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The Role of Social Networks on Depression and Anxiety among a Sample of Urban American Indian/Alaska Native Emerging Adults

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Abstract

Purpose: Mental health inequalities continue to persist among American Indian/Alaska Native (AI/AN) people. However, few studies have examined the association of social networks and depression and anxiety among urban emerging AI/AN adults.

Methods: This study analyzes the association of social network characteristics with depression and anxiety among a sample of urban AI/AN emerging adults. A second set of regression models tested the same associations but controlling for respondent SGM status. Data were from a sample of 150 AI/AN emerging adults residing in urban areas from 20 different states [(86% female; mean age 21.8; sexual gender minority (SGM) (48.0%)] who participated in a randomized controlled trial analyzing the effects of culturally grounded interventions on alcohol and other drug use and cultural connectedness.

Results: Participants with a higher proportion of network members who were around the same age reported significantly less anxiety. Those who had a higher proportion of network members who they sometimes/often argue/fight with were more likely to report greater depression and anxiety. Participants with higher proportions of social network members who have ever lived on a reservation/Rancheria/tribal land/tribal village reported significantly less depression. However, participants with higher proportions of social network members who lived 50 miles away or more reported significantly more depression. Controlling for SGM status, results were largely similar.

Conclusions: Results highlight the role of social connections on the mental well-being of urban AI/AN emerging adults.

Keywords

Mental Health; Social Factors; Cross-cultural; Depression; Anxiety

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American Indian/Alaska Native (AI/AN) people experience multiple mental health inequities and under-resourced mental health care [1].

Although AI/AN and Asian individuals reported the lowest rate of having had a major depressive episode in 2019 based on data from the National Survey on Drug Use and Health (NSDUH) [2], rates of suicide among AI/AN people consistently surpass those among all other ethnic and racial groups in the U.S. [3]. There are few large studies analyzing rates of anxiety disorders among AI/AN people. However, among a national sample of over one million individuals who completed a free, online mental health screen in 2020, reports of moderate to severe symptoms of anxiety were highest among Native American or American Indian people (84%) [4].

Emerging adulthood is a vulnerable period with respect to mental health. For example, among a racially and ethnically diverse sample of emerging adults ages 18–25 in the general U.S. population who completed the Household Pulse Survey (HPS) in 2021, 48% reported anxiety and/or depression symptoms high enough to need further screening and treatment [5]. The HPS is a national adult online survey conducted by the U.S. Census in collaboration with the National Center for Health Statistics and other federal agencies to understand the COVID-19 pandemic's impact on U.S. families. Thus, identifying factors that can help protect AI/AN emerging adults from mental health issues may help to foster resiliency and overall health among this under-researched population.

Social connections are a fundamental human need [6] and may enhance mental and physical health by lessening stress, enhancing immune function, and promoting life satisfaction [7]. Developing and maintaining healthy social connections plays a critical role in mental health among adolescents [8]; however, numerous studies have shown that people with anxiety and depression experience social disconnection [7]. Of note, adolescents and emerging adults may be especially susceptible to mental health issues due to social disconnection and loneliness [9]; 20–48% of adolescents and young adults report severe levels of loneliness [10,11], which has only increased since the COVID-19 pandemic [12].

Among AI/AN people, social connectedness is a core aspect of AI/AN history and culture that has contributed to the mental health and well-being of this population [13] and has helped maintain cultural and spiritual connectedness. Only a few studies; however, examine the role of social connectedness and mental health among AI/AN people [14–17], and very few have been conducted among AI/AN adolescents and emerging adults. One recent study analyzed risk and protective factors of social networks among a sample of AI youth living on a reservation in the Southwest who had reported attempting suicide or having suicidal ideation [16]. Those youth who had attempted suicide nominated more friends in their networks that used alcohol and drugs compared to networks of AI youth that experienced

recent suicide ideation. However, youth who had attempted suicide were also more likely to nominate friends that they had reached out to when they were struggling with suicide compared to those AI youth who reported suicide ideation.

Social connection may be particularly difficult in urban areas given geographic fragmentation, and more than 87% of AI/AN individuals live outside of reservations and tribal lands [18]. The large proportion of AI/AN people living in urban areas is rooted in the Relocation Act of 1956 [19]. This Act financed the relocation of AI/AN people from reservations to thirteen urban areas of the U.S. with the promise of employment and a "new life." However, many AI/AN people were not able to find employment and were no longer able to easily connect with their culture and other AI/AN individuals. As a result, culture, traditional practices, and spirituality were significantly disrupted, contributing to feelings of isolation and discrimination, which has perpetuated health inequities and disparities [20,21]. Furthermore, this population is typically one of the smallest ethnic and racial groups in urban areas, which can make socially connecting with other AI/AN people difficult, especially outside of reservations and tribal lands.

