MENTAL HEALTH SERVICE AND PROVIDER PREFERENCES AMONG AMERICAN INDIANS WITH TYPE 2 DIABETES

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Abstract: In this study, we investigated mental health service and provider preferences of American Indian adults with type 2 diabetes from two tribes in the northern Midwest. Preferences were determined and compared by participant characteristics. After controlling for other factors, living on reservation lands was associated with increased odds of Native provider preference, and decreased odds of biomedical service preference. Anxiety also was associated with decreased odds of biomedical service preference. Spiritual activity engagement and past health care discrimination were associated with increased odds of traditional service preference. We discuss implications for the types of mental health services offered and characteristics of providers who are recruited for tribal communities.

INTRODUCTION

American Indians and Alaska Natives (AI/ANs) experience disparities in diabetes and mental health compared to the general U.S. population. As a group, AI/ANs have the highest age-adjusted prevalence of diabetes of any racial/ethnic group in the U.S. (Blackwell, Lucas, & Clarke, 2014; Centers for Disease Control and Prevention, 2011), with higher rates of disease complications (e.g., hypertension, cerebrovascular disease, renal failure, lower-extremity amputations, and liver disease; Barnes, Adams, & Powell-Griner, 2010; O'Connell, Yi, Wilson, Manson, & Acton, 2010). AI/ANs also experience higher lifetime rates of post-traumatic stress disorder (Beals et al., 2005), and substance use disorders (Beals et al., 2005; Whitbeck, Hoyt, Johnson, & Chen, 2006; Whitbeck, ManSoo, Johnson, Hoyt, & Walls, 2008). AI/AN elders also have been found to report poorer mental health as compared to non-Hispanic Whites (Kim, Bryant, Goins, Worley, & Chiriboga, 2012). In a 2007 sample, AI/AN elders reported the highest rates of serious psychological distress of any ethnic

group (Kim, Bryant, & Parmelee, 2012). The risk for co-occurrence of substance abuse, depression, and diabetes is over 12 times higher for AI/ANs than for Whites (Tann, Yahiku, Okamoto, & Yanow, 2007). Prior literature has established the relationship between diabetes and mental health (e.g., depression, alcohol dependence, psychosocial stressors) among AIs (Jiang et al., 2007, 2008). Given the evident need for mental health services, this study aims to determine the preferences for mental and emotional health services and providers among AIs with type 2 diabetes.

For the general U.S. population, those with diabetes are more likely than those without to have depression and anxiety (Anderson, Freedland, Clouse, Lustman, 2001; Grigsby, Anderson, Freedland, Clouse, & Lustman, 2002; Li et al., 2008; Lin & Korff, 2008). Individuals with diabetes and co-occurring depression have greater health care expenditures, more emergency room visits and hospitalizations, and poorer treatment adherence (Ciechanowski, Katon, & Russo, 2000; Egede, 2007; Egede, Zheng, & Simpson, 2002). Comorbid diabetes and mental health problems are associated with decreased quality of life, increased activity impairment (Egede, 2004; Goldney, Phillips, Fisher, & Wilson, 2004), and more complications from diabetes (De Groot, Anderson, Freedland, Clouse, & Lustman, 2001). Perhaps most alarming, individuals with diabetes and mental health problems experience higher rates of diabetes-related mortality compared to those without mental health problems (Egede, Nietert, & Zheng, 2005; Katon et al., 2005; Mai, Holman, Sanfilippo, Emery, & Preen, 2011). Literature evaluating co-occurring mental health problems among AI/ANs with diabetes similarly suggests worse diabetes-related outcomes compared to those without mental health problems (Calhoun et al., 2010; Knaster, Fretts, & Phillips, 2015; Sahota, Knowler, & Looker, 2008; Singh et al., 2004; Walls, Aronson, Soper, & Johnson-Jennings, 2014). Due to the importance of emotional well-being for diabetes care, the American Diabetes Association (2015) recommends assessment and appropriate referral for psychosocial problems such as depression, diabetes-related distress, and anxiety. For individuals with co-occurring diabetes and mental illness, mental health treatment is important for diabetes management.

