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Investigating the Role of Place of Residence in the Relationship between Discrimination and Mental Health in American Indian Adults

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Abstract: *Experiences of discrimination are linked to mental health in American Indians. Less is known about how place of residence (i.e., living on or off a reservation) relates to discrimination frequency and whether the strength and nature of the relationship between discrimination and mental health varies as a function of different living environments. In the current study, we examined frequency of discrimination, main reasons for discrimination, and relationships between discrimination for American Indians living both on and off a reservation. Relative to American Indian adults living off a reservation, American Indian adults living on reservation reported more experiences of discrimination* $(F(1, 846) = [15.94], p < 0.01, \eta^2 = .02)$ *and identified more reasons for discrimination* $(F(1, 846) = [17.789], p < .001, \eta^2 = .02)$*. Across residential contexts, race-related discrimination was most common, followed by gender discrimination. The relationship between discrimination and anxiety was significant in both residential contexts, while the relationship between discrimination frequency and depressive symptoms was only significant for those living outside of a tribal reservation. These findings highlight the importance of understanding how environmental context may affect patterns of discrimination and the relationship between discrimination and mental health in American Indians. Future research should elucidate resilience factors that are specific to living environments to reduce the negative impacts of discrimination on mental health for American Indian adults.*

INTRODUCTION

The relationship between perceived discrimination and mental health has been studied across racial and ethnic groups, with higher levels of perceived discrimination relating to poor or compromised mental health (Pascoe & Richman, 2009; Vines et al., 2017). Previous work indicates that race-related discrimination experienced by minorities in the United States is a psychological and physiological stressor which can negatively affect a broad range of health outcomes (Williams & Mohammed, 2013). In American Indians, more frequent experiences of discrimination in daily life have been linked to higher levels of depressive symptoms (Danyluck et al., 2021; Hale et al., 2023; Whitbeck et al., 2002), health risk behaviors (Dickerson et al., 2019), and poor mental functioning (Johansson et al., 2013).

American Indians experience daily life discrimination across several domains including personal harassment, microaggressions, racial slurs, in interactions with law enforcement and other government officials, and in institutional contexts (e.g., health care, education) (Findling et al., 2019). In a recent nationally representative poll, 75% of American Indian adults reported that their group is discriminated against (National Public Radio et al., 2017.). A separate study found that 23% of surveyed American Indians reported experiences of racial discrimination in health care contexts, and 15% reported that they avoided seeking healthcare due to anticipated race-related discrimination. Previous work on American Indian discrimination also found that younger age and higher levels of education were related to greater reports of everyday discrimination, while retired or widowed American Indian adults reported less everyday discrimination (Gonzales et al., 2016).

For American Indians, everyday discrimination is often connected to colonization and its associated atrocities and genocide. Over 90% of the original American Indian population was lost because of colonization by Europeans and its associated genocide, warfare, intentional spreading of diseases, and loss of land (Stannard, 1992). American Indians continued to suffer because of destructive and devastating U.S. government policies including forced assimilation, renouncement of American Indian culture and tradition, removal of children from their families, and placement of children in residential boarding schools, where many were subjected to emotional, physical, and sexual abuse (Running Bear et al., 2019). Individual experiences of race-related discrimination can act as reminders of these events and associated historical trauma and, in doing so, can significantly

increase levels of psychological stress (Brave Heart & DeBruyn, 1998; Whitbeck et al., 2004). In addition to race-related discrimination, it is important to acknowledge that American Indian adults may experience everyday discrimination related to other dimensions of their identity including, but not limited to, their gender, perceived socioeconomic status, tribal affiliation, physical appearance, or religion.

Considering the Role of Residence in Frequency of Everyday Discrimination and Implications for Mental Health in American Indians

It is well accepted that one's place of residence and the surrounding environment and resources are linked to psychological and mental health (Kawachi & Berkman, 2003; Mirowsky & Ross, 2003). Residing on a tribal reservation is posited to confer both risk and resilience for American Indian adults (Huyser et al., 2018). It is possible that reservation lands could serve as a reminder of the history of colonization and its associated traumas and atrocities, or in contrast, residing on a tribal reservation could be beneficial for mental health because of increased social integration and access to social support (Denham, 1998; Thornton, 1987). In one study, American Indian adults who spent most of their life living on a reservation had lower odds of psychological distress compared to those American Indian adults who spent portions of their life living off of a reservation (Huyser et al., 2018). Another study found that in American Indian adolescents, patterns of hopelessness are tied to place of residence (Lafromboise et al., 2010). It is posited that tribal reservations may offer an increased sense of social stability and social resources, which may be beneficial to health for its residents (Huyser et al., 2018).

Nearly two-thirds of the American Indian population live outside of tribal reservations, where access to Indian Health Services is especially scarce (Kwon & Saadabadi, 2022; West et al., 2012). While it has been noted that there is a need for culturally relevant and traditional healing practices for American Indians to reduce stigma and promote mental wellness (West et al., 2012, p. 447), compared to American Indians living on tribal reservations, American Indians living outside of tribal reservations may be more likely to face a clash between White/European culture and traditional American Indian culture (Schiefer & Krahé, 2014). This culture clash is sometimes referred to as being "stranded in two worlds" (Schiefer & Krahé, 2014, p. 3) and could affect frequency of discrimination and mental health.

Based on noted differences between tribal reservations and urban environments, it is possible that the frequency of discrimination or the main reasons for discrimination may differ

across residential environments, and that the link between everyday discrimination and mental health may also differ in direction or magnitude. In the current study, in a sample of American Indian adults, we investigate differences in frequency of everyday discrimination, number of identified main reasons for discrimination, and levels of symptoms of anxiety and depression related to place of residence. We also examine whether the relationship between discrimination and mental health in American Indian adults differs across residential contexts (i.e., on a tribal reservation and off a tribal reservation). We hypothesize that while more frequent discrimination will be linked to worse mental health for all participants, the strength of the relationship will be stronger for American Indians living outside of a tribal reservation compared to those living on a tribal reservation.

METHODS

Study Design

This cross-sectional study was designed to investigate psychosocial factors linked to mental and physical health outcomes in American Indian adults from across the United States. A survey was designed on the Qualtrics online survey platform. Survey measures included mental and physical health outcomes along with social factors and experiences including everyday discrimination.

Recruitment

Eligibility Criteria

Eligibility criteria for participation included the following: (1) self-identification as American Indian, (2) 18 years or older, (3) and current residence within the United States.

Recruitment Strategy

Participants were recruited via convenience sampling through Qualtrics, an online survey program that develops targeted recruiting to draw participants from managed research panels for harder-to-reach groups. Qualtrics' sample partners randomly select respondents for surveys where respondents are likely to meet eligibility requirements. Qualtrics has created niche panels for hard-to-reach groups including American Indians. To participate in Qualtrics research, all participants must have access to the internet. Qualtrics collected and screened for the quality of all data and for confidentiality purposes. Specifically, Qualtrics replaces respondents who complete the survey in less than half of the median survey completion time. Our goal was to recruit a sample of

approximately 850 American Indian adults. This sample size was based on requirements for statistical models planned for a larger longitudinal study. A minimum sample size of 200 was estimated to provide sufficient power for a longitudinal structural equation model (Kline, 2015); however, we wanted to recruit a larger sample to increase representation of American Indian adults across the United States, and our funding allowed for 850 participants.

Informed Consent and Ethical Approval

All participants read the complete description of the study and subsequently provided informed consent electronically as part of the Qualtrics survey, after which they were directed to the online Qualtrics survey. The study was approved by the Montana State University Institutional Review Board.

Study Sample

The sample utilized in the current research represents the first 868 participants who met eligibility requirements and passed Qualtrics' checks for data quality.

Measures

Demographic Covariates

Participants self-reported their age, biological sex (female, male), annual income, and whether they currently lived on or off a tribal reservation. Annual income was categorized as follows: (1) less than $10,000; (2) $10,000-$19,999; (3) $20,000-$29,999; (4) $30,000-$39,999; (5) $40,000-$49,999; (6) $50,000-$59,999; (7) $60,000-$69,999; (8) $70,000-$79,999; (9) $80,000-$89,999; (10) $90,000-$99,000; (11) $100,000-$149,999; and (12) more than $150,000.

Discrimination

Discrimination was measured with the Everyday Discrimination Scale (EDS), a self-report measure that is used to identify the subjective, daily experience of discrimination—minor unfair treatment—in an individual (Williams et al., 1997). This scale has been used previously in American Indian adults (Gonzales et al., 2016; Wood & John-Henderson, 2024). The EDS is a 9-item questionnaire used to measure the frequency with which discrimination occurs in day-to-day life. The scale measures a range of experiences from being treated with less respect than other people to receiving poorer service in restaurants compared to other people. Each item is scored on a 6-point Likert scale ranging from 1 = *never* to 6 = *almost every day.* Higher scores are indicative of higher frequency of everyday discrimination; the EDS has a Cronbach's alpha of 0.88 (Williams

et al., 1997). Participants are asked to indicate all the main reasons for the discrimination they experience. The options include 1) your ancestry or national origins, 2) your gender, 3) your race, 4) your age, 5) your religion, 6) your height, 7) your weight, 8) some other aspect of your physical appearance, 9) your sexual orientation, 10) your education or income level, 11) a physical disability, 12) your shade of skin color, 13) your tribe, and 14) other. To calculate a total for sources of discrimination, we summed their responses to each of these 14 options.

Anxiety/Depression

Levels of anxiety and depression were measured using the Hospital Anxiety and Depression scale (HADS). HADs is a self-assessment questionnaire for outpatient settings that measures anxiety and depression on separate subscales (Zigmond & Snaith, 1983). We utilized this measure based on prior review of this measure by a community advisory board comprised of American Indian adults and based on its observed validity in our prior research in American Indian samples (John-Henderson, 2020; Larsen et al., 2024; McCullen, Counts & John-Henderson, 2023). Each subscale measures a total of 7 items which are scored on a scale of 0 to 3; a score of 3 on any item is indicative of the highest level of anxiety or depression. The HADs has a score range of 0 to 21 with higher scores reflecting more symptoms of depression and anxiety.

Data Analysis

De-identified data was sent to the principal investigator in an Excel file. All analyses were performed using SPSS (IBM; Version 29). Residence status was coded as 1 = currently living on a tribal reservation and 0 = not currently living on a tribal reservation. Biological sex was coded as 1 = male, 2 = female. All variables were mean-centered before use in models. We used Pearson bivariate correlations to examine relationships between variables of interest and one-way analysis of variance tests (ANOVAS) to investigate whether there were significant differences in variables of interest related to place of residence.

RESULTS

Descriptive statistics and bivariate correlations for the subsample of American Indians living on a tribal reservation (n = 162) are reported in Table 1 and descriptive statistics and bivariate correlations for the subsample of American Indians living off a tribal reservation (n = 686) are reported in Table 2.

Out of a total of 868 American Indian adults, 729 reported experiencing some form of everyday discrimination. Ninety-two percent (n = 149) of American Indian adults living on a tribal reservation reported that they experienced at least one of the nine types of everyday discrimination at least once a year, compared to 84.5% (n = 580) of American Indian adults living off a tribal reservation.

Everyday Discrimination for American Indian Adults Living on a Tribal Reservation

For American Indian adults living on a tribal reservation, age, gender, and income were unrelated to frequency of discrimination, number of listed main reasons for discrimination, and symptoms of depression and anxiety (see Table 1). For American Indians who were living on a tribal reservation who reported at least some everyday discrimination (n = 149), the most common form of discrimination was race-related discrimination, with 59.3% (n = 96) reporting that their race was a main reason for discrimination in their everyday lives. Other main reasons for everyday discrimination were (listed from most to least frequent) were gender (n = 84), ancestry or national origins (n = 76), age (n = 59), religion (n = 58), skin color (n = 52), tribe (n = 48), body weight (n = 40), education or income level (n = 35), some aspect of physical appearance other than weight or height (n = 38), height (n = 34), sexual orientation (n = 27), and physical disability (n = 20).

Everyday Discrimination for American Indian Adults Living off a Tribal Reservation

For American Indian adults living off a tribal reservation, younger adults reported more frequent everyday discrimination, more main reasons for discrimination, more symptoms of anxiety, and more symptoms of depression. In addition, women and those with more annual income reported more anxiety (see Table 2).

For American Indian adults who were living outside of a tribal reservation who reported at least some everyday discrimination (n = 580), the most identified main reason for everyday discrimination was race (n = 289). Other forms of reported everyday discrimination were (listed from most to least frequent) gender (n = 275), ancestry or national origins (n=234), age (n=199), education or income level (n = 149), religion (n = 106), weight (n = 160), tribe (n = 91), some aspect of physical appearance other than height or weight (n = 148), height (n = 90), and sexual orientation (n = 86).

Differences in Discrimination and Indices of Mental Health Related to Place of Residence

A one-way ANOVA was used to investigate whether residence status (i.e., living on a tribal reservation or off a tribal reservation) related to statistically significant differences in the total amount of everyday discrimination, the number of main reasons for everyday discrimination, and current symptoms of depression and anxiety.

A one-way ANOVA revealed a statistically significant difference in the frequency of everyday discrimination between those residing on a reservation and those residing off a tribal reservation ($F(1, 846) = [15.94]$, $p < .001$, $\eta^2 = .02$). The average amount of everyday discrimination was higher for those living on a tribal reservation ($M = 28.69$, $SD = 11.87$) compared to those living off a tribal reservation ($M = 24.57$, $SD = 11.77$). In a similar manner, a separate one-way ANOVA revealed a statistically significant difference in the number of main reasons for everyday discrimination related to place of residence ($F(1, 846) = [17.789]$, $p < .001$, $\eta^2 = .02$), with those living on a tribal reservation reporting more main reasons for discrimination ($M = 4.25$, $SD = 3.28$), compared to those living off a tribal reservation ($M = 3.29$, $SD = 2.42$).

There was also a statistically significant difference in reported anxiety symptoms related to place of residence ($F(1, 846) = 13.31$, $p < .001$, $\eta^2 = .02$), with American Indians living on a tribal reservation reporting higher anxiety ($M = 12.29$, $SD = 3.55$) compared to American Indian adults living off of a tribal reservation ($M = 11.23$, $SD = 3.23$). There was no statistically significant difference in reported symptoms of depression related to place of residence ($F(1, 846) = 2.36$, $p = .13$).

Relationship between Everyday Discrimination and Indices of Mental Health

For American Indian adults living on a tribal reservation, the frequency of everyday discrimination was related to current symptoms of anxiety ($r = .228$, $p < .01$), but was unrelated to current symptoms of depression ($r = .092$, $p = .25$). The number of main reasons for everyday discrimination was not related to symptoms of anxiety ($r = -.013$, $p = .86$) or symptoms of depression ($r = -.008$, $p = .92$).

For American Indian adults living off a tribal reservation, the frequency of everyday discrimination was related to current symptoms of anxiety ($r = .303$, $p < .001$), and symptoms of depression ($r = .112$, $p < .01$). The number of main reasons for everyday discrimination was also related to symptoms of anxiety ($r = .241$, $p < .001$) and symptoms of depression ($r = .165$, $p < .001$).

Table 1.
Descriptive statistics and bivariate correlations for subsample of American Indians living on a tribal reservation (n = 162)

Variable	M	SD	1.	2.	3.	4.	5.	6.	7.
1. Age	30.5	11.06	-	.114	-.094	-.140	-.006	-.108	0.041
2. Gender	61% Female			-	-.132	.022	.108	-.069	-.067
3. Annual Income	57% less than $30,000				-	.044	.065	-.083	-.085
4 .Frequency of Everyday Discrimination	28.69	11.87				-	.265**	.228**	.092
5. Number of Main Reasons for Everyday Discrimination	4.25	2.38					-	-.013	-.008
6. Symptoms of Anxiety	12.29	3.55						-	.404**
7. Symptoms of Depression	11.74	2.71							-

Gender is coded as 1= male, 2=female
* p < .05, ** p < .001

Table 2.
Descriptive statistics and bivariate correlations for subsample of American Indians living outside of a tribal reservation (n = 686)

Variable	M	SD	1.	2.	3.	4.	5.	6.	7.
1. Age	39.53	15.55	-	-.074	.122**	-.214**	-.191**	-.276**	-.112**
2. Gender	72.3% Female			-	-.110**	.000	.065	.088*	.007
3. Annual Income	46.2% less than $30,000				-	-.070	-.060	-.084*	.002
4. Frequency of Everyday Discrimination	24.57	11.77				-	.438**	.303**	.112**
5. Number of main reasons for Everyday Discrimination	3.29	2.42					-	.241**	.165**
6. Symptoms of Anxiety	11.24	2.23						-	.317**
7.Symptoms of Depression	11.43	2.23							-

Biological Sex is coded as 1= male, 2=female
* p < .05, ** p < .001

DISCUSSION

The purpose of this research was to investigate whether place of residence (i.e., living on or off a tribal reservation) was related to frequency of everyday discrimination, main reasons for discrimination, indices of mental health, the relationship between everyday discrimination and demographics, and the relationship between discrimination and indices of mental health in American Indian adults. Overall, our findings are in line with prior work indicating relationships between perceived discrimination and mental health across racial and ethnic groups (Pascoe & Richman, 2009).

Our analyses extend upon this work by providing insight into these relationships in American Indian adults and the potential impact of place of residence on these relationships. For AI adults living on a tribal reservation, demographic variables were unrelated to discrimination or indices of mental health. Furthermore, the frequency of everyday discrimination was related to symptoms of anxiety but not to symptoms of depression, and the number of identified reasons for everyday discrimination was unrelated to indices of mental health. This contrasted with relationships observed for American Indian adults living off a tribal reservation, with frequency and number of reasons for discrimination relating to both symptoms of anxiety and depression, and with younger American Indian adults reporting more everyday discrimination and more reasons for discrimination.

As hypothesized, the magnitude of the relationship between frequency of everyday discrimination and symptoms of anxiety was slightly greater for American Indian adults residing outside of a tribal reservation. Further, as noted previously, the relationship between everyday discrimination and symptoms of depression was only statistically significant for those American Indian adults not residing on a tribal reservation. In a similar manner, the relationship between the number of identified main reasons for everyday discrimination and symptoms of depression and anxiety was statistically significant for American Indian adults living off a reservation but was not observed for those American Indian adults residing on a tribal reservation. This suggests that there may be protective factors for those living on a tribal reservation which may dampen the negative effects of everyday discrimination on mental health.

The top four identified main reasons for everyday discrimination were the same for American Indian adults regardless of place of residence. The most common reason was race, followed by gender, ancestry or national origins, and age. When comparing means for our variables of interest for those living on a reservation compared to those living off a reservation, we found

that American Indian adults living on a tribal reservation reported more frequent everyday discrimination, identified more reasons for discrimination, and had significantly more symptoms of anxiety. This is somewhat surprising given the greater racial and cultural homogeneity one would expect on a tribal reservation compared to other environments, given that reservation lands are believed to facilitate practice of traditional ways and customs, protect cultural values, and preserve language (Huyser et al., 2018). Furthermore, tribal reservations give rise to tribal-specific social networks, fostering a sense of community (Denham, 2008). This community connectedness is posited to increase the frequency of social events and build social networks, which should promote inclusion and belonging for community members. However, while tribal reservations are posited to promote resilience for American Indian people, it is acknowledged that they may also act as a source of psychological distress, in part due to the links between reservation lands and colonization and associated historical trauma (Huyser et al., 2018). It is possible that as a result, American Indian adults living on a tribal reservation may be more sensitive or attuned to discriminatory experiences.

Future work is also needed to understand why participants in the current sample residing off a tribal reservation reported lower discrimination frequency, fewer number of reasons for perceived discrimination, and fewer symptoms of anxiety compared to participants living on a tribal reservation. It will also be important to better understand why the relationship between everyday discrimination and mental health is more pronounced for this population compared to American Indian adults living on a tribal reservation. This knowledge can inform future interventions designed to reduce the negative impact of everyday discrimination on mental health for this population. Research across racial and ethnic groups has found that there are important differences in values, beliefs, and perceptions in Americans living in urban areas compared to those living in rural areas. For example, urban dwellers are more likely to say that living in a racially diverse place is important to them compared to rural dwellers (Pew Research Center, 2018). As such, individuals living on a tribal reservation may perceive less acceptance of their racial identity and, consequently, may perceive more discrimination. There is also consensus across rural and urban dwellers that rural communities do not get their fair share of federal dollars (Pew Research Center, 2018). Perceived injustices related to residing in more rural parts of the country may contribute to greater perceived everyday discrimination.

In contrast to American Indian adults living on a tribal reservation, in American Indian adults living off a tribal reservation, younger participants reported more frequent everyday

discrimination and more reasons for perceived discrimination. In future work, qualitative measures of discrimination may clarify the observed relationships between age and everyday discrimination for American Indian adults living off a tribal reservation. It is interesting to note that regardless of place of residence, age was the most common reason given for perceived discrimination after race and ancestry or national origins. Overall, the findings related to age in the current study call for more research on age-related everyday discrimination in American Indian adults. In future research, it will be important to unpack why individuals living outside of a tribal reservation are relatively less affected by everyday discrimination, with a focus on both factors that limit exposure to discrimination and factors that may reduce the degree to which experienced everyday discrimination negatively affects mental health.

The current data does not provide information about the spaces and situations where discrimination is experienced for American Indian adults. In future work, it will be important to obtain more nuanced information about discriminatory experiences for American Indian adults. Another important limitation of the current work is its cross-sectional nature, which does not allow for clarity on directionality of observed relationships. It is certainly possible that American Indian adults with higher symptoms of anxiety or depression perceive more everyday discrimination. Longitudinal intensive data collection would be useful to provide a clearer picture about the nature and context of discriminatory experiences for American Indian adults living on and off tribal reservations and would provide more information about directionality and the timescale of observed relationships between discrimination and indices of mental health. Furthermore, it will be imperative to identify preferences for management of mental health issues linked to discrimination and whether these vary by place of residence. For example, prior work in American Indian and Alaska Native (AI/AN) adults found that preferences in depression management varied by age, with younger AI/AN adults preferring medication use over spirituality and peer support compared to older AI/AN adults (Avey et al., 2018). Overall, these findings call for more work to elucidate why the frequency of everyday discrimination for American Indian adults may vary across residential environments and to identify resilience factors which may be specific to different living environments.

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CONFLICT OF INTEREST

The authors declare that they have no conflicts of interest.

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Lifting the Lived Experiences of American Indian Counselors on the Reservation: An Interpretive Phenomenological Analysis

Brynn Luger, PhD (Lakota Sioux), and James S. Korcuska, PhD

Abstract: *This study utilized interpretive phenomenological analysis to explore the experiences of three American Indian/Alaska Native counselors working on federal Indian reservations. Data analysis yielded four themes: the worth and weight of counseling on a reservation, the impact of culture and community on counseling, four forms of trauma impacting the counselor, and the effects of personal and professional wellness. This research contributes valuable insights into the nuanced experiences of American Indian/Alaska Native counselors working within reservation contexts and highlights the importance of addressing the unique challenges they face in delivering counseling services to their communities. Future research, support infrastructure, and counselor training initiatives should prioritize specialized training and systemic support for counselors tailored specifically to address the needs of American Indian/Alaska Native counselors and the communities they serve.*

INTRODUCTION

The effectiveness of counseling is intricately linked to the wellness of the counselors themselves (Lawson et al., 2007). Counselor wellness, a state of balance between the mind, body, and spirit, can impact multiple aspects of their personal and professional lives (Basma et al., 2021). Multiple factors impact providers' wellness and well-being; for example, large numbers of clients with histories of trauma have been found to have deleterious impacts on counselor wellness (Lamb et al., 1998). Universally, "all counselors have the potential to be well and all counselors have the potential to be impaired" (Lawson et al., 2007, p. 9), but it is the well counselors who are more likely to provide effective services to their clients (Figley, 2002).