The current study increases our understanding of the association between social network characteristics and depression and anxiety among AI/AN emerging adults who reside in urban areas throughout the U.S. Personal networks characterize primary ties directly connected to a sample of individuals. The focal individuals (the "egos") name a list of their network contacts (their "alters") and answer questions about each network member and the ties between them [22]. We assessed the association between depression and anxiety among our sample and characteristics of their personal networks: 1) general characteristics of network members [e.g., age, relationship status (friends or family), geographic proximity], 2) quality of social network member relationships, (e.g., if their social network members give emotional support, or if they argue/fight), 3) cultural characteristics (e.g., if their social network members ever lived on a reservation, or engage in AI/AN traditional practices), and 4) substance use (whether networks members use alcohol or other drugs heavily).

Our first set of hypotheses concerned general characteristics of network members. We expected that having a higher proportion of alters who are around the same age would be associated with less depression and anxiety as having friends around the same age may help decrease sense of isolation [23] and increase sense of self-worth [24]. We also expected that having a higher proportion of alters who are AI/AN would be associated with less depression and anxiety as individuals may have the opportunity to share more life experiences and challenges within the urban setting, thereby helping to foster resiliency [25,26]. In addition, we expected that having a higher proportion of alters who are family would be associated with less depression and anxiety due to the proposed benefits of intergenerational networks among AI/AN people [27]. Further, we expected that being in contact once a week or more would be associated with less depression and anxiety as individuals who have more frequent social contact are less likely to use mental health services [28]. Finally, we expected that having a higher proportion of alters who live less than 50 miles away would be associated with less depression and anxiety as it is easier to connect.

Our second set of hypotheses concerned the quality of social networks. Specifically, we expected that higher/better quality of social networks would be associated with lower depression and anxiety as people who have supportive relationships typically report better mental health [29] whereas those who report interpersonal disputes tend to have poorer mental health [30,31]. We also expected that deeper/stronger cultural characteristics of alters would be associated with less depression and anxiety as research has shown that engaging with AI/AN culture can be protective [25]. For substance use, similar to a prior study [16], we hypothesized that having a higher proportion of network members who drank heavily, used cannabis regularly, or used other drugs would be associated with greater anxiety and depression.

Methods

Participants

This study included a sample of AI/AN emerging adults residing in urban areas of the U.S. (N=150; 86% female; mean age 21.8). Participants were part of a randomized controlled trial testing the effects of two culturally grounded interventions on alcohol and other drug (AOD) use and cultural connectedness [32]. The research team has a long history of working with urban AI/AN communities to provide support and address health disparities, and the first and seventh authors of this paper are of AI/AN descent. Participants met the following eligibility criteria: 1) aged 18 to 25; 2) living in an urban area (i.e., not on a Rancheria, reservation, or other tribal lands); 3) self-identifying as AI/AN; 4) do not have an opioid use disorder; and 5) English speaking. For any participant who reported any suicidal ideation within the past 30 days, we offered resources and referrals for mental health treatment in their area. Data for this study come from an online baseline survey focused on understanding the influence of social networks on health behaviors. Participants were recruited from across the U.S. via social media advertisements on the project's Facebook and Instagram pages. We also distributed flyers at community events, mailed flyers to our community partners across the U.S. and recruited at community forums at AI/AN agencies in California. Participants were paid $40 for completing the survey; procedures were approved by the RAND IRB and the project's Urban Intertribal Native American Review Board.

Measures

Demographics.—We collected participant age, sex at birth, gender identification, sexual orientation, and mother's education. Participants could choose from a variety of answers to identify themselves demographically. For example, for what best describes their gender identity, participants could choose: a) female, b) male, c) gender fluid, d) something else, or e) prefer not to say. Based on participant answers to various questions we defined sexual and gender minority (SGM) as having: a) any sexual orientation other than "straight/ heterosexual," b) an assigned sex at birth as being "something else," c) gender identity defined as "gender fluid" or "something else," d) a transgender identity, e) a history of same-gender sex, or f) discordance between sex at birth and gender identity.

Patient Health Questionnaire-9 (PHQ-9).—The PHQ-9 is a self-administered instrument that measures depression. It contains nine items, includes DSM-IV depression

criteria with other major symptoms of depression, and is used for diagnosing depression [33]. Each item is rated on a 4-point Likert-type scale (from 0 = *not at all* to 3 = *nearly every day*), with the sum of the items ranging from 0 to 27. Depression severity is determined by the sum of the items: minimal: 0–4, mild: 5–9, moderate: 10–14, moderately severe: 15–19, severe: 20–27.

Generalized Anxiety Disorder-7 (GAD-7).—The GAD-7 is a self-administered instrument that assesses the defining symptoms of anxiety [34]. This instrument contains 7 items which are rated on a 4-point Likert-type scale (from 0 = *not at all* to 3 = *nearly every day*), and the sum of the items ranges from 0 to 21. The severity of anxiety is determined by the sum score as follows: minimal: 0–4, mild: 5–9, moderate: 10–14, severe: 15–21. Previous studies have demonstrated reliability and validity of this instrument [35,36].

