



Utilization of Media-Driven Technology for Health Promotion and Risk Reduction among American Indian and Alaska Native Young Adults: An Exploratory Study

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Abstract

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Keywords

American Indian / Alaska Native; Media Technology; Risk Reduction



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ABSTRACT

Across the developmental spectrum, American Indian and Alaska Native (AI/AN) adolescents and young adults experience considerable behavioral and mental health disparities, including substance abuse, depression, and engagement in sexual behaviors which enhance risk of pregnancy and sexually transmitted infections. Health-focused interventions utilizing digital and media technology hold significant promise among tribal communities, as they have the capacity to eliminate geography-based barriers. Utilizing a sample of 210 self-identified AI/AN students attending tribal colleges, this study identified the most effective technologies and intervention strategies, as well as health seeking patterns and preferences, which may impact implementation and sustainable use in tribal settings. The use of technology was both diverse and pervasive among AI/AN young adults, mirroring or exceeding patterns of young adults from the broader population. These data suggest that technology-based interventions may effectively deliver information, resources, and behavior change tools to AI/AN young adults, particularly when reflecting their unique worldviews and social contexts.

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INTRODUCTION

Adolescents and young adults continue to grow in both their use of and proficiency in digital technology. In fact, this demographic has far surpassed all others in its use of the Internet, with 92% of adolescents self-reporting daily use. Social networking similarly plays a critical role in the lives of adolescents and young adults, with 71% of teens using more than one social networking site (Lenhart, 2015). Common Sense Media reports indicate that nearly half (45%) of teens report daily use of social networking sites. Given the greater degree of accessibility to social media in their daily lives, it has become a significant resource in supporting the self-care and health-related activities of adolescents and young adults (Park & Kwon, 2018). Yet while the

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Internet and other forms of social media is widely accessible and well accepted, a limited understanding of patterns and characteristics of health-related internet use exists.

The availability of high-quality health information can have a significant impact on the health outcomes of an individual. Health-related Internet use is known to be associated with socioeconomic status, often referred to as the digital divide. Information obtained from interpersonal, online or media sources facilitates the dissemination of new information, as well as influences how individuals shape their experience of health and illness. This is particularly true among young adults, as they recognize social media as useful sources of information to supplement that received during health care visits. Online communities and social media are used to enhance access to valuable support networks, foster social inclusion, and facilitate peer-to-peer connections among adolescents and young adults with short-term or long-term diagnoses.

Adolescents and young adults have unique characteristics and therefore may pose special challenges for health promotion. During adolescence, individuals undergo biological developments involving physical, emotional, and social maturation. Adolescence is also considered the most vulnerable period for engaging in various risk behaviors such as smoking, drug use, and sex. However, adolescents also tend to form healthy habits and learn appropriate practices for their health concerns and management that can last for the rest of their lives. Thus, adolescence and early adulthood are critical periods for the development of good health practices, highlighting the need to provide specific guidance for information and support related to their health and developmental milestones.

Health Status of American Indian Adolescents and Young Adults

Across the developmental spectrum, American Indian and Alaska Native adolescents and young adults experience considerable health disparities. Nearly 50% of American Indian and Alaska Native teens are overweight or obese – defined as a body mass index above the 85th percentile (Bullock, Sheff, Moore, & Manson, 2017). American Indian and Alaska Native teens are twice as likely to be overweight and three times as likely to be obese, with rates of both growing by 4% since the mid-1990's (Zephier, Himes, Story, & Zhou, 2006). Significant disparities similarly exist in the prevalence of mental health conditions among AI/AN. While there is no definitive assessment of the prevalence of depression and other common mental health conditions, available data indicate disproportionately high rates in American Indian and Alaska Natives. Among adults ages 18 and older, American Indian and Alaska Natives have the highest rate of serious psychological distress and major depressive episodes (25.9% and 12.1%, respectively). Similarly, among adolescents ages 12 to 17, American Indian and Alaska Natives experienced the highest lifetime and past year major depressive episode prevalence (13.3% and 9.3%, respectively) (Brockie, Dana-Sacco, Wallen, Wilcox, & Campbell, 2015; Smokowski, Evan, Cotter, & Webber, 2014; Substance Abuse and Mental Health Services Administration, 2007). Higher rates for more disorders have been found among older American Indian and Alaska Native youth than the published rates of disorders for non-Native youth of the same age. Substance use disorders are the most common, with 18.3% of American Indian and Alaska Native adolescents meeting criteria for either abuse or dependence (Sarche & Spicer, 2008).

