CENTERING NATIVE YOUTHS' NEEDS AND PRIORITIES: FINDINGS FROM THE 2020 NATIVE YOUTH HEALTH TECH SURVEY

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Abstract: Health advocates are increasingly using social media and mobile technology to reach American Indian and Alaska Native (AI/AN) youth to address important health topics and enhance protective factors. Public health experts did not know to what extent AI/AN youth used these tools to access health resources during the pandemic. The Native Youth Health Tech Survey was administered online from October to November 2020 with 349 AI/AN youth 15 to 24 years old. Survey results indicated frequent technology use—68.7% sent 1–50 text messages per day, and 65.3% were on social media 3–7 hours per day. Instagram was the most popular channel used, and 53.5% of participants relied heavily on the Internet to access health information. The three most important health topics were Native identity, mental health, and social justice and equality. These findings can inform the design and dissemination of culturally grounded health resources across AI/AN communities to improve their reach and appeal, improving health outcomes, self-esteem, and cultural connectedness.

INTRODUCTION

American Indian and Alaska Native (AI/AN) youth are smart, diverse, creative, passionate, and engaged (Center for Native American Youth [CNAY], n.d.). An estimated 9.7 million people in the United States identify as AI/AN, and approximately 42% of the total AI/AN population in the United States are 24 years old or younger (CNAY, n.d.; Indian Country Today, 2021). Nearly 75% of AI/AN youth live in urban communities; the rest live on reservations, rancherias, villages, and other tribal lands (CNAY, n.d.). Due to colonization and forced removal via the Indian Relocation Act of 1956, tribal communities are widespread, spanning both reservation and urban communities (Evans-Campbell, 2008; Weaver & Brave Heart, 1999). Colonization stripped many tribes of cultural practices and community connectedness, while simultaneously exacerbating economic, social, and health inequities. As a result, many Native youth now live in communities

that are disproportionately affected by high rates of poverty, unemployment, health disparities, substance misuse, low education attainment, family violence, and crime (Evans-Campbell, 2008; Weaver & Brave Heart, 1999; Kaufman et al., 2007). Nurturing the development of culturally tailored programs and interventions that cultivate protective factors for AI/AN youth are critically needed to counter these challenges. Important protective factors for AI/AN youth include positive self-image, self-efficacy, familial and non-familial connectedness, positive opportunities, positive social norms, and cultural connectedness (SAMHSA, 2018).

While public health practitioners now recognize racism as a systemic public health crisis (American Public Health Association, 2021), many Native youth face daily micro-aggressions, fueled by negative stereotypes, the perpetuation of AI/AN mascots, and invisibility in the mainstream media and the historical record. Additionally, Native youth face lateral violence from peers questioning their "Nativeness," which can impede self-esteem and cultural pride (Svetax et al., 2018). While all people reflect multiple intersectional identities, such as gender and sexual orientation, cultural, religious, and nationality, to name a few, the development of ethnic and racial identities are particularly meaningful for minority youth because they experience the contrasting and dominant culture of their retrospective ethnic majority (ACT for Youth, 2019). Navigating these intersectional-identities are frequent topics of concern on Native social media platforms. For example, We R Native's Ask Auntie,[1] an anonymous question and answer (Q&A) service run by www.weRnative.org, reports that nearly half of the service's 400+ Q&As address youths' concerns about cultural and gender identity, mental health, stress, historical trauma, stigma, and stereotypes (Northwest Portland Area Indian Health Board [NPAIHB], 2020). There is a critical need to better understand AI/AN adolescent identity, their prioritized health topics and preferred sources of health information, as well as their interests and concerns, to better center their needs and priorities in the development and delivery of culturally tailored health programs.

