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## Social Media Use among American Indian and Alaska Native People: Implications for Health Communication Strategies

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### Abstract

Patients, health professionals, and communities use social media to communicate information about health determinants and associated risk factors. Studies have highlighted the potential for social media to reach underserved populations, suggesting these platforms can be used to disseminate health information tailored for diverse and hard-to-reach populations. Little is known, however, about the use of social media among American Indian and Alaska Native populations. The objective of this cross-sectional study is to better understand the use of social media platforms to disseminate information across these populations. Our team surveyed 429 American Indian and Alaska Native adults attending cultural events in Washington State on their use of various types of social media. We used logistic regressions to assess participant use of Twitter, Snapchat, Facebook, and Instagram as related to participant demographics, including age, gender, education, and their place of residence (on-reservation, rural off-reservation areas, or large metropolitan areas). Findings showed that Facebook was used by more participants than other platforms (79%),

followed by Instagram (31%). Nearly half of participants used only one social media platform (48%). Age was negatively associated with using Instagram (0.8 OR, 95% CI: 0.7, 0.9) and Snapchat (0.6 OR, 95% CI: 0.5, 0.7). College education was associated with higher odds of using an additional social media platform compared to those without any college education (2.0 OR, 95% CI: 1.1, 3.6). Most participants used social media platforms, which suggests these platforms may be a useful tool in disseminating information to American Indian and Alaska Native peoples. Further research should document how social media can be used to effectively disseminate risk and health information and assess whether it can influence health knowledge and behaviors among these populations.

## Keywords

Communication; Social media; mHealth; Technology; Risk communication; American Indian; Alaska Native

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## Introduction

Increasingly, the internet is being used as a tool to disseminate information to populations (Thackeray et al., 2008). A survey found that 72% of US adults had searched the internet for health information (Fox & Duggan, 2013). Since its inception, social media has been rapidly adopted by users and has changed the communication ecology worldwide (Kaplan & Haenlein, 2010). Platforms such as Twitter and Facebook have created a vast network for seeking information and real-time interaction, and they have the potential to provide patient education and improve health outcomes (Gallant et al., 2011; Ventola, 2014). Prior work shows numerous benefits to using social media in healthcare contexts, including increased accessibility to health information and the ability to tailor information to specific populations (Moorhead et al., 2013). However, it is critical to understand which social media platforms people preferentially use to facilitate creating effective communication strategies (Lundgren & McMakin, 2013) and develop digital health campaigns (Noar & Harrington, 2012). This understanding may be especially important for racial and ethnic minority populations that experience health disparities relative to the general population. In particular, American Indian and Alaska Native (AI/AN) peoples experience greater incidences of chronic conditions (Indian Health Service, 2019). This is related to lower socioeconomic status, which also contributes to reduced access to internet services (Filippi et al., 2014). Despite this, AI/ANs are nearly absent from research on social media and health communication. This manuscript will report the results from three surveys that examined social media use among AI/ANs attending cultural events in Washington State. We examined which social media platforms were commonly endorsed, and whether social media use differed depending on demographic factors.

## Methods

### Study Population and Data Collection

This cross-sectional study included AI/AN adults ages 18 years and older who completed a paper-based questionnaire at three cultural community events. The three events were the

2016 and 2017 University of Washington Spring Powwows, and the 2017 University of Washington Winter Powwow. The purpose of these powwows is to preserve customs and traditions and promote cultural education and diversity on the University of Washington campus (First Nations@UW, n.d.) and in the greater Native and non-Native communities. While the powwows are hosted by the University of Washington, they regularly attract thousands of participants from across the Pacific Northwest and beyond. Numerous Northwestern tribes (e.g., Spokane, Tulalip, Yakima, Quinault, Skokomish) are represented at each Powwow (Rios, 2017).

Research staff from an institute at Washington State University that conducts community-centered research, training, education, and outreach to improve the health of AI/ANs hosted a booth at each event where the questionnaires were distributed. Attendees interested in participating were asked two screening questions to determine eligibility, “do you identify as American Indian or Alaska Native, and are you at least 18 years or older?”. Participants were provided with a \$10 gift card to recognize their time and effort. All data were collected anonymously and no identifying information was required by the questionnaires. The study was reviewed by Washington State University Institutional Review Board and determined to be exempt. Our attendance at the powwow and administration of the survey was approved by the University of Washington Powwow Committee.