Health disparities, the avoidable differences in health between groups of people, can stem from healthcare inequities, racism, injustice, and oppression (National Heart, Lung, and Blood Institute, 2019). These disparities are commonly found among socially disadvantaged or oppressed groups such as Black, Indigenous, and people of color (BIPOC) (Brave Heart et al., 2012) and those with historical and contemporary experiences of trauma (Gameon & Skewes, 2021). Significant health concerns exist among American Indian and Alaska Native (AI/AN) people, which can be linked to disproportionately high experiences of trauma (Gameon & Skewes, 2021).

While the impact of client trauma on counselor wellness is well-known, population-specific studies on the experiences of counselors working with AI/AN populations are small, and studies on AI/AN counselors' wellness are nonexistent. This study examines the firsthand accounts of AI/AN counselors with the aim of informing future research on counselor wellness practices. We use interpretive phenomenological analysis (IPA) to initiate an understanding of the experiences of AI/AN counselors who work on or previously have worked on a reservation. To initiate this research, we asked, "What are the lived experiences of American Indian/Alaska Native counselors working on a reservation?".

Cultural Context: Historical Trauma

Settler colonialism, a political and economic framework of coordinated efforts to seize and control Indigenous lands, has resulted in long-lasting consequences (Montgomery, 2022). The multigenerational effects of settler colonialism impact AI/AN communities throughout the

Americas (Evans-Campbell, 2008; Hamby et al., 2020). Throughout history, there have been multiple instances of large populations of people simultaneously experiencing the same traumatic event (e.g., civil wars or natural disasters), and the traumatic responses to these large-scale events are known as historical traumatization (Brave Heart et al., 2011).

Historical trauma is defined as "cumulative emotional and psychological wounding across generations...which emanates from massive group trauma" (Brave Heart et al., 2011, p. 283). Historical trauma can span a lifetime and can stretch across multiple generations (Brave Heart, 1998), and indirect exposure to trauma can have effects as profound as direct exposure (Hamby et al., 2020). Previous research has demonstrated that ancestral trauma is associated with significant psychological and physical health issues of generations of descendants – a phenomenon known as historical trauma response (Gameon & Skewes, 2021; John-Henderson & Ginty, 2020). The effects of trauma manifest in mental health problems such as depression, substance abuse, and suicide (Gone & Kirmayer, 2020). Further compounding this, AI/AN people experience the highest per-capita rates of trauma and victimization, data that cannot be separated from the context of colonialism and historical trauma (Gameon & Skewes, 2021; Gone, 2009; Sarche & Spicer, 2008).

There is variability in individual responses to traumatic events; however, it has been noted that people who frequently think about or relive traumatic events tend to experience corresponding symptoms of trauma response conditions, such as post-traumatic stress disorder (PTSD) (Ehlers et al., 2013). Despite the elapsed time since traumatic events, for many AI/AN people, "...ancestral losses are often mourned as though they are recent" (Brave Heart et al., 2012, p. 178). The descendants of those who have faced trauma report emotionally identifying with the suffering of their ancestors (Evans-Campbell, 2008). When people identify greater perceptions of historical loss, they are more likely to experience feelings of depression and anger. Identifying with and, to some extent, sharing the suffering of one's ancestors can lead to adverse effects (Ehlers et al., 2013). Despite centuries of efforts by colonizers to eradicate Indigenous peoples and epistemologies, AI/AN communities have exhibited remarkable resilience through their perseverance (Gameon & Skewes, 2021). Research involving AI/AN communities has historically focused on pathology and deficit; however, factors such as the strength of one's AI/AN identity are considered important protective factors regarding collective healing (Hamby et al., 2020).

Counselor Wellness and Trauma Exposure

The counseling profession emphasizes the importance of professional wellness, urging counselors to maintain mental health, emotional stability, and work-life balance. However, the emotional demands of the job often lead to some negative impact. It is commonly accepted that an emotional and psychological risk is innate in the counseling profession. An essential component of effective counseling is the ability to empathize and provide emotional support for clients, yet this can be a burden of care that negatively affects the wellness of the counselor (Bentley, 2022). Counseling survivors of trauma places these counselors at an increased risk of experiencing adverse emotional reactions due to sustained emotional engagement and exposure to clients' traumatic experiences, which can lead to symptoms of occupational stress syndromes such as secondary traumatic stress or vicarious traumatization (Jimenez et al., 2021). When counselors encounter secondary traumatic stress or vicarious traumatization, they may respond by suppressing their empathic reactions to clients to conserve self-empathy (Connolly, 2011). Furthermore, research indicates that secondary traumatic stress increases the likelihood that counselors will vacate their professional positions (Bride & Kintzle, 2011; Cummins et al., 2007).

Counselor Attrition on Reservations

Nationwide, reports of low retention rates of mental health professionals are attributed to factors such as low reimbursement rates, insufficient program funding, and increased demand coupled with limited service accessibility, especially in rural areas. In 2020, it was estimated that over half of rural Americans face shortages in mental health providers (Morales et al., 2020). The Indian Health Service (IHS) has struggled with issues related to poor medical care quality and high rates of professional vacancies for decades (Subcommittee on Indian and Insular Affairs, House Committee on Natural Resources, 2023). Counselors' decisions to remain in their current positions are influenced by their perceptions of workload demands and the availability of wellness resources (Knight et al., 2012). While specific figures relating to employee turnover among counseling staff on reservations are undocumented or inaccessible, research on overall professional turnover rates suggests a trend of reservation-based professionals vacating their positions. For example, Kim (2000) found that 47% of physicians and midlevel providers at a Navajo IHS hospital intended to leave their positions on the reservation within the following three years.

Our review of the literature could not locate existing research on the personal and professional wellness of AI/AN counselors. Consequently, this study sought to fill this gap by gathering insights from the firsthand accounts of AI/AN counselor wellness to guide future research and counseling practices. We utilized interpretive phenomenological analysis (IPA) to understand the lived experiences of AI/AN counselors on reservations, aiming to center the voices of the study participants. The research question guiding this study was: "What are the lived experiences of American Indian/Alaska Native counselors working on a reservation?".

METHOD

Qualitative research methodology focuses on exploring and understanding the structure and functioning of the world (Morse & Field, 1996), enabling research participants to share their stories using their own voices (Creswell & Poth, 2018). IPA requires interpretation since a direct sample of an experience cannot be extracted from an individual's memory. Smith (2011) describes this process as a double hermeneutic, wherein the researcher interprets the participant's interpretation of their experiences. IPA uses an ordered progression of interpretative readings of the data to uncover research participants' nuanced, lived experiences (Chamberlain, 2011; McLeod, 2011).

Procedures and Participants

Prior to recruitment and data collection, the researchers secured Institutional Review Board (IRB) approvals from the University and two Upper Plains Tribal IRB entities. Purposive sampling, a frequent sampling method in phenomenological research (Flynn & Korcuska, 2018), was employed to select participants with similar demographics and experiences.

All participants met the following criteria: they were 18 or older, identified as American Indian/Alaska Native, held a master's degree or higher from an accredited counseling program, and were either Licensed Professional Counselors (LPC) or Licensed Professional Clinical Counselors (LPCC). Furthermore, all participants had prior or current experience working on federal Indian reservations in the United States. Due to the limited number of eligible participants, three individuals were selected for this study, and demographic information was not collected to ensure anonymity, given the small target population and the close-knit nature of tribal communities.

The first author conducted the 30-to-45-minute semi-structured, open-ended individual interviews by telephone. The interview questions (e.g., What is it like to work as a counselor on a reservation?) invited participants to share their experiences working on a reservation and maintaining their wellness. Participants reviewed their respective transcripts and confirmed accuracy.

Researcher Positionality

First Author

I am a descendant of the Standing Rock Sioux Tribe of the *Očéti Šakówiŋ* (The Great Sioux) Nation. I have extensive experience providing counseling services in healthcare settings as a Licensed Professional Clinical Counselor (LPCC). I am an assistant professor of Indigenous Health, teaching courses and conducting research on Indigenous health and community-based participatory research. Coming into this study, I held several assumptions about counselor wellness, trauma counseling, and AI/AN mental health. First, I believed that historical trauma negatively affects AI/AN people and the counselors working with them, particularly when combined with a counselor's own experiences of personal trauma. Second, I expected AI/AN counselors to report a sense of connectedness with their AI/AN clients, partially due to the shared cultural and spiritual values. Finally, I anticipated that participants in the study would discuss the personal impacts of both experiencing trauma firsthand as well as attending to the traumatic narratives of other AI/AN individuals.

Second Author

I have taught in two counseling programs in states populated with 14 federally recognized tribes (South Dakota Department of Tribal Relations, n.d.). As a white, cisgender male, I thought I could approach this project from the perspective of an outsider witness (Epston & Carlson, 2017) who noticed and highlighted the stories and identities of the participants and the first author. I was wrong; experiences, personal and professional, had already disrupted my notions of scholarship and teaching (Korcuska, 2016). Thus, I approached the narratives of our participants and my co-author, aware of the need to navigate from the waters of my "complicity in systems and structures of privilege" (Sheridan, 2017, p. 7) toward "direct or indirect involvement in the lives of others" (p. 15).

Trustworthiness

In qualitative research, 'trustworthiness' emphasizes the importance of maintaining high-quality work (Flynn & Korcuska, 2018; Rodham et al., 2015). In this study, we strengthened trustworthiness by using bracketing, which included researcher note-keeping and member checking through respondent validation via the return of transcripts to participants, member check interviews, and verification of analyzed data (Birt et al., 2016). Additionally, we ensured reflexivity and thick and rich descriptions (see Findings). We maintained sensitivity to participants' cultural backgrounds, diverse perspectives (Brown et al., 2018), and their language through diligent record-keeping in a research journal (Rodham et al., 2015).

Data Analysis

IPA is not limited to a rigid, prescribed set of steps but is a flexible framework for engaging in phenomenological research. Authors analyzed each case separately before a comprehensive analysis was done (Allan & Eatough, 2016). Procedures associated with IPA guided our analysis. Through repeated reading of transcripts, we immersed ourselves in the experiential world of the participants (Allan & Eatough, 2016), providing novel insights (Pietkiewicz & Smith, 2014). Initial notations highlighted significant elements, such as the use of metaphors (Allan & Eatough, 2016).

The first author's reflections on the interviews were noted, including comments relating to personal reflexivity (e.g., how personal characteristics of the researcher, such as age or cultural background, may have impacted participants) (Pietkiewicz & Smith, 2014). From there, emerging themes were developed by close review of researcher notes (Pietkiewicz & Smith, 2014).

Collaboration between the first and second authors led to identifying overarching themes and their implications (Allan & Eatough, 2016). Further data exploration identified thematic connections and clusters through the examination of emergent themes (Pietkiewicz & Smith, 2014). We assessed whether superordinate themes and subthemes could be identified based on conceptual similarities of themes (McLeod, 2011). Themes that did not align with the emerging structure or lacked substantial evidence were excluded (Pietkiewicz & Smith, 2014).

RESULTS

The following themes were identified based on the data analysis: (1) the worth and weight of counseling on a reservation, (2) the impact of culture and community on reservation-based counselors, (3) trauma impacting the counselor, and (4) the effects of personal and professional wellness on counselors.

Theme 1: The Worth and Weight of Counseling on a Reservation

Participants expressed that providing counseling services in a reservation context was a multilayered and emotionally charged experience. They found immense satisfaction in serving their communities, which the researchers interpreted as the "worth" of their work. However, participants recognized substantial challenges, seen as the "weight" of the responsibility of counseling on a reservation. To illustrate the inescapability of trauma, one participant shared the following metaphor:

> [The work] is difficult and it's rewarding, and it's beautiful, and it's hard, and it's everything in between. [The emotional toll is a] blanket of weight on you when you work… It feels like you're just swimming in trauma… like in a swamp. And the moment that you feel you're…stepping out of a swamp, something else happens because our communities are so small and the amount of trauma is just in your face all the time, so you can't escape it.

A complex variable in reservation-based counseling relates to the counselor's caseload. One participant noted that the substantial number of clients on their caseload was partly due to a shortage of counselors on their reservation, saying, "There's such a need up here that it's, it's really not funny. They've advertised for a long time. They can't get anyone to go."

Despite these challenges, collectivism emerged as a source of strength within reservation communities. One participant explained: "When something happens, you notice the community all comes together. I notice that they go to the schools immediately to be there for the kids." Another participant echoed this sentiment, saying: "Native American communities, as a whole, grieve together; that's where I see this beauty of the community healing."

Theme 2: The Impact of Culture and Community on Reservation-Based Counselors

Four sub-themes related to the impact of reservation culture and community were identified: American Indian culture and healing, sense of community, rurality of the reservation, and institutional policy and practices.

American Indian Culture and Healing

Each participant emphasized the significance of integrating traditional cultural healing practices in counseling. They combined Western counseling techniques with their tribe's healing traditions to effectively assist clients. Examples were shared of incorporating healing ceremonies, such as participating alongside clients in a sweat lodge ceremony (*inipi*) and smudging (the purification and cleansing of the spirit gained by burning sage and engaging in prayer and reflection) (Black Elk, 1989) before and after counseling sessions.

Sense of Community

One participant was raised in the same community where they now practice as a counselor. This background reassures them that their chosen profession is a good fit:

> Because I grew up on this community and lived in this community most of my life being able to give back to it in a good way is really important to me. And so it feels, to me, like a real natural fit, in terms of living and working in my community and providing services to people that I, you know, consider relatives.

Given the strong connections between the communities and the counselors, participants shared a range of experiences and emotions stemming from shared losses, tragedies, and triumphs with their clients. One participant captured this sentiment by saying that, for them, "community healing is also part of my own healing."

Rurality of the Reservation

Participants discussed the unique challenges posed by their reservations' rural and isolated location. For example, a participant indicated that a substantial amount of their workday was spent driving long distances across the reservation to see just one client. This extended travel time between client appointments decreased the number of clients they could accommodate in a single day. Another participant noted that because their community is geographically isolated, drug

dealers and manufacturers from outside locations take advantage of their illegal activities going largely unnoticed on the reservation.

Institutional Policy and Practices

Participants discussed a bureaucratic system, commonly called "red tape," that was a barrier to providing therapy services in their communities. One respondent indicated that there are times when individuals in leadership positions misunderstand the role of a professional counselor, which can negatively impact the counselor's interpretation of their duties. Another participant remarked that decisions made by leaders who are without adequate training in mental health care could be "based on emotion and maybe some family tie," leading to confusion about the most effective ways to help members of the reservation community.

Theme 3: Trauma Impacting the Counselor

A common thread of trauma connected participants' stories. Participants reported that the amount of trauma present on their reservations was substantial, profoundly impacting their work. Through their accounts, we identified four subcategories of trauma: domestic violence, suicide, generational trauma, and educational trauma.

Domestic Violence

Participants reflected on the impact that domestic violence had on their clients and communities. One participant noted that those experiencing this trauma will often self-medicate by using drugs and alcohol to cope. Another participant observed that they knew of other professionals experiencing domestic violence in their personal lives, raising concerns about whether they were adequately addressing their mental health.

Generational Trauma

One participant discussed the compounding stress and pressure resulting from generational trauma on the reservation. They described a sense of responsibility they feel to stop the cycle. Another participant stated that the transmission of trauma's consequences from one generation to the next creates a ripple effect. They went on to describe it this way:

> It can be really hard cause it's generations, maybe three generations you go back…to find people that aren't so... they've always been oppressed, but, the last three generations…have turned to more drugs and alcohol. Their parents, then their

parent's parents, I can look back at some of the grandparents are even selling drugs up here.

Suicide

Participants discussed the inherent trauma associated with events involving suicide ideation, attempts, and completions. One participant shared, "The most taxing part of my counseling work would be the level of suicide ideation that people have." Another participant shared how suicide and sexual violence have impacted them, prompting them to address their work-related anxiety by seeking counseling for themselves.

Educational Trauma

Multiple participants discussed what they viewed as a type of educational trauma prevalent on their reservations. One participant highlighted the lack of higher education options and pay disparities, contributing to fewer young people returning to their communities after pursuing education elsewhere.

Theme 4: The Effects of Personal and Professional Wellness on Counselors

Participant interviews revealed the significance of counselor wellness. As their work demands intensified, participants noticed vulnerabilities in their personal lives and relationships, with one participant revealing how their job had affected their marriage. To address these challenges, participants identified effective self-care strategies, categorized into three areas: emotional, physical, and spiritual self-care. Two participants shared that attending their own counseling sessions was instrumental in addressing their mental and emotional wellness. One participant integrated smaller self-care practices, such as prayer and meditation during their commutes, while another participant emphasized their holistic approach to self-care, saying, "I need to take care of my body and myself and my mind" by including regular and intense exercise as a means of emotional release.

Additionally, because collective healing is prevalent in tribal communities (Wicklum et al., 2023), counselors engaging in healing practices with clients can experience benefits themselves. For instance, a participant found spiritual and therapeutic solace by joining clients in sweat lodge ceremonies.

DISCUSSION

AI/AN communities frequently encounter many of the most significant health disparities in the United States (Carron, 2020). The health challenges confronting many AI/AN people include issues such as depression, substance abuse, trauma exposure, and unresolved grief (Brave Heart et al., 2011). Despite this, AI/AN populations consistently remain understudied in counseling research. Furthermore, specific to the current study, research on AI/AN counselor wellness is nonexistent (Brave Heart et al., 2012; Williams, 2018). This study provides narrative accounts of the lived experiences of AI/AN counselors who work on reservations. We folded the discussion of sub-themes in with the main themes for brevity.

The Worth and Weight of Counseling on a Reservation (Sub-theme: Difficulty Incorporating Western Therapy Techniques)

Participants described their experiences of providing counseling services on a reservation as uplifting and meaningful (e.g., making a difference in their communities) yet discouraging (e.g., not having the emotional capacity to meet the clinical needs of a significant number of difficult cases). The latter finding is consistent with Maslach and Leiter (2016), who found an association between mental health providers working with large, complex caseloads leading to increases in stress and exhaustion. Additionally, counselors in this study faced stressors related to navigating the boundaries between their identities as American Indian/Alaska Native individuals and their AI/AN clients. This finding aligns with previous research from Galbraith et al. (2006) and Portman and Garrett (2006), highlighting the unique nature of working within a collectivist paradigm and the impact of the diffusion of trauma through a community. Participants utilized metaphors to articulate their experiences, a common strategy in reflecting on adverse experiences and the process of adapting, recovering, and building resilience, as noted by Gone and Kirmayer (2020).

The Impact of Culture and Community on Counselors (Sub-themes: Culture, Community, Rurality, and Institutional Policy)

The cultural identity of this study's participants intertwines with their roles as professional counselors. Working within their communities freed participants to incorporate Western counseling paradigms with tribally based healing practices. Our participants reported that this blended approach benefited their clients, a finding consistent with Brave Heart (1998). However, the institutional programming, procedures, and administrative management of services within

participants' communities hindered their delivery of counseling services. This observation aligns with Knight et al.'s. (2012) research, which linked counselor turnover to perceptions about the likelihood of institutional change. Moreover, limited funding for mental health care providers reduces clients' access to mental health services, further increasing counselors' already large caseloads (Duran et al., 2009; Grandbois, 2005).

The majority of U.S. reservations are situated in rural areas (Substance Abuse and Mental Health Services Administration, 2013). Our study found that participants living in these remote reservations faced lengthy commutes to their workplaces. Prior research has shown that daily travel from reservation to workplace was a significant challenge for workers, particularly during winter months (Al-Asfour et al., 2021).

Four Forms of Trauma Impacting the Counselor and Their Work (Sub-themes: Domestic Violence, Suicide, Generational Trauma, and Educational Trauma)

The reach that trauma has on reservations extends beyond individual experiences but affects the community as a whole. A single traumatic event can impact community members from different families, tribal bands, or clans (Evans-Campbell, 2008). The scope of trauma experienced by AI/AN nations ranges from elevated rates of violence against Indigenous women (with four out of five reporting violence in their lives) (National Congress of American Indians Policy Research Center [NCAI], 2018) to a suicide rate so substantial it is regarded a significant public health issue in many AI/AN communities (Curtin & Hedegaard, 2019; Brave Heart et al., 2011). Relatedly, government educational policies of Indian boarding schools systematically defrocked AI/AN children of their culture and identities (Brave Heart & DeBruyn, 1998). Despite this, the emphasis on community-based education remains steadfast in AI/AN communities, reflecting the high value placed on education (Grandbois & Sanders, 2012).

The Effects of Personal and Professional Wellness on Counselors (Sub-themes: Counselors' Personal Lives and Strategies for Physical and Spiritual Self-Care)

Navigating grief and loss becomes particularly challenging and complex when the individual is not only a community member but also a significant source of support for grieving families. Coupled with isolation, lack of professional support, and inadequate coping mechanisms, this burden can lead to emotional exhaustion and burnout (Gampa et al., 2017; O'Keefe et al., 2021). A counselor's ability to mitigate the effects of occupational stress is central to their wellness (Lawson et al., 2007). Our findings are consistent with a five-factor model of occupational stress

identified by Galek et al. (2011). These factors include (a) frequent and intense encounters with clients; (b) physical and mental fatigue states; (c) challenges to values, beliefs, and worldview; (d) exposure to traumatized clients; and (e) expectable stress responses.

Study participants marshaled strategies reminiscent of the concept of wellness, defined as intentionally maintaining physical and psychological health (Day-Vines & Holcomb-McCoy, 2007). The practice of wellness and self-care involves nurturing oneself to maintain physical and emotional well-being, including engaging in healthy behaviors to reduce stress, anxiety, and emotional responses when engaging in challenging work (Posluns & Gall, 2020).

Implications

This study sought to add the voices of American Indian/Alaska Native counselors to the impoverished literature concerning their experiences of counseling in intense and trauma-dense reservation environments. By doing so, we aimed to increase their visibility to counselors, counselor educators, researchers, and policymakers. Our findings present implications for counseling practice, counselor education and supervision, administration and public policy, and research.

Implications for Counseling Practice

The implications for counseling practice underscore the necessity for counselors working in reservation settings to be familiar with tribe-specific spirituality, healing practices, and ceremonies. Counselors should become facile with the history and present-day challenges that influence the values, beliefs, biases, and experiences of both privileged and marginalized clients (AMCD, 2015), while contextualizing Western counseling methods within tribal traditions by incorporating healing techniques and teachings and drawing on the wisdom of Elders. Additionally, counselors could integrate trauma-focused interventions such as Eye Movement Desensitization and Reprocessing (EMDR) or cognitive processing therapy (CPT) to assist clients in transitioning from a state of victimhood to identifying as resilient survivors (Gameon & Skewes, 2020; Gone & Kirmayer, 2020).

