly evenly split by gender (51% male, 49% female), more likely to be younger (64.7%), and identify as LBGTQ (56.9%). LGBTQ students had six times higher odds of PrEP use compared to those identifying as straight (OR=6.093, 95% CI [3.209-11.567], p < .001). While cultural affiliation was linked with knowing more about HIV, it was negatively associated with PrEP use ($\chi2$ = 74.579, 2df, p<.001).

Barriers to PrEP Use

Among students in this study, perceived stigma in healthcare settings significantly influenced PrEP use ($\chi2$ = 26.330, 16df, p=.05), with even greater impact when stigma was associated with the IHS facilities ($\chi2$ = 120.691, 16df, p<.001). Needing to ask a provider for HIV medications was linked to reduced PrEP uptake ($\chi2$ = 18.619, 5df, p=.002). Perceived judgements from family or friends for using HIV medication was linked to lower likelihood of PrEP use ($\chi2$ = 43.222, 20df, p<.002).

Students were less likely to use PrEP if harmful side effects (i.e., nausea, fatigue, headache) were possible ($\chi2$ = 19.896, 4df, p<.001) and expressed discomfort taking HIV medication without having HIV ($\chi2$ = 55.484, 15df, p<.001). Adherence was another concern as students were less inclined to use PrEP if missing doses reduced its effectiveness ($\chi2$ = 19.007, 4df, p<.001). Knowing the likelihood of any serious side effects would increase willingness to take PrEP ($\chi2$ = 79.769, 20df, p<.001), and most indicated a need for more information before deciding ($\chi2$ = 94.249, 20df, p<.001).

Twenty-five percent said they would be very likely and 31% somewhat likely to take PrEP, even with expenses. However, almost 20% of students said they would definitely not take PrEP due to the expense. Alternatively, if PrEP were provided free, they would be much more likely to take it ($\chi2$ = 25.584, 4df, p<.001).

Despite the barriers, important sources of support may facilitate PrEP uptake. Students who reported higher levels of family support indicated they would be more willing to take PrEP ($\chi2$ = 180.213, 16df, p<.001). Students with greater cultural affiliation knew more about HIV than those with less strong connection to their culture ($\chi2$ = 11.185, 1df, p<.001). They were also more likely to take PrEP if

they were in a relationship with an HIV+ partner ($\chi2$ = 38.570, 8df, p<.001) or if they were with casual sexual partners whose status they did not know ($\chi2$ = 51.199, 8df, p<.001).

Preferences for Information and Care

As noted above, all enrolled tribal members are technically eligible for services from the IHS but only about a fourth of students in this study (26%) use IHS as their primary source of healthcare. Students were more likely to use student health centers (39%) particularly if they had questions about HIV or STI's. The exception was for students in TCUs who were more likely to go to the IHS or a tribal clinic ($\chi2$ = 25.133, 8df, p<.001). This is due to the IHS usually being the sole provider in tribal communities where TCUs are located. Overall, with few other options most would consider using IHS or tribally run clinics to get PrEP every 3-6 months with 45.7% being mostly or completely comfortable, 46.4% being somewhat comfortable, and 7.9% not being comfortable with this option.

Telehealth resources are increasingly becoming an option for NAs due to COVID-19 care and to efforts to bring more services to remote reservation communities. The students were asked if they would be comfortable using a telehealth program for HIV prevention and services. Most of the students (70.4%) said they would be comfortable taking a telehealth HIV test and more than half (55.6%) said they would be very comfortable (55.6%) or somewhat comfortable (36.5%) using a telehealth PrEP program where they could do testing at home and receive medicines online.

When asked where they would be most likely to go if they had questions about HIV or STI's or needed information about prevention or treatment. The majority (57%) said they would go to a student health center and 28% would go to an IHS facility. For information about PrEP most (60%) would prefer to get information from healthcare providers. Students were also asked how likely they would be to obtain information about PrEP on social media. Answers were divided between those who would be likely (48%) and those who would not (47%).

DISCUSSION

This exploratory study identified several factors that both hinder and facilitate understanding and potential use of PrEP among NA college students. Barriers to PrEP uptake, adherence, and persistence documented in prior research among other racial and ethnic minoritized populations in the U.S., including limited awareness, stigma, medical mistrust, and challenges

were related to access to prevention and treatment services, have been well described in the literature (Eaton et al., 2015; Nunn et al., 2017; Siegler et al., 2018). Several of these barriers were also observed among participants in this study. However, the findings suggest that the underlying drivers of these barriers may differ in important ways for NA young adults.

