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?

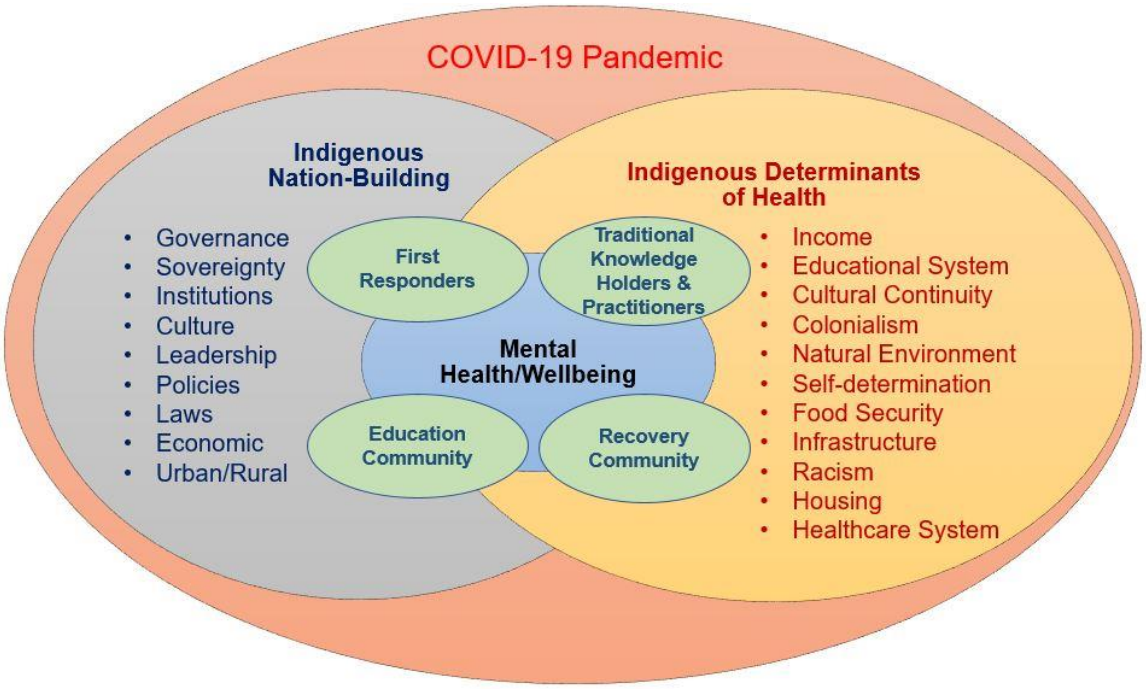

Figure 1. Overall study conceptual model.

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.

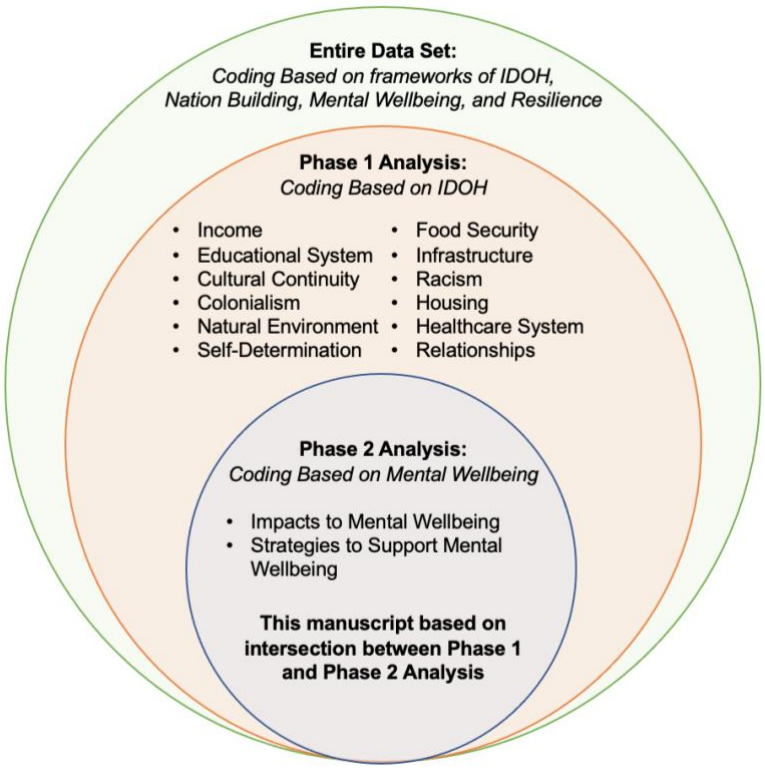

Figure 2. Study analysis structure.

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.