Moreover, AI/AN counselors should be encouraged to engage in self-care strategies rooted in their cultural teachings. Posluns and Gall (2020) contend that “self-care is not a luxury but is a clinical and ethical imperative in the mental health professions" (p. 4). Addressing the isolation experienced by counselors in a rural reservation setting is critical. Therefore, we propose creating an AI/AN counseling professional peer support network. In addition to the pre-licensure

requirements of individual and group supervision, peer group intervention would increase the support of AI/AN counselors by decreasing their sense of isolation (Killian, 2008).

Implications for Counselor Education and Supervision

While counselor wellness is integral to counselor identity, theory, and practice, counselor educators and supervisors must recognize and address symptoms of occupational stress syndromes by implementing effective strategies to improve communication among professionals, organizations, and systems, such as the relationship-centered communication (RCC) model (Altamirano et al., 2022). Additionally, early integration of a wellness curriculum to graduate counseling education will position well-being as a primary focus in professional education programs (Mumbauer-Pisano & Kim, 2021).

Further, counselors must use culturally appropriate strategies when counseling AI/AN individuals and communities. Counseling trainees must cultivate an understanding of the unique experiences of AI/AN people living in both rural and urban settings, including the effects of historical trauma and colonization. Access to appropriate cultural mentorship is crucial for AI/AN trainees, as highlighted in research on minority female counselors (Basma et al., 2021).

Implications for Administration and Public Policy

We recommend that administrators and policymakers develop and implement systemic support and incentives aimed at fostering counselor wellness and self-care. For example, this could involve the adoption of agency-wide cultural self-care practices (e.g., *inipi*). To address staffing challenges on reservations, streamlining the administrative requirements for counselors, such as documentation and pre-approval procedures, can improve the efficiency and reliability of counseling service delivery. One approach to accomplish this is through task-shifting, delegating appropriate tasks to health workers with shorter training and fewer qualifications (O'Keefe et al., 2021).

Finally, broadening grant-funded programming and other initiatives will support counselors and other staff members in reservation healthcare clinics, enhancing available resources for the community. To enhance counselor efficacy and staff satisfaction, technologies such as distance learning and telehealth counseling for agency employees can provide resources to encourage wellness and self-care.

Implications for Research

AI/AN cultures and traditions are not monolithic; they represent numerous tribal nations with diverse cultures, emphasizing the need for research to recognize the commonalities and

differences. Culturally specific wellness models have historically overlooked the impact of institutional factors, such as racial discrimination, on those who are Black, Indigenous, and people of color (BIPOC) (Basma et al., 2021). Understanding mental health issues among AI/AN individuals requires acknowledging both immediate and generational consequences of trauma. Researchers should explore clients' needs as well as the experiences of AI/AN counselors working in both urban and reservation settings.

Limitations

This study has potential limitations. A notable limitation is the scarcity of prior research studies focusing on the wellness of AI/AN professional counselors, which can have implications for the depth of the contextual understanding of the studied phenomenon. However, it is worth noting that this may partially stem from the historical neglect of Indigenous perspectives in discussions about AI/AN counselors.

Due to this study's specific participant criteria, another limitation is the relatively small sample size (N = 3), which impacts the restricted generalizability of the findings. Participants were from the same region, which may not fully capture the nuances present across U.S. tribal groups. Future research should consider the experiences of AI/AN counselors from multiple regions and various tribal nations and reservation communities.

While this study intentionally examined reservation counselors' perspectives, future studies should include counselors in urban areas who primarily serve AI/AN individuals. Additionally, future studies should examine the experiences of other mental health professionals such as licensed psychologists and licensed social workers to understand the implications of practice from multiple perspectives. Also, the inclusion of non-Indigenous counselors working on reservations can provide more information on how historical trauma and shared community cultural trauma impact the counselor. Despite these limitations, this study provides a foundational exploration of the experiences of AI/AN counselors on reservations and highlights the importance of amplifying Indigenous voices within academic research.

CONCLUSION

The association between counselor wellness and effective counseling practice is evident; therefore, prioritizing counselors' well-being is essential for their health and the quality of mental health

services offered. Counselors who prioritize wellness are better equipped to manage their professional demands, especially when working with AI/AN populations who face historical and systemic challenges. AI/AN counselors, working within contexts of the multigenerational impacts of settler colonialism and historical trauma, require tailored support. By employing interpretive phenomenological analysis (IPA), this study focuses on the lived experiences of AI/AN counselors working on reservations to inform future research and counselor wellness practices. This study underscores the importance of addressing counselor wellness and the specific challenges faced by AI/AN counselors to bridge the gap in mental health care and promote healing within their communities.

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Exploring the Role of Indigenous Determinants of Health in the Resilience of Native Nations during COVID-19

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Abstract: *American Indians and Alaska Natives (AI/ANs) were disproportionately affected by the COVID-19 pandemic, experiencing excess hospitalization, mortality, and economic losses compared to the non-Hispanic Whites. This study sought to document the Indigenous determinants of health (IDOH) in AI/AN communities that shaped mental wellbeing for four groups: educators, traditional knowledge holders/practitioners, first responders, and substance abuse recovery community, during the pandemic. This work was a collaboration with and had research approval from three Native nations in Arizona. In-depth interviews were conducted from May to November 2021; 92 participants were interviewed. The most prevalent IDOH and associated themes included strategies to cope with emotional and social stressors and the impact on physical and mental health, relationships, kinship, cultural continuity, and self-determination. The groups experienced differences in mental wellbeing aligned with their occupation. For example, first responders experienced disruption and social dissonance in the workplace due to varying political views, and traditional knowledge holders/ practitioners experienced a revitalization of cultural strategies to maintain health. Although the differences between occupational groups are striking, the similarities that did exist were grounded in Indigenous identity and worldview that emphasize relationships and connection to the natural environment.*

INTRODUCTION

Presently, there are 574 federally recognized nations/tribes and approximately 9.7 million people who self-identify as American Indian or Alaska Native (AI/AN), either alone or in combination with one or more races (Jones, 2021; USAGov, 2023). The term *Indigenous* and *Indigenous Peoples* will be used interchangeably to refer to the collective AI/AN Peoples of the United States. Each nation is recognized as having a unique language(s), culture, sovereignty, and historical relationship with the U.S. government.

Indigenous Peoples of the occupied U.S. territory have a long history of public health crises, enduring historic and ongoing racism and marginalization related to colonial efforts of genocide and ethnocide. The novel coronavirus SARS-CoV-2 (COVID-19) pandemic that emerged in 2019 is the latest public health emergency to amplify the preexisting health inequities and the longstanding unequal distribution of resources and power suffered by AI/ANs (Carroll, 2021). Recent studies show that AI/AN populations were disproportionately affected by the pandemic, experiencing an excess burden of COVID-19 cases, hospitalization, mortality, economic losses, and changes to social interactions compared to the non-Hispanic White (NHW) population (Carroll, 2021).

As of April 5, 2023, the total cases of COVID-19 in the U.S equaled 104,242,889, though the number is likely higher as the Centers for Disease Control and Prevention (CDC) stopped tracking new COVID-19 cases in May 2023 (CDC, 2023). Data recorded from the Indian Health Service (IHS), tribal, and urban Indian organization facilities found the total cases in the 11 IHS Service Areas equaled 597,931 (Indian Health Services, 2023). AI/AN communities were reported to have 3.5 times the incidence rate of COVID-19 than NHW; however, this figure is likely a gross underestimate due to missing data, racial misclassification, and misreporting (Hatcher et al., 2020; Yellow Horse & Huyser, 2021). In Arizona, the AI/AN COVID-19 cases represented at least one third of all AI/AN COVID-19 cases nationwide (Hatcher et al., 2020).

COVID Impacts to Mental Wellbeing

An alarmingly high mortality rate accompanied the high incidence rate of COVID-19 among AI/AN populations, especially on reservations, where limited access to healthcare, clean

water, and other essentials are common issues (Goldman & Andrasfay, 2022; Williams, 2021). A growing body of literature has shown that the combination of the rapid transmission of the virus, high COVID-19-associated fatalities, and drastic COVID-19 mitigation measures have had adverse psychological and mental wellbeing impacts on the general population (Lakhan et al., 2020; Levine et al., 2022). Furthermore, due to the sudden emergence and rapid spread of the virus, there were many uncertainties around how to adequately prevent and control the virus in the beginning of the pandemic. These uncertainties contributed to elevated levels of stress and anxiety (Levine et al., 2022). There is growing concern that these issues are exacerbated among populations who live in underserved communities and those who work in high-risk occupations (Hendrickson et al., 2022; McNeely et al., 2020).

The intention of this work was to document the resilience strategies used by Indigenous nations and communities to maintain mental health and wellbeing during the height of the physical and social restrictions dictated by the pandemic safety policies. The research team approached mental health and wellbeing from a contextual and systems orientation, rather than from a psychological or individual clinical orientation. This work focused on four groups of key stakeholders within Native nations: first responders, educators, the substance abuse recovery community, and traditional knowledge holders/practitioners. Each of these four groups represent front-line workers in the effort to deal with the pandemic; each of these groups also represent key stakeholders in the general wellbeing and nation-building efforts of Indigenous nations and communities.

COVID Impacts Based on Field

Educators

Nationwide, parents generally report concerns about the impact of the pandemic on their children's learning and emotional development, although there is some variability according to race and socio-economic status (Braga, 2022). Schools in Indigenous communities closed and transitioned to various modalities during the pandemic. The disparate access to internet, electricity, and computers was a significant factor in how schools responded to these closures (Dearman, 2021). Teachers reported high anxiety levels during the pandemic across the United States, and according to some studies, their anxiety and depression symptoms were worse than among healthcare workers (Sparks, 2022).

Substance Abuse Recovery Community

Prior to the pandemic, the United States was facing a substance use crisis with increased opiate addiction fueling overdose death rates from 6.1 per 100,000 in 1999 to 21.6 per 100,000 in 2019 (CDC, 2020). With the onset of the pandemic and the associated decline in mental health, a significant correlate with substance use and substance use disorder, overdose and overdose death rates rose significantly in the U.S. population. In addition, during the pandemic, increases in positive screens for substance use (fentanyl, cocaine, methamphetamine, and heroin) were observed in both legal and health systems, and an increase in alcohol use was documented (Grossman et al., 2020; Niles et al., 2021; Roberts et al., 2021; Wainwright et al., 2020). Underserved communities engaged in substance abuse recovery—including Indigenous communities both off and on reservations—experienced intersections that might produce particular vulnerabilities to substance use increase (Chacon et al., 2021). Environmental stressors, lack of resources, health disparities, social isolation, and a reliance on self-medication practices put the recovery community, particularly the Indigenous population engaged in recovery, at higher risk (Chacon et al., 2021). The Native nations in Arizona were also dealing with significant grief as the rate of death from COVID among tribal citizens was higher than other races (Leggat-Barr et al., 2021). Group therapy, 12-step meetings, and even residential treatment programs were restricted or non-existent in order to reduce the risk of transmission. The typical tools used to combat vulnerability to substance use were restricted during the pandemic.

Traditional Knowledge Holders/Practitioners

Traditional knowledge holders/practitioners (TKH), such as medicine men and women, have an essential role as healers and keepers of traditional teachings and lessons learned from past collective experiences. These teachings and TKHs' prayers, ceremonies, advice, and consultation provided guidance on how to sustain wellness and balance in the midst of losses and hardships related to the COVID-19 pandemic (Kahn et al., 2023; Montgomery, 2020). Many Indigenous Peoples continue to rely on traditional health services (e.g., ceremonies and prayers) provided by TKHs (Portman & Garrett, 2006). Anecdotally, AI/ANs have discussed the resurgence of turning to TKHs to find comfort and solace in ceremonies, cultural teachings, songs, and prayers.

First Responders

First responders play a critical role in any community on a daily basis. From law enforcement to firefighters and paramedics, public safety personnel work to keep members of their

communities safe and provide emergency assistance when needed. During a public health emergency, such as the COVID-19 pandemic, the work of first responders in communities became crucial. Paramedics and firefighters were tasked with responding to emergency calls to render aid and transport to patients ill with the virus. Frontline workers, including first responders and healthcare workers, faced a multitude of physical and psychological occupational stressors throughout the pandemic (Hendrickson et al., 2022; Vagni et al., 2020). Due to the nature of their occupations, frontline workers are at higher risk for being exposed to COVID-19 compared to the general population (Koh, 2020; Sharifi et al., 2021). Recent studies found that the concern for safety, prolonged exhaustion from an excessive workload, along with increased exposure to death and suffering, led to elevated stress, anxiety, depression, and post-traumatic stress disorder (PTSD) symptoms among healthcare workers and first responders (Hendrickson et al., 2022; Vagni et al., 2020). These sequela have since been associated with negative occupational outcomes, including symptoms of burnout such as difficulty completing tasks, likelihood of leaving their field, reduced patient care, and reduced professional endurance (Hendrickson et al., 2022; Sharifi et al., 2021).

Conceptual Framework

This work was situated within the broad frameworks of Indigenous Nation Building (Begay, 2007; Brayboy, 2007; Cornell & Kalt, 2007; de Leeuw et al., 2018) (Figure 1). These frameworks integrate sovereignty, lands and jurisdiction, institutions, leadership, cultural identity, the continuing effects of colonialism, and resilience to understand the drivers of mental health and well-being. Indigenous determinants of health (IDOH) is an expansion of the more familiar social determinants of health (SDOH), applying a lens that considers the impact of marginalization and cultural assets on health determinants (Oré, et al., 2025). Indigenous peoples and nations have used unique strategies to maintain their mental health and wellbeing during this difficult time. This research contributes to the IDOH research area by contextualizing IDOH Our goal was to identify the strategies to maintain wellbeing and impacts to mental wellbeing and explore contextual factors that either facilitate or hinder efforts to maintain mental wellbeing. This study used qualitative key informant interviews to answer the overarching study research question: What are the Indigenous determinants of health in Native nations and communities that shaped mental health/wellbeing, and in turn, resilience during the COVID-19 pandemic?

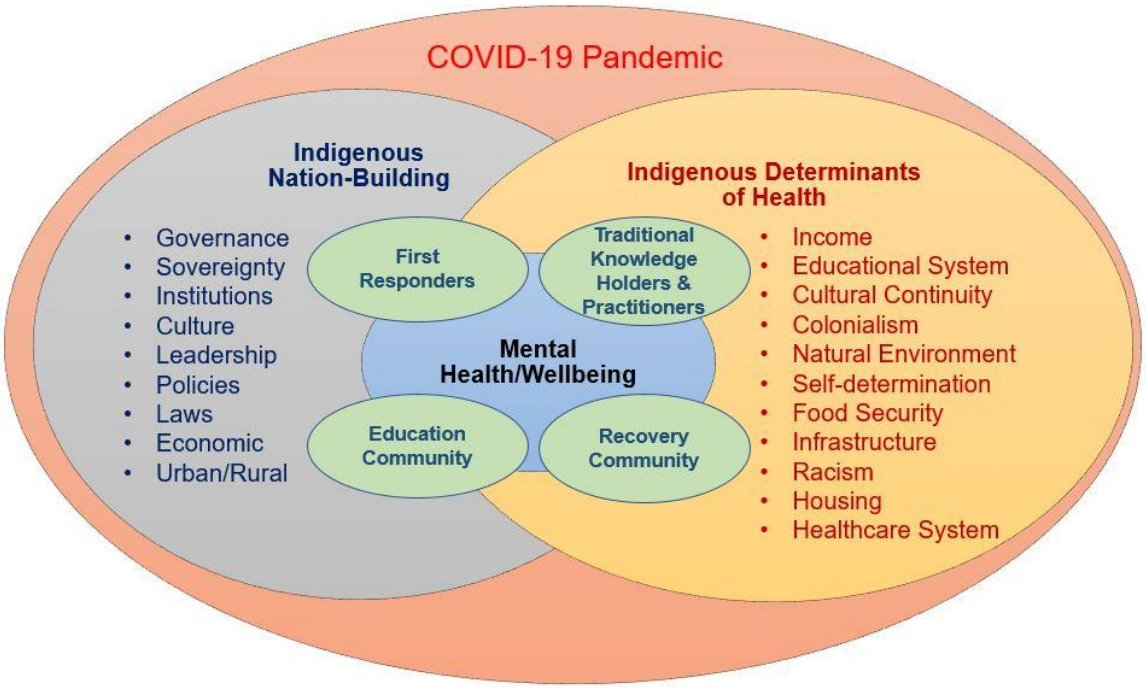

Figure 1. Overall study conceptual model.

METHODS

This study was guided by Indigenous frameworks for health (i.e., IDOH) and leadership (i.e., Nation Building). A majority of the research team were Indigenous scholars. Detailed descriptions of the interview methodology including partnership development, the research approval process, and code book development for qualitative analysis have been published elsewhere (Baldwin et al., 2023). The research team conducted key informant interviews with 92 participants from three Native nations in Arizona over the course of 6 months (May to November 2021). The Arizona Native nations chose to remain unnamed; however, the nations represent contexts that include rural and urban communities. The research team used purposive sampling through existing professional and community networks, snowball sampling, and community outreach to recruit participants with specific expertise. Interviews were conducted virtually, using Zoom™, or over the phone, with each interview lasting for 45 minutes to 2 hours. Interviews were recorded, transcribed using Zoom transcription, translated if needed, and transcripts were checked for accuracy before analysis. Sixteen interviews (approximately 17% of the total interviews) required translation; ten (10) interviews required full translation and six (6) interviews required minimal translation. Translation was completed by members of the research team who are fluent

in the Indigenous language and verified by a community researcher who is also fluent in the language. Analysis was conducted using NVivo 13 (Lumivero, 2020).

Participants

Participants were recruited by their role in their community. The four groups included traditional knowledge holders/practitioners (TKH), educators (EDU), first responders (FRSP), and substance abuse recovery community (REC). The first responder participants included law enforcement, emergency responders, emergency health care professionals, and community health staff. Sixty-three percent (63%) of participants identified as female, and 87% identified as Indigenous. Participant age was distributed between six age ranges: 18-24 (1%), 25-34 (9%), 35-44 (27%), 45-54 (27%), 55-64 (22%), and 65 years of age or older (15%) (see Table 1).

Table 1
Demographics of key informants by group

	Group	TKH (n=22)	FRSP (n=25)	REC (n=19)	EDU (n=26)	Total (%) (n=92)
Gender	Female	6	11	15	25	57 (62%)
	Male	16	14	4	1	35 (38%)
Ethnicity	Indigenous	22	20	15	23	80 (87%)
	Non-Indigenous	0	5	4	3	12 (13%)
Age Range	18-24	0	1	0	0	1 (1%)
	25-34	2	6	1	1	10 (11%)
	35-44	5	10	3	7	25 (27%)
	45-54	1	2	9	10	22 (24%)
	55-64	3	6	6	5	20 (22%)
	65+	11	0	0	3	14 (15%)

Analysis

Phase 1 Analysis

Three independent coders were assigned to each group (TKH, EDU, FRSP, REC) for a total of 12 coders for this study. Coders then used a deductive approach based on the IDOH framework and mental wellbeing while analyzing transcripts using NVivo software. Each coder was responsible for individual transcript analysis with no overlap, so the team did not conduct interrater reliability analysis. However, all coders contributed to the development of the codebook

that included parent codes based on IDOH and mental wellbeing. Additionally, the coding team met on a bi-weekly basis to discuss questions regarding coding to ensure consistency in coding.

Phase 2 Analysis and Verification

Phase 2 analysis and verification was completed by a subset of coders (NTS, MS, AB, AMH) that served as representatives from each group (TKH, EDU, FRSP, REC). The secondary analysis coders reviewed quotes that were coded using the IDOH codes to verify strategies used to improve mental wellbeing during the COVID-19 pandemic and the ways in which COVID-19 impacted mental wellbeing for participants. The team used sunburst charts to verify the most heavily represented IDOHs. Overall, the themes for relationships, healthcare, cultural continuity, and self-determination had the most data (quotes). This pattern was repeated when organizing the data within groups, so the overall analysis for this manuscript focused on those four themes/determinants of health. The Phase 2 analysis allowed the research team to illuminate the relationship between IDOH and mental wellbeing during the COVID-19 pandemic. Figure 2 demonstrates the analysis structure for this manuscript.

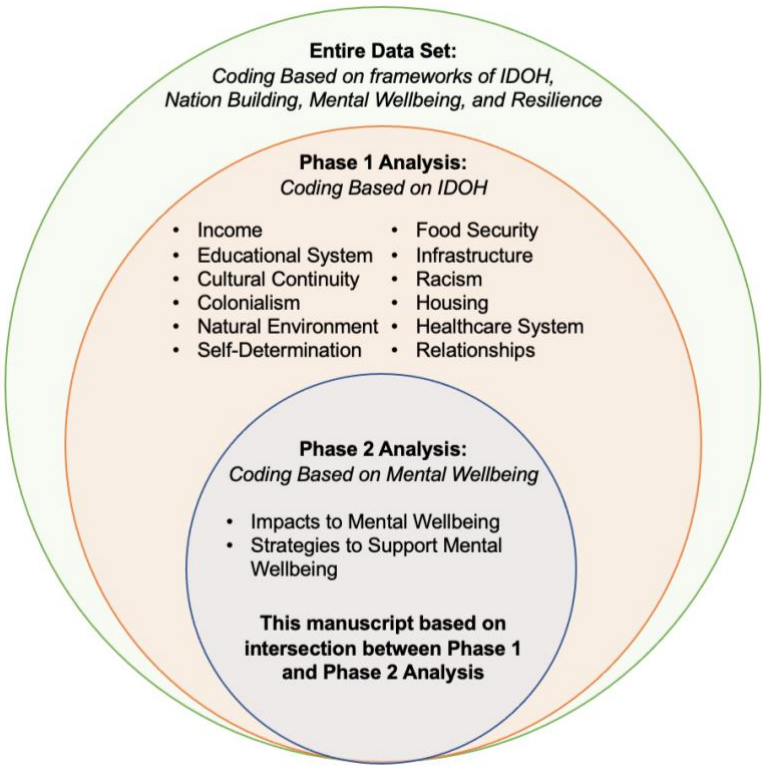

Figure 2. Study analysis structure.

RESULTS

Across the four types of roles, IDOH shaped the mental wellbeing of the participants of this study. To allow for concise reporting and discussion, the synthesis of results will focus on four main IDOH themes most heavily represented by all four groups: healthcare, relationships/kinship/collectivism, cultural continuity, and self-determination. The results are organized in two sections. First, the similarities between the groups structured by impacts (Figure 3) to mental wellbeing and strategies (Figure 4) used to maintain mental wellbeing. Second, the differences between the groups structured, again, by impacts (Figure 5) to mental wellbeing and strategies (Figure 6) used to maintain mental wellbeing.

Mental Well-being and Indigenous Determinants of Health: Similarities Between Groups

The similarities between all groups are described below and in Figures 3 and 4.