In particular, cultural context, structural limitations in health services, and the ongoing effects of historical and intergenerational trauma appear to shape perceptions of HIV risk, help-seeking behaviors, and engagement with prevention strategies in ways that may not be fully captured in studies of other populations (Brave Heart et al., 2011; Warne & Frizzell, 2014; Walters & Simoni, 2002). Comparisons to other populations are therefore intended to provide context rather than to imply equivalence, given the distinct historical and structural conditions affecting NA communities. Four key themes emerged from this study.

Culture as a protective factor.

Findings from this study indicate that cultural affiliation may function as a protective factor for NA college students and may help open pathways of communication between patients and providers. Higher levels of cultural affiliation were associated with greater knowledge regarding HIV, HIV medications, and with healthier decision-making. Cultural affiliation also appeared to serve as an important source of support, as students with stronger cultural connections demonstrated greater awareness of HIV-related information and reported healthier decision-making patterns. Students also expressed preferences for culturally grounded approaches to both physical and mental healthcare, suggesting that culturally framed health communication and services may improve engagement in prevention and treatment. These findings are consistent with prior research demonstrating that cultural connectedness and cultural identity are associated with improved health behaviors, resilience, and protective health outcomes among NA/AN and Indigenous populations (Walters & Simoni, 2002; Whitbeck et al., 2002). Additional research has shown that culturally responsive health services and culturally grounded information can positively influence health behaviors and engagement in care (Gone & Calf Looking, 2015; Napier et al., 2014). Together, this body of evidence suggests that HIV prevention programs may be more effective when messaging, outreach, and services are developed in partnership with NA/AN led organizations and grounded in

cultural values and community priorities (Walters et al., 2011).

Stigma as a barrier to help-seeking.

Perceived stigma emerged as a significant barrier to help-seeking in this study. External stigma associated with HIV, as well as internalized stigma shaped by experiences of discrimination, historical trauma, and mistrust of health systems, may influence willingness to seek testing, information, or treatment (Walters & Simoni, 2002; Brave Heart et al., 2011; Earnshaw & Chaudoir, 2009). Concerns about privacy were also reported as an important factor influencing help-seeking behavior. In close-knit tribal communities, where many individuals are related through family or clan networks, concerns about confidentiality and fear of social disclosure have been documented as barriers to HIV testing and care among NA/AN populations (Simoni et al., 2004).

Concerns about medication side effects also emerged as a barrier to PrEP use. Although PrEP has been available since 2012 and is considered safe and effective, apprehension about short-term side effects such as nausea, fatigue, and headache, as well as concerns about potential long-term kidney or liver effects, have been reported in studies examining perceptions of PrEP among young adults and other populations at risk for HIV (Krakower & Mayer, 2015; Eaton et al., 2015).

Together, these findings indicate that interventions aimed at reducing stigma, strengthening confidentiality protections, and providing clear, culturally relevant education about medication safety may improve willingness to seek HIV prevention services, particularly when services are delivered in culturally responsive and trusted care settings (Nunn et al., 2017; Warne & Frizzell, 2014).

Trustworthy information is essential.

Trustworthy information emerged as an essential factor influencing health decisions. Previous studies have shown that, regardless of the severity of a health concern, NA/ANs are often more likely to seek help from family members and peers than from healthcare providers (Napier, 2015). This pattern may contribute to delayed testing and treatment, increasing the likelihood that disease is detected at more advanced stages. Among students in this study, supportive family members and trusted peers, including roommates, were important sources of support and information; however, the accuracy of information shared through these informal networks is not always known.

Students also recognized healthcare providers as reliable sources of information, yet many reported using social media as an information source, which raises concerns about the quality and accuracy of information obtained. At the same time, informed social networks have been shown to support PrEP uptake and HIV prevention behaviors in other populations, highlighting the potential value of strengthening accurate, community-based channels of communication (Eaton et al., 2015; Nunn et al., 2017). NA college students may play an important role in this process, as they are often viewed as credible sources of information when they return to their home communities and can serve as bridges between families, communities, and mainstream health resources. Ensuring that students have access to accurate, culturally relevant information may therefore help strengthen community knowledge, support informed decision-making, and counter fatalistic beliefs that can discourage engagement in HIV prevention and care (Walters & Simoni, 2002; Negin et al., 2015).

Responsive and accessible services.