Among AI/ANs, poor treatment outcomes, limited use of services, and higher dropout from mental health treatment may be due to inadequate options matching their service preferences (Coyhis & Simonelli, 2008; Gone, 2004; Gone & Trimble, 2012; Johnson & Cameron, 2001; LaFromboise, 1988; Rodenhauser, 1994). Preferences for both service and provider influence the decision to initiate treatment (King et al., 2005), and can affect dropout and overall treatment outcomes (Swift & Callahan, 2009; Swift, Callahan, & Vollmer, 2011). As such, it is important to investigate the preferences for service and provider in order to improve the design and delivery of mental health services.

Mental Health Service Preference

We use the term *biomedical services* to refer to institutionalized biomedical and psychiatric services, sometimes referred to as 'Western' medicine. Despite an established need for mental health services, Indian Health Service physicians perceive low rates of access to high-quality, biomedical outpatient mental health services for their patients (Sequist et al., 2011). We use the term *traditional services* to refer to AI/AN traditional cultural outlets, such as talking with elders, offering tobacco and praying, consulting traditional healers, and participating in traditional ceremonies.

Prior work suggests AI/ANs may prefer Indigenous-based traditional services as opposed to biomedical services (Beals et al., 2005; Gone, 2004; Hodge, Limb, & Cross, 2009; Thomason, 2011; Walls, Johnson, Whitbeck, & Hoyt, 2006). In a community sample of reservation-dwelling AIs, more endorsed traditional services as very or extremely effective as compared to biomedical services located both off and on the reservation. After controlling for demographic factors, higher levels of enculturation and discrimination were significantly associated with perceived effectiveness of traditional services (Walls et al., 2006). Over 38% of an urban AI sample used a healer (including spiritual healer, herbalist, medicine woman or man, and elder) in addition to care from a biomedical health care provider, and the overwhelming majority of those who did not would consider seeing a healer in the future (Marbella, Harris, Diehr, Ignace, & Ignace, 1998). For those who had used a healer and obtained advice that differed from their biomedical health care provider, 61.4% rated their healer's advice as more important (Marbella et al., 1998). In a study of college students' treatment preferences, AN students were more likely to endorse community elder, and less likely to endorse psychiatrist, compared to Caucasian students (Stewart, Swift, Freitas-Murrell, & Whipple, 2013). Among AI college students, those strongly committed to tribal culture had more negative attitudes toward seeking counseling, compared to those weakly committed to tribal culture (Price & McNeill, 1992). The American Indian Service Utilization, Psychiatric Epidemiology, Risk and Protective Factors Project examined rates of service utilization for biomedical and traditional services among a tribally enrolled sample of AIs from a Southwest tribe and a Northern Plains tribe. Use of traditional services was prevalent for physical and psychiatric problems, and was associated with traditional spirituality and AI identity (Novins, Beals, Moore, Spicer, & Manson, 2004). For individuals from the Northern Plains tribe, use of traditional services for psychiatric problems was associated with living on reservation for a longer percentage of life (Novins et al., 2004). Among those from the Southwest tribe, more had used traditional or spiritual healers for psychiatric and substance abuse in their life than had used biomedical providers (Beals et al., 2005). Of participants in the study, 50% had used biomedical services in the past year for substance use problems, 42% had used traditional

services, and 39% had used 12-step programs (Beals et al., 2006). Those who had used traditional services were more likely to identify with AI/AN culture than were those who used biomedical services only (Beals et al., 2006).

Provider Preference: Patient-provider Concordance

Another important element of provider preference is concordance between the patient/client and the psychotherapist/counselor, or the degree of similarity between the two. While some past results have called into question the clinical relevance of racial/ethnic matching (Maramba & Nagayama-Hall, 2002; Presnell, Harris, & Scogin, 2012; Shin et al., 2005), others have shown positive outcomes from racially concordant psychotherapy pairs compared to dissimilar pairs (Rickler, Nystul, & Waldo, 1999). When clients' preferences are met, dropout is lower and greater improvements in outcomes are made (Swift et al., 2011). This finding may be due to race serving as a proxy for cultural concordance (Moscou, 2008). A wealth of literature suggests that individuals prefer mental health providers with similar characteristics, including similar personality, values, and attitudes (Atkinson, Furlong & Poston, 1986; Atkinson, Poston, Furlong, & Mercado, 1989; Atkinson, Wampold, Lowe, Matthews, & Ahn, 1998; Ponterotto, Alexander, & Hinkston, 1988).

