



Published in final edited form as:

J Community Health. 2012 December ; 37(6): 1253–1263. doi:10.1007/s10900-012-9564-x.

Improving Health Promotion to American Indians in the Midwest United States: Preferred Sources of Health Information and Its Use for the Medical Encounter

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Abstract

American Indians and Alaska Natives suffer significant health disparities for many infectious and chronic diseases as compared to the general population. Providing accurate and culturally tailored health information to underserved groups has been shown to influence health behaviors and health outcomes. Little prior research has explored American Indians health information use and preferences. National representative sample surveys such as the Health Information National Trends Survey provide some data on minority groups but are underpowered to provide useful information on American Indians. The present study analyzes data from a survey of over 900 American Indians from the Midwest United States and explores their sources of health information, their preferences for information presentation, and their use of health information prior to and during medical encounters. We conclude that campaigns targeting Natives should be narrowly focused and be community driven or employing community resources. American Indians use a diversity of media sources to obtain health information, with the Internet being underutilized compared to the general population. Partnership with Indian Health Service providers and pharmacists, as well as traditional healers, in the development and dissemination of new health

information for Natives may provide the “expert” tone needed to promote health improvements in American Indians.

Keywords

AIAN; American Indians; Midwest US; Health disparities; Health information; Medical encounter

A Report released by the CDC in January of 2011 [8] highlights the still existent and severe health disparities that plague our nation. Although all races and ethnic groups suffer from health disparities on diverse health indicators, American Indians and Alaska Natives (AIAN) are at or are near the top of the list of those experiencing poor health outcomes. AIAN have achieved very little improvement in health outcomes over the last few decades [8]. Availability and access to pertinent health information have been identified as significant players in improving health outcomes and promoting healthier living [18, 23, 43].

American Indian Health and Health Promotion

An estimated 4.9 million people living in the United States consider themselves to be American Indian or Alaska Native, either alone or in combination with one or more races/ethnicities [58]. As of 2011, the Federal Government officially recognizes 565 American Indian tribes and Alaska Native entities; over 100 other tribes are documented at state level. Innovative approaches will be needed to decrease health disparities and improve the health of Native people [19, 66, 77]. An increased focus on public health, health promotion and disease prevention, community-based interventions, and tribal management of health programs, as well as a better understanding of the role of AIAN cultural factors in shaping health are some of the approaches currently employed [44, 63, 78, 80]. Health communication campaigns have been successfully used to build knowledge within Native communities about health issues, preventive and curative measures, and to inform Native people about the navigational intricacies of the health system [37, 63, 65,79]. Developing culturally-appropriate messages and tailoring the information to the needs, attitudes and behaviors of the target audience has been the focus of a significant part of the health communication research addressing Native communities [42, 62]. Less research emphasis has been directed towards identifying the most efficient channels for message delivery [68], and for ensuring that the information is attended to and understood as intended by the sender [21]. Atkin [5] emphasizes that reaching Native audiences with persuasive health messages should employ all the tools available within social marketing and strategic communication frameworks.

Sources of Health Information

Interaction with health information can be classified as both passive and active [75]. Health promotion campaigns frequently aim to persuade audiences to switch from being passive recipients to becoming actively engaged with the health message, thus attempting to modify attitudes and change behaviors [2, 76]. Self-identified health needs usually promote active information seeking and the search for appropriate informational resources [64]. Resources’ availability, combined with the individual’s capacity to localize, reclaim, and understand the

information are major factors contributing to the success or failure of health communication campaigns [47]. Potential information resources range from health providers to traditional media outlets to social networks. Although the physician seems to remain the primary and most trustworthy source [33, 34], online resources are rapidly gaining notoriety [24, 25, 30] while traditional media outlets (such as newspapers or magazines) are losing ground to interactive media or entertainment shows [12].

Health Information Presentation

Audience-tailored message development and identification of appropriate diffusion sources and distribution channels are important components of a health communication campaign; how the message is presented to the audience to ensure understanding and appropriate decoding is another vital component. Numerous studies have shown that health literacy level is strongly correlated with the understanding and use of health information, and ultimately with health outcomes [18, 60, 61, 67]. Very often health communication endeavors try to converse more information than the recipient can process [36], or is presented in a complex and often difficult to understand format, or are not culturally-tailored, which could confuse audiences or distort the message [41, 57]. This may be significant for the population of the present study, as previous research [72] suggests that graphical presentation of risk information may be more effective than a numerical one for an American Indian or Alaska Native audience.