Mistrust of mainstream health systems and dissatisfaction with available services were identified as barriers to preventive care. High provider turnover rates within the IHS may contribute to limited continuity of care and reduced trust, making sensitive discussions, such as those related to HIV, more difficult (Warne & Frizzell, 2014; U.S. Commission on Civil Rights, 2018). Although all enrolled tribal members are eligible for IHS services, including PrEP, cost remained a perceived concern among students, reflecting uncertainty about coverage and access. Not all IHS facilities offer PrEP, and many NA students, particularly those attending non-tribal institutions, may not live near facilities that provide these services; geographic access and service availability have been consistently identified as barriers to care among AN/AN populations (IHS, 2022; Sequist, Cullen, & Acton, 2011). Despite these concerns, cost alone was not a complete deterrent to considering PrEP.

Most students reported using more accessible services, such as student health centers, while attending school, indicating that convenient, confidential, and trusted points of care may play an important role in HIV prevention. Prior research suggests that trusted and accessible care settings, including campus health services and telehealth platforms, can improve screening, prevention uptake, and continuity of care among young adults and underserved populations (Nunn et al., 2017; Siegler et al., 2018). These findings suggest that expanding access through

student health centers, telehealth, and culturally informed service delivery models may help reduce structural barriers and improve engagement in prevention and care (Warne & Frizzell, 2014).

WAYS FORWARD

Many of the challenges identified for NA college students are structural and not easily resolved, including longstanding limitations in the IHS and deeply rooted mistrust of mainstream health systems. Interventions that rely primarily on individuals to initiate stigma-free conversations with providers may therefore be insufficient, particularly in settings where continuity of care, confidentiality, and culturally responsive communication remain concerns. In addition, limited resources and variability in services across Tribal, urban, and campus settings continue to constrain the dissemination of culturally grounded HIV prevention information and services tailored to the diverse needs of NA/AN communities.

Findings from this study suggest that expanding access through student health centers, telehealth, and other accessible service models may improve engagement in HIV prevention among NA college students. Telehealth, in particular, may help reduce geographic and stigma-related barriers while increasing access to culturally informed providers. Partnerships with NA/AN organizations may also play an important role in strengthening outreach, improving the cultural relevance of messaging, and supporting trust between at-risk populations and health systems. Organizations such as United Natives, a national NA/AN non-profit organization, which operate at the intersection of community engagement, health education, and service delivery, may serve as examples of how culturally grounded, NA/AN led approaches can help normalize HIV prevention and improve access to accurate information and preventive care. Improving HIV prevention among NA young adults will require culturally grounded, community-driven approaches that strengthen trust, expand access to accurate information and prevention services, and address the structural conditions that continue to shape health inequities in NA/AN communities.

References

Akande, A. (1997). Black South African Adolescents' Attitudes Towards AIDS Precautions. *School Psychology International, 18*(4), 325–341. https://doi.org/10.1177/0143034397184003

American College Health Association. (2007). American College Health Association National College Health Assessment Spring 2006 Reference Group Data Report (Abridged): The American College Health Association. *Journal of American College Health, 55*(4), 195–206. https://doi.org/10.3200/jach.55.4.195-206

Aral, S. O. (2002). Understanding racial-ethnic and societal differentials in STI. Sexually Transmitted Infections, *Social epidemiology 78*(1), 2–4. https://doi.org/10.1136/sti.78.1.2

Brave Heart, M. Y. H., Chase, J., Elkins, J., & Altschul, D. B. (2011). Historical Trauma Among Indigenous Peoples of the Americas: Concepts, Research, and Clinical Considerations. *Journal of Psychoactive Drugs, 43*(4), 282–290. https://doi.org/10.1080/02791072.2011.628913

CDC. (2024, May 13). 2020 HIV Surveillance Report. National Center for HIV, Viral Hepatitis, STD, and Tuberculosis Prevention. https://www.cdc.gov/nchhstp/director-letters/2020-hiv-surveillance-report.html

CDC. (2025, February 7). *National HIV Behavioral Surveillance (NHBS). HIV Data.* https://www.cdc.gov/hiv-data/nhbs/

Earnshaw, V. A., & Chaudoir, S. R. (2009). From Conceptualizing to Measuring HIV Stigma: A Review of HIV Stigma Mechanism Measures. *AIDS and Behavior, 13*(6), 1160–1177. https://doi.org/10.1007/s10461-009-9593-3

Eaton, L. A., Driffin, D. D., Bauermeister, J., Smith, H., & Conway-Washington, C. (2015). Minimal Awareness and Stalled Uptake of Pre-Exposure Prophylaxis (PrEP) Among at Risk, HIV-Negative, Black Men Who Have Sex with Men. *AIDS Patient Care and STDs, 29*(8), 423–429. https://doi.org/10.1089/apc.2014.0303

Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics, 5*(1), 1–4. https://doi.org/10.11648/j.ajtas.20160501.11

Gone, J. P., & Calf Looking, P. E. (2011). American Indian Culture as Substance Abuse Treatment: Pursuing Evidence for a Local Intervention. *Journal of Psychoactive Drugs, 43*(4), 291–296. https://doi.org/10.1080/02791072.2011.628915

HIV.gov. (2017, June 28). Homepage. HIV.gov. https://www.hiv.gov/

Indian Health Service. (2022). *Indian Health Service fact sheet.* U.S. Department of Health and
Human Services.