A meta-analysis of client-psychotherapist racial/ethnic concordance reported a moderately strong effect size for racial/ethnic concordance (Cabral & Smith, 2011). Another meta-analysis intimated ethnic minorities' preference for a racially/ethnically concordant psychotherapist, and suggested that cultural affiliation influences preference for a concordant provider (i.e., those with higher ethnic identity, cultural commitment, or cultural identification were more likely to prefer a provider of the same racial/ethnic background; Coleman, Wampold, & Casali, 1995). Indeed, other studies have shown that cultural factors strengthen the preference for racial/ethnic concordance (Coleman et al., 1995; Helms & Carter, 1991; Sanchez & Atkinson, 1983). In a study with AI/AN college students, participants indicated a preference for a psychotherapist with attitudes and values that matched their own; this finding was particularly true for individuals with a stronger sense of cultural involvement (Bennett & BigFoot-Sipes, 1991; BigFoot-Sipes, Dauphinais, LaFromboise, Bennett, & Rowe, 1992). AN college students demonstrated a stronger preference for a provider with a similar ethnicity compared to Caucasian students (Stewart et al., 2013). Those AN students with higher cultural identification had a greater preference for a provider of similar religious background and socioeconomic status compared to AN students with lower cultural identification (Stewart et al., 2013). Like race/ethnicity preference, gender preference may correlate with presumed similarities of gender concordant psychotherapists. AI/AN female college students strongly preferred a female AI/AN psychotherapist (BigFoot-Sipes et al., 1992).

In summary, both service type and provider characteristics are important considerations in providing mental health services. Frequently, prior research examined service and provider preferences in isolation of one another. In addition, studies with AI/ANs have focused largely on college student and community-based samples. We build upon prior research by surveying both service and provider preference in tandem in a population of AIs with a chronic disease, type 2 diabetes. Given the documented influence of mental health on diabetes outcomes, understanding and responding to the mental health treatment preferences of AIs with diabetes has the potential to improve care and outcomes for both diabetes and mental health.

METHODS

Study Design

The Mino Giizhigad (A Good Day) Study is a community-based participatory research project with the Lac Courte Oreilles and Bois Forte Bands of Chippewa and the University of Minnesota Medical School, Duluth campus. Both tribal communities consented to be named in public dissemination of research findings. The purpose of the overall study was to identify and describe the impact of mental and behavioral health factors on diabetes treatment and outcomes among Ojibwe adults with type 2 diabetes. Tribal resolutions from both communities were obtained prior to submission of the application for funding. The project began with community feasts and forums to discuss the study goals, obtain community feedback, and establish Community Research Councils. Community Research Council and University team members were active participants in the entire research process, from methodological planning to final data collection and analysis. The University of Minnesota and Indian Health Service National Institutional Review Boards reviewed and approved the methodology included in this study.

Sample

Potential participants were randomly selected from each reservation's health clinic records. Inclusion criteria were patients 18 years or older, type 2 diabetes diagnosis, and self-identified as AI. Clinic partners were trained on probability sampling methods to generate a random sample of 150 patients from their lists. Selected patients were mailed a welcome letter, an informational project brochure, and a contact information card with mail and phone-in options to decline participation. After allowing time for declined notices, trained community interviewers contacted remaining recruits to schedule interviews. Consenting participants were given a pound of locally cultivated wild rice

and a $30 cash incentive. Paper-and-pencil, interviewer-administered surveys were completed in participants' location of choice, most often in private spaces within homes. The time to complete each survey ranged between approximately 1.5-3 hours.

Prior to sending to the university-based team, the on-site project coordinator coded and removed all participant identifying information from the survey. All survey data were entered and verified in electronic format by university research assistants. Of the participants, 218 out of 289 sampled individuals agreed to participate and completed surveys, with a final study response rate of 75.4%.