### Measures

The questionnaires asked participants what forms of social media they use. Response options included Twitter, Snapchat, Facebook, and Instagram. Demographic questions included age (categorized by 5-year increments), gender (man or woman), self-reported location of primary residence (reservation, off-reserve rural area, or large metropolitan area), and education level (some college, college graduate, high school/GED/vocational, and less than high school). All questions were reviewed by Indigenous faculty and staff to ensure they were culturally appropriate.

### Data Analysis

Demographic variables and social media use for each platform (Twitter, Snapchat, Facebook, Instagram) across the three Powwows are described using frequencies and percentages for counts, mean, and standard deviation for continuous variables. We assessed the relationship between demographic variables and the odds of using any of the platforms with logistic regressions. After assessing that the odds of using one more social media platform were proportional across the range of platforms used (0 to 4), we modeled the association between respondent demographics and the number of social media platforms used with ordinal logistic regression. Because the Powwows draw from the same population across events, we estimated pooled models for each regression. Adjusted models with odds ratios and 95% confidence intervals are reported. We used complete case analysis. No more than 5% of any variable was missing.

## Results

### Demographic Variables

The total sample consists of 429 respondents. Demographic data by event and overall are provided in Table 1. The demographics of the Powwow respondents were similar across the three events. 272 participants identified as women (63%), with 269 of them having some college education (62%). About half—239 participants (53%)—reported living in a large metropolitan area, followed by 115 living in rural areas/towns (26%) and 79 living on reservations (18%).

### Social Media Use

Figure 1 shows social media use by platform. Facebook was most frequently reported across all three events (79%), followed by Instagram (31%), Snapchat (25%), and Twitter (12%). Figure 2 shows the number of social media platforms used by participants. Most participants used one social media platform (48%). The remaining participants reported zero (16%), two (16%), three (14%), and four (6%) social media platforms.

Table 2 shows the results for the odds of using each social media platform. A five-year increase age was associated with a lower odds of using Snapchat (0.6 OR, 95% CI: 0.5, 0.7) and Instagram (0.8 OR, 95% CI: 0.7, 0.9).

Table 3 provides the results for the ordinal logistic regressions. The odds of using an additional platform were lower with each five-year increase in age (0.7 OR, 95% CI: 0.7, 0.8). Some college/graduation from college was associated with a higher odds of using an additional social media platform (2.0 OR, 95% CI: 1.1, 3.6) compared to those with a high school/GED/vocational education or less. That is, people with college training had an increased odds of using multiple social media accounts than those with a high school education or less.

### Limitations

Limitations of this study include the use of a small, convenience sample of attendees at university-sponsored Powwows in Washington State. There was also a large gender disparity in our sample, with 63% of the participants identifying as female. Numerous studies indicate that women are more literate in health than men (Corrarino, 2013). Therefore, our results may not be representative of the larger AI/AN population residing across the United States. In addition, participants may have attended and completed questionnaires at each of the three events, resulting in multiple responses by the same individual. Due to this, there may be correlated data that cannot be accounted for analytically. It should also be noted that, in hosting booths at community events, we were not able to collect information on Powwow attendance, or on participants who were approached but declined to participate in the questionnaire. Finally, we did not explore social media in relation to specific topics or areas. For example, it is conceivable that people use social media differently when searching for information on health issues than they would searching for information on entertainment topics. Future research could examine social media use surrounding different topics to provide additional insight into health communication strategies.

## Discussion

The internet has become a primary information source for people (Zhao & Zhang, 2017). Almost 70% of Americans report using a social media platform; in Black populations, this number increases to 77%, and to 80% in adult Hispanic populations (Auxier & Anderson, 2021). The results of a US national survey, which surveyed 1520 adults, show that 79% used Facebook, 32% used Instagram, and 24% used Twitter (Greenwood et al., 2016). Similar to these studies, we found 48% of the AI/AN respondents used at least one type of social media. Facebook was the most frequently used platform (79%), followed by Instagram (30%), Snapchat (25%), and Twitter (%). Notably, 48% of respondents limited their use to one social media site, underscoring the importance of picking the right platform for the intended audience. Although disseminating information on multiple social media platforms can help to reach a bigger audience, many entities lack the needed resources (i.e., time, financial, human) to disseminate information on multiple social media platforms (Beier & Wagner, 2016). Our findings suggest Facebook to be a promising platform for communication across AI/AN communities.