Keim, K. S., Taylor, C., Sparrer, A., Delinder, J. V., & Parker, S. (2004). Social and Cultural Barriers to Diabetes Prevention in Oklahoma American Indian Women. *Preventing Chronic Disease, 1*(2), A06. https://pmc.ncbi.nlm.nih.gov/articles/PMC1183498/

Krakower, D. S., & Mayer, K. H. (2015). Pre-Exposure Prophylaxis to Prevent HIV Infection: Current Status, Future Opportunities and Challenges. *Drugs, 75*(3), 243–251. https://doi.org/10.1007/s40265-015-0355-4

Lee, C., Thompson-Robinson, M., & Dodge-Francis, C. (2018). Acceptability of an Adapted HIV Prevention Intervention for Native American Adolescents. *AIDS Education and Prevention, 30*(1), 72–84. https://doi.org/10.1521/aeap.2018.30.1.72

Lillie-Blanton, M., Rushing, O., & Ruiz, S. (2003). *Key Facts Race, Ethnicity & Medical Care.* https://files.kff.org/attachment/june-2003-chartbook-key-facts-race-ethnicity-and-medical-care

Napier, A. D., Ancarno, C., Butler, B., Calabrese, J., Chater, A., Chatterjee, H., Guesnet, F., Horne, R., Jacyna, S., Jadhav, S., Macdonald, A., Neuendorf, U., Parkhurst, A., Reynolds, R., Scambler, G., Shamdasani, S., Smith, S. Z., Stougaard-Nielsen, J., Thomson, L., & Tyler, N. (2014). Culture and health. *The Lancet, 384*(9954), 1607–1639. https://doi.org/10.1016/s0140-6736(14)61603-2

Negin, J., Aspin, C., Gadsden, T., & Reading, C. (2015). HIV Among Indigenous peoples: A Review of the Literature on HIV-Related Behaviour Since the Beginning of the Epidemic. *AIDS and Behavior, 19*(9), 1720–1734. https://doi.org/10.1007/s10461-015-1023-0

Nunn, A. S., Rubinstein, B., & Oldenburg, L. (2017). Defining the HIV pre-exposure prophylaxis care continuum. *Clinical Infectious Diseases. 31*(5). https://journals.lww.com/aidsonline/fulltext/2017/03130/Defining_the_HIV_pre_exposure_prophylaxis_care.15.aspx

Office of Minority Health. (n.d.). *HIV/AIDS and PrEP Resources.*

https://minorityhealth.hhs.gov/omhs-justice-and-health-initiatives.

Paradies, Y., Truong, M., & Priest, N. (2013). A Systematic Review of the Extent and Measurement of Healthcare Provider Racism. *Journal of General Internal Medicine, 29*(2), 364–387. https://doi.org/10.1007/s11606-013-2583-1

Pinto, R. M., Berringer, K. R., Melendez, R., & Mmeje, O. (2018). Improving PrEP Implementation Through Multilevel Interventions: A Synthesis of the Literature. *AIDS and Behavior, 22*(11), 3681–3691. https://doi.org/10.1007/s10461-018-2184-4

Ramirez, J. R., Crano, W. D., Quist, R., Burgoon, M., Alvaro, E. M., & Grandpre, J. (2002). Effects of Fatalism and Family Communication on HIV/AIDS Awareness Variations in Native American and Anglo Parents and Children. *AIDS Education and Prevention, 14*(1), 29–40. https://doi.org/10.1521/aeap.14.1.29.24332

Samuel-Nakamura, C., & Hodge, F. S. (2016). Modifiable and Non-Modifiable Factors Associated with HPV Vaccine Decision-Making among American Indian Women College Students. *American Indian Culture and Research Journal, 40*(4), 71–81. https://doi.org/10.17953/aicrj.40.4.samuel-nakamura

Sequist, T. D., Cullen, T., & Acton, K. J. (2011). Indian Health Service Innovations Have Helped Reduce Health Disparities Affecting American Indian and Alaska Native People. *Health Affairs, 30*(10), 1965–1973. https://doi.org/10.1377/hlthaff.2011.0630