Measures

Service Preference

Perceived effectiveness of mental health services was assessed with the question: "Do you feel that *[service type]* can be of great help with an emotional or personal problem?" with three response options: 1 = *Yes*, 0 = *No*, and 0 = *Don't know*. "Don't know" was included as a negative response because it is a valuable piece of information: a disconfirmation of perceived efficacy of the service. The service types that were asked about were: family doctor, mental health professional, tribal elder, traditional healer, family member, pastor/priest/minister, 12-step meetings, and Internet. *Comfort* was addressed by asking, "How comfortable would you feel *[talking/going to this service]* about problems like these?" Response categories consisted of a 3-point Likert scale with response options of *Very comfortable*, *Somewhat comfortable*, and *Not at all comfortable*, as well as *Don't know*. We collapsed these response categories into a dichotomous variable (1 = Very comfortable, 0 = Somewhat comfortable, Not at all comfortable, and Don't know). We created a new dichotomous variable, *service preference*, to describe those who perceived a service as effective and were very comfortable with it (Perceived effectiveness = 1 and Comfort = 1), and those who did not (Perceived effectiveness = 0 and/or Comfort = 0).

We computed two new variables by grouping together service preferences to understand how individuals who preferred bundles of similar services compared to those who did not. *Traditional service preference* was composed of participants who indicated a service preference for both traditional healer and tribal elder. *Formal service preference* was composed of those who indicated a service preference for both mental health professional and family doctor.

Provider Preference

Provider Gender Preference was assessed with an item asking participants, "If you went for counseling, would you prefer a male or female counselor?" Response categories consisted of *Male*, *Female*, and *No preference*. *Native Provider Preference* was assessed by asking participants

"If you went for counseling, would you prefer speaking to an American Indian/Native counselor?" with a *Yes*/*No* response. We also asked "Do you know the proper way to ask a traditional healer for help?" with a *Yes*/*No* response.

Independent Variables

Depressive symptoms were measured using the Patient Health Questionnaire (PHQ-9), a 9-item instrument assessing depressive symptoms in the previous 2 weeks (Kroenke, Spitzer, & Williams, 2001; Spitzer & Kroenke, 1999). Responses range from 0 to 3 (0 = *Not at all*, 1 = *several days*, 2 = *More than half the days*, and 3 = *Almost every day*), with a possible range from 0 to 27. A score of 10 or higher was used as criterion of depression (Gilbody, Richards, Brealey, Hewitt, 2007). The PHQ-9 had an internal consistency of 0.90 in this sample. *Anxiety* was assessed using the 21-item Beck Anxiety Inventory (BAI), which quantifies the degree of impact of anxiety symptoms (Beck, Epstein, Brown, & Steer, 1988). Responses range from 0 to 3 (0 = *Not at all*, 1 = *Mildly*, 2 = *Moderately*, and 3 = *Severely bothered*), with a possible range from 0 to 63. A BAI score between 16 and 25 indicates moderate anxiety, and scores above 26 indicate severe anxiety. The BAI had an internal consistency of 0.95 in this sample.

Participation in *traditional spiritual activities* was assessed with nine *Yes*/*No* format questions assessing engagement in a variety of traditional spiritual activities (e.g., offered tobacco, used traditional medicine, smudged or saged). Responses were coded as 0 = No, and 1 = Yes, with a summed range of responses from 0 to 9. The internal consistency of this measure was 0.79 in this sample.

Health care discrimination was assessed by asking participants if there was a time they felt they would have received better care if they belonged to a different race/ethnic group, coded as 0 = No, 1 = Yes.

Demographic Variables

Gender was coded as 0 = Male, 1 = Female. Although participants utilized care at medical clinics located on the reservation, not all lived on reservation lands. This difference was controlled for with a variable, where 0 = Off reservation, and 1 = On reservation. We controlled for potential differences between the two locations with a dummy variable (0 = Location 1; 1 = Location 2). Respondents reported *per capita household income* as $10,000 ranges; the midpoint of these ranges divided by the number of people living in the household was used as the final measure. Participants were asked to self-report their *number of years with diabetes* and *age* in years.