Another key finding was the differential use of social media according to demographic factors, particularly age and years of education. Younger AI/AN participants were more likely to report using social media platforms than older participants. These results are consistent with other studies (Chou et al., 2009; Pennington-Gray et al., 2013) that show younger people are more likely to use social media platforms than older age groups. Consequently, social media messaging about health may be more visible and effective for younger AI/ANs than older AI/ANs. Our study also indicates that people with more years of education are more likely to use more social media sites than people with less years of education. These data highlight the need for research to identify how social media can engage older adults and groups with lower levels of education.

Social media platforms can be vehicles for disseminating tailored health information to diverse and hard-to-reach populations (Moorhead et al., 2013). Our findings inform which platforms might be most effective for health communication among AI/ANs. Nonetheless, disparities in access to information and communication technology can hinder the use of social media among underserved populations (Goodall et al., 2010). While social media usage is growing, there are still disparities in connectivity in rural and remote areas (Mishori & Antono, 2020). Similarly, lower digital technology skills persist across age groups and education levels (Friemel, 2016). A follow-up study might examine platform use by rurality. Results of this study are not limited to communication about health topics. Social media platforms have the potential to communicate about issues surrounding the environment, science, or hazards (Moorhead et al., 2013). Future studies might examine AI/ANs use of and preferences for social media messaging of a range of topics.

## Conclusion

The use of social media among AI/AN populations offers an opportunity for public health officials, tribal leaders, providers, and researchers to disseminate information about health and healthcare (Bernhardt et al., 2014). The results from this study position us to develop

and administer a comprehensive survey that gathers more detailed data on frequency and duration of use, and that pulls from a larger, known sampling frame. Other goals are to better understand social media use, needs, and preferences among AI/ANs. This information might serve to guide the use of resources devoted to social media platforms and help to tailor age and demographic-appropriate messaging.

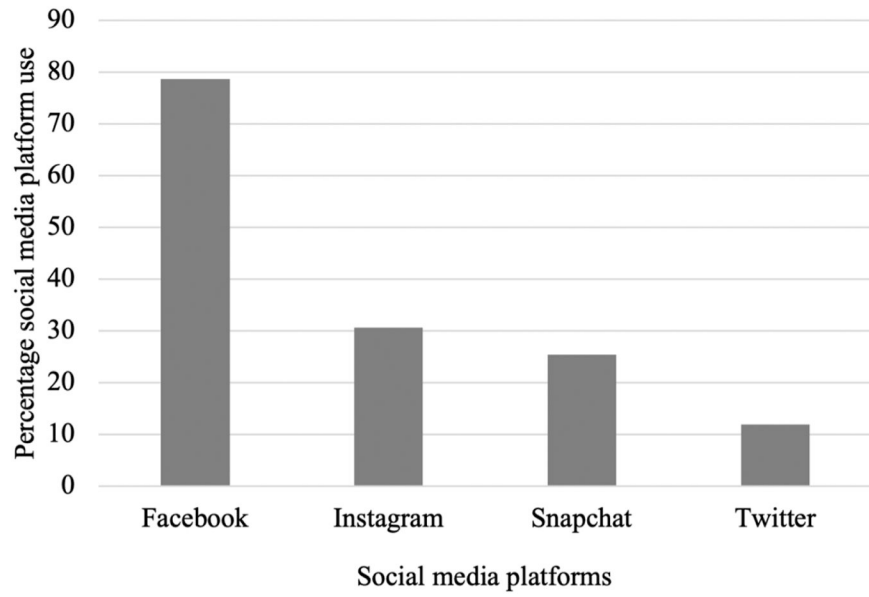
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**Figure 1.**  
Social Media Use by Participant for Each Platform

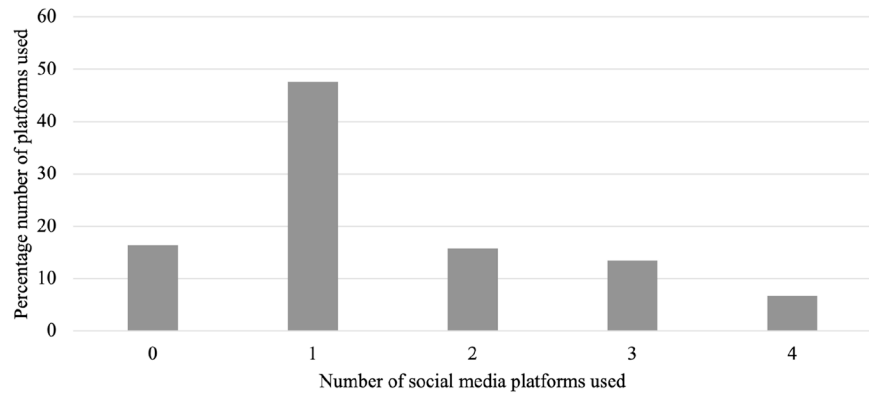
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**Figure 2.**  
Number of Social Media Platforms used by Participants