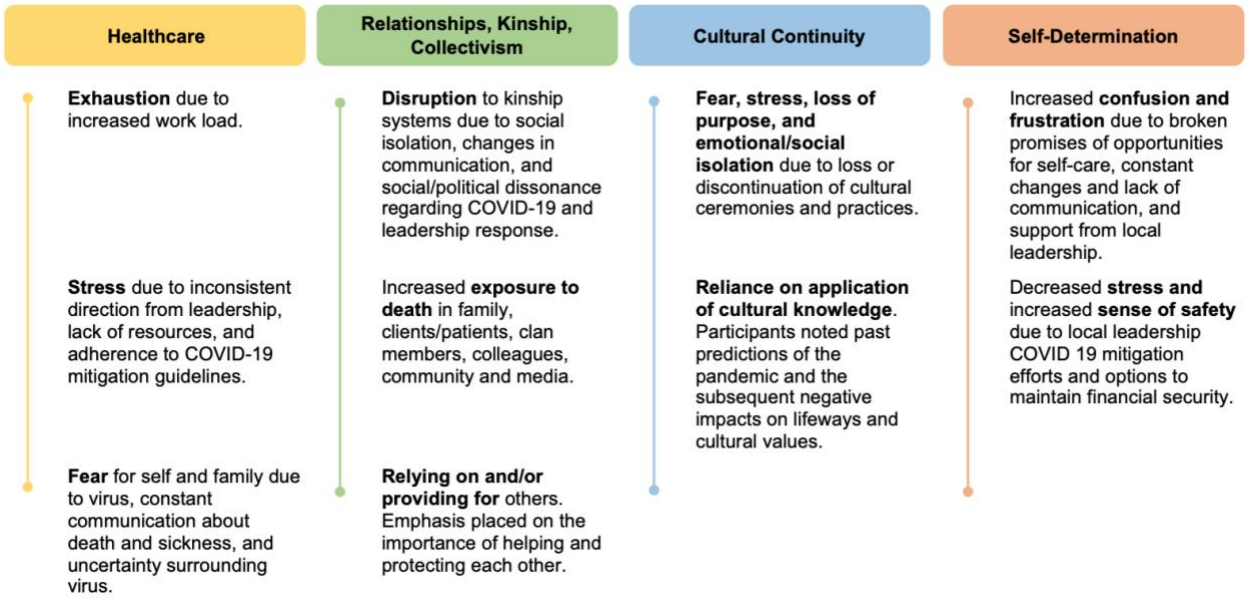

Figure 3. IDOH impacts on mental wellbeing: Similarities between groups.

Healthcare

Healthcare, in the context of this analysis, focuses mainly on the impacts on mental health that were felt during the pandemic. Exhaustion due to increased workload was reported by all groups. All groups also reported experiencing stress due to inconsistent communication or direction from leadership, lack of resources and opportunities for self-care, increased exposure to

the virus, and inconsistent adherence to vaccination and mitigation guidelines (based on individual participant's preferences and beliefs). Additionally, all groups felt fear for self and family due to the virus, constant communication about death and sickness, and uncertainty surrounding COVID-19. For example, one EDU participant stated, "But I was some days, like, I don't care if I don't show up tomorrow, they fire me. I don't. Like, I can do whatever else, like I'll work at the grocery store, like I'll do whatever else besides this because I'm tired, I'm stressed out."

Relationships, Kinship, and Collectivism

Relationships, kinship, and collectivism focuses on disruption, death, and relying on and/or providing for others. First, COVID-19 caused a major disruption to kinship systems in Indigenous communities due to social isolation, changes in communication styles (virtual instead of in-person), and social/political dissonance regarding COVID-19 and leadership response. Next, increased exposure to death had a negative impact on participants' mental wellbeing. Participants had to deal with deaths of family members, clients/patients, clan members, colleagues, and community members including the inability to say goodbye properly. Participants were also impacted by increased reporting on death and sickness through the media (radio, apps, television, etc.). On a positive note, relying on and/or providing for others during the pandemic supported the mental wellbeing of participants. Reliance on family, colleagues, and larger community had a positive impact, and participants emphasized the importance of helping and protecting each other.

> When you socialize with your relatives you get to see and talk with them. Before the pandemic, we had [name of ceremony] and other ceremonies where people were invited to come over and that is what we got used to. And we got used to going to stores to see and visit relatives, but the mandates of our tribal government to stay home, not gather has caused fear. The thought of visiting relatives is no longer available, and we miss socializing and we are not the only ones, probably the whole world is like that. -TKH participant

Cultural Continuity

Cultural continuity focuses on Indigenous practices, cultural loss, and application of cultural knowledge. All groups indicated the loss or discontinuation of cultural ceremonies and practices caused a negative impact to wellbeing including fear, stress, loss of purpose, and feelings of emotional/social isolation. Additionally, participants relied on application of cultural knowledge

to note that a pandemic has been foreseen and was preceded by negative changes to lifeways or not adhering to cultural values. One FRSP participant demonstrated the importance of cultural continuity by stating, "With our culture, the attending ceremonies brought that happiness and without it, without the ceremony. It wasn't the same as our ceremonial calendar was just not there and it felt like there was no purpose, no purpose in life."

Self-Determination

Self-determination focuses on the positive and negative impacts to wellbeing caused by tribal and community leadership decisions. On one hand, tribal government and community leadership caused confusion and frustration due to broken promises of opportunities for self-care, constant changes and lack of communication, and lack of encouragement or appreciation. On the other hand, participants also felt tribal government and community leadership decreased stress and increased feelings of safety by establishing stay-at-home orders (keeping them and their families safe), providing hazard pay, and assuring employees that they could stay employed through the pandemic.

> We have a superintendent and I feel like she made some really tough decisions but I was okay with the decision she made for like when she would go to remote learning at the beginning, I was fine with it because it made me feel better as a teacher like safe because I was like what if we get it and then I take it home and I have a grandson just kind of all that. –EDU participant

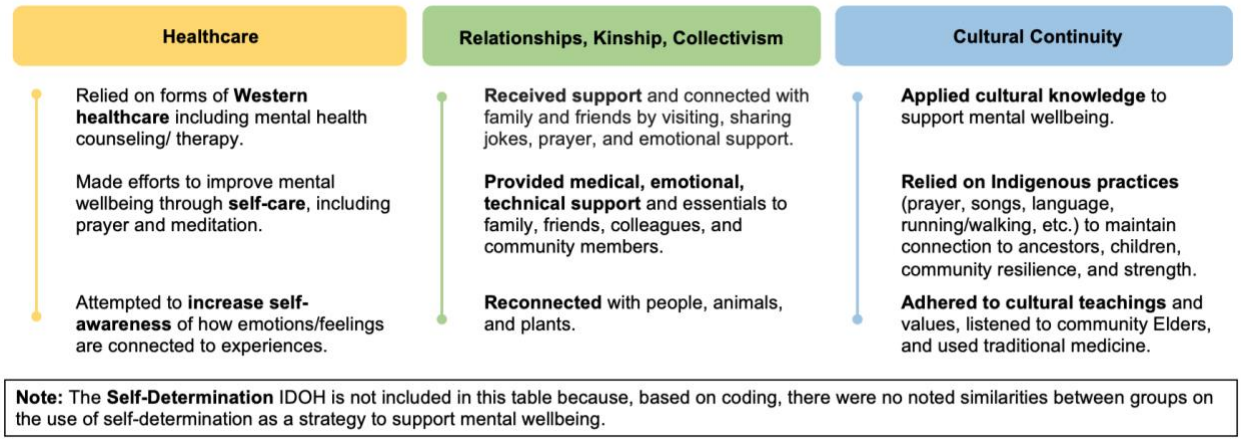

Figure 4. IDOH strategies to support mental wellbeing: Similarities between groups.

IDOH Strategies Used to Support Mental Wellbeing: Similarities Between Groups

Healthcare

Healthcare focuses mainly on Western healthcare and self-help. Healthcare, in the context of this analysis, focuses mainly on the strategies participants used to support their mental health during the pandemic. Participants described their reliance on forms of Western healthcare including mental health counseling or therapy. For example, one EDU participant stated, "I've been on antidepressants since January of last year, it was scary at first but I've learned how to be open and being accepting to it, which is really hard." Participants also made efforts to improve their mental wellbeing through self-care including prayer, meditation, and attempting to increase self-awareness of how their emotions and feelings are connected to their experiences.

> So, you know, being home in this, when I was teaching virtual, just ensuring that I maintained my health and my wellness, getting outside to walk and doing things that I enjoyed, such as gardening and I love seeing things grow because it reminds me that, you know, life happens and it continues regardless of COVID. –EDU participant

Relationships, Kinship, and Collectivism

Relationships, kinship, and collectivism focuses on relying on and/or providing for others and reconnecting. Participants described receiving support and connecting with family and friends as a strategy to maintain wellbeing. Participants did this by visiting, sharing jokes, and praying together. Participants also describe the importance of providing medical, emotional, and technical support and essentials to family, friends, colleagues, and community members. Providing and receiving support allowed participants to maintain their wellbeing. Finally, participants from all groups described the importance of reconnecting with people, animals, and plants to maintain wellbeing. One FRSP participant described one of their relationships: "I've got close friends that have been friends for a number of years, that call me now. A few times a week just to check in."

Cultural Continuity

Cultural continuity focuses on application of cultural knowledge and Indigenous practices. Participants from all groups relied on Indigenous practices (prayer, songs, language, and running/walking) to maintain connection to ancestors, children, community resilience, and strength. Participants from all groups applied cultural knowledge to support mental wellbeing

including adhering to cultural teachings and values, listening to community Elders, and using traditional medicine.

> Think good, talk right and plan good. And physically also get up early, at dawn and go outside with your white corn for offering and pray for yourself. Get up early and make that a habit for yourself. Do not sleep while the sun is up high in the sky. Get up early in the morning. There's [Cultural Figure] who rises with the early morning dawn stands in the East and looks around to see who is outside and who is running. He looks for them is what is told. [Little Medicine Bundle] it is called and that is what he holds in his arms with white shell in it. When he sees or hears you outside walking around or yelling and running. That person will be blessed. They will be strong and resilient is what he says is what is told. -TKH participant

Mental Well-being and Indigenous Determinants of Health: Differences Between Groups

Each group also had several unique experiences as described below and in Figures 5 and 6.

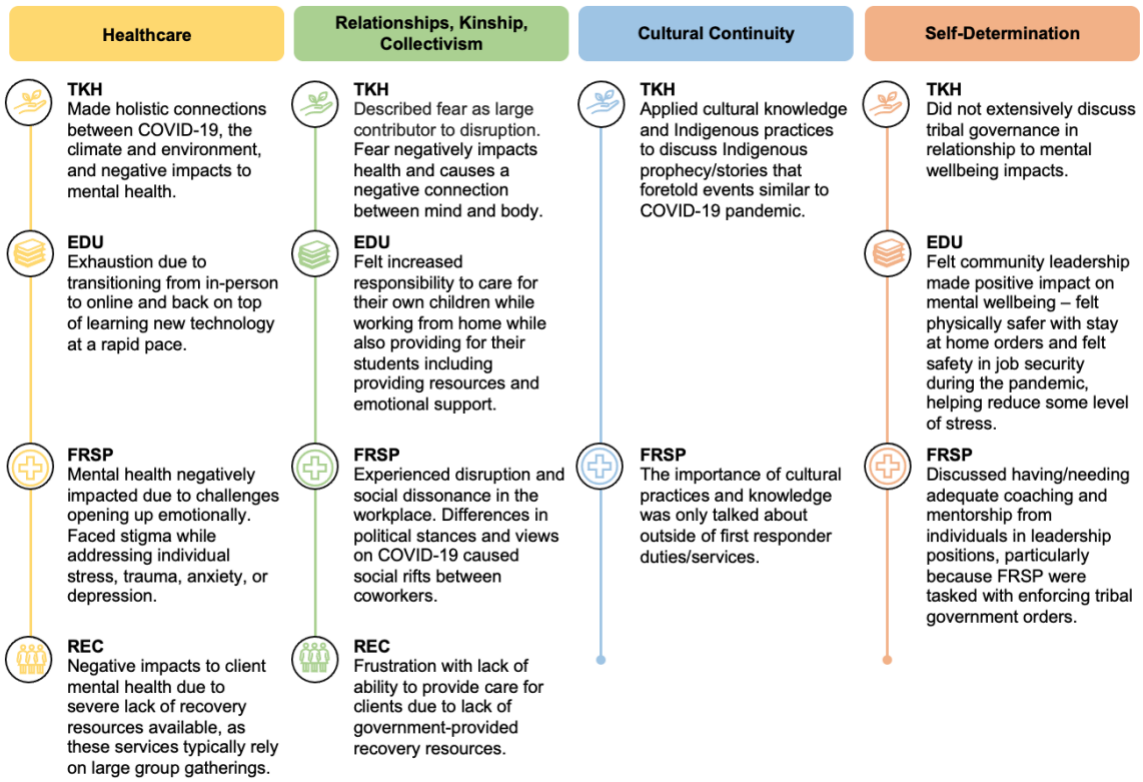

Figure 5. IDOH impacts on mental wellbeing: Differences between groups.

Healthcare

Healthcare, in the context of this analysis, focuses mainly on the impacts on mental health that were felt during the pandemic. The TKH participants made holistic connections between COVID-19, the climate, environment, and mental health. While all groups felt exhaustion, EDU exhaustion was due to transitioning from in-person to online and learning new technology at a rapid pace. FRSP mental health was negatively impacted due to challenges opening up, emotionally, during the pandemic. FRSP also faced stigma that discouraged them from addressing individual stress, trauma, anxiety, or depression. Participants in the REC group noted the negative impacts to client mental health due to severe lack of recovery resources available, as these services typically rely on large group gatherings.

> They tell us going into the academy that we're a special group of people. Because we voluntarily chose a field that were put in decisions that can take lives or our life [sic], ourselves can be taken. That we can walk out the door and never return home. When we go to these accidents…Where we can go through an entire scene and not cry, and we can still go home and pretend like nothing happened. But there is times where it breaks us but we don't know how to talk to our family members because they don't know what we go through on a daily basis of what we see and what we encounter, what people say to us and how much our own people hate us. They don't know that part of our lives. – FRSP participant

Relationships, Kinship, and Collectivism

All four groups described disruption to relationships, death within families and communities, and increased reliance on and/or providing for others. However, disruption manifested in different ways for each group. The TKH participants described fear as a large contributor to disruption. Fear (due to uncertainty) negatively impacts health and causes a negative connection between mind (fear) and body (sickness). EDU participants felt an increased responsibility to care for their own children while working from home and also providing resources and emotional support for their students. FRSP participants described experiencing disruption and social dissonance in the workplace. Differences in political stances and views on COVID-19 caused social rifts between coworkers. REC participants expressed frustration with the lack of ability to provide care for clients due to a lack of recovery resources. Behavioral health clients

typically rely on government systems for services including in-house and residential recovery options, but these services were severely lacking.

> … But it's taught us that maybe our tribal government or the higher ups could do a little more for the recovering community. Now, again, you know, I don't want to speak negatively about anybody, but. I realize that there is hardly any kind of recovery services available for a while, the [Department] was not as proactive as they usually are…I realized that there is no in-house recovery programs or residential recovery programs on the reservation. –REC participant

Cultural Continuity

Cultural continuity focuses on Indigenous practices, cultural loss, and application of cultural knowledge. FRSP participants only talked about the importance of cultural practices and knowledge outside of first responder duties and services. The TKH participants applied cultural knowledge and Indigenous practices to discuss Indigenous prophecy and stories that foretold events similar to the COVID-19 pandemic.

> But this one was really strong, this COVID, and knowing what we know from our [Indigenous] ways of teaching. That brought all those emotions to me not too long ago, maybe a month ago, I was at home and thinking. All this I was thinking about. As a grandparent, you think about your children and your grandchildren first. What will befall them? I hope they don't get sick. I hope they don't become affected by this. This is how I pray for them. They still have a long life to live and I pray for them. These are what you think about as a parent or grandparent. You feel deeply for them. Why has this sickness come to us, like I talked earlier, that's part of it. We are living our life the wrong way. I know a lot of people probably aren't going to look at it this way, but that's our teaching, this is our way of understanding and I'm very thankful that we're all here together still and that's how I want it to be. –TKH participant

Self-Determination

Self-determination focuses on the positive and negative impacts to wellbeing caused by tribal and community leadership decisions. TKH participants did not extensively discuss tribal governance in relationship to mental wellbeing impacts. TKH relationships with community is

separate or different from politics and governance – even to the point of continuing to provide services despite tribal government orders. FRSP participants discussed needing adequate coaching and mentorship from individuals in leadership positions, particularly because FRSP were tasked with enforcing tribal government orders. EDU participants relied on community (school) leadership to uphold promises made for self-care days that were not always kept, leading to frustration and burnout. EDU participants also felt community leadership made a positive impact on mental wellbeing – they felt physically safer with stay-at-home orders and felt safety in job security during the pandemic, helping reduce some level of stress.

> On a positive note, I had job security and I was pleasantly assured and comfortable with the fact that I wasn't in fear of losing my job at any point. So that definitely kept the stress away. And I was able to work every day from my home and then be there for my children. The fact that, like I knew some of my colleagues at like stateside schools, were going back to school in August, September. And to me, I felt less stress knowing that my community was being extra cautious. So, I think that that definitely impacted my well-being and they were really waiting for the right moment. –EDU participant

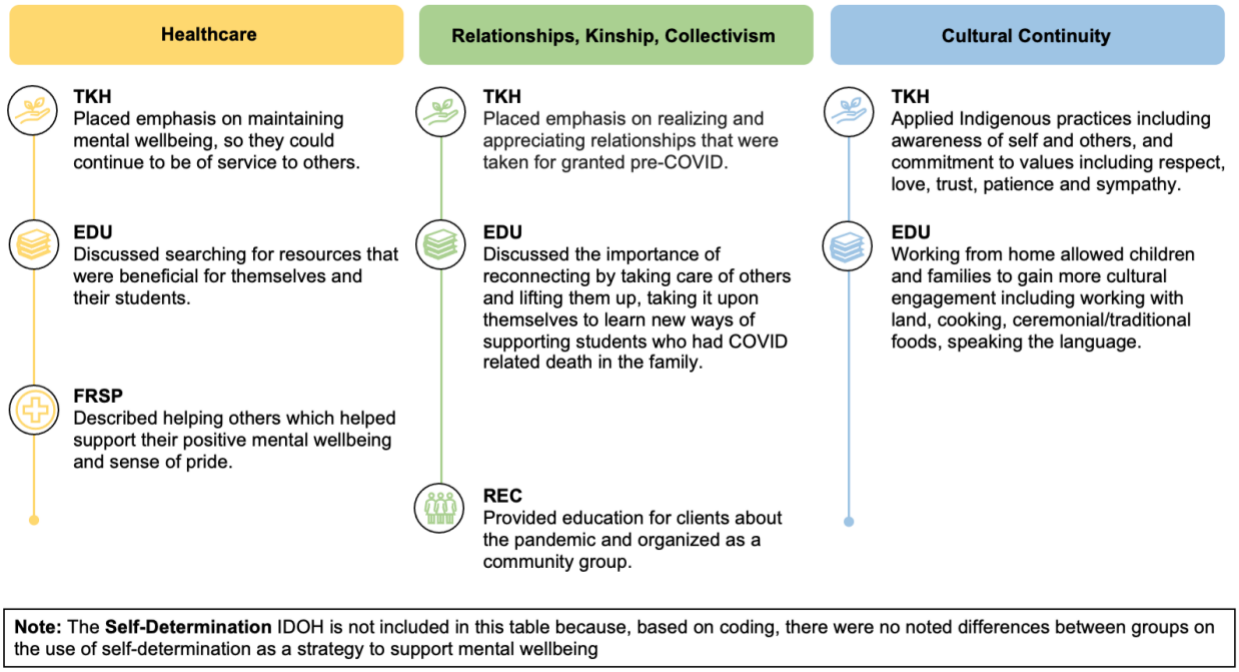

Figure 6. IDOH strategies to support mental wellbeing: Differences between groups.

IDOH Strategies Used to Support Mental Wellbeing: Differences Between Groups

Cultural Continuity

Cultural continuity focuses on application of cultural knowledge and Indigenous practices. TKH participants described strategies relating to Indigenous practices, awareness of self and others, and commitment to values including respect, love, trust, patience, and sympathy. EDU participants reflected that being at home allowed children (their own and their students) and families to gain more cultural engagement including working with land, cooking ceremonial/traditional foods, and speaking their traditional language.

> So again, being [Indigenous] and that's what really helps with that mental wellbeing and again being in the field, going out there, taking care of those plants, watching the field because that's a part of who we are and what helps that mental wellbeing. Because it gets you out of the house, it gets you, in a way I guess it helps you become stress free because it's something different than a side of which you have at home. –EDU participant

Relationships, Kinship, and Collectivism

Relationships, kinship, and collectivism highlights relying on and/or providing for others and reconnecting. TKH participants placed emphasis on realizing and appreciating relationships that were taken for granted before COVID-19. EDU participants discussed the importance of reconnecting by taking care of others and lifting them up through spiritual encouragement. They also learned new ways of supporting students who had COVID-related death in the family. REC participants, who reflected on the reliance on groups to support their active mental health treatment, stated that the restrictions on gathering were difficult for them. With the pause in formal support groups, two strategies employed were providing health education about COVID-19 (prevention and treatment) and organizing informally as a community (which is natural for people in recovery). One REC participant mentioned, "…There was a lot of concern and how people sort of panic with the unknown, but then eventually people were educated and things started settling down and then everyone was organized." A participant from the TKH group stated:

> Sit back and watch. To be even more appreciative of our ceremonies, our songs. Because I have a lot of friends and, through social media, 'Well I miss going to ceremony, I miss going to powwows, I miss going to gatherings and I miss doing

> these kind of things'. But, would we have appreciated those? As much as they just continued, right now we have this opportunity to kind of sit back like, 'Dang, I really miss going over here and hearing so-and-so thing, or talking to so-and-so'. Even in a smallest setting, just being able to see your parents or your grandparents, and just taking that step back. We are always told to appreciate what you have, and that's hard to do when it's right there in front of you all the time. But I always think about those kinds of things. –TKH participant

A final exemplar was given by a participant in the EDU group:

> Well, to me to me, [being humble, offering] is again taking care of oneself and others around you, whether they're… whether or not knowing if you're if they're going to be OK or not, I mean, just acknowledging them, is [being humble and offering], you know, lifting them up spiritually. I may not know what they're going through. It's what I was taught, whoever it is [always acknowledge them], let them know that you're thinking about them or give them some kind of good insight. [Are you up and walking about?], they acknowledge when they're like that. So, to me, that's how I would say that in [my Indigenous language]. –EDU participant

Healthcare

Healthcare focuses mainly on Western healthcare and self-help. Healthcare, in the context of this analysis (regarding strategies), focuses mainly on the strategies participants used to support their mental health during the pandemic. When discussing access to healthcare, EDU participants searched for resources that were beneficial for themselves and their students. FRSP participants described that being able to help others instilled a sense of pride and helped support their positive mental wellbeing. TKH participants placed emphasis on keeping themselves well mentally so they could continue to be of services to others**.**

> It seems selfish, but I want to make sure that I'm in a good way so that I'm projecting that good positivity towards others and making sure that I'm able to be of service to others and do it in that right way. I make sure that I address my issues. I know what helps me, I know what keeps me calm or helps me work things out. And so, then I practice those, I like fishing, something you can do by yourself and you can sit there and you can work out some issues or you just chill and when you come

back, you might not have anything. It might not have caught anything physically but got some happiness in the process. –TKH participant

DISCUSSION

IDOH that Shaped Mental Wellbeing During the Pandemic

The COVID-19 pandemic has had devastating impacts but also sparked innovative societal changes and illuminated the resilience of communities worldwide. Using qualitative data from first responders, the recovery community, educators, and traditional knowledge holders/ practitioners in three Indigenous communities in Arizona, this study aimed to identify IDOH that shaped mental wellbeing and, in turn, resilience during the COVID-19 pandemic. Specifically, the approach focused on how the IDOH shaped mental health impacts of the pandemic in a negative or positive way and how the IDOH contributed to strategies used to maintain mental wellbeing during the pandemic. The analysis resulted in the identification of four main IDOHs that impacted mental wellbeing for our participants: cultural continuity; relationships, collectivism, and kinship; self-determination; and mental health. Although research on Indigenous community experience during COVID-19 is limited, key findings for discussion can be related to research literature regarding first responders, recovery community, educators, and traditional knowledge holders/practitioners' experiences during COVID-19.