Statistical methods

We analyzed data using SPSS, version 20. Descriptive statistics summarized service and provider preferences, depressive and anxiety symptoms, traditional spiritual activities, health care discrimination, and other demographic characteristics. To investigate the relation between service and provider preferences, we calculated phi coefficients, a measure of association between dichotomous variables. We used chi-square tests to determine the bivariate relationship between preferences and gender, living on reservation lands, traditional spirituality, depressive symptoms, anxiety, and health care discrimination, and logistic regression to investigate the multivariate relationship between these participant characteristics and traditional service preference, formal service preference, and preference for a Native provider. Multiple imputation of missing values was performed for predictor variables, with missing values ranging from 0% to 4.13% per variable. We generated five imputed datasets using fully conditional specification with logistic or linear regression where appropriate, and used the pooled data for regression analyses. Three participants had missing values on outcome variables (service and provider preferences); thus, a total of 215 cases were included in the final multivariate models.

RESULTS

Participants were, on average, 57 years old and reported having had type 2 diabetes for 15 years. Approximately 78% lived on reservation lands, 56% were female, and the mean annual per capita household income was $10,331. Using a cutoff score of 10 or higher on the PHQ-9, 17.1% of the participants met criteria for depression. Nearly one quarter of those participating in this study met criteria for moderate (12.9%) or severe anxiety (12%), based upon BAI scores of 16-25 and 26 and above, respectively. The mean score for traditional spiritual activities was 2.71, with 51.4% participating in two or fewer activities and 48.6% participating in three or more activities. Seventy-nine percent of participants indicated they would prefer a Native provider (i.e., a counselor with similar race/ethnicity) if they needed counseling. Just over half (60.2%) knew the proper way to ask a traditional healer for help.

Perceived effectiveness of, comfort with, and overall preference for traditional, biomedical, and other mental health services are displayed in Figure 1. All services were deemed effective by over half of participants (56.3%-69%), except the Internet, which was perceived effective by only 22.7%. The percentage of participants reporting that they were very comfortable with the services ranged from approximately 20% for 12-step meetings, Internet, and pastor/priest/minister, to approximately 40% for family members, traditional healers, family doctors, and tribal elders. When both effectiveness and comfort were taken into account, family members were the most preferred service (41.7%), while the Internet was least preferred (13.9%).