Large national surveys such as the Health Information National Trends Survey (HINTS) have been conducted repeatedly over the last decade and provide some data on health information use in the general US population [40]. Unfortunately, despite minority oversampling, sampling among smaller subgroups, such as AIAN, provide inadequate power to provide descriptive information on AIAN health information use. Our review of the literature found no studies on AI health information use in the last 5 years.

Health Information and the Medical Encounter

The diversity and availability of information sources, educational attainments of recent generations and improved awareness of health issues have nurtured the emergence of the “informed patient” and promoted a greater patient participation in medical decisions [32, 73]. Direct-to-Consumer Advertising (DTCA) of pharmaceuticals or medical devices have further complicated the doctor-patient relationship; research has shown its significant positive and negative effects on health services utilization, patient-provider interaction as well as in the outburst of clinically inappropriate requests [50, 51, 53]. Nowadays, patients bring health information obtained from diverse sources to their doctor’s office to confirm self-diagnoses, with the hope that it will help them better communicate with their physician, or just to request an informed opinion [49, 52]. Although the medical profession is somehow divided on this topic [52], if patients perceive that this utilization of health information does improve patient-provider communications, it is expected that an improvement in health outcomes should also follow [74]. There have been no studies specifically addressing if and how AIAN use health information during the medical encounter. Even though Native culture is a paramount factor governing AIAN lives, a better understanding of the basics of patient-

provider interaction should provide communication researchers with a reference point from which to conduct further culturally tailored studies.

Study Aims

Efficient health promotion initiatives for AIAN mandate an understanding of all factors involved in the complex interaction between audiences and delivered information. The present study aims to supplement the scarce literature on American Indians' use of health information by exploring where Natives residing in the Midwest United States get health information and how they use it during health care provider encounters. Specific aims of the study are to: (1) characterize AIAN health information use in comparison to reported rates in the general US population; (2) to assess the prevalence of use and reliance of AIAN on evolving internet health information sources and social networking opportunities; (3) to determine whether information format preference (i.e. numerical or graphic) relates to self-reported difficulty finding desired health information; and (4) to assess health information use prior to and during health care provider encounters.

Method

This cross-sectional study used a community-based participatory research approach (CBPR) [38] that involved members of the AIAN community in all aspects of the research, from concept inception through data collection, analysis and dissemination of results. We have been successfully using this approach for 7 years with the AIAN community in our region [9, 14, 15]. The Community Advisory Board was composed of representatives of the AIAN tribes in Northeastern Kansas as well as representatives of AIAN scholars attending Haskell Indian Nations University and AIAN members of our staff. This CAB was involved in the development of several studies and interventions [16, 31], it was not convened for the sole purpose of designing and administering this survey. As the present study aims to address a diverse population of AIAN, with complex and distinct cultural values and identities, the CAB involvement helped researchers incorporate elements from many Native cultures in the development of the research instrument. The research team was also open to input from research participants and worked dedicatedly towards gaining the trust of those participating in research: In the case of this study, the use of surveys at different community events to help community members learn about us and our research was suggested by our Community Advisory Board. While we gathered data, people came to see us and learned about all of the other things that we do with the community. AIAN members of our research team helped us to determine which questions should be included in the surveys and members of our Community Advisory Board helped us to pilot test the survey. The majority of the questions and instruments used in this study were adapted from questions included in the Health Information National Trends Survey (HINTS) [55]. Nelson [56] provides comprehensive information about the development and testing of the HINTS questions. These single-item and multiple-items measures have been further tested and validated in other HINTS studies [33, 34, 39].