Social networks.—We measured respondents' social networks with an egocentric/ personal network survey instrument [22]. We asked respondents ("egos") to name up to fifteen people whom they talked with the most over the past three months ("alters"). For each alter, respondents reported on their general demographic characteristics, quality of relationship, cultural characteristics, and alcohol and drug use. For general demographics characteristics, participants were asked if their alters: 1) are around the same age as the participant vs. either "much younger" or "much older", 2) are AI/AN, 3) are "friends", 4) are "family", 5) live 50 miles away, and 6) have contact with them once a week or more. Contact was defined for respondents as talking in person or by phone call, or communicating via email, text, or social media. Respondents also rated the quality of their relationship with each alter. They were asked if the alter: 1) gives emotional support or advice to the participant, 2) gives money, transportation, food, or other things to the participant, and 3) sometimes/often argues/fights with the participant. With regard to cultural characteristics of alters, participants were asked if they: 1) discussed what it is like to be AI/AN with alters, 2) engaged in traditional practices, 3) engaged in traditional practices with their alters, and 4) whether each alter ever lived on a reservation/Rancheria/tribal land/tribal village. Participants were also asked if alters participated in heavy drinking, such as regularly consuming 4–5 drinks in a short period of time (1–2 hours), regular use of marijuana (every day or nearly every day), and/or use of other drugs to get high, such as opioids. We calculated the proportion of alters within the network for each of these characteristics for each respondent.

Analysis

We conducted bivariate linear regression analysis to examine how social network characteristics were correlated with depression and anxiety outcomes. We also estimated all associations controlling for SGM status as we had a high proportion of the sample who endorsed SGM; these were estimated by repeating the regression models described above and adding an SGM indicator as a control. Given that this paper is the first to examine social network characteristics for urban AI/AN emerging adults and the association of these characteristics with depression and anxiety, we did not include other covariates. We used a similar approach in a recent paper examining social network characteristics and their

influence on alcohol and cannabis use [37]. We did not have missing data on any of the social network or survey measures.

Results

Participants came from 20 different states, including the West Coast, Mid-West, and East Coast regions. The top five states from which participants came from were California, Arizona, Washington, Oregon, and Minnesota. Table 1 provides participant demographics and alter characteristics. The majority of participants reported female sex (86%) and female was the most common gender (72.7%). Almost half of the sample reported their sexual orientation as straight/heterosexual (48.7%) followed by bisexual (30.7%), and nearly half of the sample identified as SGM (48.0%). Most of the sample (88.7%) indicated that their mother had a high school diploma or higher level of education. Overall, participants reported mild levels of depression (PHQ mean=9.48) and anxiety (GAD mean=8.62).

For general network characteristics, we found that, on average, participants' reported that more than half of the alters in their personal networks were around their same age (Table 1). Participants indicated that, on average, they were in contact with 58% of their network members once a week or more, over 80% of alters provided emotional support or advice, about 44% provided tangible support (money, transportation, food, or other things), and about 15% said that they argued sometimes or often with their network members. Participants reported that they had discussions about what it's like to be AI/AN with about 74% of the alters in their social network.

Table 2 provides bivariate tests between social network characteristics and each dependent variable. For general characteristics, having a higher proportion of alters who are around the same age was significantly associated with less anxiety (Figure 1) whereas participants with higher proportions of alters who lived 50 miles away or more reported significantly more depression. None of the other general characteristics were significantly associated with mental health. For quality of social networks, the only significant association was that participants who reported having a higher proportion of alters with whom they sometimes/ often argue/fight with reported greater anxiety (Figure 1) and depression (Figure 2). For cultural characteristics, we note one significant association whereby participants with higher proportions of alters who have ever lived on a reservation/Rancheria/tribal land/tribal village reported significantly less depression. We did not find associations with alters' heavy drinking, regular cannabis use, or other drug use behavior and the individual's mental health.

Our sample consisted of many participants who reported SGM identity. Because SGM young people tend to report significantly higher rates of depression and anxiety compared with cisgender/heterosexual individuals [38], we conducted a second set of regression models, controlling for SGM status. Overall, results were largely similar with one difference: the association for the proportion of alters who live fifty miles away or more was only marginally significantly associated with more depression (p=0.06).

Discussion

To our knowledge, this is the first study to examine the important role of social networks on the mental health of urban AI/AN emerging adults by analyzing various social network composition characteristics, including general characteristics, quality of relationships, cultural characteristics, and heavy substance use. Findings show that having more individuals who are around the same age, live closer to the participant, who do not fight or argue, and who have spent time on their home reservations may help protect this population from depression and anxiety. Thus, findings provide valuable information that may help address strategies to harness healthy social connections, thereby helping support mental well-being among this population.

As expected, having a higher proportion of people in the network around one's age was associated with less anxiety, consistent with other work among racially and ethnically diverse samples in this age group [23,24]. In addition, being closer in distance to people in one's network was associated with less depression, thus, enhancing social connections in urban areas is recommended. However, given that urban areas are often spread out, many urban AI/AN emerging adults experience challenges connecting with other AI/AN people that live in their geographic area [39,20]. Strategies to help urban AI/AN emerging adults form close friendships with other emerging adults their own age within their communities are needed. Creating more opportunities for urban AI/AN emerging adults to socially connect at community and cultural events may help to decrease feelings of isolation, thus helping them to feel less depressed and anxious. Unexpectedly, we did not find associations with any of the other general characteristics of alters, including if they were AI/AN, friends, or family. Further research is recommended to understand how these social connections may affect the mental well-being of this population.