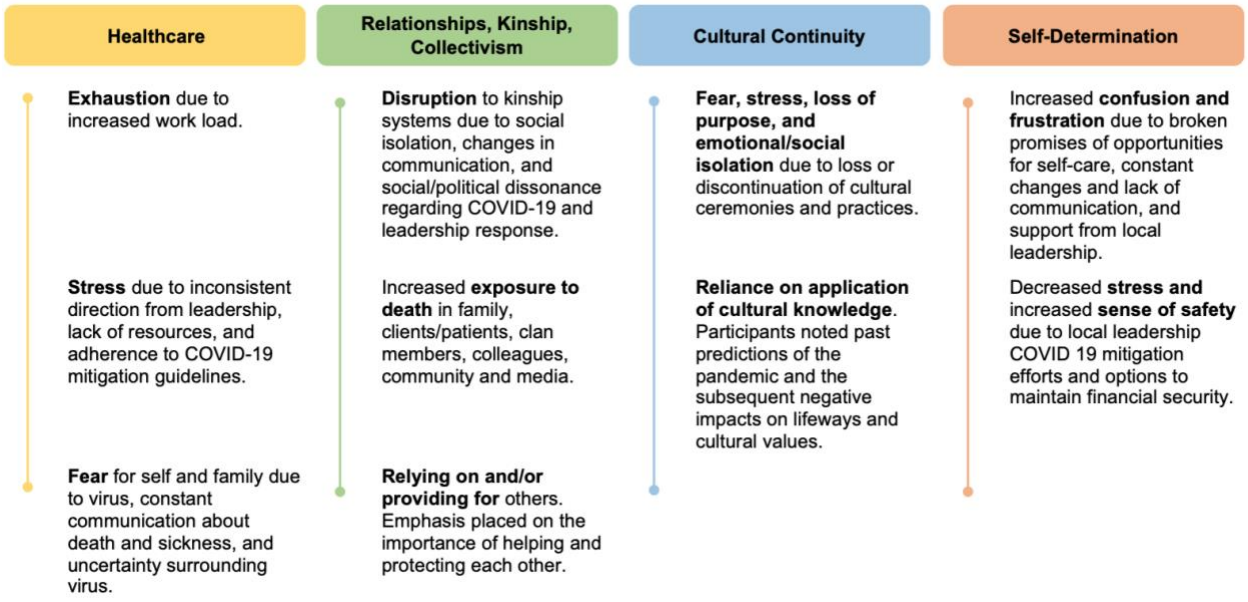

Figure 3. IDOH impacts on mental wellbeing: Similarities between groups.

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

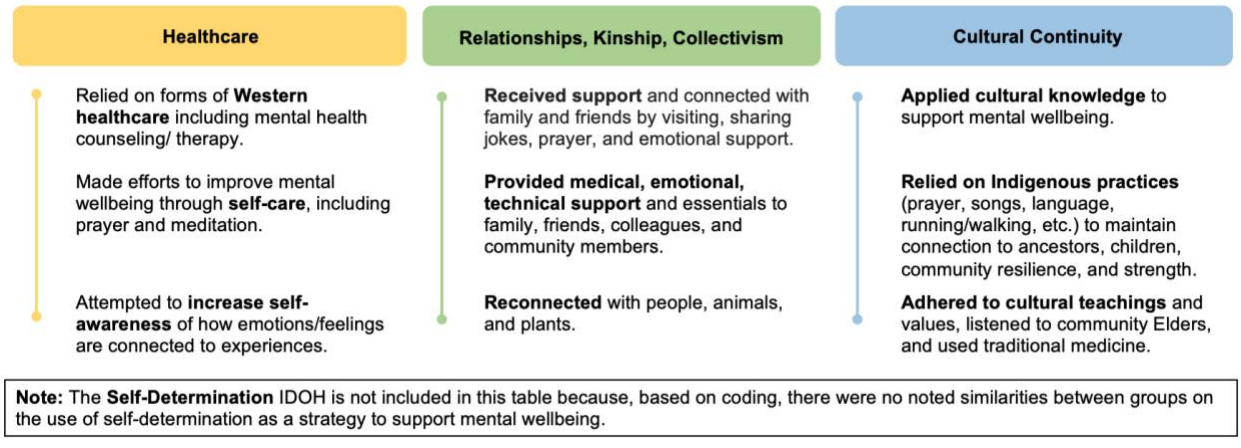

Figure 4. IDOH strategies to support mental wellbeing: Similarities between groups.

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.