The absence of a comprehensive list of American Indian residents of the Midwest United States from which to draw a random sample for this study mandated the use of multiple

methods to recruit participants and the use of a convenience sample. The sample for this study consisted of AIAN encountered at diverse events taking place in the Central Plains. Methods of recruitment were determined by our Community Advisory Board members and AIAN members of the research team. We recruited 207 participants from pow wows in Kansas and the region, 211 participants were from focus groups, 124 participants were from health fairs and physicals, 275 were from career fairs and conferences, and the remaining 181 participants were from various other events and referrals from other participants. All recruitment was done by AIAN members of the research team, who recruited a total of 998 AIAN in the region from May 2008 to April 2009. Participants were reimbursed with a \$10 gift card for their time and participation in the study. Participants completed an approximately 30 min self-administered survey.

Men and women of at least 18 years of age, and self-identified as American Indian (only or in combination with another race/ethnicity) were eligible to participate. In addition to the questions addressing health information sources and usage, the survey included questions about general health, participant demographics, traditional tobacco use, recreational tobacco use, knowledge and attitudes related to cancer, use of the Internet, sources of health care, and other health related behaviors. Results from the questions not addressing sources of health information and its use are reported elsewhere. The study received Institutional Review Board approval prior to initiation of study recruitment activities.

Measures

Sources of Health Information

Participants were asked to confirm or deny use of the following possible sources of health information: television, radio, newspaper or magazines, books, academic journals, IHS provider, tribal clinic provider, hospital provider, traditional healer, pharmacist, family member, friend, religious leader. After answering this set of questions, an open-ended question gave participants the option to list other sources of health information they used: "Are there other places that you go for health information?" Use of the Internet for health information was part of a multiple choice question about Internet use: "Have you used the Internet to look for information about your health?"

Information Helpfulness and Recurrent Usage

For each of the sources of health information listed above, participants were asked if the information retrieved "Was it helpful in making decisions about your health?" and either "Will you use it to learn about health information again?" or "Will you go to (source) again for health information?"

Source Trust

The following question was asked for each health information source: "In general, how much would you trust information about health from (source)?" A four-point Likert-type scale (A lot; Some; A little; Not at all) was used to evaluate trust.

Information Presentation

We asked the following questions to ascertain preference of information presentation: “People talk about the chance of something happening using either words, like “it rarely happens” or numbers, like “there’s a 5 % chance.” Do you prefer they use words or numbers?” and “People can talk about health information using pictures (graphs, tables, drawings, etc.) or words. Do you prefer pictures or words when you are learning about health information?” Answering options included preference for one of the presentation types or “No preference.”

Obtaining and Understanding Health Information

To estimate ease of obtaining and understanding retrieved health information, 4-point Likert scales (strongly agree, somewhat agree, somewhat disagree and strongly disagree) were used to assess participants’ opinions on the following statements: “It took an effort to get the information you needed”, “You felt frustrated during your search for the information”, “You were concerned about the quality of the information”, and “The information you found was hard to understand.” A composite score “Health Information Encounter” (HIE) ($\alpha = 0.799$) was calculated by linear aggregation of the numerical values for the corresponding Likert scales for the questions addressing obtaining and understanding health information (4 = strongly agree; 3 = somewhat agree; 2 = somewhat disagree; 1 = strongly disagree); the lower the HIE value, the less difficulty the participant had with retrieval and understanding of health information. According to Nardo et al., “Linear aggregation can be applied when all indicators have the same measurement unit and further ambiguities related to the scale effects have been neutralized,” as was the case in this study [54].

Retrieved Health Information Use for the Medical Encounter

The following questions were used to assess usage of retrieved health information during the patient-provider encounter: “Have you ever brought health information from somewhere else to your health care provider?”; “About how often do you bring health information to your health care provider?”; “When was the last time you brought health information to your health care provider?”; “How open was he or she to talking about the information you brought?”; “Did the information help you talk to him or her?” and “Did the information help you better understand what was discussed with him or her?”

Data Analysis

Data entry and cleaning was completed by AIAN research team members, primarily students. Analysis was done by non-Native team members, but was interpreted and described in writing with the help of AIAN team members. Prior to publication, analyses were presented to the community through annual Community Research Forums, a technique we use for extensive dissemination of research results and gaining additional insights into our research from community members outside of our team and advisors. These forums are essentially one-day symposia with oral and poster presentations, as well as break-out sessions designed to elicit feedback. Descriptive statistics and nonparametric tests were primarily employed for data analysis. One-way ANOVA was used to estimate the impact of presentation preference on HIE scores. Statistically significant associations and effects were

identified by p values of less than 0.05, and all data analyses were conducted using SPSS version 18.