Substance abusers, at any age, are significantly more likely to engage in risky sexual behaviors, thus elevating their risk for exposure to HIV and other sexually transmitted infections (Hops et al., 2011). Depression has also been found to be consistently and independently associated with adolescent and young adult sexual risk behaviors (Boyer et al., 2017; Langille,

Asbridge, Kisely, & Wilson, 2012). Documented disparities in rates of substance abuse and depression among American Indian and Alaska Natives clearly enhance their risk of infection. Centers for Disease Control and Prevention data indicate that American Indian and Alaska Native teens are 4.6 times more likely than non-Native peers to be stricken with gonorrhea. The prevalence of chlamydia among American Indian and Alaska Natives is similarly four times greater than non-Natives (Hoots et al., 2012).

Application of Media Technology to Enhance AI/AN Health Outcomes

Research has demonstrated the utility of digital platforms to stage evidence-based health behavior interventions. Health-focused interventions utilizing digital and media technology hold significant promise, as they have the capacity to eliminate geography-based barriers. Inclusive of content such as substance use and abuse, diet and physical activity, disease prevention and management, and mental and sexual health, evidence-based interventions delivered via digital media have shown great success (Rogers, Lemmen, Kramer, Mann, & Chopra, 2017; Bauermeister et al., 2015; Croom et al., 2015; Brendryen et al., 2014; Cunningham, Murphy, & Hendershot, 2014; Collins et al., 2012). These dynamic approaches may similarly offer enhanced benefits to American Indian and Alaska Natives – 22% of whom reside on tribal lands and rural areas (Norris, Vines, & Hoeffel, 2012). Despite reports from Native Public Media indicating that American Indian and Alaska Native adults use media technologies at rates higher than the national average, no comparable data for youth have been reported (Morris & Meinrath, 2009). To that end, few technology-based and no multimedia interventions have been rigorously tested or evaluated among American Indian and Alaska Native teens and young adults, to examine their impact on health behaviors. To guide such development, exploratory research was necessary to identify the most effective technologies and intervention strategies, as well as health seeking patterns and preferences of Native teens and young adults, which impact implementation and sustainable use in tribal settings.

METHODS

Study Sample and Data Collection

Five hundred full-time students enrolled at a tribal community college in the upper Midwest during the spring 2016 academic term received an e-mail on behalf of the Principle Investigator, thoroughly explaining the research background, procedures, and benefits. Student e-mail addresses were randomly generated by the community college's Office of the Registrar. The e-mail also contained a link to the Native Youth Media Survey, which could be completed via Qualtrics. Upon accessing the link, participants were prompted to acknowledge their age. Those between 18 and 24 years of age were presented with more detailed information regarding the research. All components of informed consent were presented via Qualtrics, including identification of risks, benefits of the study, data protection and confidentiality of responses, and the rights of research participants. Upon reviewing the information, respondents were presented with a prompt containing two options – “Yes, I would like to participate in the proposed research” and “I do not wish to participate in the proposed research.” Those wishing to participate then had access to the demographic and research instruments. All procedures were fully approved by the institutional review board at the Principle Investigator's university, as well as the Tribal Nations Research Review Board.

Measures

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The Native Youth Media Survey explored (a) the extent to which American Indian and Alaska Native young adults use media technologies (media types, frequency of use, and duration); (b) how American Indian and Alaska Native young adults use these technologies (preferred features and activities); and (c) the possible utilization of media technologies to communicate health messages to individuals to prevent sexually transmitted infections, HIV, and pregnancy. Designed by the Northwest Portland Area Indian Health Board, the 29-item instrument draws from questions from several existing questionnaires implemented in other settings. An iterative process utilizing participant feedback, as well as review by individuals with subject matter, technical, and community-level expertise aided in enhancing the reliability ($\alpha = .83$) and validity of the survey instrument.

Data Analyses

Electronic datasets were exported from Qualtrics into SPSS (v. 24.0, Chicago, IL) by the Principle Investigator and a trained project assistant. Double entry procedures were used to verify the completeness and accuracy of all exported data. Data were analyzed by generating descriptive statistics for variables of interest. Several dichotomous variables were created for comparison using Pearson chi-square analyses and Pearson product-moment correlations: urban/rural, frequent/infrequent social media users, and ever/never Internet health information seeking.