Cultural continuity has been increasingly recognized in the research literature as an IDOH (Auger, 2016), although it has been viewed as such in Indigenous communities since time immemorial. In the context of COVID-19, a 2022 study with Indigenous peoples in Canada identified culture as a strength during COVID-19 (Watson et al., 2022). Participants acknowledged that COVID-19 had both positive and negative impacts to cultural continuity, specifically reenforcing land-based connections and cultural relationships (Watson et al., 2022). Findings from Watson et al (2022) are consistent with our findings. Participants in our study described the devastating loss of in-person cultural ceremonies and the passing of Elders (due to COVID) in the community, while also acknowledging that being home with family and connecting virtually allowed them to create new ways for cultural practices to grow. Additionally, participants reiterated that adhering to cultural practices and teachings supported their mental wellbeing throughout the pandemic.

Similar to cultural continuity, relationships, collectivism, and kinship structures are IDOHs that have supported the resilience of Indigenous communities. COVID-19 directly impacted cultural continuity with rapid increases in death and sickness that altered kinship systems and discouraged collectivist efforts to provide in-person support. Several studies have recorded Indigenous perceptions of changes to relationships that occurred due to the COVID-19 pandemic (Kennedy et al., 2022; van Doren et al., 2023). For example, two qualitative studies with Indigenous peoples of Alaska and Australia, respectively, reported major disconnections between family, community, and the environment and changes to their ability to provide for family members and connect with others in the community through cultural gatherings (Kennedy et al., 2022; van Doren et al., 2023). This study in Arizona extends these findings to describe not only the negative impacts of COVID on relationships, but also strategies used by participants to rely on relationships as a source of strength. Participants felt an increased sense of responsibility to provide for others during the pandemic, sometimes going out of their way to provide emotional, physical, or social care for their family members or other members of their community. Relationships were not only addressed by all subgroups but, in the context of this analysis, was the IDOH most frequently mentioned by all groups relative to disruption and strength.

Self-determination is a determinant of health for Indigenous communities and refers to sovereign political determination. Self-determination allows Indigenous communities to make political decisions for their community. These political decisions may differ from decisions of local or state governments. Indigenous communities across the globe and nation leveraged self-determination to protect their communities. In Guyana, the Indigenous village chiefs (*Toshaos*) chose to adhere to a balance of government policies and traditional practices to maintain wellbeing during COVID-19 and also established physical barriers to prevent entry into their communities (Chand & Thomas, 2021). Establishing barriers to entry as a form of community protection was also a tactic used by tribes in Montana (Faur & Broom, 2020). Also, similar to this work with Arizona tribes, *Toshaos* exercised self-determination by allowing cultural practices to continue even if they were not in compliance with government policies (Chand & Thomas, 2021). This research resonates with our findings that traditional knowledge holders/practitioners continued to hold healing ceremonies despite tribal governments established policies of immediate lockdowns to ensure community members were safe physically, culturally, and economically.

Finally, this study sought to record the impacts to mental health felt by Indigenous people during COVID-19. Access to health care services can be complicated for Indigenous communities

and lack of access to health care has led to disparities in mental health outcomes that were exacerbated during the pandemic (Lopez et al., 2021). In 2021, Indigenous people in the U.S. had a higher prevalence of mental health-related emergency department visits than other racial and ethnic groups (Anderson et al., 2022). Findings from this study contextualize the alarming statistics reported on Indigenous mental health by describing the impacts felt due to death, discontinuation in cultural gatherings, fear and uncertainty, and increased job-related stress. Despite an increase in negative mental health impacts, Indigenous people demonstrated resilience and worked together to improve mental wellbeing through self-awareness, prayer, meditation, and helping others.

Limitations

While this study had many strengths, there were some limitations that should be noted. First, this study included a small subset of three nations from the over 570 federally recognized tribal nations. Furthermore, the study was limited to Native nations within one geographic region of the U.S. Southwest. In addition, among the four identified subgroups of the participating tribal nations, the number of interview respondents and talking circle participants was small. Finally, not all study participants were American Indian or Alaska Native, as some non-Native respondents who were working for the tribes participated in the study. These limitations may have implications for the results. For example, very remotely located tribal communities in other areas of the country or tribal nations with differently organized leadership may have experienced COVID-19 dissimilarly than the individuals from Native nations participating in this study; therefore, a similar study conducted in a different area of the country might yield very different results than this study.

Strengths/Future Research

Despite these limitations, this is the first study that we are aware of that has examined the impact of the COVID-19 on the wellbeing of Native peoples in the U.S. through a framework of Indigenous Nation Building and IDOH. Indigenous Nation Building is centered in our multifaceted and interdisciplinary approach to learn from each stakeholder group to inform tribal sovereignty and respond to a pandemic crisis through the lens of the Indigenous community. Findings from this study will be shared at the local level through presentations with collaborating and stakeholder organizations; local recovery groups, treatment centers, and individuals in recovery; K-12 and higher education educators and administrators; directors of first responder agencies; traditional medicine people; and elected community leaders. Resource maps have already been produced to

promote service availability and to advocate for research and resource expansion in the region. Thus, this community-engaged study provides the foundation for future intervention-based studies with the participating Native nations to address mental well-being and to enhance community resilience. It also has the potential to lay the groundwork for future studies addressing Indigenous mental health, well-being, and resilience in other communities during a global crisis. Finally, a unique strength of this study was the fact that our research team consisted of predominantly Indigenous scholars representing at least 8 tribal communities and nations in the United States and other non-Indigenous colleagues with many collective years of experience working with Indigenous peoples. Our intentionality of linking Indigenous researchers with Indigenous communities to understand the role of IDOH on mental wellbeing and resilience during a pandemic exemplifies the value and importance of the practice to build trust and mutual respect among communities, Native nations, and the academic community.

CONCLUSION

Although several studies have highlighted the negative impacts of COVID-19, this qualitative study tells the story from a large cross-cutting sample of Indigenous peoples in the United States who had different front-line responsibilities during the pandemic. This study aimed to identify IDOH that shaped the mental wellbeing of educators, first responders, the recovery community, and traditional knowledge holders/practitioners in three Indigenous communities. Although each group has a unique set of duties, similarities between groups speak to the interconnectedness of Indigenous peoples globally, what they experienced during the pandemic, and strategies they used to maintain resilience.

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CONFLICT OF INTEREST

The authors have no conflicts of interest to report.

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Exploring Definitions, Correlates, and Solutions to Food Insecurity during COVID-19: A Mixed Methods CBPR Study with the Baltimore Native Community

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Abstract: *A mixed methods community-based participatory research study was conducted with Native American Lifelines of Baltimore to: (1) understand prevalence, correlates, and lived experiences with food insecurity and (2) explore the effects of and potential solutions to food insecurity. An online survey was completed by 250 American Indian and Alaska Native adults, and a subset of survey respondents (N=11) completed interviews. Quantitative analysis revealed food insecurity prevalence of 28% and increased odds of food insecurity with higher levels of food stress and COVID-19 hardships. Qualitative inquiry revealed harmful long-term effects of food insecurity on eating behaviors and several food sovereignty-oriented solutions to food insecurity.*

INTRODUCTION

Since time immemorial the health and well-being of American Indian and Alaska Native (AI/AN) peoples has been supported by their reciprocal relationships with their environments (Satterfield et al., 2016; Devens, 1992). The arrival of settlers and onset of settler colonialism complicated these relationships through rapid changes to land and waterscapes and, in many cases, forced removal to reservations, often in unfamiliar territories (Joos, 1984; Satterfield et al., 2016; Devens, 1992; Cave, 2003; Bowes 2014; Bowes, 2016). Settler colonialism damaged ecosystems and disconnected AI/ANs from their food systems, homelands, and traditional food practices (e.g., hunting, cultivation, foraging of wild foods), limiting the ability of AI/ANs to pass on ecological knowledge to future generations (Warne & Wescott, 2019; Kuhnlein & Receveur, 1996; Conti, 2006). Disruption of traditional food practices caused food insecurity and increased reliance on government food rations, now referred to as the Food Distribution Program on Indian Reservations (FDPIR; Warne & Wescott, 2019). The disruption of AI/AN foodways, damage to environments, and policies of AI/AN removal and relocation (i.e., The Indian Relocation Act of 1956; Madigan, 1956) resulted in historical traumas and continued threats to food access and food security for AI/AN peoples (Satterfield et al., 2016). As a result of these practices and policies, as well as growing appeal of urban locations (e.g., for education and employment opportunities), the majority (76%) of AI/ANs now reside in urban areas (US Census Bureau, 2022), where the prevalence and experiences of food insecurity among AI/ANs are not well studied.

Food security, as defined by the US Department of Agriculture (USDA), is having adequate and consistent access to enough foods to live an active and healthy lifestyle (Coleman et al., 2020). Food insecurity (the opposite of food security) is an important determinant of health associated with increased risk for chronic health conditions including hypertension and type 2 diabetes (Abdurahman et al., 2019; Seligman et al., 2010), as well as poor dietary quality (e.g., low fruit and vegetable intake, high consumption of calorically dense foods; Leung et al., 2014; Heut, Rosol, & Egeland, 2012). Further, food insecurity has been associated with poor mental health (Wright et al., 2021), including symptoms of depression and anxiety (Leung et al., 2015; Sundermeir et al., 2021). Existing food security inequities were exacerbated by the effects of the COVID-19 pandemic (Lauren et al., 2021). In the United States, the COVID-19 pandemic resulted in

economic challenges (e.g., loss of employment), supply chain shortages, unprecedented demand for food assistance, and complications with safely accessing adequate foods, all of which increased risk of food insecurity even for previously food secure individuals (Lauren et al., 2021; Wolfson and Leung, 2020). A study of low-income adults during COVID-19 found that food insecure individuals were less likely to be able to comply with recommendations to purchase two weeks of food at a time and were more likely to experience COVID-19 hardships, like being laid off, reduced work hours, and not having enough money to pay bills (Wolfson & Leung, 2020).

Today, as a result of settler colonialism and systemic racism, food insecurity disproportionately affects AI/ANs (DeBruyn et al., 2020). A scoping review of food insecurity among AI/AN communities found estimates of food insecurity ranging from 16-77%, with variation in prevalence by Tribal nation, household characteristics, and rurality of residence (Nikolaus et al., 2022). A national analysis of Current Population Survey data found evidence that urban AI/ANs were more likely to experience food insecurity than their rural AI/AN relatives (Jernigan, 2017). However, the 2022 systematic review found inconsistent evidence of rural and urban differences, potentially due to a smaller number of studies focusing exclusively on urban AI/AN food security (Nikolaus et al., 2022). AI/AN communities and scholars have expressed concerns about the way food security is conceptualized and measured, and whether these mainstream definitions and measures align with their worldviews and priorities (Cidro et al., 2015; Sowerwine et al., 2019; Nikolaus et al., 2022; Maudrie, Clyma, et al., 2024; Maudrie, Caulfield, et al., 2024). Traditional and cultural foods hold deep spiritual and relational importance for many AI/AN communities, yet the spiritual and relational significance of access to these traditional foods and food practices are not considered in mainstream definitions and measures of food security (Cideo et al., 2015; Sowerwine et al., 2019; Maudrie, Caulfield, et al., 2024). In response to these limitations, scholars and AI/AN communities have called for the development of more holistic, culturally relevant measures of food security that recognize the importance of traditional food practices, food sovereignty, and the interconnections between food, identity, and well-being (Cidro et al., 2015; Maudrie, Caulfield, et al., 2024; Nikolaus et al., 2022). Efforts to develop such measures have emerged, including community-driven food security assessments that center Indigenous knowledges and priorities (Sowerwine et al., 2019), yet standardized measures that adequately capture AI/AN food security remain lacking. Addressing these gaps is critical to ensuring that food security research and policy better reflect the lived realities and needs of AI/AN communities.

Urban and rural AI/ANs face many of the same health challenges, however, social inequities unique to the urban AI/AN experience further complicate the health needs and challenges of urban AI/ANs (Weaver, 2012; Maudrie et al., 2021). Examples of challenges faced by urban AI/ANs include extremely underfunded and often inaccessible healthcare, invisibility in data and as a cultural group within cities, and decreased access to cultural resources (Urban Indian Health Commission, 2007; Maudrie et al., 2021; Weaver, 2012; Trahant, 2018). Further, many urban AI/AN peoples are unable to access food support programs specifically for AI/AN peoples, including FDPIR (Maudrie et al., 2021; Castor et al., 2006). The COVID-19 pandemic complicated many existing health challenges for urban AI/ANs, including food security, mental health, stress, and access to healthcare and medications (D'Amico et al., 2020; Cordova-Marks et al., 2020). A study of urban AI/ANs across Alaska, Kansas, Minnesota, and New Mexico found that 38% experienced food insecurity during the COVID-19 pandemic, underscoring the pandemic's significant impact on food security in urban AI/AN communities (Nelson et al., 2024). Despite the many food access challenges faced by AI/ANs, during the COVID-19 pandemic the food sovereignty efforts of AI/AN communities have captured national attention as a potential solution to food insecurity (Maudrie et al., 2023). Food sovereignty was originally defined in the Declaration of Nyeleni as "the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems" (Sélingué, 2007). Food sovereignty has a rich history in Indigenous communities and demonstrates the "survivance" and resilience of Indigenous food systems, even in the face of the COVID-19 pandemic.

As defined by Vizenor, an Anishinaabe writer, "Survivance is an active sense of presence, the continuance of native stories, not a mere reaction, or a survivable name. Native survivance stories are renunciations of dominance, tragedy and victimry" (Vizenor, 2009). Despite numerous challenges, urban Native communities embody survivance as they flourish in spaces designed to exclude and ignore their very existence (Vizenor, 2009). One such community is the Baltimore Native community, composed of nearly 25,000 AI/AN peoples living in the Baltimore metro area (Urban Indian Health Institute, 2018). Like all cities in the United States, Baltimore has been home to AI/ANs since time immemorial; however, in the last 100 years, many AI/ANs have moved to Baltimore for varying reasons (McLeod, 2017). Although Baltimore was never designated as relocation city under the Indian Relocation Act of 1956, many AI/ANs moved to Baltimore in search of jobs and education (McLeod, 2017). Today the Baltimore Native community represents

over 100 distinct Tribal affiliations. In addition to their tribal affiliations, members of this community often proudly claim "Baltimore Native" as a sign of their belonging to a community that does not replace their individual Tribal identities, but builds upon their kinship ties (Fixico, 2000). Despite anecdotal observations of behaviors that indicate food insecurity, there are no published food security data specific to the Baltimore AI/AN community.

This paper describes a sequential explanatory mixed methods community based participatory research (CBPR) study conducted in partnership with Native American Lifelines (NAL), an urban Indian Health Program in Baltimore. The purpose of this study was twofold: (1) to examine the prevalence, correlates, and lived experiences of food insecurity among Baltimore AI/ANs during the COVID-19 pandemic, and (2) to explore the impacts of food insecurity and identify potential solutions, including food sovereignty, for AI/ANs in Baltimore.

MATERIALS AND METHODS

In early 2019, author Tara Maudrie and NAL formed a research partnership. Through this partnership, food security was identified as a priority for action and a CBPR study was planned. The details of this partnership and the effects of the COVID-19 pandemic on the methodology of this study are described elsewhere (Maudrie, Nguyen, et al., 2022). The study employed a sequential explanatory mixed methods study design, in which an initial quantitative inquiry is followed by a qualitative exploratory phase that expands on quantitative findings (Ivankova, Creswell, & Stick, 2006). Participants provided written or oral consent and human subjects approval was granted through the Johns Hopkins University Institutional Review Board (IRB: 00013176) and community partner approval through a memorandum of understanding between Tara Maudrie and NAL.

Phase 1: Quantitative Survey

Survey Participants

Participant recruitment occurred from February to March of 2021. Due to the ongoing COVID-19 pandemic precautions (e.g., physical distancing, virtual events rather than community gatherings), participants were recruited with phone calls from a contact list (provided by NAL) or through a survey link distributed through NAL's social media. Inclusion criteria included: 1) being a self-identified member of an American Indian or Alaska Native Tribe, 2) being an adult (over

the age of 18), and 3) living in Baltimore City or the Baltimore metro area (within 50 miles of Baltimore City).

Measures

Food Security. Food security was assessed using the 10-item U.S. Department of Agriculture's Adult Food Security Survey Module (USDA, 2012). The 10-item survey module assesses a household's ability to acquire food and food conservation behaviors they may have engaged in over the last 30 days. This module categorizes participants' food security status as: High Food Security, Marginal Food Security, Low Food Security, and Very Low Food Security. In line with food security literature and reporting mechanisms (USDA, 2012), we combine high food security and marginal food security to represent being "food secure," while low food security and very low food security were combined to represent "food insecure." Food secure was coded as "0," while food insecure was coded as "1."

Food Stress. To obtain a more holistic understanding of individual's psychosocial relationship with food, we also assessed food stress as both a proxy for and an expansion of the concept of food security that was culturally adapted with Midwest Native communities (Maudrie, Aulandez, et al., 2022). Participants were asked if in the last 30 days if there "was not enough money for food," "the kinds of food I wanted were not available," "there was not enough time for shopping or cooking," and "it was hard to get to the store." Participants were given the response option of "No" (0) and "Yes" (1). These four items were summed into an index with higher scores indicating higher levels of food stress; responses ranged from experiencing 0 food stressors to 4.

COVID-19 Hardships. COVID-19 hardships were assessed using two questions from a national food insecurity web-based survey of adults (Wolfson & Leung, 2020). First, participants were asked, "During the early stages of the pandemic there was a general recommendation to purchase 2 weeks' worth of food at a time. Were you able to comply with recommendations to purchase two weeks' worth of food throughout the pandemic?" Participants were able to respond "No" (1) or "Yes" (0). Participants were also asked if they encountered any of the following challenges due to the COVID-19 pandemic: limited availability of household items (toilet paper, sanitizer, etc.), reduced access to healthcare, reduced access to medications, inability to pay bills, inability to pay rent or mortgages, difficulties working due to lack of childcare, inability to work due to them or a family member contracting COVID-19, inability to work due to illness other

than COVID-19, or none of the above. All responses, except for none of the above (which was coded as 0), were summed to give an overall indication of the number of COVID-19 hardships a person experienced. For analytic purposes, COVID-19 hardships were categorized into: No COVID-19 hardships (reported 0 hardships; coded as 0), Minimal COVID Hardships (reported 1 hardship; coded as 1), Moderate COVID Hardships (reported 2 hardships; coded as 2), and Severe COVID Hardships (reported greater than 3 hardships; coded as 3).

Sociodemographic characteristics. Participants were asked about their gender identity (male, female, non-gender binary, Two-Spirit), highest level of educational attainment (less than high school, high school diploma, high school equivalency degree or General Education Diploma, some college or vocational school, college graduate, advanced degree), household size, total household income in the last year, current employment status (working full time 35 hours or more per week; working part time less than 35 hours a week; unemployed or laid off and looking for work; unemployed or laid off and not looking for work; in school/student; retired; disabled and not able to work), and types of food sources utilized including food support programs (e.g., Supplemental Nutrition Assistance Program [SNAP], Special Supplemental Nutrition Assistance Program for Women, Infants, and Children [WIC], food pantries), subsistence practices (hunting, fishing, foraging, gardening), and food stores (grocery stores, gas stations, convenience stores).

Analyses

Prevalence of food insecurity was reported as a proportion of total respondents. Unadjusted and adjusted logistic regression models were used to assess correlates of food insecurity. Our model included the predictors: age, income, gender (compared male to female as reference group; 6 individuals identified as non-binary or Two-Spirit but were not included in logistic regressions), household income, educational attainment (compared to high school, GED, or less), COVID-19 hardships, and food stress. All factors were assessed in an unadjusted (Model 1) and adjusted models (Model 2: Adjusted for demographics; Model 3: Adjusted for demographics and COVID-19 hardships; Model 4: Adjusted for demographics, COVID-19 hardships, food stress, and food sources). All analyses used a significance level of $\alpha = 0.05$. The results of the logistic regression analysis are displayed using Odds Ratios (OR) and 95% confidence intervals. Analyses were conducted using Stata16 (StataCorp, 2019).

Phase 2: Qualitative In-Depth Interviews

Interview Participants

Eleven ($N = 11$) AI/AN adults who participated in the quantitative survey were selected to represent all four levels (very low, low, marginal, and high) of food security to participate in in-depth interviews. Participants were randomly selected from each of the four categories of food security. Participants were contacted via telephone from the contact information they provided in the quantitative survey.

Data Collection

As part of our CBPR process and in alignment with CBPR principles of co-learning and collaborative partnership, the interview guide used to facilitate in-depth interviews was developed with NAL (Israel et al., 2017). The interview guide included questions about experiences with food insecurity, food sovereignty, and other food-related issues and were informed by our community partner's observations of food insecurity-related behaviors (see Maudrie, Nguyen, et al., 2022 for full interview guide). NAL specifically was interested in understanding how community members conceptualized and understood food sovereignty to guide their ongoing program efforts. The lead author performed all interviews virtually via video conference in alignment with the COVID-19 precautions and preferences of our community partner and the Johns Hopkins University IRB at the time of data collection. While the broader interview questions remained the same, adaptive probing was used to explore each participant's experience, consistent with a semi-structured interview guide format. To ensure that the interviewer and interview participant had a mutual understanding of food security throughout the conversation, participants were asked to explain how they defined food security. After participants explained how they defined food security, the interviewer read the USDA definition of food security (USDA, 2022). Informed verbal consent was obtained from all participants prior to the interview. Throughout the data collection and analytic phases, the lead author composed memos to capture important themes, identify areas for future exploration, and to practice relational reflexivity.

Analyses

Qualitative thematic analyses utilized an applied content analysis approach with a mixture of deductive and inductive coding in alignment with commonly used mixed methods qualitative analytic approaches (Fereday & Muir-Cochrane, 2006; Proudfoot, 2023). The lead author

developed initial deductive codes using major components of the quantitative survey and significant observations from analytical memos. Authors Tara Maudrie & Maisie Conrad then coded three transcripts using the first draft of the codebook, while also open (inductive) coding to capture themes outside of the original codebook. The final draft of the codebook was then discussed with senior members of the research team (Victoria O'Keefe and Joel Gittelsohn), and the remaining transcripts were coded by lead author Tara Maudrie. Following focused coding, codes were grouped into similar concepts which became the basis of the qualitative themes. In line with AI/AN storytelling values and to preserve the context of participant experiences, a narrative approach is used to present qualitative findings specific to the experience of food insecurity (Blodgett et al., 2011; Quayle & Sonn, 2019), while the remainder of qualitative findings are presented thematically.