Results

To ensure accuracy in reporting nominal demographic categories, deletions were list-wise (not case-wise). Deleted cases did not influence overall results and were only employed for reporting associations pertinent to nominal demographic categories. As can be observed from Table 1, with the exception of “age groups,” missing data represented less than three percent of the cases. Previous research has shown that age has an important influence on media utilization [45] and is a criterion frequently used by strategic communicators when segmenting audiences. Making use of generational cohorts to compare media utilization is a practice frequently employed in both academia and the industry, as research has provided evidence for measurable attitudinal, behavioral and personality profiles across generations [22, 48] the variable was operationalized in accordance with previously published research [46, 70], and was used in this study to facilitate comparative analysis. Pairwise deletion was used for all other statistical calculations. Demographic characteristics of the sample are presented in Table 1.

Participant use of and trust in different sources of health information is presented in Table 2. Newspapers, magazines and books were the most used media sources for health information; although the Internet was ranked fifth in terms of usage, it was the most helpful medium for health decisions (81 %), had the highest chance of being used again (87 %) and ranked second as the most trustworthy media source. IHS providers (75 %), the pharmacist (67 %) and the tribal clinic provider (66 %) were the first three most used sources among health providers. They also accounted for the most useful, highest reutilization rates and most trusted sources. Hospital providers ranked last in all four categories, a possible reflection of the cultural differences and lack of trust in allopathic medicine and/or hospitals.

Regarding alphanumeric information presentation preference, a majority (42 %) preferred numbers instead of words to quantify risk values; 29 % preferred words, and about a third stated no specific preference. From a visual presentation perspective, 41 % of the participants preferred information to be delivered using pictures and graphics, while 27 % stated they would feel more comfortable with words; about a third of our sample had no preference for either pictures or graphics or words.

Overall, participants were comfortable searching for and using health information, though 56 % of the sample agreed that they had to expend a somewhat significant effort to get the information they needed, and 46 % said that they were frustrated during their search. Sixty-three percent of respondents said they were concerned about the quality of the information they were able to obtain, while 47 % stated that the information was somehow hard to understand. HIE composite scores had a normal distribution within the sample, with a minimum value of four and a maximum value of 16. The median was ten; mode was 12, and mean was 9.89, with a standard deviation of 2.70.

Gender $F(1,969) = 0.871, p > .05$, age groups $F(3,871) = 1.59, p > .05$ and education level $F(8,960) = 1.45, p > .05$, did not significantly influence participants' overall retrieval and use of health information as measured by the HIE scores.

The 277 participants preferring words to numbers had a mean HIE score of 10.23 (SD = 2.60); the 408 participants preferring numbers had a mean HIE score of 9.87 (SD = 2.68), and the 285 respondents showing no preference as to how numerical health information data is presented to them had the lowest mean HIE score of 9.55 (SD = 2.80). The effect of presentation type on HIE scores was highly significant $F(2,967) = 4.32, p < .05$, with those participants showing preference for words over numbers having a more difficult time searching for and utilizing health information. The 399 respondents who preferred pictures or drawings to words when learning about health information had an average HIE score of 10.32 (SD = 2.64); those (N = 259) preferring words had a mean HIE score of 9.74 (SD = 2.61), and the 308 participants showing no preference for either graphics or words had an average HIE score of 9.48 (SD = 2.75). The effect of presentation type was also significant $F(2,963) = 9.06, p < .001$, with those participants showing preference for graphics instead of words having a more difficult time searching for and utilizing health information.

Fifty two percent of participants reported bringing health information from somewhere else to their health care provider. Of these, 17 % said they asked their physician several times per year about information they found somewhere else, while 25 % said they did so about once per year. About half of the respondents taking health information from outside sources to their medical encounter had done so in the six months prior to answering the survey, while the rest had done so more than a year before. Only 54 % of participants stated their health care provider was very open to discussing the health information they brought in; 36 % had found some variable degree of openness, while 10 % stated that their health care provider was not open at all to discussing the health information they provided. Only 11 % of the participants who brought health information to their providers said that the information did not facilitate discussion with the healthcare provider or help them better understand the conversation they had. About 44 % state that the information they utilized was very helpful for their encounter with the medical provider and about the same percentage said the information was somewhat helpful.