RESULTS

Native Media Survey

The sample consisted of 210 respondents ranging in age from 18 to 24, with a mean age of 21 (Table 1). The majority of respondents (70.0%) were female. A significant majority (95.7%) of respondents were residents of North Dakota. Likewise, a significant majority (92.9%) resided in rural communities, reflecting the geographic locations of regional tribes.

Table 1. Respondent Demographics by Gender, State, Urban/Rural Status and Race/Ethnicity

Characteristic	Male (n)	Female (n)	Total (n)	Total (%)
Age (mean)	20.5	21.2	21.0	
State				
North Dakota	54	147	201	95.7
South Dakota	3	0	3	1.4
Minnesota	2	0	0	2.9
Geography				
Urban	9	6	15	7.1
Rural	54	141	195	92.9
Race/Ethnicity				
American Indian/Alaska Native	48	113	161	76.7
Multiracial American Indian/ Alaska Native	15	34	49	23.3
Total	63	147	210	

Media Technology Use

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American Indian and Alaska Native young adults reported use of a range of technology, including cell phones (97%), the Internet (97%), computers (94%), iPods (48.6%) and video games (38.2%) (Table 2). A mere 2% of respondents indicated having never used a cell phone. With the exception of Internet and cell phone use, Native males reported more frequent use of media technology than females.

Table 2. Daily or Weekly Media Technology use Among American Indian/Alaska Native Respondents by Gender

Technology	Male <i>n</i> = 63 (%)	Female <i>n</i> = 147 (%)	Total <i>n</i> = 210 (%)
Computer	95 (93.5 – 97.0)**	93.6 (92.2 – 94.3)	94 (92.8 – 94.3)
Internet	94.7 (92.3 – 96.0)	98 (96.1 – 98.3)	97 (95.6 – 97.5)
Cell Phone	95 (93.1 – 95.8)	97.9 (97.1 – (98.4)	97 (95.3 – 97.6)
iPod/MP3 Player	65* (62.5 – 66.2)	41.6* (40.8 – 42.2)	48.6 (44.5 – 53.8)
Video Games	65* (62.5 – 66.3)	27.1* (26.6 – 27.8)	38.2 (33.7 – 44.2)
Digital Camera	20 (18.3 – 21.1)	14.6 (14.2 – 15.1)	16.2 (15.8 – 16.9)
Camcorder	10.6* (9.8 – 11.2)	4.2* (3.8 – 4.4)	4.5 (4.1 – 5.9)
Webcam	15* (14.2 – 16.1)	4.2* (3.7 – 4.5)	4.4 (4.2 – 5.9)

Chi-square analysis

* $p < .01$, two-tailed

**95% CI

Utilizing a priori definitions of frequent and infrequent technology use (frequent users reporting daily or weekly use, and infrequent users reporting monthly use or less), results of chi-square analyses indicated no significant age-, gender-, or geography-based differences in use frequency patterns. Differences were noted by gender, however, with males significantly more likely than their female counterparts to engage in frequent video game playing (65% and 27.1%, respectively; $p < .01$). Males also indicated substantially greater use of iPods, camcorders, and webcams than female respondents (65% v. 41.6%, 10.6% v. 4.2%, and 15% v. 4.2%, respectively; $p < .01$ for each). No significant differences between age groups and urban/rural status existed.

Internet

Collectively, 96.9% of respondents indicated use of the Internet for at least 30 minutes daily, of which 38.5% reported between two and four hours daily. Ninety-seven percent of Native young adults accessed the Internet on a daily or weekly basis, most frequently from their cell phone (93.8%) or home (89.2%), but also quite regularly from school (81.5%). Patterns were similar

across genders, except for at home where 91.2% of American Indian females and 80.5% of males reported having access ($p < .01$). No age- or geography-based differences in Internet access were found.

The significant level of Internet use noted above generated a diverse spectrum of activity. Nearly all American Indian and Alaska Native young adults (97%) had a profile on a social networking site such as Facebook, Twitter, or MySpace. Most similarly reported viewing other profiles on social networking sites, as well as using the Internet to obtain news or information about movies, music, and entertainment (92.4% for each). Over 70% indicated participating in seven or more online activities, and 17% reported participating in 10 or more activities.