For quality of relationships, only having social connections with people with whom AI/AN emerging adults argued or fought with was associated with higher anxiety and depression. Other studies have shown a link between interpersonal conflict and mental health symptoms among the general population [30,31]. Overall, our findings highlight the importance of supporting urban AI/AN emerging adults to develop and maintain healthy relationships by enhancing skills to successfully navigate challenging relationships. Unexpectedly, we did not see associations with having higher proportions of social network members who provide emotional support or advice and who give money, transportation, food, or other items to participants and less depression and anxiety. However, previous studies have highlighted that having close relationships can be protective [40]; thus, further work is needed to understand effects of these specific network characteristics on mental health.

With regard to cultural characteristics, connecting with AI/AN people who ever lived on reservations, Rancherias, or other tribal lands was associated with fewer depressive symptoms. Thus, discussing ways that urban AI/AN emerging adults can develop and maintain social networks who may have closer ties with their reservation homelands may decrease feelings of depression by connecting with other AI/AN people who may help foster their own connections and interests to their culture [25]. Further, to help navigate these issues, mentorship for AI/AN young people may help them socially connect more

and overcome adversity within their communities [41]. Unexpectedly, we did not find associations with any of the other alter cultural characteristics and mental health. This may be because some of these characteristics may bring up positive or negative feelings depending on the individual and their experiences. For example, discussing what it is like to be AI/AN can help some individuals connect with their culture and identify more strongly with their heritage, which could increase mental well-being [25,26]; however, these discussions may also be associated with greater thoughts of historical loss [42], which is related to higher anxiety and depression.

Finally, we did not find an association between social network members' substance use and individuals' mental health, which contrasts with a prior paper on youth reporting suicide attempts [16]. Given that our sample was older, it may be that substance use was not as great of a risk factor for their mental health as many of the people using substances were of legal age.

The current study has several limitations. First, analyses are cross-sectional; thus, we cannot interpret causality. Second, our sample was small, although participants came from twenty different states; thus, generalizability may be limited. In addition, we had a low number of males in the sample, limiting our ability to examine gender differences. Finally, the western assessments in this study may not adequately address the communal orientation of Indigenous communities and Indigenous ways of knowing [43], resulting in overlooking cultural norms and emotions that may more accurately capture mental health distress among AI/AN emerging adults. Also, there have been mixed results with the use of Western-based instruments for mental health diagnoses in previous studies among AI/AN and other cultural groups [44,45].

Despite limitations, our findings are an important first step in understanding how social networks may affect mental health among urban AI/AN emerging adults. Due to the dearth of research conducted with urban AI/AN young people, this study provides valuable information that may help enhance mental health treatment approaches for this historically marginalized population.

Overall, findings highlight the role of social connections on the mental well-being of a sample of urban AI/AN emerging adults residing in 20 different states of the U.S. Results provide valuable information on how urban AI/AN emerging adults' social connections may confer protection or place them at risk for depression and anxiety. Further work is needed with larger samples to help understand the important role that social networks may play in mitigating depression and anxiety among this population.

Abbreviations:

AI/AN   American Indian/Alaska Native

SGM   sexual gender minority

References

[1]. O'Keefe VM, Cwik MF, Haroz EE, Barlow A. Increasing culturally responsive care and mental health equity with Indigenous community mental health workers. Psychol Serv. 2021; 18(1): 84–92 [PubMed: 31045405]

[2]. SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2019 and Quarters 1 and 4, 2020. https://www.samhsa.gov/data/sites/default/files/reports/rpt35323/NSDUHDetailedTabs2020v25/NSDUHDetailedTabs2020v25/NSDUHDetTabsSect8pe2020.htm

[3]. CDC. Injury prevention & control. WISQARS: Web-based Injury Statistics Query and Reporting System. Atlanta, GA: US Department of Health and Human Services, CDC; 2021. https://www.cdc.gov/injury/wisqars/index.html. Accessed July 25, 2022.

[4]. Mental Health American, 2023. How race matters: What we can learn from mental health America's screening in 2020. https://mhanational.org/mental-health-data-2020. Accessed August 13, 2023.

[5]. Adams SH, Schaub JP, Nagata JM, et al. Young adult anxiety or depressive symptoms and mental health service utilization during the COVID-19 pandemic. J Adolesc Health. 2022; 70(6): 985–988 [PubMed: 35422363]

[6]. Baumeister RF, Leary MR. The need to belong: desire for interpersonal attachments as a fundamental human motivation. Psychol Bull. 1995; 117(3): 497–529 [PubMed: 7777651]

[7]. Taylor CT, Pearlstein SL, Stein MB. A tale of two systems: Testing a positive and negative valence systems framework to understand social disconnection across anxiety and depressive disorders. J Affect Disord. 2020; 266: 207–214 [PubMed: 32056878]

[8]. Levula A, Wilson A, Harré M. The association between social network factors and mental health at different life stages. Qual Life Res. 2016; 25(7): 1725–1733 [PubMed: 26669317]