Discussion

This study aimed to provide a comprehensive image of health information retrieval and use by Natives living in Midwest United States. Most used media sources were books, newspapers and magazines; the IHS provider was the most frequently used information source among health providers, followed by the pharmacist and the tribal clinic provider. With respect to other sources, family members were the most often used source of health information among our participants, but only slightly more than health providers. These three specific sources (physician, family member, and traditional media, such as newspapers or books) have been previously identified as significant health information outlets in the general population [29]. Online sources of health information were sought by only 48 % for our sample, compared to about two thirds (61 %) of total US adults [27]. Purposive use of the Internet as a health information resource by our participants, not Internet access,

appeared to be the reason for the observed low utilization: 96 % of study participants stated that they used the Internet, which surpasses the 74 % of Internet users in the adult US population. Nevertheless, when looking at usefulness in helping with health decisions (81 %) and willingness for recurrent use of the source (87 %), for our Native sample the Internet surpassed all other sources by a large margin. In our study, the Internet also ranked fifth out of 14 tested sources in terms of trust. These findings suggest that, although the Internet is not (yet) a primary source of health information for AIAN, those who have tried it are satisfied with the experience and willing to continue using it. We advocate that promoting the Internet as a viable source of health information for AIAN may open an underutilized channel for health information to this specific audience, especially if the availability of dedicated, culturally-tailored websites is increased. The IHS is investing in medical information technology [4] and research has shown that AIAN using the IHS had better outcomes for key health indicators compared with AIAN who do not use the IHS and have no private insurance [82]. IHS providers were ranked high on our participants' list of sources where they get health information and were appraised as useful and trustworthy, and had a high probability of repeated use. It is important to note, however, that many AIAN in our sample may not have many options for using other Western health providers due to lack of insurance coverage. Therefore, they used IHS providers out of necessity rather than choice. The repeated use of these providers likewise has to be understood in context; assuming other options are not present, repeated use is highly likely. It is, however, noteworthy that participants evaluated their IHS providers as useful and trustworthy, which means they may be a useful professional channel to reach this audience.

Our results showcased the pharmacist as a valuable professional source for health promotion to AIAN. Often neglected by communicators as potential diffusion channels, pharmacists have surfaced in recent years as important partners for public health, especially in studies conducted in the United Kingdom and The Commonwealth [3, 11, 35], but have been also identified as an important communication channel into Latino communities in the US [30]. Among AIAN, the pharmacist may be a particularly good vehicle for communication because at many IHS facilities, patients see pharmacists more often than providers. Patients using the IHS receive their medications at pharmacies within the clinics; therefore, patients interact with the pharmacist in that particular clinic monthly or sometimes more often rather than annually or every few months. At many clinics, there are few providers to one pharmacist, making patients interact with that individual far more than with a provider, who may change at each visit and would not be seen nearly as often as when picking up medications that must be refilled monthly.

Family members ranked second as the most used health information source (76 %), for their usefulness (78 %) and recurrent use (79 %). This finding speaks strongly to the importance of family ties among Native people, but also of the value of word-of-mouth and the importance of community-engaging and community-driven health campaigns, which can monetize fully on these family relations. "Family" to many Native people is not simply the nuclear family most common in Western society. Large extended families or clan-based families are common and very important to the familial structure. The use of these large kin networks in AIAN communities can be very useful for providing health information.

With regard to health information presentation, when talking about quantifying risk values, 42 % of our sample said they preferred numbers, typically indicating a higher level of health literacy than preference for pictures among non-AIAN [71], while 41 % said they would prefer pictures or graphics instead of words when being presented with health information, which suggests a preference for visual information. This may be an effect of the relatively high educational level of our sample compared to AIAN overall; other researchers have found that educational attainment in the Native community is lower than for other racial/ethnic groups [7]. There may also be a cultural aspect to the preference for pictures. Many Native cultures use art and pictures as methods of communication more often than their Western counter-parts. It is possible that the individuals choosing visual information do not have lower health literacy but rather a cultural preference for visual representation. We are currently analyzing data from a large health literacy study that will help us to answer that question. Our findings may prove of interest to health communicators when developing both printed and Web-based health information materials targeting AIAN, especially considering the body of research showcasing the high reading grade levels usually employed in patients handouts and other medical materials [13, 17, 28].