Reflexivity

In the spirit of qualitative research reflexivity and Indigenous protocols of accountability, we offer the following context for the authorship team of this paper and research study. The lead author, Tara Maudrie is an enrolled citizen of the Sault Ste Marie Nation of Chippewa Indians, who has been an urban Native person most of her life. Throughout the design, implementation, and subsequent analyses of this study, she was guided by deep respect and care for the Baltimore AI/AN community, who have welcomed her into their community with open arms and hearts. Her analyses and interpretations of the qualitative data was guided by her education and experience in qualitative research methodologies, as well as the cultural teachings and values she carries with her. Cassandra Nguyen is a White non-Indigenous woman who works on food security research and outreach efforts and whose role is to support her Indigenous colleagues in advancing food sovereignty, health, and wellbeing among AI/ANs. Dane Hautala is a white non-Indigenous man who works with Indigenous communities and organizations around building capacity for collecting, analyzing, and using quantitative data. Maisie Conrad is a non-Indigenous researcher with previous experience working in health equity research with Indigenous communities. Victoria O'Keefe is a Cherokee Nation citizen and member of the Seminole Nation of Oklahoma, who served as Tara Maudrie's PhD advisor. Her community and cultural values continuously shape her life as a Cherokee/Seminole woman, as well as her community-based work as a researcher and Clinical Psychologist. Valarie Blue Bird Jernigan is an enrolled citizen of the Choctaw Nation of Oklahoma, a Professor of Medicine, and an

intervention scientist focused on food sovereignty within Indigenous communities. Kerry Hawk Lessard is the Executive Director of Native American LifeLines and an applied medical anthropologist focused on the impacts of historical trauma on urban AI/AN health outcomes. She is the descendant of an Assiniboine (Ft Peck) Carlisle Indian Industrial School graduate, and her desire to honor and heal that legacy informs her work. Jessica Dickerson is an enrolled member of the Lumbee Tribe of North Carolina, as a Licensed Master Social Worker, she is devoted to serving Native communities in Baltimore and beyond through advocacy and trauma-informed care practices. Joel Gittelsohn is a mixed-race man who has worked in rural Native communities for most of his 30-year career as a researcher and served as Tara Maudrie's advisor during her Master of Science in Public Health program.

RESULTS

Quantitative Results

Over a quarter of the sample (28%) reported food insecurity at the time of survey (9.6% reported very low food security and 18.4% reported low food security). Of the majority who reported being food secure (72%), nearly all reported high food security (69.2%) and a small proportion reported marginal food security (2.8%). Basic demographics of survey participants are presented by food security status in **Table 1**.

In unadjusted models, greater number of COVID hardships and food stress increased the odds of food insecurity, while age and engaging in food subsistence practices decreased the odds of food insecurity. In Model 2, all demographic characteristics were simultaneously entered into the model. Age and higher levels of education, relative to high school/GED, decrease the odds of food insecurity, while income increased the odds of food insecurity. In Model 3, adding COVID-19 hardships, identifying as male and experiencing a greater number of COVID-19 hardships significantly increased odds of experiencing food insecurity, while age significantly decreased odds of experiencing food insecurity. In Model 4, adjusted for all variables, experiencing COVID-19 hardships and food stress increased the odds of food insecurity, while age and food subsistence practices decreased the odds of food insecurity. Logistic regression results are presented in the Appendix, Table A1.

Table 1
Characteristics of the Baltimore urban AI/AN sample by food security status (N = 250)

Sociodemographic factor	Total n	Food Insecure n (%)	Food Secure n (%)
		70 (28.0)	180 (72.0)
Age in years, *Mean (SD; Range)*	35.4 (7.1; 18-66)	29.6 (5.6)	37.6 (6.3)
Gender[a]			
Male	141	41 (29.1)	100 (70.9)
Female	103	26 (25.2)	77 (74.8)
Two Spirit/non-gender binary	2	1 (50)	1 (50)
Education[b]			
Less than high school, high school, GED	70	24 (34.2)	46 (65.7)
Some college, trade or technical school	66	13 (19.7)	53 (80.3)
College graduate or graduate school	109	32 (29.4)	77 (70.6)
Income[c]			
Less than $20,000	19	17 (89.5)	2 (10.5)
$20,000-$29,999	40	7 (17.5)	33 (82.5)
$30,000-$39,999	71	11 (15.5)	60 (84.5)
$40,000-$49,999	44	2 (4.5)	42 (95.5)
$50,000-$59,999	36	6 (16.7)	30 (83.3)
Greater than $60,000	31	23 (74.2)	8 (25.8)
Employment[d]			
Unemployed, student, homemaker	29	12 (41.4)	17 (58.6)
Part time employment	87	10 (11.5)	77 (88.5)
Full time employment	128	45 (35.2)	83 (64.8)
COVID-19			
Inability to purchase 2 weeks' worth of food at a time	180	33 (18.3)	147 (81.7)
No COVID hardships	47	3 (6.4)	44 (93.6)
Minimal COVID hardships	34	10 (29.4)	24 (70.6)
Moderate COVID hardships	127	21 (16.6)	106 (83.5)
Severe COVID hardships	42	36 (85.7)	6 (14.3)
Food Sources[e]			
Subsistence practices (gardening, hunting, fishing, foraging)	61	10 (16.4)	51 (83.6)
Nutrition support programs (SNAP, WIC, food pantries)	93	28 (30.1)	65 (69.9)

[a] 4 individuals missing gender data
[b] 5 individuals missing education data
[c] 9 individuals missing income data
[d] 6 individuals missing employment data
[e] Expressed as percentage of participants who reported using that food source by food security status

Qualitative Results

In-depth interviews were conducted with 11 participants, who represented 8 Tribal affiliations, with several participants representing more than one Tribal affiliation. These participants also represented a range of current employment statuses and a diversity of income

levels. Interviewee ages ranged from 19-66 years of age (average = 38 years of age). These participants also represented a range of food security categories (n = 3 very low food security, n = 2 low food security, n = 1 marginal food security, n = 5 high food security). Our qualitative results are presented in two major sections; first, we present lived experiences with food security, and secondly, we present community-generated food sovereignty priorities.

Lived Experiences with Food Security

Following in the rich tradition of Indigenous storytelling and narrative approaches used in qualitative research (Sandelowski, 1991; Barton, 2004), findings related to lived experiences with food security are presented through a narrative approach, highlighting the stories of two participants, one participant was identified as food secure (marginal food security) at the time of the survey, while the other was identified as food insecure (very low food security). This approach was used as the perspectives offered by each of these participants build on their previous responses and to tell a story of how their perceptions of food security are informed by their own experiences with food insecurity. However, it is important to note that the themes demonstrated by these two participants aligned with perspectives shared by other qualitative interview participants.

Participant 1: Very Low Food Security. Margaret (pseudonym) was in her early thirties at the time of her interview. She described that she grew up close to her Tribal reservation in another state and moved to the Baltimore metro area in adulthood. In early 2021, she was classified as having very low food security based on her responses to the USDA food security module (USDA, 2011), and she described multiple prolonged experiences with food insecurity throughout her childhood and adolescence. When describing how she conceptualized food security, she focused on the concept of socially acceptable ways to gather food as defined by US society and how her conceptualization as an AI/AN person differed from societal definitions. She said, “It's commonly known that the cheapest way you can eat is going to McDonald's. . . I think if you feed your kids McDonald's, it's not really socially acceptable. You would be shamed for that, despite the fact that that may be the only thing you can afford. . .It would not be socially acceptable if I were to stop somewhere in Maryland on the side of the road or the street and pick stuff, I would go as far as saying if you’ve run over a deer there's no point in wasting it. . . I didn't even know until recently, that people call it foraging. And I'm like, no, that's just like getting food. Like why does it have to be labeled foraging?”

Throughout the interview, she discussed a lack of healthy food availability and the long-term effects of food insecurity on her eating behaviors and long-term food acquisition habits. Despite her mother's attempts to access Tribal food programs and mainstream nutrition support programs (e.g., SNAP, WIC), they often relied on family members to provide food for them. She described feeling the need to pay retribution for the unhealthy foods that made up most of her diet through food restriction. She shared, "When I was in middle school [and experiencing self-described food insecurity], I simply, I was not eating at all. . . When I got the opportunity to eat [during times when others would provide them food] I would do it more probably than I should. . . I probably had some sort of eating disorder, where I just did not eat for a while at a time. . . That used to be the value that I had back then, just don't eat because I'm eating all these unhealthy foods, I need to counteract that by not eating at all." She described the lasting effects of food insecurity on her food acquisition habits by saying, "And I would also say that the effects of that [experiencing food insecurity] lingered, rationing even until now. . . I do find myself buying food more than anything because I can. I can finally go out and buy all those things that you know, I never could afford when I was younger, so I buy foods that I want now. Rationing is still something that I do to kind of save money. . . It has definitely had a lasting effect. . . It's really about keeping in mind when I get paid next. And how can I make my food last as long as possible without having to go and buy more."

Participant 2: Marginal Food Security. Jane (pseudonym) was in her early twenties at the time of her interview, also grew up near her home Tribal reservation in a different state and moved to Baltimore in her teenage years, and also described shortcomings of the USDA definition of food security (USDA, 2022b). She said, "I think food security. . . I think it should be more than just like a caloric needs met. . . It should also include culturally relevant foods, but I know that food security isn't always connected to culturally relevant foods. . .The whole cultural aspect is, like we [my people] have creation stories for certain crops and things, so making sure that our food is safe for the sake of the food and not just for our sake is important." Sharing a memory from her childhood, which she self-described as being consistently food insecure, she discussed how as a child her hunger and fullness cues were not respected by well-meaning adult caregivers. She said, "I even remember this in my own daycare, if you finished your whole plate, you were celebrated and like, you're really encouraged to finish your whole plate. But like kids. . . the kids have those. . . satiety cue[s]. They haven't lost it yet. It's like innate for them. So they stopped eating when they're full, but they basically get bullied into eating the whole plate and then they get celebrated

for it." She went on to describe the long-term impacts of experiencing food insecurity in childhood and adolescence, explaining that experiencing food insecurity and familial pressure to overeat food when it was available impacted her ability to regulate her hunger and fullness, and that her concern for the environment impacted her eating behaviors. "I have a tendency to want to finish everything on my plate, regardless of whether I'm full. . . because like my family would always say, you know, we, you have to be thankful for this food, so you have to eat it. . . It's something that I've actually been like struggling to try to acknowledge and address in myself because I don't want to overeat, it hurts. It doesn't feel good, but I just have it ingrained in my mind. I'm like, you're being wasteful. This is not good for the environment." Similar to the previous participant, Jane described the long-term impacts of food insecurity on her eating behaviors; however, this participant illuminated that her experiences encouraged over-eating behaviors linked to her concern and connection to the environment.

The two participants represented above provide insight into the long-term psychological impacts of coping with food insecurity that were not captured through our quantitative survey. Participants described disconnection from their hunger and satiety cues and struggling to maintain healthy relationships with food long-term, either emphasizing urges to restrict and ration foods, or to overeat as to not waste foods. Further, participants clearly articulated how their conceptions of food insecurity as AI/AN peoples diverged from the USDA definition (USDA, 2022). Therefore, this suggests the USDA food security module (USDA, 2012) may not capture aspects of food security that are important to this urban AI/AN community.

Community-Generated Food Sovereignty Priorities

Our community research partner, NAL, was particularly interested in generating solutions to food insecurity and to understand community priorities for food sovereignty to inform their programming. Participant suggestions from the 11 in-depth interviews were distilled into three themes, presented using the three sisters growing analogy. The Three Sisters, corn, beans, and squash, are a complementary growing technique used by many AI/AN peoples. The reciprocity-based relationships demonstrated by the Three Sisters illustrate that each individual component of the system provides unique strengths and encourages mutual flourishing for the entire system. Similarly, the three priorities offered by participants share synergy for simultaneously addressing food security and food sovereignty.

Cultural Food Access (Corn). The first identified priority was cultural food access, which is represented by corn. Corn grows straight and tall and provides a structure for the beans to grow on so that they are not competing for space and sunlight among the squash vines. Just as corn provides structure and strength for the system, cultural food access has unique significance and importance for the Baltimore AI/AN community. A 32-year-old female participant (very low food security) described this by saying, "Recently in our Tribal newspaper, they started advertising seed[s] for heirloom crops. . . I think about like, how cool would it be to market growing your own food in the way that, 'Hey, um, we'll send you this seed so you can start learning how to grow this. And it'll be the same thing that your ancestors hundreds if not thousands of years ago ate'. To me, that the reason that's so fascinating, because that's something that you could stay connected to your Tribe through the food, even if you don't currently reside there right now." Cultural food access not only provides physical nourishment through food but a sense of belonging and connection that transcends geographic location.

Community Events and Education (Beans). The second identified priority was community events and education which represents beans within the three sisters system. Beans grow up the corn stalks, while fixing nitrogen in the soil, which enhances the availability of nutrients in the soil, not only for themselves but for their sisters' squash and corn. The same 32-year-old female shared, "There are people who are very talented at making traditional foods. . . So, you know, maybe like looking at some people['s] like talents and willingness to share as a way to kind of reinvigorate this motion towards food security, food sovereignty, whatever we want to call it. . . When I think about if I ever have kids, like I would want my own kids to know about the things I did with my grandma involving food. . . If I had a child in this area, I don't think that's something I could teach them easily." As described by project participants, community events and education efforts, including knowledge sharing, is reinvigorating for the overall goal of food security and food sovereignty and provides opportunities for intergenerational knowledge sharing.

Partnerships (Squash). The third identified priority was partnership with other community organizations, which represents the final sister, squash. As squash grows, it builds a long prickly vine with large broad leaves that cover the ground. The prickly vine and broad leaves help to protect the system from pests and to retain moisture in the soil, protecting the integrity of the system for mutual flourishing. A 47-year-old female identified at the time as having very low food security said, "I think it [food sovereignty] would look like partnerships with different community organizations, community neighborhood associations, churches, universities, other

businesses, coming together with [the] Indigenous community, where we would have better access to fresh foods, non-perishables, and things like that. On a regular basis, like you know once, twice a week and some places will do that. Like once or twice a year, they'll do something and you'll see the effect of that time. But then what happens after that? You know?" A 23-year-old female (marginal food security) expanded on the idea of community partnership by describing a potential partnership with the Black Food Security Network in Baltimore. She said, "So it [the Black Food Security Network] was kind of like a system that really benefited everybody and they do super amazing work. I think it would be really cool if like those farmers could also like re-introduce or introduce some like Indigenous crops into their fields and then sell those to like the black church food security network. And then we'd have like local traditional foods for anybody around who wants them and for Native people." Like the role of squash in the three sisters growing technique, partnership and kinship with other organizations provides protection for the Baltimore Native community by providing food relief for their community through existing structures. Participants expressed gratitude and thankfulness for the forms of food aid received throughout the pandemic including food boxes distributed through NAL's partnership with a Black food sovereignty movement (Maudrie et al., 2021), and local Tribal food drives. Many participants expressed that their conceptualization of food sovereignty included sustainable partnerships with other community organizations in Baltimore City, as well as re-matriation of Indigenous traditional foods through these partnerships.

DISCUSSION

Our mixed methods CBPR study revealed high levels of food insecurity, conceptions of food security among AI/AN peoples which differ from that proposed by the USDA, as well as harmful long-term effects of food insecurity on eating behaviors. While several previous studies have documented food insecurity in urban AI/AN communities, through both quantitative (Dong et al., 2023; Jernigan et al., 2017; Tomayko et al., 2017) and qualitative approaches (Stotz et al., 2022; Cidro et al., 2015), this study is one of few to utilize mixed methods to holistically understand the impacts of food insecurity and how to operationalize food sovereignty in an urban Native community. Although AI/AN populations have been disproportionately impacted both by COVID-19 and food insecurity (and food insecurity may have even been worsened during the pandemic), our cross-sectional study and a national study of AI/AN food security were not able to

directly link the impacts of the COVID-19 pandemic to food insecurity (Nelson et al., 2024). However, a study of food security on the Blackfeet Tribal Nation community found through a longitudinal study that food insecurity increased during the COVID-19 pandemic (John-Henderson et al., 2022). Our qualitative data illuminated conceptualizations of food security which incorporate access to traditional foods and the ability to participate in traditional food practices (including foraging, hunting, and growing). While our qualitative data provided rich insight into how food security impacts mental health and eating behaviors, our quantitative measures did not capture all aspects of food security (e.g., foraging; although hunting, fishing, and gardening were captured) that participants deemed as important. The four-item food stress measure may have captured aspects of food-related mental distress specific to food acquisition (e.g., money, time, access, availability) but did not assess psychological impacts of food insecurity.

Our sampling approach for qualitative interviews was designed to include participants experiencing food security as well as those experiencing food insecurity; however, most participants described being food insecure at some point in their life. This aligns with previous research showing that food security is a transient state for many individuals (Ryu & Bartfield, 2012; Liese et al., 2021). Participants expressed that experiencing food insecurity in childhood/adolescence continues to impact their mental health, eating behaviors, and food acquisition habits many years later.

While one participant acknowledged that their eating behaviors may have even been indicative of an eating disorder, other participants described disordered eating behaviors (e.g., binge-restriction cycles or restrictive behaviors) without naming them as such. The negative impact of food insecurity on disordered eating behaviors has been documented by previous research with non-AI/AN communities (Becker et al., 2017; Stinson et al., 2018) and remains a serious public health concern. Further, national data shows that during the COVID-19 pandemic there were large increases in the number of hospitalizations due to eating disorders and in eating disorder symptoms, potentially due to reduced access to care and treatment, and social isolation (Devoe et al., 2022). This is of particular concern for AI/ANs who already faced high rates of food insecurity, inadequate access to eating disorder treatment, and whose communities have long been the target of weight-focused concerns and interventions (Nikolaus et al., 2022; Hahn et al., 2023; Story et al., 2003; Broussard et al., 1991). Although data on eating disorders in AI/AN communities is limited, the long-term effects of food insecurity and eating disorders should be

explored and addressed in future interventions that consider the nutritional needs of individuals, but also their mental, emotional, and spiritual relationships with food.

In recent years, food sovereignty has been heralded as an answer to food insecurity and other food system inequities, but for many AI/ANs who live in urban spaces, it has been difficult to imagine food sovereignty for their communities, particularly for communities without a land base, like the Baltimore community (Maudrie et al., 2023). Community members have expressed uncertainty to our community partner about how food sovereignty could be operationalized in the context of an urban Native setting. Perhaps this uncertainty is in part due to the popular notion that food sovereignty means a community must be completely self-reliant (Hoover, 2017). However, other food sovereignty experts, knowledge holders, and researchers have challenged the over emphasis of self-reliance in food sovereignty movements (Shoemaker Interview, 2014; Maudrie et al., 2023; Nguyen et al., 2023). Participant perspectives on community priorities challenge commonly held definitions of food sovereignty by focusing on the ability of communities to care for one another rather than complete self-reliance. Our findings are aligned with other qualitative work in urban Indigenous communities which support that Indigenous food sovereignty can also be about reclaiming and reconnecting with land, and traditional and cultural food skills, as well as relationship building with one another (Cidro et al., 2016). Together, our findings on lived experiences with food security and community-generated food sovereignty priorities offer a path forward beyond the COVID-19 pandemic, providing broader insights into food insecurity and the impact of mental health on eating-related behaviors.

One major strength of this study is the mixed methods approach, which gave us a richer understanding of the impacts and experiences with food insecurity than quantitative or qualitative methods alone; however, there are some limitations to consider. Our recruitment approach was confined to social media and telephone for the quantitative survey because of the COVID-19 pandemic. In person recruitment was not possible given the stage of the COVID-19 pandemic in Winter and Spring of 2021, which shifted NAL's events from primarily in-person to virtual. This recruitment strategy may have unintentionally underrepresented Elders (who may not be comfortable using social media), as well as community members who may have limited telephone or internet access, and these special populations may be more vulnerable to food insecurity due to limited mobility or financial resources. Further, our use of non-probability sampling methods means our results may not be generalizable to all Baltimore AI/ANs, and our food insecurity estimates may not reflect the true prevalence of food insecurity in the Baltimore AI/AN

community. The USDA 10-item food security module used in our survey did not assess food insecurity for children in the household, which limits our ability to fully understand food security for all age groups. Our quantitative survey did not explore mental health or psychosocial relationships with food (beyond the 4-item food stress measure), but mental health and aspects of psychosocial nutrition came up repeatedly in interviews, indicating that mental health may intersect with food security and other food-related issues. Future studies should explore the intersection of mental health and food insecurity. Further, due to limited financial resources, only a portion of the qualitative transcripts were coded by multiple coders, which could have improved our qualitative rigor and internal reliability (Morse, 2015). Finally, the data presented in this paper were collected in 2021, and results should be interpreted with careful and thoughtful consideration of evolving social and economic contexts. However, we believe the perspectives shared by those with lived experience of food insecurity and the community-driven solutions for food sovereignty remain highly relevant, offering valuable insights that can inform current and future efforts to address food security in AI/AN communities.

The results of this study continue to inform the efforts of NAL to address nutrition and food access for AI/ANs in the Baltimore metro area. In summer 2022, NAL partnered with Hungry Harvest, an organization that addresses food access and food waste through produce delivery. As an example of our ongoing collaboration, a mobile market provided fresh, free produce to 25 community members during a a 2022 research presentation. The results of this study shaped the lead author's dissertation research, which aimed to explore culturally relevant ways to address and measure holistic approaches to nutrition that includes physical, emotional, spiritual, and relational nourishment from food (Maudrie, Clyma, et al., 2024; Maudrie, Caulfield, et al., 2024).

While our study is consistent with other research demonstrating that food security is an urgent priority for urban AI/AN peoples in one city, more research is needed to document food security among urban AI/ANs across the United States and beyond the COVID-19 pandemic. Further, sustainable solutions and policy changes are needed to ameliorate food insecurity in urban AI/AN communities. We learned from participants that the USDA definition of food insecurity did not adequately reflect their conceptions; therefore, mainstream food security modules may provide an incomplete picture of food security for AI/ANs. Future work should explore defining and measuring food security through AI/AN worldviews and perspectives. Finally, our study found important mental health implications of experiencing food insecurity, including long-term effects on eating behaviors and disordered eating patterns. Future AI/AN food security research should

consider including questions to screen for disordered eating, as well as qualitatively and quantitatively exploring the impacts of mental health on nutrition. Future research and community-engaged efforts should continue to explore food sovereignty-oriented solutions to food insecurity in urban Native communities.

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CONFLICTS OF INTEREST

The authors declare no conflict of interest.

INSTITUTIONAL REVIEW BOARD STATEMENT

The study was conducted according to the guidelines of the Declaration of Helsinki and approved by the Institutional Review Board of Johns Hopkins University (protocol IRB00013176; approved 1/19/2021).