Health advocates are increasingly using social media and mobile technology to reach Native youth to address important health topics and enhance protective factors (Craig Rushing et al., 2020). Technology and social media use has become a daily ritual for most American teenagers and is widely accessible by most. A 2018 report showed 27% of youth in the United States checked their social media accounts on an hourly basis, and 16% reported constantly checking their social media pages (Statista, 2018). These findings are comparable to the last Native Youth Health Tech Survey conducted in 2016 with 675 AI/AN teens and young adults nationwide (NPAIHB, 2016).

[1] https://wernative.worldsecuresystems.com/ask-auntie/chat.htm

Nearly 78% of youth surveyed had regular access to a smartphone, and 46% had regular access to a computer at that time (NPAIHB, 2016). Over 92% reported accessing the Internet from a phone on a daily or weekly basis, and 50% reported going online from a computer as often (NPAIHB, 2016). Researchers are also finding social media platforms like Twitter can create a sense of identity and community among AI/AN youth, by bonding over common concerns like social justice movements, environmental protections, voting rights, and Missing and Murdered Indigenous Women (Around Him et al., 2020). A recent analysis of Native youths' conversations on social media platforms found they are highly engaged in health-related conversations in these spaces and use these networks for self-help, peer support, and health activism (MarketCast, 2020a). Recent reports also shed light on changes in conversational themes that took place during the COVID-19 pandemic, concluding Native youth are increasingly using these channels to discuss the structural and societal conditions that undermine mental health and to advocate for inclusive health resources for transgender, Two-Spirit, and non-binary youth (MarketCast, 2020b).

Building resources that foster cultural pride and positive identity must be central to programs or technologies that address mental health and resilience for AI/AN youth. To meet young people where they are and utilize their preferred communication channels, it is essential to better understand their access to and use of the Internet, mobile technologies, and social media – particularly in light of the disrupted access to these technologies that took place during the COVID-19 pandemic. To fill this gap, we surveyed 349 AI/AN youth 15-24 years-old in 2020 on their technology use and health priorities. Findings from the survey can help inform the design and dissemination of culturally grounded health services to improve health outcomes, self-esteem, and cultural connectedness across AI/AN communities.

METHODS

Study Partners

Housed at the Northwest Portland Area Indian Health Board (NPAIHB), We R Native is a multimedia health resource for Native youth, by Native youth. The service was designed using formative research and inclusive design principles with AI/AN teens and young adults (Craig Rushing et al., 2018). We R Native health messages are designed to address the social, structural, and environmental stressors that influence adolescent health, with particular focus on the prevention of suicide, bullying, sexually transmitted diseases, teen pregnancy, and drug and

alcohol use. The We R Native site contains over 400 health and wellness pages that have been reviewed by Native youth and topical experts. Since its launch, the website has received over 1 million pageviews.

The 2020 Native Youth Health Tech Survey (NYHTS) was carried out in collaboration with the Centers for American Indian and Alaska Native Health at the Colorado School of Public Health (CAIANH). The CAIANH is the largest, most comprehensive, and longest standing program of its kind in the country. Its mission is to promote the health and well-being of AI/ANs, of all ages, by pursuing research, training, continuing education, technical assistance, and information dissemination within a biopsychosocial framework that recognizes the unique cultural contexts of this special population.

Study Design

The study instruments and recruitment procedures were collaboratively developed and deployed by the NPAIHB and the CAIANH. The study procedures were reviewed and approved by the Portland Area Indian Health Service Institutional Review Board at the NPAIHB. OpenEpi software was used to determine an adequate sample size of 384 respondents, which would allow us to report results segmented by age and gender with an error of ±5% at the 95% confidence level (Openepi.com, n.d.).

Survey Tool and Outcome Measures

The goals of the NYHTS were to: (a) identify to what extent AI/AN teens and young adults use media technologies (media types, frequency, and duration); (b) determine how they use those technologies (online behaviors and activities); and (c) explore ways they might be used to promote adolescent health (online health-seeking practices and preferences). We also collected demographic information, including age, race/ethnicity, gender, and sexual orientation (straight/heterosexual, 2SLGBT+,[2] unsure/don't know), and State of residence. The survey was first designed by staff at the NPAIHB, drawing questions from several existing questionnaires that have been validated in other settings (Craig Rushing & Stephens, 2011). Where appropriate, response options were updated, and several questions were added to the tool to assess the impact of COVID-19 on youths' access to and use of technology.