The relationship between health information presentation and its perceived use by AIAN is more complex: Participants who preferred words to numbers when discussing risk issues had a harder time finding and understanding health information. This finding is consistent with previous literature that has identified serious problems with the presentation of risk/benefits in verbal terms only [26]. Although our study suggests that AIAN preferring graphical display of health information may have more difficulty in retrieving and understanding health information (which is a deviation from some previous findings in the general population), these results may be associated with participants' reading skills or literacy (which were not specifically tested in this study). Concomitantly, graphical symbolism is deeply rooted in Native culture, so there may be issues involved in usage or preference for specific graphics; the level of cultural tailoring of the health information our participants were exposed to was not assessed, especially considering that different types of narratives (e.g.—prose versus document) may not translate appropriately cross-culturally. Nevertheless, this topic is not sufficiently explored in the literature and a consensus on the use of letters, words or symbols and their influence on the comprehension of health messages is still in debate [69]. For both measures, participants who had no preferences for how health information is presented to them had the highest scores for retrieving and understanding it.

Our findings suggest that there is great variance within the Native population in terms of obtaining and using health information, and that a majority do have concerns regarding the quality of that information. This finding is similar to that identified by other studies in the general population [20], and highlights the need for health communicators to take into account the multitude of factors involved in providing adequate decoding of health messages, from individual reading skills to cultural and social contexts [10, 81].

Surprisingly, we did not identify any statistically significant influence of gender, age and education on Natives' retrieval and use of health information, in contrast to other studies in the general population [59]. Although this finding is an encouraging one, the mean values

for all these scores were slightly above the 50th percentile, thus suggesting that there is significant room for improvement for both genders, all ages and all education levels.

In regard to health information utilization during the medical encounter, about half of our sample admitted taking outside information to doctors' offices, which seems to be consistent with previous studies in the general population [6]. The health care provider was open and welcoming in a little over half the instances when participants brought outside information to the medical encounter, a finding in agreement with previous research showing that physicians are still resistant and uncomfortable with this practice [1]. Although this may not be a preferred patient behavior from physicians' perspective, the results of this study provide overwhelming support for this attitude from the AIAN patients' perspective, as over 80 % of participants in this study stated that it helped them discuss their health with their provider and facilitated a better understanding of the conversation. As previously mentioned, this may lead to better health outcomes for Native people, so this practice should be encouraged and health care providers should be trained to deal with and accept these practices as part of their patient encounter routine. In addition, provider acceptance of AIAN patients bringing outside information to them from allopathic medicine may help to encourage AIAN patients to bring non-allopathic information and views to their medical encounter, thus allowing patients to talk with their providers about concomitant use of allopathic and traditional medicine. While many AIAN patients use both types of medicine, many do not talk about it with their Western providers, which can be detrimental to their health when the two types of medicine do not work in conjunction with each other.

The convenience sample and high number of college students enrolled in this study are its two major limitations, mainly because the American Midwest is home to one of the two federally-funded AIAN universities, and recruitment was predominantly done at events taking place off of AIAN reservations. Caution is advised to not extrapolate from our findings to generalizations about a (theoretical) population of all AIAN. As we noted, this study used a convenience sample, and the data are self-reported. Regardless, our findings are important and useful in showcasing this unexplored area of how AIAN use diverse sources for health information, how its presentation influences retrieval and usage, how they employ it during patient-provider encounters, and how this information can be used for planning health communication work with AIAN.

Conclusion

Our results portray the complex image of media sources AIAN from the Midwest United States use to obtain health information and its usage during a medical encounter. This is an audience who rely heavily on community resources and on professionals, in addition to more traditional media outlets, as their main sources of health information. Currently underutilized as an informational source, the Internet has a great potential to become a trustworthy and used channel. Although preferences vary on how information should be presented, our data suggest that an approach using numbers, words, and graphical representations may be beneficial for the large majority of AIAN. Encouraging Natives to look for health information and to take it and discuss it with their health care providers may improve their experience during the encounter while also promoting better health outcomes.