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APPENDIX

Table A1

Logistic regression models of the association between food insecurity with demographic characteristics, COVID-19 hardships, food stress, and food sources in a sample of AI/ANs in Baltimore City (n=250)

Variable	Model 1: Unadjusted OR (95% CI)	p-value	Model 2: Adjusted for Demographics (N=238)	p-value	Model 3: Adjusted for demographics, COVID hardships (N=238)	p-value	Model 4: Adjusted Odds Ratio[a] demographics, COVID hardships, food stress, food sources (N=238)	p-value
Age	0.78 (0.72-0.83)	0.00**	0.72 (0.66-0.79)	0.00**	0.71 (0.64-0.79)	0.00**	0.87 (0.80-0.95)	0.00*
Gender[a]								
Male	1.21(0.68-2.15)	0.51	1.80 (0.82-3.95)	0.14	2.95 (1.14-7.61)	0.04*	3.47 (0.88-13.71)	0.08
Income[b]	1.09 (0.90- 1.33)	0.39	1.41 (1.08-1.84)	0.01*	1.00 (0.74-1.37)	0.99	0.99 (0.62-1.57)	0.95
Education[c]								
Some college	0.47 (0.22-1.02)	0.06	0.22 (0.08-0.66)	0.00**	0.44 (0.13-1.57)	0.21	3.61 (0.44-29.22)	0.23
College graduate or more	0.78 (0.41-1.49)	0.46	0.41 (0.17-1.01)	0.05	1.36 (0.46-3.98)	0.58	3.76 (0.58-24.49)	0.17
COVID-19 Hardships	3.47 (2.28-5.27)	0.00**			5.52 (2.92-10.39)	0.00**	4.15 (2.13-8.09)	0.00**
Food Stress	4.25 (2.98-6.07)	0.00**					7.96 (3.50-18.12)	0.00**`
Food Sources								
Subsistence Practices	0.43 (0.20-0.90)	0.02*					0.09 (0.01-0.87)	0.04*
Nutrition Support Programs	1.20 (0.68-2.12)	0.53					0.30 (0.00-16.95)	0.49

[a] Reference group: Female (Two-Spirit/Non-gender binary dropped from analysis due to small cell sizes); 4 individuals missing gender data

[b] 9 individuals missing income data

[c] Reference group: High school, GED or less; 5 individuals missing education data

*p value <0.05;

**p value <0.01

Impacts of the COVID-19 Pandemic on Opioid Use Disorder and Services for American Indian and Alaska Native Communities

Daniel G. Parker, MA, Sandra Radin, PhD, Nicholas Sorlagas, MA, and Dennis C. Wendt, PhD

Abstract: *Rates of opioid use and overdose in the United States increased during the COVID-19 pandemic, while opioid use disorder (OUD) treatment facilities faced disruptions to services during this time. American Indian and Alaska Native (AI/AN) communities were amongst those most affected by the pandemic, while also experiencing some of the highest rates of opioid-related overdose deaths. As such, this study aimed to investigate the ways in which AI/AN-servicing OUD treatment centers and their communities were impacted by the pandemic. Semi-structured interviews were conducted with ten service providers working at AI/AN-servicing OUD treatment centers between January and April 2021. Treatment centers were located in the Pacific Northwest, the North Midwest, and the South Atlantic regions, and all provided medications for OUD. Using thematic content analysis, three broad domains were identified: (1) impacts to the AI/AN communities; (2) impacts to family and social life; and (3) impacts to OUD treatment services. Our findings indicate that AI/AN clientele and communities were negatively impacted by the suspension of AI/AN traditional practices. The importance of family and community support within treatment was emphasized and how this was impacted during the pandemic, while positive changes to services brought about by the pandemic were also reported.*

INTRODUCTION

American Indian and Alaska Native (AI/AN) peoples living within the United States have faced a long history of inequities linked to European colonialism and its ongoing ills, with settler nations attempting to extinguish AI/AN Nations' sovereignty, languages, and religious practices via forced relocation, land dispossession, coercive assimilation, and other means (Bombay et al., 2014). Although AI/AN peoples have been remarkably resilient in resisting settler-colonialism and perpetuating their sovereignty and traditional practices, the legacy of settler-colonialism has contributed to general inequities among many AI/AN families and communities in terms of poverty, intergenerational trauma, mental health problems, and substance use problems (Gone et al., 2019). In the past decade, some AI/AN communities have described the rising rates of opioid use as their most prevalent and concerning substance use challenge (Radin et al., 2015).

Opioid Crisis in the United States

Over the past two decades, the opioid epidemic has become an increasing concern in the United States, with opioid use and opioid-related overdose deaths rising almost every year at alarming rates. Prior to the COVID-19 pandemic, in 2019, approximately 10.1 million Americans ages 12 or older had misused opioids in the past year, and 1.6 million Americans met criteria for opioid use disorder (OUD; Substance Abuse and Mental Health Services Administration [SAMHSA], 2020a). Opioid overdose death rates in the United States have risen almost every year from 1999 to 2018, accounting for nearly 450,000 deaths during this time, while totaling 49,860 deaths in 2019 alone (Centers for Disease Control and Prevention [CDC], 2021). Rising overdose death rates have been further impacted in the past decade by opioid supplies being increasingly mixed with highly potent synthetic opioids such as fentanyl (Armenian et al., 2018).

Prior to the onset of the pandemic in North America in March 2020, the United States had begun to experience a slight decrease in opioid-related deaths in 2018; however, with the arrival of the pandemic, opioid use and opioid-related deaths rates began to surge. In 2020, opioid-related overdose deaths within the general population are estimated to have increased by 37% from the previous year and further increased by 17% in 2021 (Spencer et al., 2022) and 4% in 2022 (CDC, 2024). The increases in opioid use and mortality rates during the COVID-19 pandemic led many

substance use disorder (SUD) specialists to characterize the situation as an epidemic within a pandemic, putting those who misuse opioids – an already vulnerable population – at even greater risk (e.g., Alexander et al., 2020).

Although the impact of the opioid epidemic has been seen across many racial and ethnic groups, AI/AN peoples are among those who have experienced some of the highest inequities in opioid use problems and overdoses, having rates of opioid-related overdose deaths as high, or higher, than any other ethnoracial group between 2019 and 2021 (Spencer et al., 2022).

Medications for Opioid Use Disorder

Among the general population, medications for opioid use disorder (MOUD; e.g., methadone, buprenorphine, and naltrexone) are considered the "gold standard" of care in OUD treatment, proven to be effective in treating opioid dependence by reducing illicit opioid use and retaining patients in treatment (Connery, 2015). Yet, while research supporting MOUDs effectiveness remains promising, many barriers to the adoption and implementation of MOUD have been documented, including their associated stigma, providers' lack of training with or inability to prescribe MOUD, limited access in rural areas, negative side effects, and fears of illegal diversion (Richard et al., 2020; Roman et al., 2011). Furthermore, MOUD are tightly regulated in the United States, adding another barrier to their accessibility. Methadone is federally regulated by SAMHSA and, with limited exceptions, can only be dispensed at certified opioid treatment programs (OTP). Prior to the pandemic, OTPs were permitted to provide "stable" patients (i.e., low risk of diversion or misuse) with 2-day take-home supplies of methadone, while "unstable" patients were required to visit OTPs daily to receive their dose (SAMHSA, 2015). Buprenorphine is also federally regulated, and prior to the pandemic, provider regulations included: obtaining a federal prescription waiver, conducting in-person medical evaluations prior to prescribing, and limits on the number of buprenorphine clients one could treat at a given time (Davis & Samuels, 2020).

At the onset of the COVID-19 pandemic, U.S. government agencies quickly adjusted MOUD regulatory policies in order to increase patient access to the medications and encourage social distancing. On March 16, 2020, SAMHSA released new guidance allowing OTPs to dispense 28 days of take-home methadone doses for "stable" patients and 14 days of take-home methadone doses for "unstable" patients (SAMHSA, 2020b). As of April 2023, SAMHSA extended these changes, having found "increased treatment engagement, improved patient

satisfaction with care, with relatively few incidents of misuse or medication diversion" (SAMHSA, 2023). Buprenorphine restrictions were also adjusted during and since the pandemic, removing the need for prescription waivers and restrictions on client numbers, while allowing for the use of telemedicine for initial medical evaluations (Kumar et al., 2024).

Opioid Use Disorder Treatment and American Indian and Alaska Native Peoples

Despite both high rates of opioid use amongst AI/AN peoples, and research supporting the efficacy of MOUD, there continues to be limited research with regard to MOUD with AI/AN peoples (Venner et al., 2018); thus, it is unclear to what extent MOUD research is generalizable and transferable to AI/AN populations. Although some studies have suggested that MOUD are helpful for Indigenous peoples in North America (Kanate et al., 2015; Mamakwa et al., 2017), many AI/AN communities lack adequate access to MOUD. A 2017 study surveying 192 AI/AN-servicing SUD treatment centers found that only 28% of the centers reported MOUD availability (Rieckmann et al., 2017), while a later study found that AI/AN-servicing treatment facilities were less likely to offer MOUD maintenance compared to facilities not explicitly serving AI/AN populations (22.4% vs. 27.6%; Krawczyk et al., 2021). This lack of access to MOUD reflects challenges that AI/AN peoples routinely face in receiving access to adequate SUD and mental health treatment (Gone, 2023).

Furthermore, many Indigenous communities in North America face systemic and geographical barriers to OUD services, such as geographic remoteness, difficulties retaining health care professionals, limited access to health care in general, and the need for culturally relevant SUD treatment programs (Dorman et al., 2018; Venner et al., 2018). Some communities may also present their own internal barriers to MOUD implementation, such as stigma towards substance use and treatment, preferences for abstinence-based recovery, community misperceptions about MOUD, and the lack of client privacy that can result from seeking treatment in small tight-knit communities (Landry et al., 2016; Zeledon et al., 2020).

An additional challenge to OUD treatment implementation within AI/AN communities can arise from differing views of wellness and medicine. Traditionally, Indigenous peoples in North America have values and traditions of wellness that can differ from Western medicine, viewing health and wellness as a balance and interaction between an individual's mental, physical, emotional, and spiritual dimensions (McCabe, 2008; McCormick, 2009), while Western medicine tends to focus on the physical and especially neglects the spiritual. Thus, connections with one's

family, community, and cultural traditions often play an essential role in SUD treatment within AI/AN communities and have been found to be protective factors within SUD treatment (Zeledon et al., 2022). As such, many Indigenous-serving SUD treatment centers in North America are increasingly implementing programs using culturally centered care, often resulting in improved outcomes within SUD treatment (Rowan et al., 2014; Zeledon et al., 2020).

Impact of the COVID-19 Pandemic on American Indian & Alaska Native Communities

While the COVID-19 pandemic in the United States had major impacts on all individuals, some AI/AN communities were hit particularly hard. In the initial stages of the pandemic, AI/AN peoples were contracting the COVID-19 virus at disproportionally higher rates, with confirmed cases 3.5 times higher among AI/AN peoples compared to White people in some states (Hatcher et al., 2020), while also experiencing a mortality rate due to COVID-19 that was 1.8 times higher than White people (Arrazola et al., 2020). Furthermore, during the pandemic, research has found that AI/AN peoples reported worsening mental health and increased substance use due to disruptive pandemic experiences and pandemic-related threats to AI/AN culture (Haskins et al., 2023), while the mental well-being of Indigenous youth in both the United States and Canada was also found to have worsened during this time (Mollons et al., 2023). These disparities are unfortunately similar to the disproportionate impacts historically experienced by AI/AN peoples during health pandemics, often related to social determinants of health, intergenerational trauma, and systemic racism within social structures (Blume, 2022; Richardson & Crawford, 2020). Yet despite these impacts, some Indigenous communities in North America mitigated the effects of the pandemic by applying family-centered and land-based approaches within their communities to promote health and wellness (e.g., outdoor traditions like hunting and gathering; promoting family activities; and the use of virtual platforms for cultural ceremonies), further emphasizing the importance of family and cultural traditions (Benji et al., 2021).

With the pandemic having had significant disruptions to AI/AN communities, along with the increasing opioid use and overdose rates during this time, OUD providers working with Indigenous clientele during the pandemic reported concerns with regards to its impact on their clients' mental health and safety (Wendt et al., 2021). With limited research investigating the impacts of the pandemic on AI/AN peoples and OUD treatment, there is a need to evaluate and better understand the ways in which the pandemic uniquely impacted AI/AN-servicing OUD clinics, their clientele, and the AI/AN communities in which these services are situated.

Given that family, community, and cultural traditions often play an essential role in SUD treatment within AI/AN communities, this study aims to explore the impacts that the COVID-19 pandemic had on these areas with regard to OUD treatment, as well as the impacts that it has had on treatment services, their staff, and their clientele. Furthermore, we aim to explore the ways in which the pandemic impacted culturally centered care designs and traditional healing practices that treatment services were implementing prior to the pandemic.

METHOD

Development

This study was developed in response to the COVID-19 pandemic and its impact on OUD and treatment services. Prior to the pandemic, we had conducted community-based participatory research investigating the efficacy and cultural adaptability of MOUD within two Pacific Northwest AI/AN tribal communities. Following the arrival of the COVID-19 pandemic, and hearing from these communities regarding the pandemic's impacts to their treatment centers and community members, our team decided to explore these impacts through interviews with service providers working at AI/AN-servicing SUD treatment centers across the United States. We aimed to investigate how OUD programs were adjusting to pandemic measures and their clients' needs, while exploring how clients were experiencing the pandemic, specifically with regard to their treatment and recovery, their family and community life, and changes to OUD services. Given the urgent nature of the pandemic and its effects on people with OUD, we decided to conduct this small and rapid study.

Study plans were reviewed by the University of Washington Institutional Review Board (IRB) and the Portland Area Indian Health Service IRB. Given that the interviews did not involve personal disclosure, but rather aimed to gather professional perspectives regarding OUD treatment during the pandemic and inform AI/AN-servicing OUD treatment programs, both IRBs determined the study to be exempt from IRB oversight.

Data Collection

Data were collected through interviews with ten service providers working at various AI/AN-servicing SUD treatment centers geographically dispersed across the United States (six located in the Pacific Northwest region; two in the North Midwest region, and two in the South

Atlantic region). Some of the treatment programs specifically focused on MOUD, while others offer broader SUD services that included MOUD. Participants were recruited through calling and e-mailing various SUD programs across the country, while also engaging participants through colleagues and community members with whom the investigators had working relationships. National representation was an initial recruitment goal for this study, with many SUD programs across the country contacted; however, due to limited responses, the rapid nature of this study, and the difficulties that communities were enduring at the height of the pandemic, participants were selected due to availability and a willingness to participate (convenience sampling).

Semi-structured interviews ranging from 30-60 minutes (with exception of one interview, which ran 110 minutes due to it being held over several sessions) were conducted by telephone and audio-recorded with participants' permission. As compensation, participants received a $50 gift card for their time. Interview questions explored the impacts and changes that occurred within treatment, including any positive and innovative changes, and future directions. Interview questions also focused on the pandemic's impacts to family and social life amongst clients and community members, as well as impacts to culture-based activities and traditions, both within treatment and the community. Interviews were conducted between January and April 2021.

Participants identified themselves as working under a variety of titles, including program director, medical director, clinic director, psychiatrist, and clinic provider, with half (5) reporting to hold a director or supervisor title. Most of the participants (7) described working directly with clients in providing services, while the remaining three participants described their role to involve coordination and administration, although described working directly with a team of providers at the services. All participants had worked at their current treatment center for at least two years (including at least one year prior to the pandemic's arrival). Participants identified primarily as women (9) and AI/AN (6), with ages ranging between 35 and 55 years old.

Data Analysis

Audio-recordings of interviews were deidentified, transcribed, and analyzed using thematic content analysis, a qualitative method used to identify, analyze, and report themes within data (Braun & Clarke, 2006). This method included the following steps: (a) acquiring a broad familiarity with the entire corpus of data; (b) systematic generation of initial codes (using NVivo software), including creation of a code book with definitions and examples; (c) tentative identification of major themes and organization of codes into these themes; and (d) an iterative

process of reviewing, restructuring, and refining codes and themes. The first author (who has received qualitative coding training from one of the senior authors, who is an expert in qualitative inquiry and psychology) was the primary coder of the interviews, with a second team member reviewing the coding for consistency and accuracy. Any discrepancies between coders were resolved through discussion or by using a third team member.

As an exploratory qualitative study, this study was not preregistered. Data, materials, and analysis code from this study are available upon request from the author.

RESULTS

We identified three broad domains from the interviews conducted with 10 SUD/OUD providers: (1) impacts to the AI/AN communities in which treatment services were provided; (2) impacts to family and social life; and (3) impacts to SUD/OUD treatment services. Participants are identified within the results section by their self-reported role within the treatment programs.

Impacts of the COVID-19 Pandemic on AI/AN Communities

All participants described the ways in which the COVID-19 pandemic had impacted the AI/AN communities that their treatment centers serve, specifically reporting on impacts to substance use, mental and physical health, and community economics, with some participants reporting on community members expressing a distrust of the government during this time.

Impacts to Substance Use

All participants spoke of how the pandemic impacted rates of substance use among the communities they serve, with many reporting increased opioid use within these communities. Factors such as loss of work, financial strain, diminished access to treatment, and isolation were reported to contribute to these increases. Specifically, relapsed drug use among those in long-term recovery was observed:

> We were hearing of, unfortunately, relapses for individuals who had even long-term recovery; people who had sustained a good amount of time in their own wellness and recovery were unfortunately slipping back into relapse. […] And we were all just trying to figure out what we can do together. (Program Coordinator #1)

A rise in drug-related overdoses was observed in some communities, with some participants suggesting this being due to opioids being cut with Fentanyl. Other participants attributed the rise in overdoses to individuals using drugs in isolation, without the assistance of others to administer naloxone to reverse the effects of an overdose – a situation one participant described as "terrifying." Participants emphasized the difficulties of balancing the pandemic alongside the ongoing opioid epidemic:

> We're seeing these increases in overdoses and then not as many increases in COVID deaths. Just weighing that out and understanding that we might be in a pandemic, but […] we can't just put epidemics on the back burner. […] When people really need our help, we're shutting down services. I understand, people are scared, and it's really life-threatening, but so is opiate use disorder. It kills people too. (Clinic Director #1)

One participant reported that although he had heard about increases in opioid use and overdoses in the community, this was not something that he had himself observed, but had rather noticed substantially less client engagement with SUD treatment programs during the pandemic.

Impacts to Mental and Physical Health

Participants also described the pandemic's impacts on community members' mental and physical health. Participants reported higher levels of depression and anxiety among community members, often related to social isolation and the lack of connection to family. Some community members were described as "heartbroken" around the lack of family contact and feeling that there was "no end in sight." One participant stated:

> I think initially we were just doing what we needed to do, but as the pandemic continued on and we were realizing the severity of the situation, and people were coming to realize that, having to stay home, mental wellbeing, emotional wellbeing was clearly on a decline; the lack of connection; a sense of isolation; the feeling of being alone; the uncertainty of what's to be had in the future. (Program Coordinator #1)

For some community members in treatment, the heightened depression and anxiety brought on by the pandemic was observed to result in relapse, and sometimes overdose, with one participant

reporting some clients having "states of depression" they had not experienced before. Another participant shared concerns about clients having more idle time, stating that being at home alone had been difficult for some. One participant encouraged clients to "learn to be able to be okay with stillness" and "work on their inner healing"; another shared that clients' inability to engage in physical activities, such as canoe clubs and workout groups, had impacted their mental health, as these activities helped clients with their emotional and mental wellbeing during recovery. Outside of treatment, Elders were described to be particularly impacted by the pandemic:

> With our Elders, it was a complete fear factor in shut down. They didn't want to go nowhere, they weren't getting out. Our churches have just recently opened back up. So it almost became isolation. Everybody stayed to self and indoors. (Program Director)

Given that many participants serviced small and tight-knit AI/AN communities, high levels of anxiety among tribal members with regards to contracting the COVID-19 virus were reported, with one participant stating that the introduction of the virus within their community was potentially "catastrophic to the tribal numbers." Yet, even with the impacts to mental health, one participant shared how the pandemic had been used by some clients as a time to reflect and heal:

> I've seen some of my clients discover what they want to do with their life, some wanting to go back to school, some want to work. I've seen some get emotional healing from traumas that they've been through by learning how to meditate. (Program Coordinator #2)

Physical health was also reported to be affected during the pandemic, with some participants reporting high rates of the COVID-19 virus spreading within their community:

> A great number of our tribal members have been sick, and we've lost quite a few. With the ones that we've lost and the ones that have been sick, it's like the whole family was attacked. They spread it throughout the families, grandparents and all. (Program Director)

Anxieties about the virus were also reported to prevent some from seeking medical care:

> People were afraid to go see their doctors and their clinics. And so, we saw a lot of people with medical issues really suspended that medical care, and that can be quite dangerous, actually. (Medical Director)

Others described broader medical impacts of the pandemic among community members, such as increases in weight gain, rates of diabetes, and rates of pulmonary disease.

Economic Impacts within Communities

Communities were reported to be impacted economically by the pandemic, particularly related to business closures and loss of employment. One participant shared how restrictions such as limiting customers in stores and early closure times affected businesses, while another spoke of job loss due to the temporary closure of the local casino, sharing that "financial strain can certainly drive addiction." In spite of the economic difficulties, some participants reported that Tribes assisted their community members by offering utility and rental assistance and greater outreach to members experiencing homelessness. One participant reported how their tribal community took steps to compensate healthcare workers at the treatment center by offering bonuses and wellness packages.