[9]. Perez LG, Siconolfi D, Troxel WM, et al. Loneliness and multiple health domains: Associations among emerging adults. J Behav Med. 2022; 45(2): 260–271 [PubMed: 34981307]

[10]. Beam CR, Kim AJ. Psychological sequelae of social isolation and loneliness might be a larger problem in young adults than older adults. Psychol Trauma. 2020; 12(S1): S58–S60 [PubMed: 32525372]

[11]. Williams SE, Braun B. Loneliness and social isolation—A private problem, a public issue. J Fam Consum Sci. 2019; 111: 7–14

[12]. Sim B, Lim MH. The COVID-19 pandemic focuses attention on loneliness and social isolation. Public Health Res Pract. 2020; 30(2): 3022008 [PubMed: 32601651]

[13]. Rodning CB Social networks and the archaeology of the Native American South. PNAS. 2019; 116(14): 6519–6521 [PubMed: 30872486]

[14]. McKinley CE, Boel-Studt S, Renner LM, Figley CR. Risk and protective factors for symptoms of depression and anxiety among American Indians: Understanding the roles of resilience and trauma. Psychol Trauma. 2021; 13(1): 16–25 [PubMed: 32940525]

[15]. Chong J, Lopez D. Social networks, support, and psychosocial functioning among American Indian women in treatment. Am Indian Alsk Native Ment Health Res. 2005; 12(1): 62–85 [PubMed: 17602394]

[16]. Ivanich JD, O'Keefe V, Waugh E, et al. Social network differences between American Indian youth who have attempted suicide and have suicide ideation. Community Ment Health J. 2022; 58(3): 589–594 [PubMed: 34196904]

[17]. Philip J, Ford T, Henry D, et al. Relationship of social network to protective factors in suicide and alcohol use disorder Intervention for rural Yup'ik Alaska Native youth. Interv Psicosoc. 2016; 25(1): 45–54 [PubMed: 27110094]

[18]. U. S. Census Bureau. Facts for Features: American Indian and Alaska Native Heritage Month: November 2021. https://www.census.gov/newsroom/facts-for-features/2021/aian-month.html.

[19]. Oklahoma State University Digital Collections. (n.d.). Indian Affairs: Laws and Treaties. http://dc.library.okstate.edu/digital/collection/kapplers.

[20]. Dickerson DL, Brown RA, Klein DJ, et al. Overt perceived discrimination and racial microaggressions and their association with health risk behaviors among a sample of urban American Indian/Alaska Native adolescents. J Racial Ethn Health Disparities. 2019; 6(4): 733–742 [PubMed: 30788812]

[21]. Weaver HN (2012). Urban and Indigenous: The challenges of being a Native American in the city. J Community Pract. 2012; 20(4): 470–488

[22]. Perry BL, Pescosolido BA, Borgatti SP. Egocentric network analysis: Foundations, methods, and models. Cambridge University Press; 2018.

[23]. Juvonen J, Lessard LM, Kline NG, Graham S. Young adult adaptability to the social challenges of the COVID-19 pandemic: The Protective Role of Friendships. J Youth and Adolesc. 2022; 51(3): 585–597 [PubMed: 35103932]

[24]. Narr RK, Allen JP, Tan JS, Loeb EL. Group desirability as differential predictors of adult mental health. Child Dev. 2019; 90(1): 298–313 [PubMed: 28832975]

[25]. Brown RA, Palimaru AI, Dickerson DL, et al. Cultural dynamics, substance use, and resilience among American Indian/Alaska Native emerging adults in urban areas. Advers Resil Sci. 2022; 18: 1–10

[26]. Dickerson DL, D'Amico EJ, Palimaru A, et al. Traditions and Connections for Urban Native Americans (TACUNA): Utilizing community-based input to develop an opioid prevention intervention for urban American Indian/Alaska Native emerging adults. J Subst Abuse Treat. 2022; 139: 108764 [PubMed: 35450751]

[27]. Schultz K, Ivanich JD, Whitesell NR, Zacher T. Tribal Reservation Adolescent Connections Study: A study protocol using mixed methods for examining social networks and associated outcomes among American Indian youth on a Northern Plains reservation. Child Abuse Negl. 2023; Apr 27: 106198 [PubMed: 37117069]

[28]. Maulik PK, Eaton WW, Bradshaw CP. The role of social network and support in mental health service use: findings from the Baltimore ECA study. Psychiatr Serv. 2009; 60(9): 1222–1229 [PubMed: 19723737]

[29]. Li F, Luo S, Mu W, et al. Effects of sources of social support and resilience on the mental health of different age groups during the COVID-19 pandemic. BMC Psychiatry. 2021; 7;21(1): 16 [PubMed: 33413238]

[30]. Wong JJ, Frost ND, Timko C, et al. Depression and family arguments: disentangling Reciprocal effects for women and men. Fam Pract. 2020; 37(1); 49–55 [PubMed: 32076721]