[2] Two-spirit, lesbian, gay, bisexual, transgender, queer

Our survey measures collected information on demographics, technology use and device access, social media use, physical and mental health, COVID-19 impacts, and other important topics. The survey included two health questions, "How good is your physical health?" and "How good is your mental health?" Response options were based on a four-point Likert-type scale where 4 = Excellent and 1 = Poor. To document where AI/AN youth get information, the survey included 11 questions with information sources listed, for example parents, health classes, and social media. For each source youth selected how often they access information using a 4-point Likert-type scale where 4 = A lot (weekly) and 1 = Never. Youth also self-reported if they owned or had regular access to the following technology: desktop/laptop computer, basic cell phone, Smartphone, tablet, or gaming console and selected all responses that applied to them. The next question asked youth, "About how many text messages do you send and receive per day?" Response options were 1-50, 51-100, 101-150, 151-200, and more than 200. The survey asked youth, "How often do you get online on your phone, or use a wearable health tracker?" Response options were based on a 4-point Likert-type scale where 4 = Daily and 1 = Never. Youth also responded to questions about their use of various social media platforms, like Facebook and TikTok, and listening to podcasts; response options were based on a 4-point Likert type scale where 4 = Daily and 1 = Never. Other survey questions were fixed response and based on previous YHTS tools and asked youth about time spent on social media, favorite things to do online, health concerns, interests in health topics, involvement in We R Native in the past six months, and satisfaction with We R Native resources. Unique to this iteration of the YHTS, COVID-19 measures were developed collaboratively between NPAIHB and CAIANH to determine Internet and online frequency changes, if any, to better understand this unique aspect on AI/AN youth. Youth selected their top three health topics from a list of 15, including alcohol or drug misuse, domestic violence, dating and healthy relationships, diet and nutrition, communication skills, life hacks, the environment, mental health, making a difference, Native identity or cultural pride, physical health, sexual health, spiritual health, social justice and equality, and wellness skills.

The survey was deployed online using Qualtrics, a HIPAA-compliant data collection software hosted at CAIANH, with imbedded consent forms and skip patterns, which included both quantitative measures and open-ended responses.

Study Participants and Setting

Between October 2020 and November 2020, AI/AN adolescents were invited to participate in the survey. Participants were eligible if they were between the ages of 15-24, identified as

AI/AN, and resided within the United States. Participants were recruited primarily through a judgement sampling method. Judgement sampling is a form of convenience sampling, where the study team selects the sample based on their judgement (Fricker, 2012). In this case, the judgement was to invite all We R Native followers and users. The study team utilized youth-focused AI/AN social media channels, We R Native's text messaging service, and other purposive approaches to optimize the number of AI/AN youth in the study. Upon completion of the survey, respondents were sent a $10 Amazon e-gift card in appreciation for their time.

Data Analysis

All quantitative analyses were completed using SPSS (Version 26; IBM Corporation). In order to better understand the specific interests and health needs of sexual and/or gender minority (SGM) participants, additional analyses were conducted by combining both sexual and gender minorities into a single variable and running comparisons. Independent t-tests were used to examine differences in mental and physical health ratings based on SGM and non-SGM status. The open-ended qualitative data were coded using classical content analysis methods (Barcus, 1959). The first author reviewed and coded all qualitative responses via NVivo into themes, and the final themes were then quantified via frequency counts to further understand both technology use and the importance of culturally competent resources among AI/AN youth. Quotes from respondents were identified to further illustrate overall themes and meaning.