**Table 1.**

## Demographic Descriptive Statistics by Event and Overall

|  | 2016 UW Spring<br>Powwow | 2017 UW Spring<br>Powwow | 2017 UW<br>Winter<br>Powwow | Overall   |
|--|--------------------------|--------------------------|-----------------------------|-----------|
|  | n = 188                  | n = 151                  | n = 90                      | N = 429   |
| <b>Age in years, mean (SD)</b>               | 41 (16)                  | 43 (15)                  | 40 (17)                     | 41 (16)   |
| <b>Gender, n (%)</b>                         |                          |                          |                             |           |
| Man  | 81 (43%)                 | 48 (31%)                 | 35 (39%)                    | 164 (38%) |
| Woman  | 108 (57%)                | 109 (69%)                | 55 (61%)                    | 272 (63%) |
| <b>Highest level of education, n (%)</b>     |                          |                          |                             |           |
| High school/GED/vocational or less           | 86 (43%)                 | 49 (32%)                 | 30 (33%)                    | 165 (38%) |
| Some college/ college grad                   | 107 (55%)                | 102 (68%)                | 60 (66%)                    | 269 (62%) |
| <b>Residence, n (%)</b>                      |                          |                          |                             |           |
| Reservation                                  | 32 (16%)                 | 30 (19%)                 | 17 (18%)                    | 79 (18%)  |
| Rural area or town, but not on a reservation | 57 (29%)                 | 37 (23%)                 | 21 (23%)                    | 115 (26%) |
| Large metropolitan area                      | 99 (51%)                 | 88 (55%)                 | 52 (57%)                    | 239 (53%) |

*Note.* Some column percentages may not sum to one due to missing data and rounding.

SD = standard deviation. n=complete cases.

**Table 2.**

Overall Odds of Using each Social Media Platform, N = 429

|                           | Twitter        | Snapchat       | Facebook       | Instagram      |
|---------------------------|----------------|----------------|----------------|----------------|
|                           | OR [95% CI]    | OR [95% CI]    | OR [95% CI]    | OR [95% CI]    |
| Age (5-yr)                | 0.8 [0.7, 1.0] | 0.6 [0.5, 0.7] | 0.8 [0.7, 1.0] | 0.8 [0.7, 0.9] |
| <b>Gender</b>             |                |                |                |                |
| Woman                     | 1.8 [0.6, 5.5] | 1.1 [0.5, 2.3] | 1.3 [0.6, 2.9] | 1.8 [0.9, 3.7] |
| <b>Education</b>          |                |                |                |                |
| Some college/college grad | 2.0 [0.7, 5.9] | 1.8 [0.8, 3.8] | 1.8 [0.8, 3.9] | 1.9 [0.9, 3.9] |
| <b>Residence</b>          |                |                |                |                |
| Rural area/town           | 0.8 [0.2, 3.6] | 0.8 [0.3, 2.2] | 0.8 [0.3, 2.6] | 1.1 [0.4, 3.2] |
| Metropolitan              | 1.0 [0.3, 3.6] | 0.9 [0.4, 2.4] | 1.2 [0.4, 3.2] | 1.5 [0.6, 3.8] |

*Note.* Logistic regressions by platform. Coefficient estimates interpreted as the change in odds of using each social media platform. Confidence intervals at the 95% confidence level. Gender reference = male. Education reference = high school or less. Residence reference = reservation.

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**Table 3.**

Overall Odds of Using an Additional Social Media Platform, N = 429

|                           | <b>Overall<br/>OR [95% CI]</b> |
|---------------------------|--------------------------------|
| Age (5-yr)                | 0.7 [0.7, 0.8]                 |
| Gender                    |                                |
| Woman                     | 1.5 [0.8, 2.7]                 |
| Education                 |                                |
| Some college/college grad | 2.0 [1.1, 3.6]                 |
| Residence                 |                                |
| Rural area/town           | 0.9 [0.4, 2.3]                 |
| Metropolitan              | 1.2 [0.6, 2.6]                 |

*Note.* Ordinal logistic regression (0 to 4 platforms). Coefficient estimates interpreted as the change in odds of using a higher versus lower number of social media platforms. Confidence intervals at the 95% confidence level. Gender reference = male. Education reference = high school or less. Residence reference = reservation.

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