Distrust of the Government

Lastly, an observed distrust of the government among some community members during the pandemic was addressed by participants, particularly regarding the COVID-19 vaccine:

> There's been a lot of fear, not just with the possibility of contracting COVID, but also the deep distrust of western medicine and the vaccinations. In particular, I'm thinking about a tribal Elder that is refusing at this point. And I think a lot of it is based on the unknown, but I also know that Tribes are pretty, or in general, I think distrustful of what the government has to offer [in terms of] medicine and vaccinations. Since they do have a history of bringing viruses to tribal communities and wiping out large numbers of its membership. (Clinical Director #2)

Other participants spoke of providing education and building trust with regard to the COVID-19 vaccine within their community, stating, "I know there's a lot of resistance with, you know, people of color towards vaccinations, higher than white people. So, I think really sort of making efforts

to continue to address the questions or concerns" (Psychiatrist). Another participant spoke of the mistrust of Western medicine they have observed within their community:

> The mistrust for the medical community is huge. Usually, for the community I'm working with, being Native and feeling like you don't have the same level of access to really quality good healthcare, that someone's going to understand what it is that's going on. […] People really think that, "They're aiming this at us to kill us." (Clinic Provider)

Impacts to Family and Social Life

Alongside the increases in substance use and social isolation, participants described how these pandemic impacts affected community members' families and their social lives:

> The way in which we weren't able to actually cope with fatal overdoses, or even deaths in general—our communities are very accustomed to gathering and being together in time of loss, in time of need, and COVID-19 no longer permitted us to do that. So families who were in mourning weren't able to have their loved ones be there. (Program Coordinator #1)

One participant shared how many community members had lost someone close to them due to the pandemic and had been affected by "that great loss, due to COVID." For community members who were in treatment during the pandemic, the need for social support was reported to be particularly important, observing various social connections helping them to get through the pandemic. One participant reported that for some clients, being socially isolated from their family and friends was the most difficult part of their experience:

> I see a lot of mood problems, anxiety, depression—whether it reaches the kind of clinical level of becoming a disorder, or whether it's really just them demoralized by the fact that they can't see their families. Or they feel fearful of going to the store, or they have more disputes with their partners. So I think just the feeling really socially isolated and unable to connect with other people has been the biggest impact for my patients. (Psychiatrist)

Another provider spoke of how their clients contracting the COVID-19 virus added to the challenges of isolation, stating that "community is the comforter and great healer of it all." Several participants shared personal examples of the impacts their families had experienced during the pandemic, with one reporting that her aunt had recently told her, "I'm here all of the time by myself and I am lonely," while another described impacts to family gatherings: "Before the pandemic, my family, we would meet and we would sing our family songs every so often, every few months or just impromptu family gatherings and singing, and that has really been impacted" (Clinic Supervisor). Despite the impacts that isolation had to aspects of community members' social and family lives, one participant expressed understanding the necessity of protecting community members through stay-at-home measures, given that they work in such a small tight-knit community:

> The biggest way that the pandemic has affected our community is the stay-at-home order and the way that the tribe protected us from the virus. […] I totally understand why the Tribe did what they did. It was a protective measure. We have a limited amount of community members, and if we lose one community member, that's a huge impact on our entire village, so I understand why. (Clinic Supervisor)

Alongside pandemic challenges, participants also highlighted positive changes they'd seen to family and community life, reporting how the pandemic had fostered appreciation for family within the community and had been a catalyst for some to reconnect with their families:

> One of the biggest changes we've noticed is families getting back together. Connecting and developing that relationship they once lost. I would say that's by far the biggest and the best. We've had a lot of success stories over the past year that were family, I think 89% of our clients are male and where they hadn't spoke with their father in 10 plus years or 5 years or whatever. And they're developing that relationship again, they're talking for the first time, and having dinner together or whatever, but they're developing that relationship again. They're learning how to be a part of that family circle again. (Program Director)

The impacts to childcare during the pandemic were also addressed. Some participants reported that co-workers described the difficulties of having their children at home more often, although for others, having more time at home with their children was reported as a benefit:

> As an Indigenous mother […] I've appreciated being able to stay home and work and get my job done and still be present and available to my children. Because that, for me, was always a torn situation sometimes because I have a sick child that I need to stay home and take care of and tend to, but I also have a full-time job, I'm the sole provider for my household. (Program Coordinator #1)

Others reported observing a sense of resiliency among their community members:

> The resilience that has come out of COVID-19 on a community level, it's been really profound to watch. Because we always talk about resilience and how we do have it as tribal people. But within this one-year span, being able to watch how we were just responding right away in the beginning to keep everyone safe, and eventually be able to strengthen that, to find other ways of connecting with our tribal members, with ourselves, with our families and with our culture. (Program Coordinator #1)

Impacts on Traditional Healing and Ceremony

Among the impacts to family and social life, all participants addressed the pandemic's impacts to AI/AN traditional healing and ceremony, both within the community and at treatment centers. Given that most traditional practices happen in person, many practices were temporarily suspended due to social distancing measures. Participants described the difficulties of being unable to gather and perform ceremonies around community members' passing:

> When COVID is hitting the community, it's parallel to isolation. And we're such a people of community […] and we can't gather. And so, the normal coping skills and strategies that we have had and always have had, we can't access those. And so there aren't ceremonies happening when people die. And so it's so unresolved and it feels like another sort of injury to the community. (Clinic Provider)

Several participants reported AI/AN traditional healing and ceremony to be important aspects within treatment for AI/AN clients, and as such, these were greatly missed:

> I think that what most people are really longing and asking for, is the cultural aspect of wellness and recovery now […] to gather and just do the song and dances that

> are vital for continued strength and resilience, and a lot of people miss stick gaming [a traditional American Indian guessing game]. I know that canoe journey was deeply missed by all communities in our area. The fact that we weren't able to travel in our traveling canoes and go to each other's tribal communities and participate in protocol; those things are very much missed this last year. (Program Coordinator #1)

Many traditional practices used in treatment were reported to be suspended during the pandemic, including sweats, smudging, drumming and singing groups, canoe trips, beading, weaving, fishing, dancing, and talking circles, where "such great healing takes place and everyone's equal, and the circle is sacred" (Program Coordinator #2). Yet, while many aspects of traditional cultural practices had been shut down during the pandemic, some participants reported using videoconferencing to implement adaptations of certain practices, such as having Elders join treatment groups and pray with clients and performing smudging towards the camera. Providers also encouraged clients to practice traditional healing practices, such as smudging, at home:

> With our people, with American Indian culture, learning how to have your own ceremony at home. […] Back to the culturally based, having the grandparents do storytelling again, because there's so much learning and healing that come when we sit still and listen to our Elders. So getting back to that way of thinking and living, I think it's the perfect time to start utilizing that more. And then encouraging them to discover themselves and take time to heal from their traumas during this downtime. (Program Coordinator #2)

One participant shared how the treatment center's program coordinator was doing weekly check-ins by telephone with clients to encourage traditional cultural activities to promote mental health:

> When she calls and checks in on clients weekly, she has different things she might go through. Have you grounded yourself? Have you walked outside barefooted? To release stress, do you go to the river? What are you doing in different natural remedies for different things? […] They absolutely love it. (Program Director)

Impacts of the COVID-19 Pandemic on SUD/OUD Treatment Services

Along with the impacts to community, participants also addressed the pandemic's direct impacts on treatment services, reporting on the social impacts within treatment, impacts to staff, logistical impacts to treatment services (including telehealth), and innovations to treatment.

Social Impacts to Services

Participants addressed the lack of social connection within treatment services, describing this as an important part of treatment, particularly within group therapy: "It's been really difficult. But I think the biggest thing is just that lack of connection, that lack of sharing a space with someone and feeling like you're part of something" (Medical Director). One participant addressed the inability for clients to connect with their community during the pandemic, seeing this as an important part of treatment:

> A large part of our culture is coming together and being together. I think that's the biggest change. Haven't been able to teach weaving, or haven't done any regalia making, which is something that we do every year in treatment. I think, overall, just the segregation has, of course, really impacted our community from a cultural aspect. (Clinic Supervisor)

Clients that were new to treatment were reported to have a particularly hard time with the lack of social connection that is typically present at treatment services:

> They were just scared. And fear is something that we all have to cope with, but coping skills are not necessarily something that people who are newly in recovery have a lot of. That's one of the things we try to teach them and impart on them is how to cope and how do we manage. And that is difficult when they're feeling alone. (Medical Director)

Relatedly, one participant observed that the pandemic affected interactions among clients within treatment, reporting some clients to have a "high level of irritation" and being "short-tempered."

Impacts on Staff

Participants also addressed the pandemic's impacts on staff working within treatment services. Common impacts included a reduced connection with clients; difficulties with the

Internet and technology; keeping up with pandemic regulations changes; fatigue and burn-out; and obtaining childcare for their children. Overall, it was reported that staff often had to adapt to a greater workload during the pandemic, resulting in "a lot of strain on providers keeping up the work, expectations, caseloads doubling and tripling and the needs of clients getting more intense due to COVID" (Clinical Director #2). Yet, participants also reported positive impacts on staff, including the use of telehealth to facilitate therapy and client check-ups. One participant described how telehealth has helped to free up additional space in their schedule:

> I was doing three groups before with quite a bit of prep before, quite a bit of tear down afterwards, and so now I'm not doing any of that, right? I've actually been able to add a group comfortably into my schedule. Really, it freed up space for us. (Clinic Provider)

It was also reported that with the use of telehealth, some staff preferred working from home, with one participant stating that this allowed her to spend more time with her family and alleviate some of the pressures of parenthood. Finally, one participant shared how the struggles that staff experienced during the pandemic helped create more unity and connection among staff members.

Impacts to Treatment Logistics

All participants spoke about the impacts to treatment logistics during the pandemic, with changes to telehealth being the most common impact reported. Participants reported using telehealth services for individual and group therapy, client check-ins, staff meetings, and traditional practices or ceremonies (e.g., drum groups, smudging). Several participants spoke of how the use of telehealth led to greater treatment access, particularly for those in rural areas:

> We can offer more services, especially to rural patients that did not previously have access to those services because they had to drive really far or they didn't drive, they had to get a ride. […] My no-show rates have really dropped because it's so much easier for somebody to log into appointment or pick up the phone and so the contact has increased via telemedicine visits. So yeah, I would say definitely telemedicine would be the biggest improvement that we've made. (Psychiatrist)

> We thought it was important for them to come to the clinic and be in the clinic and they'd be out to the wind if they didn't cross the doors of our clinic. That was a big

> surprise and shock that we had increased engagement with medicine. (Clinic Provider)

With these increases in access to services, one participant shared how this has prompted the continued expansion of telemedicine platforms at their services, including its use for appointment scheduling, administering questionnaires, and clinical interviews.

However, the switch to telehealth was reported to also have logistical barriers, particularly with some clients' limited access to technology such as phones, computers, and the Internet: "Now we have a group therapy via Zoom, but here on the rez, some of the areas are just dead spots. So some people don't have access to that" (Program Sponsor). Given the restrictions on clients' access to technologies, one participant described providing prepaid cell phones and phone cards to their clients. Others reported that some of their clients preferred face-to-face meetings and that they had experienced "a decrease in numbers because of that lack of face-to-face community. And a large part of healing from addiction is reconnecting with other people who are healthy" (Clinic Supervisor). Another provider shared how the use of telehealth among clients and staff was mixed and was a matter of personal preference, with some finding it "too impersonal to sit on a computer on a Zoom session with a group" (Program Coordinator #1).

Alongside the use of telehealth, other impacts to treatment logistics (including service innovations) were widely discussed and included reduced client capacity; the use of personal protective equipment; increasing means of client transportation to and from services; conducting groups outside when weather permitted; curbside dosing and home delivery of medications; and providing COVID-19 testing for clients. Having staff work from home was a common logistical change to services, yet not everyone reported this at their treatment centers, with one participant describing that given the opportunity to work from home, much of the staff continued to come into work, with the treatment center also experiencing low staff turnover. The impacts to logistical aspects were also reported to impact culture-based activities, such as talking circles:

> We have a culture center that we like to utilize. It has our medicine wheel in it, a fire pit, different cultural-based activities that they can do out there. And there's a lot of our history back there they can learn. We haven't been able to get back there and utilize that. […] We haven't been able to meet to do different cultural-based activities, like beading, teaching them how to quilt, canoe, fish, so that has been a big hindrance. (Program Coordinator #2)

Regulatory Changes

Participants also addressed the MOUD regulatory changes during the pandemic, in which SAMHSA (the federal agency that regulates MOUD) loosened many regulations in order to create greater accessibility to MOUD. Several participants reported positive experiences with these changes, stating, "We were able to give people take-homes that by the previous criteria they would not necessarily have earned. And so, those things were actually good and a positive change from the pandemic" (Medical Director), and "I don't know why there was so much fear about lifting those restrictions. Because I certainly haven't seen any increase in overdoses or diversion" (Clinic Provider). The home delivery of medications during the pandemic was also described as positive for clients who had previously experienced stigmatization when picking up their prescriptions at a pharmacy. However, one participant reported initially following the new guideline but ceased after observing continued and increased opioid use in urine tests, stating, "We want to keep people more accountable than that. We don't want to aid to their overdose. It just seems a little irresponsible" (Clinical Director #2). Lastly, several participants described how the communication of regulation changes from the regulatory agencies was positive, reporting that agencies had "communicated quite well" and were "quite responsive" during the pandemic.

DISCUSSION

This study explored the impacts of the COVID-19 pandemic on AI/AN-servicing SUD treatment services that provide MOUD, through interviews with ten providers working within these services. Participants shared how the pandemic impacted (a) the AI/AN communities that they service, (b) the family and social lives of their clients and community members, and (c) the treatment services themselves. In light of these results, interpretations of the participants' experiences have been made and summarized in the following three most prevalent themes.

The Impacts on Traditional Healing Practices and Ceremonies

All participants described the impacts that the pandemic had on traditional healing practices and ceremonies, both within treatment services and the communities. Due to social distancing measures, many traditional practices and ceremonies were reported to have been suspended during the pandemic, often negatively impacting clients and community members.

The use of traditional healing practices and ceremonies within SUD/OUD treatment are increasingly being recognized as important aspects of treatment with AI/AN clients. In recent years, AI/AN communities and stakeholders, alongside researchers and providers, have expressed the need to integrate AI/AN healing practices as an essential part of OUD treatment with AI/AN clients (Veneer et al., 2018). In a scoping review exploring OUD management among rural AI/AN communities, most studies "reported a preference for culturally grounded health and wellness interventions with rural AI/AN," with three studies reporting a need for culturally adapted MOUD programs (Mpofu et al., 2020). A previous review exploring various cultural interventions used with Indigenous clients in SUD recovery services in the United States and Canada found that these interventions resulted in benefits for clients in all areas of wellness, particularly with aiding in the reduction or elimination of substance use (Rowan et al., 2014).

Thus, our participants' reports of the use of AI/AN cultural practices within their OUD treatment services reflects the growing research supporting the need for and use of AI/AN traditional practices. However, due to the natural experiment created by the pandemic, rather than examining the implementation of traditional practices within treatment, our participants were instead, unfortunately, reporting on the impacts of having these practices suspended from treatment. The reported negative impacts on clients associated with the suspension of traditional practices included heightened isolation and mental health challenges; disruptions to social gatherings and mourning practices; and lower engagement with treatment services. These results are similar to what other MOUD providers working with Indigenous communities have reported during the pandemic, particularly around communities struggling with the inability to perform traditional in-person ceremonies during an already difficult period of time (Wendt et al., 2021). As researchers in this field, we interpret these findings as further evidence that supports the importance and need of integrating traditional AI/AN healing practices within OUD treatment and suggest that such practices may have been more "essential" to treatment than they were considered during the pandemic. Our findings also reflect those reported in other cross-cultural research conducted during the pandemic, which further supported the importance of spiritual practices on mental health during this time (e.g., Biswas & Jijina, 2022). Thus, AI/AN communities and clinics could benefit from exploring solutions to ensure their ability to perform AI/AN healing and spiritual practices in future pandemic or lockdown situations.

The Importance of the Role of Family and Community Support within Treatment

Participants also spoke to the importance of family and community support for AI/AN clients within treatment and the impacts that the pandemic had here. Like the temporary suspension of cultural practices and ceremonies, clients' inability to connect with family and community in the ways that they were used to pre-pandemic was reported to be challenging for many clients, resulting in increased isolation, depression, and substance use—with one AI/AN provider reporting "a large part of our culture is coming together and being together."

The role of family within SUD treatment has been explored within research for decades, with the inclusion of family support often concluded to play a central role within a client's treatment, resulting in sustained recovery, better treatment outcomes, and improved health outcomes for both clients and family members (Rowe, 2012; Ventura & Bagley, 2017). Within collectivist cultures such as China, where family ties play a larger role for individuals, SUD research has found that family support for clients in methadone treatment resulted in increased physical, psychological, and social health amongst clients, while also being negatively correlated with substance use (Lin et al., 2011). Findings such as this may be particularly relevant to Indigenous peoples in North America, where many communities share collectivist cultural values in which the well-being of the family or community is given central importance (Kirmayer et al., 2009). Recent research with AI/AN communities implementing MOUD programs further supports the role of family and community, in which *cultural cohesion* (connection to community and cultural activities) and *family dynamics* (immediate and extended family support) were identified as protective factors in OUD treatment that promoted recovery and overall wellness among AI/AN clients (Zeledon et al., 2020). Furthermore, research conducted during the pandemic suggests that disconnection from community and cultural practices during this time resulted in worsening mental health amongst AI/AN peoples (Haskins et al., 2023). Thus, while disconnection from family and community was difficult for all individuals in North America during the pandemic, this time was likely particularly detrimental for AI/AN SUD clients, for whom connection to family, community, and culture often play a vital role within their recovery. Participants in our study shared how their clinics successfully transitioned to using videoconferencing during the pandemic for individual meetings, group therapy and ceremonies, suggesting that the use of telehealth measure within SUD treatment services to help clients connect with family, community, and culture may play an increasingly important role in AI/AN-servicing clinics.

Positive Changes within Treatment Services

Along with the ways in which treatment had been negatively impacted by the pandemic (i.e., lack of family and community connection, suspension of traditional healing, reduced access to services), participants also spoke of changes that were brought about that were seen as positive and likely to be retained. Amongst these, the most discussed was the increased use of telehealth within clinics. All participants reported implementing telehealth measures during the pandemic, and many reported planning to integrate these within their services post-pandemic, with one participant stating it to be "the biggest improvement that we've made." Various benefits to the use of telehealth were shared, including increased access to services for rural clients, higher attendance rates within group therapy, and greater flexibility for staff (e.g., the capacity to work from home, increased number of client check-ins).

These positive reports reflect what many other OUD providers and researchers have been reporting during the pandemic around the increased use of telehealth, particularly with regards to increasing access to MOUD services and the ability to initiate and prescribe MOUD using video or telephone (Cantor & Laurito, 2021; Nordeck et al., 2020). The increased use of telehealth in OUD services has been particularly beneficial within rural areas during the pandemic, with rural clinics being able to increase the number of clients they serve and expand their region of service using telehealth (Hughes et al., 2021; Wang et al., 2021). The increased accessibility to OUD treatment that telehealth provides in rural areas may have been one of the most important outcomes of the pandemic, as providing MOUD services in rural areas has long been a challenging aspect to OUD treatment. Historically, opioid use in North America had primarily been a concern in urban regions; however, with over-prescriptions of pharmaceutical opioids (i.e., oxycodone) in the past two decades, the rates of opioid misuse and overdose deaths began to disproportionately affect rural areas (Palombi et al., 2018). Yet, with these disproportionate increases, those living in rural areas face significantly lower access to OUD treatment, with rural providers often lacking the capabilities to prescribe MOUD (Haffajee et al., 2019). Thus, the expansion of telehealth within OUD services may be important step in increasing services in rural areas, particularly for rurally located AI/AN communities, who often face even greater barriers in accessing adequate OUD/SUD services (Gone, 2023; Venner et al., 2018).

However, participants' reports of the use of telehealth were not without challenges, with some describing clients' poor Internet reception, a lack of access to electronic devices, and finding telehealth to be too impersonal. These challenges reflect similar telehealth challenges that other

OUD researchers reported during the pandemic (Buchheit et al., 2021) and are also similar to pre-pandemic findings (Lin et al., 2018), suggesting that the pandemic exacerbated already existing challenges. Thus, as telehealth will continue to play an increasingly important role in SUD services, the pandemic may have provided insight into which areas are most in need of improvements, such as creating better telehealth guidelines for SUD services and improving technological access and infrastructures for services and clients (Hser et al., 2021).

Changes to MOUD regulatory policies during the pandemic brought about varying opinions among participants, particularly with regards to clinics dispensing higher MOUD take-home amounts ("carries") than previously allowed. Some participants described these changes as one of the positive outcomes of the pandemic, observing no increases in overdoses or diversion due to the changes. Conversely, one participant called the changes "irresponsible," reporting they had initially followed the guidelines of increasing client dosage, however, quickly returned to pre-pandemic dosing when some clients' urine tests indicated increased usage.

The regulatory changes brought about by the pandemic around increases to MOUD carries and ease of prescribing was welcomed by many OUD clinicians and researchers, expressing that these changes have been long overdue in the United States and that U.S. MOUD policies have lagged behind other countries, such as the United Kingdom, Australia, and Canada (Pena & Ahmed, 2020; Peterkin et al., 2021). Researchers had already been calling for policy changes prior to the pandemic, arguing that strict MOUD policies where a primary barrier to accessing MOUD (e.g., Davis & Carr, 2019), while also noting that underserved, vulnerable, and racialized populations are often those most affected by the barriers brought about by MOUD policies (Nguemeni Tiako, 2021). Thus far, research has supported MOUD policies changes, resulting in "increased treatment engagement, improved patient satisfaction with care, with relatively few incidents of misuse or medication diversion" (SAMHSA, 2023a), with providers describing the increased flexibility around providing MOUD to result in greater individualized, person-centered care (Adams et al., 2023). Providers in our study reported varying experiences with the increases to MOUD carries, both positive and negative, suggesting that the regulatory changes to MOUD may not be a "one size fits all" modification, and that clinics need to assess which changes work best for their clientele and standards of operation. Thus, while MOUD regulatory changes present an opportunity to increase access to the medications and better care, further research is still needed to evaluate the ways in which policy changes should be implemented and retained.

Limitations

Several limitations of this study can be noted. First, this study comprised of a relatively small sample size (10 participants) and, thus, should be seen as exploratory. Although participants were chosen from a variety of different states, their experiences may not be transferable across tribal communities, given the diversity between the tribal communities within the United States, as well as pandemic experiences differing from state to state. The same may be said for the transferability to Indigenous communities within Canada or other nations. Next, while discussing the impacts on providing OUD services, we found participants focused largely on treatment logistics and impacts to their clientele and had far less to say about the impacts to providing specific MOUD (i.e., methadone vs. buprenorphine). This may be due to participants having less concerns or experiences around MOUD barriers and changes during the pandemic; however, while we did ask about impacts to MOUD, we acknowledge that our questions around this topic may have been somewhat limited and that had we inquired into this in more depth, we may have gotten more information about this. Furthermore, this study only considered the perspectives of providers working at OUD services. While these perspectives shed valuable light on this topic, the perspectives of clients and other community members would provide a more well-rounded picture of the impacts. Finally, the information shared by participants in this study pertained to the early pandemic period. As many issues around the COVID-19 pandemic have now mostly subsided, the results of this study may be less applicable to post-pandemic periods. However, the results of our study may serve to inform treatment centers with regards to the ways in which they can plan for and address potential future pandemic waves or other crises.

CONCLUSION

The COVID-19 pandemic had many impacts on AI/AN-servicing OUD treatment centers, bringing about challenges for clients and service provision, while also presenting innovations and changes to services that increased accessibility. For the AI/AN clients and communities serviced by the providers in our study, the suspension of AI/AN traditional healing practices and ceremonies within treatment and the community negatively impacted their clients, as did the lack of connection to family and community members. These impacts were reported to be associated with increased mental health challenges, increased and relapsed substance use, and lower cultural connectivity amongst clients. Research already supports the importance of cultural and family connectivity for

AI/AN peoples in SUD treatment in terms of mental wellbeing and sustained treatment, and participants' reports of clients' lack of engagement in these areas during the pandemic sheds further light on their importance within the treatment process. As such, we recommend that AI/AN communities and clinics consider strategies to ensure client's access and connection with family, community, as well as AI/AN healing and spiritual practices in future pandemic or lockdown situations. The pandemic also brought about changes resulting in greater access to OUD treatment such as the use of telehealth for clients in rural areas and increased treatment flexibility through the easing of MOUD regulatory policies. Thus, while maintaining these changes in post-pandemic times could allow for greater access and flexibility in providing MOUD and OUD treatment services within AI/AN communities, clinics should nonetheless assess which technology and policy changes work best for their clientele and standards of operation. As such, further research and guidance are needed to better understand the impacts of these changes and how to best implement them within treatment services in the future.

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CONFLICT OF INTEREST

The authors declare that they have no conflicts of interest.

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