RESULTS

Participant Sociodemographics

In total, 349 youth met the study's inclusion criteria and participated in the 2020 NYHTS (Table 1). Participants ranged in age from 15 to 24 (M = 19.19; SD = 2.84). As seen in Table 1, the sample was split about evenly between those who identified exclusively as AI/AN and those who identified as multiracial AI/AN (51.3% and 48.7%, respectively). While the majority of participants identified as female (n = 248) or male (n = 72), wide representation was obtained from individuals who identify as a sexual and/or gender minority (full results can be seen within Table 1). Altogether, 36.4% (n = 138) identified as a sexual or gender minority. The survey garnered wide representation of AI/AN youth across the United States, including 37 States and Puerto Rico.

Table 1
Sociodemographic characteristics (n = 349)

	N	%	M	SD
Age			19.19	2.84
Age Groups				
15-18	157	45.0		
19-21	100	28.7		
22-24	90	25.8		
Race/ethnicity				
AI/AN	179	51.3		
Multiracial AI/AN	170	48.7		
Gender Identity				
Male	72	20.6		
Trans-man	2	.6		
Female	248	71.1		
Trans-woman	2	.6		
Genderqueer	17	4.9		
Cisgender	2	.6		
Other	5	1.4		
Sexual Identity				
Heterosexual	198	56.7		
Lesbian/Gay	22	6.3		
Bisexual	76	21.8		
Two-spirit	15	4.3		
Something else	14	4.0		
I don't know	14	4.0		
Prefer not to answer	3	.9		

Technology Use and Device Access

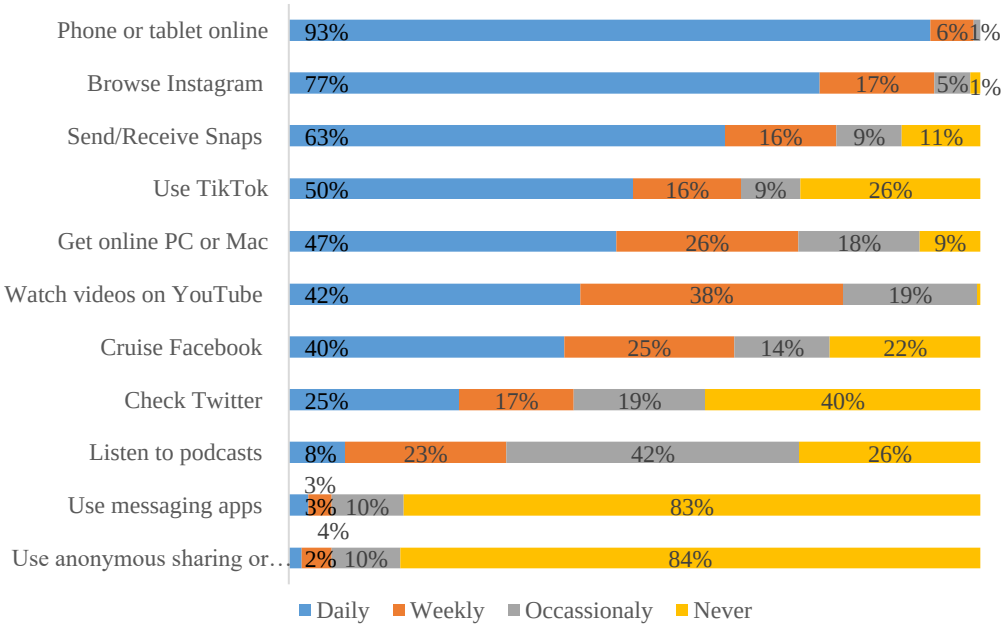
Unique to this iteration of the NYHTS, data was collected on the types of devices used to complete the survey itself, in addition to self-reported technology use by AI/AN youth. As seen in Table 2, 69.3% of respondents accessed the survey from an iPhone, while the rest utilized Android devices or desktop computers. Of the 349 total participants, 87.1% indicated they had regular, daily access to a desktop or laptop computer, and 95.4% indicated they had regular, daily access to a smartphone. Only 15.4% of youth indicated they had a basic cellphone with no Internet access. Most participants (64.7%) reported sending 1-50 text messages per day.