Chi-square analyses revealed several gender-based differences in online activity. American Indian and Alaska Native females were more likely to have a social networking profile than males (93.9% v. 85.7%, respectively; $p < .05$), and more frequently reported sending or receiving pictures or videos via cell phone, Snapchat, or computer (87.8% v. 76.2%, 77.6% v. 61.9%, and 59.2% v. 47.6%, respectively; $p < .01$ for each). Male respondents were significantly more likely to post videos online to sites such as YouTube (33.6% v. 16.3%, respectively; $p < .01$).

Cell Phones

Of the technologies queried in the survey, cell phones were most frequently used, to text, talk, access the Internet, and send or receive images. Nearly all (98%) American Indian and Alaska Native young adults reported owning a cell phone, with most reporting using them to text (97%) more often than to talk (81%). Nearly 85% of males and 79% of females indicated talking to friends on a daily or weekly basis via cell phone ($p = .05$), while 100% of males and 98% of females reported text messaging friends as frequently. Nearly all individuals who owned a cell phone used its text messaging feature on occasion. Only 2% of cell phone owners reported having never engaged in text messaging. While not significant, female respondents sent and received more messages than their male counterparts. Nearly half (45.6%) of Native females exchanged more than 40 text messages daily.

Video Games

Although computer and video games were popular among American Indian and Alaska Native young adults – more than one-third (38.2%) reported daily or weekly play – their frequency and duration of use was less than that of computers and cell phones. Sixty-four percent of respondents indicated never playing video games, and among those who did play, 61% reported playing less than one hour at a time. Collectively, only 9% of respondents played massive multiplayer online role-playing games.

Online Health Information Seeking

Respondents indicated using the Internet to access information about a broad selection of health topics, including diet, nutrition, exercise and fitness (54%); specific illnesses or health conditions (51%); drugs or alcohol (46%); sexual health, sexually transmitted diseases or HIV (41%); and depression, anxiety, stress, or suicide (28%). Collectively, 81% of American Indian and Alaska Native adults reported using online resources to access information about one or more topics, and 46% sought information about three or more. Thirty-eight percent of respondents indicated having previously searched online for sexual health information. Significant gender-based disparities in health information seeking existed, with a greater proportion of Native females seeking information ($p < .01$).

Online Health Content and Design

When asked about which topics might strike their interest for inclusion on a webpage about health and wellness for young adults, Native respondents suggested a wide spectrum of content areas, including physical fitness and wellness (66.3%), nutrition (62.9%), stress (59.6%), and tobacco use (57.3%) (Table 5). While topics such as suicide, sexual health, and depression were suggested, no sensitive issues ranked among the top five. Participants expressed a stronger preference to access sexual health information on websites containing a broad spectrum of topics (i.e., current events, health and wellness, social issues, and academic topics) than on websites solely addressing sexual health (58% v. 32%, respectively). Native adults further expressed interest in a variety of multimedia design features, including images and pictures (54%), interactive “ask the experts” components (54%), and music or audio elements (51%).

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Table 5. Preferred Topics and Features for Health Websites

Website Content	Male <i>n</i> = 63 (%)	Female <i>n</i> = 147 (%)	Total <i>n</i> = 210 (%)
Physical Fitness and Exercise	61.8	70.2	66.3 (63.8 – 68.5)
Nutrition	57.9	68.4	62.9 (60.2 – 65.1)
Stress	52.4	63.4	59.6 (56.4 – 61.2)
Tobacco Use	53.7	59.6	57.3 (55.8 – 58.4)
Dating and Relationships	52.3	58.3	56.2 (55.3 – 57.6)
Pictures	51.5	59.4	56.2 (54.2 – 58.3)
Confidence and Self-Esteem	50.3	58.3	56.2 (54.2 – 57.9)
Diabetes	49.8	59.2	55.1 (52.6 – 57.8)
Drug and Alcohol Use	48.6	58.3	55.1 (52.4 – 57.2)
Depression	46.5	57.1	53.9 (49.8 – 55.6)
Videos	45.9	56.6	53.9 (49.6 – 55.2)
Violence or Bullying	45.9	56.6	53.9 (49.7 – 55.3)
Weight and Body Image	50.1	55.7	53.9 (50.8 – 54.6)
“Ask the Experts”	49.8	57.3	53.6 (50.6 – 56.4)
Current Events	49.4	58.4	53.4 (49.9 – 55.2)
Music/Audio	53.6	48.5	50.8 (49.2 – 51.4)
Suicide	44.3	51.2	49.4 (48.2 – 50.3)
AI/AN Culture, Stories, Values or History	43.2	53.4	49.4 (47.6 – 51.8)
Sexually Transmitted Infections and HIV/AIDS	42.6	52.7	48.3 (44.2 – 50.1)
School and Academics	42.1	49.1	47.6 (44.1 – 48.2)
Traditional Healing	41.9	48.2	46.1 (42.4 – 47.5)
Birth Control and Condoms	37.2	49.4	44.5 (41.2 – 47.6)
Pregnancy	35.9	44.6	41.8 (39.6 – 42.5)