Siegler, A. J., Mayer, K. H., Liu, A. Y., Patel, R. R., Ahlschlager, L. M., Kraft, C. S., Fish, R., Wiatrek, S. E., & Sullivan, P. S. (2018). Developing and Assessing the Feasibility of a Home-based Preexposure Prophylaxis Monitoring and Support Program. *Clinical Infectious Diseases: An Official Publication of the Infectious Diseases Society of America, 68*(3), 501–504. https://doi.org/10.1093/cid/ciy529

Simoni, J. M., Sehgal, S., & Walters, K. L. (2004). Triangle of Risk: Urban American Indian Women's Sexual Trauma, Injection Drug Use, and HIV Sexual Risk Behaviors. *AIDS and Behavior, 8*(1), 33–45. https://doi.org/10.1023/b:aibe.0000017524.40093.6b

Turner, L., Roepke, A., Wardell, E., & Teitelman, A. M. (2018). Do You PrEP? A Review of Primary Care Provider

Knowledge of PrEP and Attitudes on Prescribing PrEP. *Journal of the Association of Nurses in AIDS Care, 29*(1), 83–92. https://doi.org/10.1016/j.jana.2017.11.002

U.S. Commission on Civil Rights. (2018). *BROKEN PROMISES: Continuing Federal Funding Shortfall for Native Americans.* https://www.usccr.gov/files/pubs/2018/12-20-Broken-Promises.pdf

Vernon, I. S. (2007). American Indian Women, HIV/AIDS, and Health Disparity. *Substance Use & Misuse, 42*(4), 741–752. https://doi.org/10.1080/10826080701202569

Walters, K. L., Mohammed, S. A., Evans-Campbell, T., Beltrán, R. E., Chae, D. H., & Duran, B. (2011). Bodies Don't Just Tell Stories, They Tell Histories: Embodiment of Historical Trauma Among American Indians and Alaska Natives. *Du Bois Review: Social Science Research on Race, 8*(1), 179–189. https://doi.org/10.1017/s1742058x1100018x

Walters, K. L., & Simoni, J. M. (2002). Reconceptualizing Native Women's Health: An "Indigenist" Stress-Coping Model. *American Journal of Public Health, 92*(4), 520–524. https://doi.org/10.2105/ajph.92.4.520

Warne, D., & Frizzell, L. B. (2014). American Indian Health Policy: Historical Trends and Contemporary Issues. *American Journal of Public Health, 104*(S3), S263–S267. https://doi.org/10.2105/ajph.2013.301682

Whitbeck, L. B., McMorris, B. J., Hoyt, D. R., Stubben, J. D., & Lafromboise, T. (2002). Perceived discrimination, traditional practices, and depressive symptoms among American Indians in the upper midwest. *Journal of Health and Social Behavior, 43*(4), 400–418. https://pubmed.ncbi.nlm.nih.gov/12664673/

Williams, D. R. (1999). Race, Socioeconomic Status, and Health the Added Effects of Racism and Discrimination. *Annals of the New York Academy of Sciences, 896*(1), 173–188. https://doi.org/10.1111/j.1749-6632.1999.tb08114.x

About the authors:

Dr Crystal Lee is an enrolled member of the Dine' (Navajo) Nation. Her tribal clans are Tachii'nii (Red Running into the Water), Tabaaha (Water's Edge), Tsenjikini (Cliff Dwellers), and Kin l ichii'nii (Red House). Currently, she is Assistant Professor at the University of New Mexico, College of Population Health and

CEO/Founder of a national Native American non-profit organization, United Natives. She conducts infectious disease biomedical prevention research and Indigenous health policies. United Natives was recognized by USA Today as a leading Native American non-profit and she was recognized by Scientific American as 1-of-3 people in the United States changing health equity.

Dr Michelle Chino is affiliated with the Laguna Pueblo Nation. She is Professor Emerita at the University of Nevada, Las Vegas (UNLV). Dr Chino has dedicated her career to addressing health disparities in Indigenous communities through culturally grounded research and community engagement. Dr Chino has been instrumental in advancing Indigenous Health equity as she founded and directed two major research centers at UNLV: Center for Health Disparities Research and American Indian Research and Education Center. Additionally, Dr Chino co-founded the *Journal of Health Disparities Research and Practice*, a peer-reviewed publication.

Erin Johns (Diné/Navajo) is an enrolled member of the Navajo Nation and a student majoring in Medical Laboratory Sciences at Arizona State University. She serves as the Youth Engagement Coordinator for **United Natives**, a national Native-led nonprofit organization advancing Indigenous health and community wellness. Through her leadership at United Natives, Erin led and oversees national research projects engaging Native American college students, strengthening youth voices in research, data collection, and community-driven health initiatives.