Table 2
Technology devices (n = 349)

Technology Device to Access Survey	N	%
iPhone	242	69.3
Android	55	15.7
Desktop	44	12.6
Other	8	.02

As seen in Figure 1, the research team was able to gain a better understanding of youths' reported technology use on a daily, weekly, and occasional basis, including platform-specific behaviors. The most popular daily technology use among AI/AN youth involved browsing Instagram (74.0%), sending/receiving snap messages via Snapchat (60.0%), using TikTok (50.4%), and watching videos on YouTube (48.4%). The least reported daily technology use (4.0%) involved messaging apps such as Whisper, YikYak, and Ask.Fm; platforms that have drawn recent concerns regarding cyberbullying and hate-speech (Black et al., 2016). Other less popular technologies among AI/AN youth included health trackers and podcasts, which were rarely or never used by the participants.

Figure 1. Technology and social media use frequencies (n = 211)



Social Media Behavior

Altogether, 65.3% of respondents reported using social media 3-7 hours per day, with 86.0% reporting their primary activity on social media as "scrolling," followed by watching videos (75.1%), sharing memes (68.8%), checking in on family members or friends (68.8%), and following influencers or celebrities (39.5%; see Table 3). Researchers also sought to identify youths' preferred social media platforms. Overall, 36.7% of AI/AN youth reported Instagram was their preferred social media platform, and 21.2% reported Snapchat as their preferred channel, with TikTok and Facebook sharing popularity, with 16.6% and 17.2%, respectively.

Table 3
Online engagement (n = 349)

Favorite Ways to Engage Online	N	%
Scroll	300	86.0
Watch videos	262	75.1
Check on friends and family members	240	68.8
Share memes	233	68.8
Follow influencers/celebrities	138	39.5
Post original content	116	33.2
Vent	90	25.8
Other	21	6.0
Go "live"	14	4.0

Youth also reported frequently seeing people "stirring up drama" on social media – 70.0% reported seeing such posts on a daily or weekly basis. Similarly, 75.2% reported seeing references to drug or alcohol use on social media, 62.8% reported seeing references to violence on social media, and 46.1% reported seeing people posting concerning messages on social media (sharing references to depression, suicide, or self-harm). Conversely, 49.0% reported "people supporting you through challenging or tough times on social media" (see Appendix Table A1).

Self-Reported Physical and Mental Health

An independent-samples t-test was conducted to compare self-reported physical health for SGM AI/AN youth and non-SGM AI/AN youth. There was a significant difference in self-reported general physical health for non-SGM AI/AN youth (M = 3.07, SD = 0.71) and SGM AI/AN youth

(*M* = 2.77, *SD* = 0.71), t (339) = -3.76, p <.001. To assess for differences in self-reported mental health between SGM AI/AN youth and non-SGM AI/AN youth, we utilized the same analysis process. There was a significant difference in self-reported mental health for non-SGM AI/AN youth (*M* = 2.44, *SD* = 0.82) and SGM AI/AN youth (*M* = 1.87, *SD* = 0.79), t (340) = -6.49, p <.001. Non-SGM AI/AN youth reported better overall physical and mental health than SGM AI/AN youth.

Health Sources

When asked where they get information about health, participants reported consulting the Internet (51.9%), followed by social media (47.6%), and parents (22.6%) on a weekly basis. Those more-frequent sources were followed by friends or siblings (15.2%), trusted adults (12.7%), health classes in school (11.4%), and doctors, nurses, and clinic staff (10.0%). Other sources that youth consulted less than 10% of the time included television or ads, text messages, radio, and other sources, such as church, counseling, Google, podcasts, programming, teachers, and significant others.