[31]. Owens GP, Held P, Blackburn L, et al. Differences in relationship conflict, attachment, and depression in treatment-seeking veterans with hazardous substance use, PTSD, or PTSD and hazardous substance use. J Interpers Violence. 2013; 29(7): 318–337

[32]. D'Amico EJ, Dickerson DL, Rodriguez A, et al. Traditions and Connections for Urban Native Americans: Study protocol for a randomized controlled trial. Addict Sci Clin Pract. 2021; 16(1): 56 [PubMed: 34565444]

[33]. Kroenke K, Spitzer RL, Williams JB. The PHQ-9: validity of a brief depression severity measure. J Gen Intern Med. 2001; 16(9): 606–613 [PubMed: 11556941]

[34]. Spitzer RL, Kroenke K, Williams JBW, Löwe B. A brief measure for assessing generalized anxiety disorder: The GAD-7. Arch Intern Med. 2006; 166(10): 1092–1097 [PubMed: 16717171]

[35]. Löwe B Decker O, Müller S, et al. Validation and standardization of the generalized anxiety disorder screener (GAD-7) in the general population. Med Care. 2008; 46: 266–274 [PubMed: 18388841]

[36]. Sousa TV, Viveiros A, Chai MV, et al. Reliability and validity of the Portuguese version of the Generalized Anxiety Disorder (GAD-7) scale. Health Qual Life Outcomes. 2015; 13: 8 [PubMed: 25617062]

[37]. D'Amico EJ, Kennedy DP, Malika N, et al. Risk and protective factors of social networks on alcohol, cannabis and opioid use among urban American Indian/Alaska Native emerging adults. Psychol Addict Behav. 2023; 37(5): 657–669 [PubMed: 37023284]

[38]. Borgogna NC, Mcdermott R, Aita SL, Kridel MM. Anxiety and depression across gender and sexual minorities: Implications for transgender, gender nonconforming, pansexual, demisexual, asexual, queer, and questioning individuals. Psychol Sex Orientat Gend Divers. 2018; 6(1): 54–63

[39]. Johnson CL, Begay C, Dickerson D. Final development of the Native American Drum, Dance, and Regalia Program (NADDAR), a behavioral intervention utilizing traditional practices for urban Native American families: A focus group study. The Behavioral Therapist. 2021; 44(4): 198–203

[40]. Ross KM, Rook K, Winczewski L, et al. Close Relationships and Health: The Interactive Effect of Positive and Negative Aspects. Soc Personal Psychol Compass. 2019; 13(6): e12468 [PubMed: 32922511]

[41]. Education Development Center, 7th generation national tribal mentoring program. Kinship mentoring framework group session facilitator's guide. https://nationalmentoringresourcecenter.org/wp-content/uploads/2018/02/7th_Generation-Guide_Native_American_Mentoring_Facilitator_Guide.pdf. Accessed on February 24, 2023.

[42]. Kennedy DP, Brown RA, D'Amico EJ, et al. Social networks, cultural pride, and historical loss among non-reservation American Indian/Alaska Native emerging adults. Submitted for publication

[43]. Elliott-Groves E A culturally-grounded biopsychosocial assessment utilizing Indigenous ways of knowing with the Cowichan tribes. J Ethn Cult Divers Soc Work. 2019; 28(1): 115–133 [PubMed: 31897045]

[44]. Harry ML, Waring SC. The measurement invariance of the Patient Health Questionnaire-9 for American Indian adults. J Affect Disord. 2019; 254, 59–68 [PubMed: 31108281]