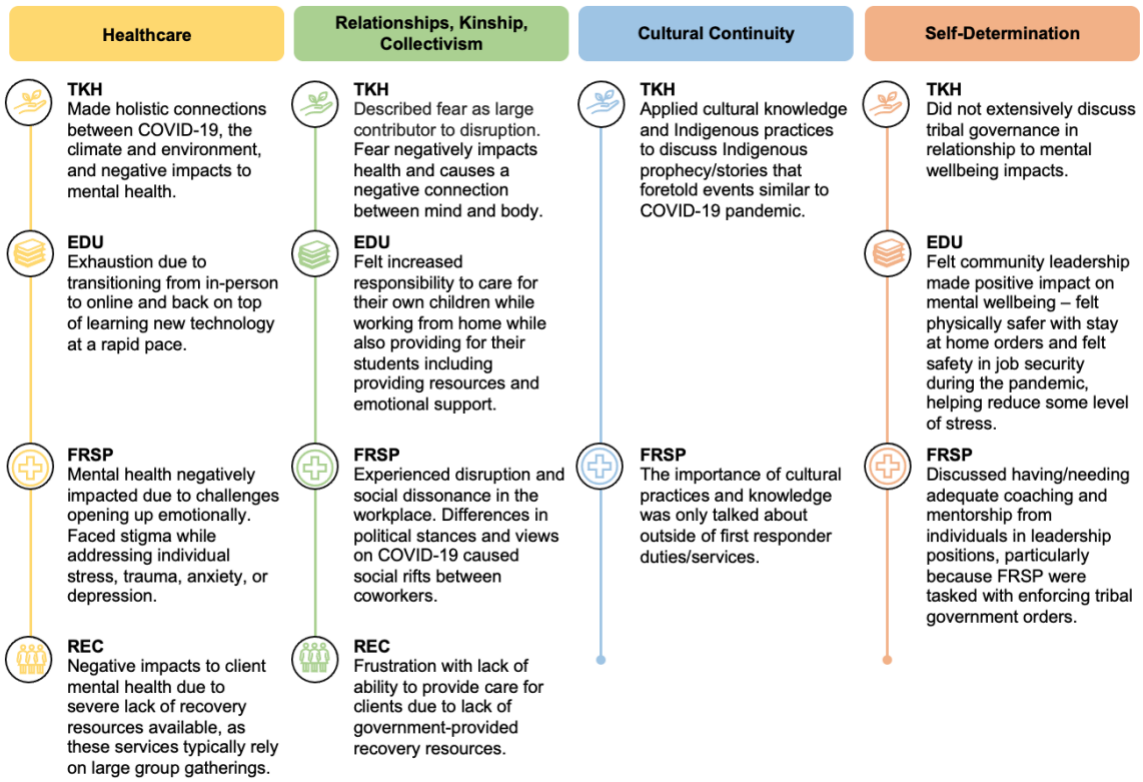

Figure 5. IDOH impacts on mental wellbeing: Differences between groups.

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

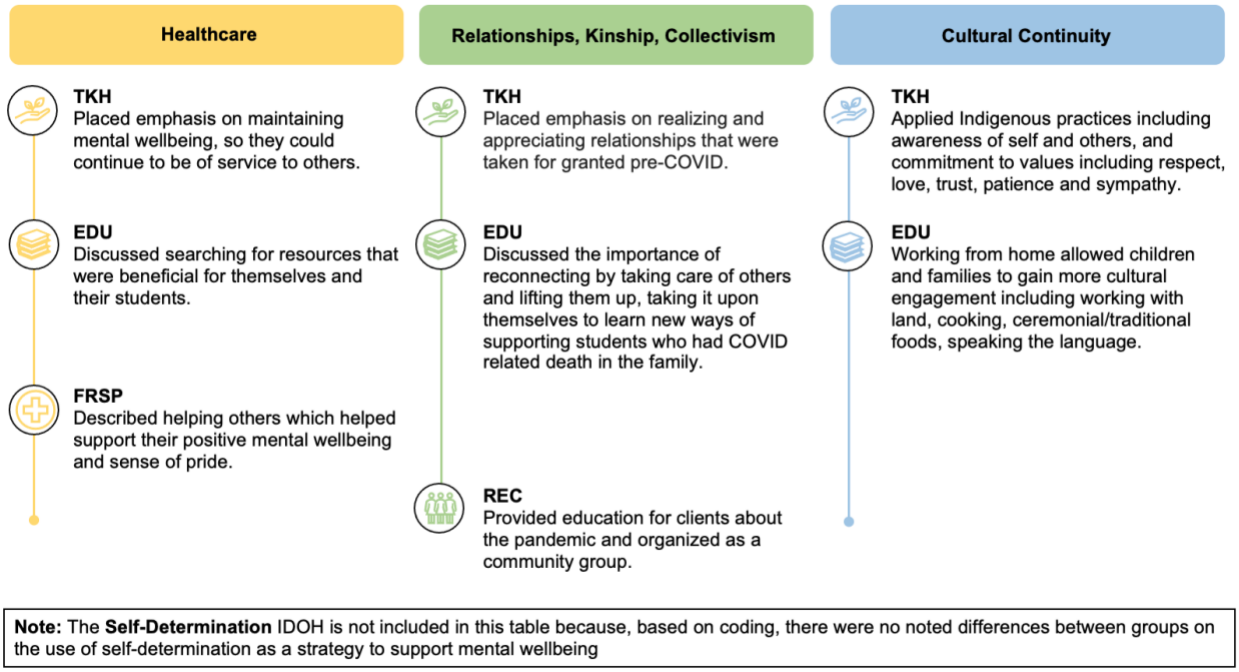

Figure 6. IDOH strategies to support mental wellbeing: Differences between groups.

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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