COVID-19 and its Impact on AI/AN Youth

The COVID-19 pandemic has had a disproportionate impact on tribal communities compared to other marginalized populations (Fortuna et al., 2020), and justifiably most research conducted thus far has focused primarily on the health and socioeconomic impact of the pandemic on the AI/AN population. We assessed how Internet access may have been impacted by COVID-19. Overall, 61.9% of AI/AN youth reported being online more during the pandemic compared to before; only 6.0% of youth reported being online less than before. Additional analysis indicated that 8.0% of AI/AN youth had decreased Internet access; the majority of those negatively impacted resided in California, Oregon, and Washington. If respondents indicated they had decreased access to the Internet, they were prompted to share where they accessed the Internet before the pandemic – the majority (30.6%) said at home, the rest (28.2%) reported they used the Internet at school.

Open-ended Responses from AI/AN Youth

In open-ended responses, survey participants were asked what additional topics and resources would be most helpful to them and their peers. The most common themes mentioned by

youth were mental health, historical trauma, and intergenerational trauma. Within mental health, participants shared specific topics of importance, including anxiety, eating disorders, and post-traumatic stress disorder. Overwhelmingly, participants valued having culturally relevant resources and connecting with caring adults. One participant, a 15-year-old from Colorado, valued the empowerment provided by having culturally relevant programs: "It makes me love myself more. I love being Native and it makes me proud of who I am." Several participants voiced that programs that share cultural teachings and stories help them stay connected to their culture and other AI/AN youth. Another participant, an 18-year-old from Michigan, shared similar sentiments of culturally relevant programming while being isolated from other individuals within their community, "I like the cultural information [We R Native], and how it's accessible for someone like me, who isn't always able to get info from people I know in real life, especially living in a white-majority town."

DISCUSSION

Technology use among Native youth has continued to grow since the first NYHTS was conducted in 2009. Altogether, 93% of youth in this sample reported using their phone to get online at least once a day in 2020, and most reported having regular access to multiple technologies, including a desktop or laptop computer in addition to their smartphones. Participants reported frequent communication with friends or family—on average sending 1-50 text messages per day—while 38% reported spending an average of 3-4 hours on social media per day, most often scrolling, watching videos, and checking-in on family and friends.

The comparison of 2016 responses to 2020 responses illuminates some important similarities and differences in what youth say they see scrolling through their social media channels. Youth in the 2020 NYHTS reported seeing more frequent references to drug or alcohol use on social media (69.8% in 2016 vs. 75.2% in 2020). They also reported a decrease in posts mentioning self-harm, depression, or suicide (57.8% in 2016 vs. 46.2% in 2020; see Table A1). There were no changes, however, in the percentage of youth who reported feeling supported during "challenging or tough times on social media," reported by just under half of respondents (49%).

In 2020, the most important health and wellness topics reported by participants included Native identity, mental health, and social justice and equality (see Table A2). Open-ended responses also highlighted the need for culturally relevant resources addressing mental health, historical trauma, and intergenerational trauma. Most patterns in technology access and use were similar for SGM youth and non-SGM youth; however, non-SGM AI/AN youth reported better overall physical

and mental health than SGM AI/AN youth. This finding underscores the critical importance of developing culturally relevant, holistic health resources specifically for Two-Spirit and LGBTQ+ youth. One such program—the Paths (Re)Membered Project[3]—centers the 2SLGBTQ+ community, including its strengths, resiliencies, and histories in its movement toward health equity.

The 2020 NYHTS results reinforce recent studies that find Native youth value having reliable access to established culturally relevant mHealth (mobile health) technologies and feel confident navigating their use (Stephens et al., 2020). Additional tools and training are needed to support youths' adoption of wellness skills and resilience strategies, both on- and off-line; instill cultural pride; prepare them to navigate the positive and negative pressures that surround social media use; and support help-seeking from trusted adults, peers, and other health care providers when confronted with concerning content. To meet young people where they are and utilize their preferred communication channels, these tools should be designed for delivery using social media and text messaging and incorporate culturally tailored health messages, images, and videos.