[45]. Parkerson HA, Thibodeau MA, Brandt CP, et al. Cultural-based biases of the GAD-7. J Anxiety Disord. 2015; 31: 38–42 [PubMed: 25725310]
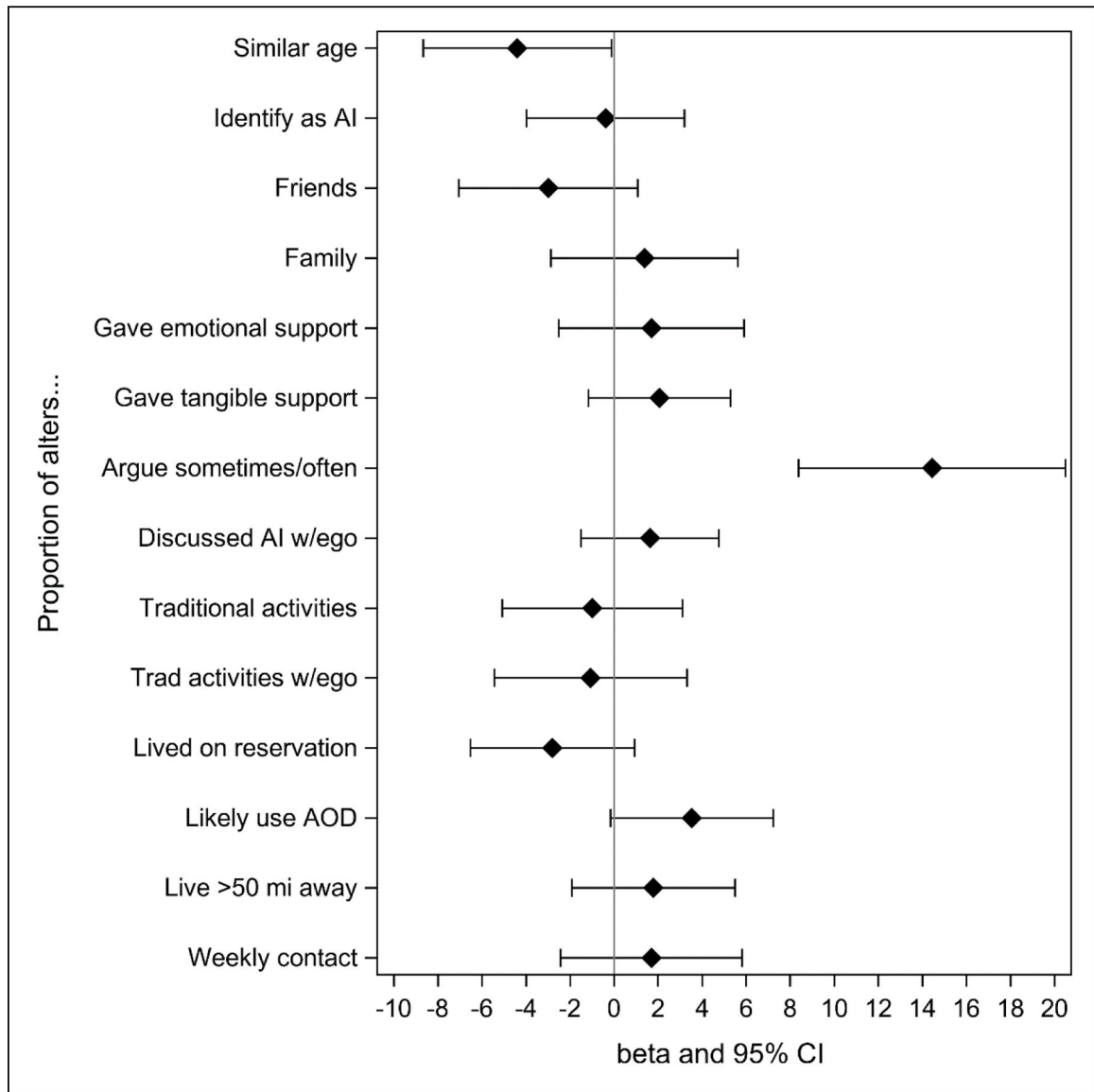
Figure 1.
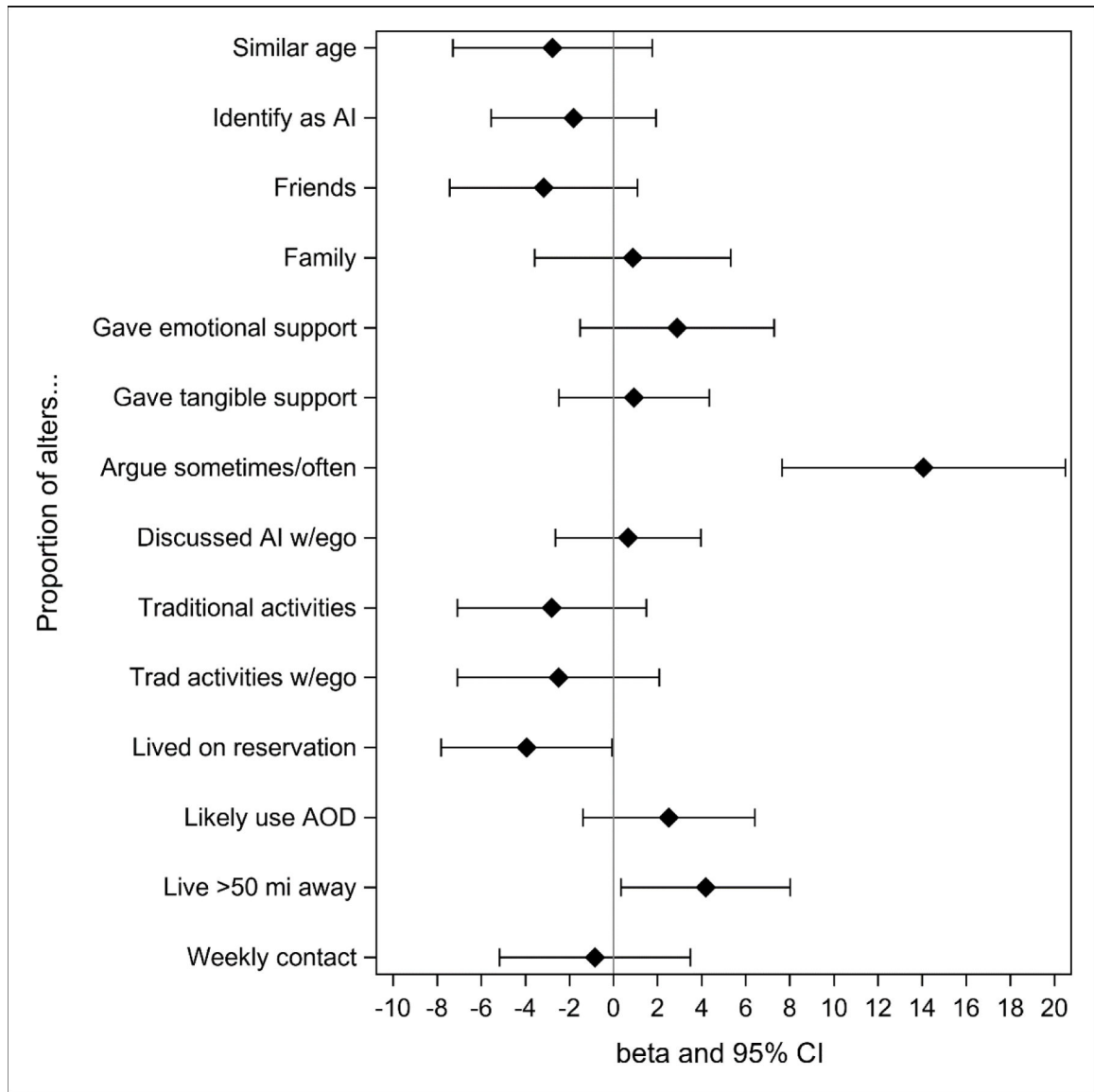Bivariate associations of selected social network composition measures with index anxiety