Culturally-Specific Content and Design

American Indian and Alaska Native young adults routinely expressed both interest and experience in accessing culturally-specific health information. A significant proportion of respondents (79.6%) reported prior use of online resources to get news or information about Native events, politics, culture or their tribe, and a similar amount (75.8%) felt that health-focused

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websites should include information specific to American Indian culture. Nearly half (49.4%) expressed interest in Native culture, stories or history, with a similar proportion (46.1%) expressing interest in traditional methods of healing. When asked directly about designed website design features, 52.2% of males and 57.7% of females referenced American Indian and Alaska Native graphics, symbols and design elements, ranking it in the top third of noted features. When asked to select among possible website designs, respondents indicated greater comfort in accessing a site specifically designed for Native Americans (53%, compared to 46% for a website targeting all cultures).

DISCUSSION

The use of technology was both diverse and pervasive among American Indian and Alaska Native young adults, mirroring or exceeding patterns of young adults from the broader U.S. population. While direct comparisons may not be made, a greater proportion of Native respondents reported lifetime use of computers (94%, compared to 87% nationally) and cell phones (97% versus 88%) (Lenhart, 2015). Greater than 90% of respondents indicated using such technologies on a daily or weekly basis. Further, nearly half (48.6%) of American Indian and Alaska Native young adults indicated daily or weekly use of an iPod or MP3 player, while 38.2% played video games as often. Respondents had both interest and experience in accessing health information online, with 81% having done so previously.

These data suggest that technology-based interventions may effectively deliver health information, resources, and behavior change tools to Native American young adults. Gender-based variations in media use suggest that some approaches may more adequately reach some segments of the population than others. Internet-based approaches, as well as interventions delivered via text messaging, for example, may hold greater appeal among females. Conversely, health information and messages delivered via social networking sites or video games may more effectively reach Native males. A singular approach may be ineffective at reaching all audiences. Thus, age- and gender-appropriate health information must be made available through a variety of platforms. Interactive multimedia approaches combining online content, text messaging, videos and games offer the strongest opportunity to reach the greatest number of American Indian and Alaska Native young adults.

Results further suggest that technology-driven efforts to impact health behaviors of Native young adults should reflect their unique worldviews and social contexts, while incorporating a diversity of topics. Respondents expressed interest in viewing videos and images of individuals like themselves, and in health websites incorporating American Indian culture and imagery. They similarly expressed a preference for a variety of content areas. While failing to include sensitive health topics among their preferred content, such relevant information may be effectively delivered through alternative means. Sensitive content might be included in a discussion of more accepted topics, minimizing stigma while enhancing levels of comfort and acceptance. Body image and depression, for example, may be included in discussions of physical activity and nutrition. Similarly, sexual health content such as birth control and sexually transmitted infections may be embedded in content focusing on dating issues. Appealing videos or texts may enhance the likelihood that American Indian and Alaska Native young adults may visit a website, which may then offer culturally-sensitive and tailored information and skill-building tools designed to promote learning and health promotion. Such an approach also protects an individual's privacy,

by making the nature of their health seeking. Technology-driven interventions may then be designed to support a broad range of health behaviors, while more fully reflecting traditional and contemporary Native culture, values, teachings, and experiences.

Study Limitations

The present findings represent data from the upper Midwest and cannot be generalized to American Indian and Alaska Native young adults living in other regions of the country. Similarly, gender-based disparities in health information seeking may be impacted by a disproportionate representation of Native females in the study (70%). Further research on an expansive scale would provide a more thorough understanding of the technology use patterns and preferences among all Native young adults, providing an opportunity to effectively design and implement health promotion and disease prevention interventions.