Results from the 2020 NYHTS can be used to guide the development and delivery of mHealth interventions for Native youth across a wide range of health topics. While culturally relevant research and programming for AI/AN youth has come a long way in the last decade, more must be done to build health promotion resources that resonate with Native teens and young adults. Many AI/AN youth continue to receive insufficient health education and clinical services. Technology-based interventions can help bridge the access gap in ways that are familiar, inviting, and culturally relevant. The most essential findings from this survey are as follows:

1. Most AI/AN youth spend a considerable amount of time (3+ hours) on social media channels each day.
2. AI/AN youths' favorite online engagement activities include scrolling, watching videos, sharing memes, or checking in on family and friends.
3. The most important health topics to AI/AN youth are Native identity and cultural pride, mental health, and social justice and equality.

Limitations

Findings demonstrate that AI/AN youth use media technologies in multiple ways to access health resources and connect with other AI/AN youth for support. However, there are some

[3] www.pathsremembered.org

limitations to the data collected. First, these results are not generalizable to all AI/AN youth. Participants were recruited using judgement sampling methods through existing We R Native and AI/AN youth social media platforms. Second, participants lived in 37 states in the United States and Puerto Rico. Data were not analyzed by region or location and do not account for differences in technology use based on urban, rural, or reservation locations. Access to high-speed Internet or technology likely varies by geographic location, where AI/AN youth living in rural and reservation locations may report different engagement and use patterns than AI/AN youth living in more urban areas with reliable technology access. Third, 71% of survey respondents report female gender identity. Results may overrepresent female technology-use patterns and underrepresent other gender identity categories. Lastly, COVID-19 contributed to several limitations and constraints. Where in previous years, NPAIHB collected surveys at live, in-person youth events using paper and pencil to reduce bias, this was not possible due to COVID-19 meeting restrictions. Even with these limitations, survey data provide a solid foundation for understanding AI/AN youth technology use.

CONCLUSION

Building resources that foster cultural pride and positive identity must be central to any programs or technologies that address mental health and resilience for AI/AN youth. Findings from the 2020 NYHTS can help inform their design and dissemination by aligning their delivery methods to the communication channels used by AI/AN youth, including the development of tailored health resources for SGM youth. Health educators working throughout Indian Country may use these data to center Native youths' needs and priorities in the programs they develop.

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CONFLICT OF INTEREST

The authors declare that they have no conflicts of interest.

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APPENDIX

Table A1
2016 and 2020 survey comparison*

	2016 YHTS (N = 677)	2020 NYHTS (N = 210)
See people stirring up drama on social media?	70.3%	70.0%
See references to drug or alcohol use on social media?	69.8%	75.2%
See references to violence on social media?	60.1%	62.9%
See people posting concerning messages on social media (like references to depression, suicide, or self-harm)?	57.8%	46.2%
Experience people supporting you through challenging/tough times on social media?	49.1%	49.0%

*Note: Survey was titled "Youth Health Technology Survey" in 2016, but "Native" was added in 2020 to differentiate it from other surveys.

Table A2
Most important health topics (n = 349)

Topic	*N*	%
Native identity or cultural pride	256	73.0
Mental health	198	57.0
Social justice and equality	107	31.0
Physical health	64	18.0
Alcohol or drug abuse	62	18.0
Making a difference	56	16.0
Sexual health	50	14.0
Spiritual health	48	14.0
The environment	42	12.0
Domestic violence or sexual assault	41	12.0
Dating and healthy relationships	38	11.0
Diet and nutrition	25	7.0
Communication skills	24	7.0
Wellness skills	18	5.0
Life hacks	10	3.0
Other	8	2.0