Figure 2.
Bivariate associations of selected social network composition measures with index
depression

Table 1.

Participant and Social Network Member Characteristics (n = 150)

Participant Characteristics	(%)
Age	
18	8.0
19	11.3
20	13.3
21	8.0
22	14.7
23	16.0
24	16.7
25	12.0
Sex at birth	
Male	14.0
Female	86.0
Intersex/Other	0.0
Gender	
Male	12.0
Female	72.7
Gender fluid	10.0
Something else	4.7
Prefer not to say	0.7
Sexual Orientation	
Straight/heterosexual	48.7
Gay	2.0
Lesbian	4.7
Bisexual	30.7
Questioning	4.7
Asexual	2.0
Something else	5.3
Prefer not to say	2.0
Sexual and gender minority	48.0
Mother's education	
Less than high school	8.7
High school	21.3
Some college/AA	30.7
Bachelor's degree	36.7
Don't know	2.7
Mental health	M (SD)
Patient Health Questionnaire-9	9.48 (6.17)

Participant Characteristics	(%)
Generalized Anxiety Disorder-7	8.62 (5.89)
Social Network Member Characteristics % of alters who…	**M(SD) of percentage**
General characteristics	
Are around the same age	59.0 (22.1)
Are AI/AN	40.1 (26.7)
Are friends	45.4 (23.4)
Are family	35.2 (22.5)
Live fifty miles away or more	34.5 (25.8)
Are in contact once a week or more with index participant	58.0 (23.2)
Quality of relationships	
Give emotional support or advice to index participant	80.7 (22.7)
Give money, transportation, food, or other things to index participant	44.3 (29.4)
Sometimes/often argue/fight with index participant	14.8 (14.7)
Cultural characteristics	
Have discussed what it's like to be AI/AN with index participant	73.7 (30.4)
Engaged in cultural or traditional activities with index participant	25.1 (23.3)
Have engaged in traditional practices with index participant	20.9 (21.9)
Have lived on a reservation/Rancheria/tribal land/tribal village	21.8 (25.5)
Substance use characteristics	
Regular use of alcohol or other drugs	33.7 (25.6)

Table 2.

Bivariate associations of selected social network composition measures with mental health outcomes (n=150)

Proportion of Social Network Members who…	Coefficient (SE)	
	PHQ	GAD
Demographics		
Are around same age	−2.76 (2.29)	**−4.40 (2.16)** *
Are American Indian/Alaska Native (AI/AN)	−1.82 (1.89)	−0.38 (1.81)
Are friends	−3.18 (2.15)	−2.99 (2.06)
Are family	0.88 (2.25)	1.38 (2.15)
Live fifty miles away or more	**4.18 (1.94)** *	1.78 (1.87)
In contact once a week or more with index participant	−0.84 (2.19)	1.70 (2.08)
Quality of relationships		
Give emotional support or advice to index participant	2.88 (2.22)	1.70 (2.13)
Give money, transportation, food, or other things to index participant	0.92 (1.72)	2.06 (1.64)
Sometimes/often argue/fight with index participant	**14.07 (3.25)** ***	**14.44 (3.07)** ***
Cultural characteristics		
Have discussed what it's like to be AI/AN with index participant	0.66 (1.67)	1.64 (1.58)
Engage in traditional practices	−2.80 (2.16)	−0.99 (2.07)
Have engaged in traditional practices with index participant	−2.50 (2.31)	−1.07 (2.21)
Have lived on a reservation/Rancheria/tribal land/tribal village	**−3.95 (1.96)** *	−2.81 (1.88)
Substance use characteristics		
Heavy drinking, regular cannabis use, and/or use of other drugs	2.51 (1.97)	3.53 (1.87)

*
p<.05

**
p<.01

***
p<.001