CONCLUSION

Results of the current research illuminate the capacity of technology-based interventions to meet the unique and diverse health needs of American Indian and Alaska Native young adults. Well-designed multimedia technologies may provide Native young adults with new avenues for accessing age-, gender- and culturally-appropriate health-focused content, permitting the distribution of messages and norms that reflect their unique informational needs and life experiences. Technology-based health interventions, offering tailored messages addressing those risk and protective factors associated with health outcomes, may be effective in fostering frequent and repeated use. Such approaches must reflect the primary media behaviors of AI/AN young adults or be thoroughly integrated into platforms currently used by a technologically sound audience. A limited number of resources currently and specifically address the needs of AI/AN young adults, fostering the need for newly designed media inclusive of Native-specific design elements and the social, emotional, physical and spiritual dimensions foundational to American Indian and Alaska Native health and wellness. Implementing such strategies may prove beneficial in remedying health disparities which continue to impact American Indian and Alaska Native communities.

Despite the promise of technology to advance health outcomes and promote behavior change, significant barriers to health equity among American Indian and Alaska Native communities remain. Nearly 30% of AI/AN live in poverty, limiting access to quality housing, healthy food, and affordable health care. Chronic and significant underfunding of Indian Health Services further impact health care needs, services and outcomes (Warne & Frizzell, 2014). The development of culturally competent interpersonal and community-specific tools must be contextualized within interventions that similarly remove barriers to behavior change while supporting health equity.

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Table 3. Gender-Based Differences in Online Activities among AI/AN Young Adults

Online Activity	Male <i>n</i> = 63	Female <i>n</i> = 147	χ^2	<i>df</i>	<i>p</i>	Total <i>n</i> = 210
Have a profile on a social networking site	93.9	85.7	10.453	3	.04*	87.0 (86.3 – 90.2)
View other people’s profiles on a SNS	89.5	93.6	.332	3	.14	92.4 (91.3 – 93.1)
Write or update a personal blog	21.1	29.8	.527	3	.01**	27.3 (26.8 – 27.9)
Read other people’s personal blogs	15.8	36.2	2.89	3	.01**	30.3 (27.8 – 32.6)
Send or receive pictures or videos on a cell phone	87.8	76.2	15.847	3	.01**	79.6 (78.7 – 82.1)
Send or receive pictures or videos via Snapchat	77.6	61.9	19.638	3	.01**	71.3 (68.3 – 72.1)
Send or receive pictures or videos on a computer	59.2	47.6	13.631	3	.01**	53.1 (51.4 – 55.7)
Post photos online where others can see them	78.9	91.5	1.998	3	.08	87.9 (85.2 – 89.5)
Post videos online (such as on YouTube)	33.3	16.3	17.582	3	.01**	22.7 (20.2 – 25.3)
Watch videos posted online from a site like YouTube	89.5	83.0	.444	3	.11	84.8 (84.3 – 85.6)
Use internet to get news about sports and entertainment	89.5	93.6	.332	3	.12	92.4 (92.2 – 93.1)
Use internet to get news about current events or politics	84.2	85.1	.008	3	.26	84.8 (84.6 – 85.0)
Use internet to get news about AI/AN events, politics, culture, or tribe	84.2	72.3	1.038	3	.11	75.8 (74.7 – 78.2)

Pearson chi-square analysis * *p* < .05, two-tailed ** *p* < .01, two-tailed

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Table 4. Health Seeking Information Patterns among American Indian/Alaska Native Respondents by Gender

Health Topic	Male <i>n</i> = 63 (%)	Female <i>n</i> = 147 (%)	Total <i>n</i> = 210 (%)
Diet, nutrition, exercise or fitness	42	56	54* (52.4 – 54.6)
A specific illness or medical condition	44	53	51* (49.5 – 51.8)
Drugs or alcohol	41	52	46* (44.8 – 48.3)
Sexual health, STDs, or HIV	35	44	41* (39.8 – 42.2)
Depression, anxiety, stress, or suicide	24	33	28* (26.7 – 30.1)
Tobacco products	26	31	29 (28.1 – 29.9)
Violence, sexual assault, or bullying	15	20	18 (17.6 – 18.9)
Our bodies, body parts, or anatomy	7	17	11 (10.2 – 13.7)
Dating	7	11	9 (8.4 – 9.7)
Pregnancy	5	12	8 (6.5 – 9.9)
Contraception or birth control	3	8	5 (4.4 – 6.7)

Pearson chi-square analysis

* $p < .01$, two-tailed

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