Nevertheless, availability of culturally tailored health information and training of physicians to accept patient participation in medical decisions are paramount issues that may influence utilization of health information by AIAN.

From a strategic communication perspective, campaigns targeting Natives should be narrowly focused, employing dedicated channels that have been proven of high efficiency in reaching this diverse audience, and should be community driven or employing existent community resources. Partnership with IHS providers and pharmacists may offer valuable advice that, in combination with a sustained culturally-tailored informational campaign, may help AIAN understand the benefits of changing attitudes and behaviors and allow for better health outcomes, thus contributing to reducing observed health disparities within this population.

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Table 1

Demographic characteristics of the sample of American Indians

| Demographic | Categories | Values (%) | N |
|--------------------------|------------------------------------|------------------|-----|
| Gender | Male | 42 | 419 |
| | Female | 58 | 574 |
| | Missing | <1 | 5 |
| Age group (generation) | Gen Y | 58 | 518 |
| | Gen X | 17 | 153 |
| | Baby boomers | 20 | 178 |
| | Seniors | 5 | 45 |
| | Missing | 10 | 104 |
| | Highest school grade completed | Some high school | 4 |
| High school/GED | | 26 | 255 |
| Post HS certification | | 3 | 28 |
| Some college | | 34 | 336 |
| 2 year college | | 18 | 182 |
| 4 year college | | 10 | 101 |
| Graduate degree | | 4 | 44 |
| Other | | <1 | 5 |
| Missing | | <1 | 9 |
| Current living situation | | Married/partner | 33 |
| | Divorced/widow | 14 | 134 |
| | Never married | 43 | 419 |
| | Other | 11 | 112 |
| | Missing | 1 | 11 |
| Have children | Yes | 50 | 502 |
| | No | 47 | 470 |
| | Missing | 3 | 26 |
| Place growing up * | Reservation | 40 | 400 |
| | Rural area (off reservation) | 23 | 231 |
| | Suburban area (off reservation) | 16 | 158 |
| | Tribal trust land | 5 | 49 |
| | Urban area (off reservation) | 26 | 258 |
| Health insurance * | No insurance | 28 | 277 |
| | Private insurance | 34 | 338 |
| | HIS | 30 | 295 |
| | Tribal insurance | 10 | 96 |
| | Medicare | 11 | 111 |
| | Medicaid | 6 | 60 |

* Multiple responses allowed

Table 2

Participant use of sources of health information

| Source | Use (%) | Help with health decisions (%) | Use again (%) | Trust* | Value | SD |
|-------------------------|---------|--------------------------------|---------------|--------|-------|----|
| <i>Media</i> | | | | | | |
| Television | 55 | 42 | 48 | 1.36 | 0.84 | |
| Radio | 56 | 29 | 31 | 1.11 | 0.87 | |
| Newspaper or magazine | 83 | 68 | 71 | 1.75 | 0.86 | |
| Book | 75 | 75 | 76 | 2.10 | 0.91 | |
| Academic journal | 29 | 35 | 36 | 1.47 | 1.16 | |
| Internet | 48 | 81 | 87 | 2.03 | 0.75 | |
| <i>Health providers</i> | | | | | | |
| IHS provider | 75 | 77 | 78 | 2.14 | 0.98 | |
| Tribal clinic provider | 66 | 73 | 73 | 2.06 | 1.00 | |
| Hospital provider | 17 | 17 | 18 | 1.33 | 1.22 | |
| Traditional healer | 49 | 59 | 60 | 1.96 | 1.15 | |
| Pharmacist | 67 | 72 | 73 | 2.07 | 0.98 | |
| <i>Other sources</i> | | | | | | |
| Family member | 76 | 78 | 79 | 1.93 | 0.92 | |
| Friend | 61 | 62 | 63 | 1.46 | 0.94 | |
| Religious leader | 25 | 34 | 35 | 1.22 | 1.12 | |

* Scale 1 to 4 (low-high)