Figure 1
Service preference for help with emotional or personal problems

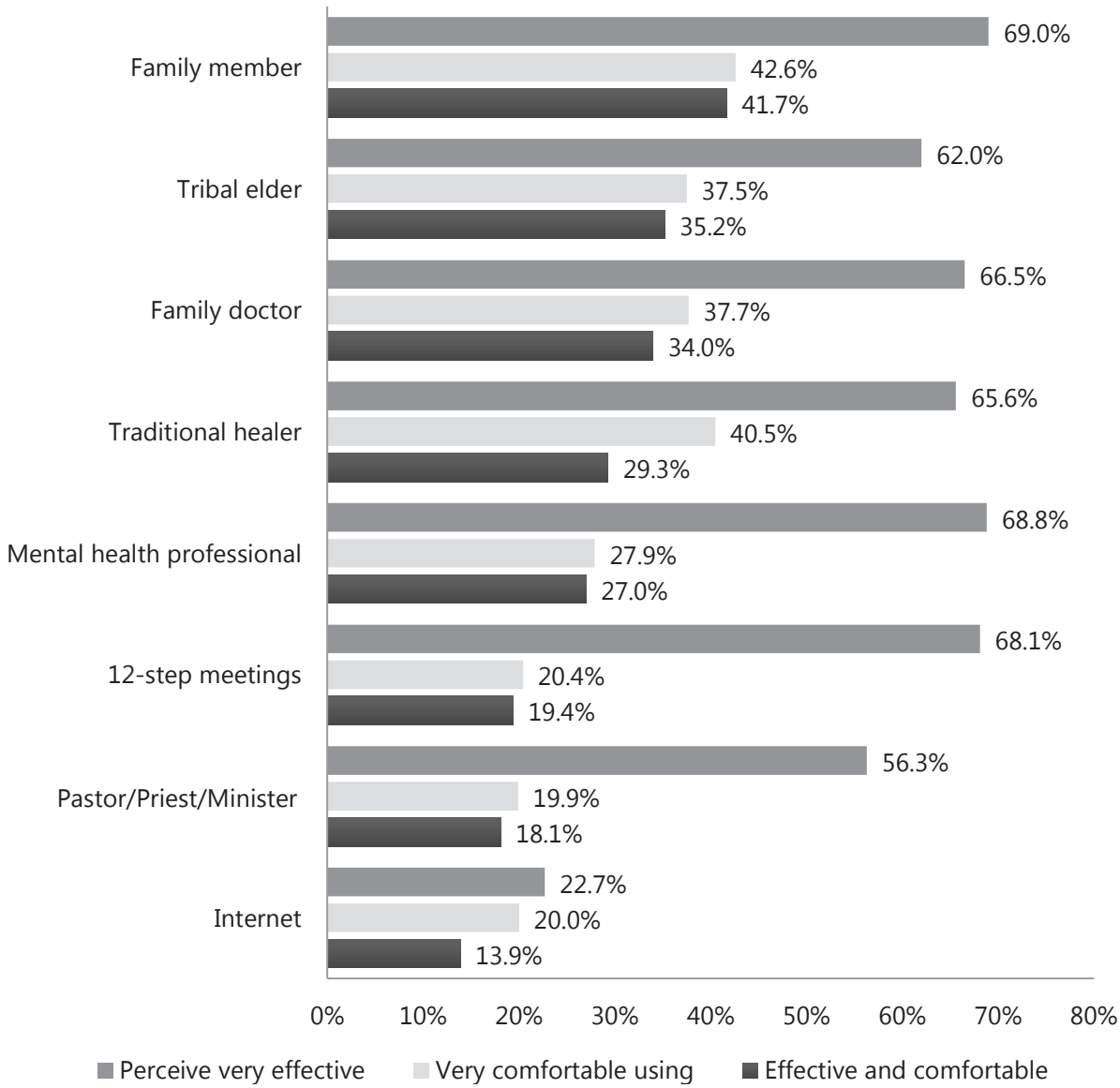

Table 1 shows the Phi coefficients for the dichotomous service and provider preferences. In general, preference for one service was correlated with most other services. Preference for a tribal elder was highly correlated with preference for a traditional healer. Native provider preference was associated only with preference for a tribal elder, a traditional healer, and a family member.

Table 1
Phi coefficients for Service and Provider Preference

	1	2	3	4	5	6	7	8	9
1. Tribal Elder	1								
2. Traditional Healer	.858***	1							
3. Family Member	.269***	.282***	1						
4. Mental Health Professional	.215**	.230**	.206**	1					
5. Family Doctor	.238***	.207**	.168*	.383***	1				
6. Pastor, Priest, or Minister	.086	.015	.163*	.231**	.198**	1			
7. Internet	.240***	.213**	.148*	.058	.136*	.054	1		
8. 12-Step Meetings	.206**	.250***	.153*	.414***	.192**	.164*	.039	1	
9. Native Provider Preference	.152*	.155*	.147*	-.015	-.014	.009	-.001	.057	1

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 2 shows the differences between service and provider preferences based upon participant characteristics. Significant gender differences existed for provider gender preference, with women having a higher proportional preference for a female counselor ($p < 0.001$). A higher proportion of those living on reservation lands preferred a Native provider compared to those living off reservation ($p = 0.001$), and fewer living on reservation indicated a formal service preference ($p = 0.016$). More of those with higher traditional spirituality, defined as three or more traditional spiritual activities, indicated both a traditional service preference ($p < 0.001$) and Native provider preference ($p = 0.010$). No significant differences were detected between those with or without depressive symptoms; however, fewer of those with moderate or severe anxiety indicated a preference for biomedical services ($p = 0.017$). Significant differences emerged for anxiety status and provider gender preference, with a numerically higher proportion of those with anxiety symptoms preferring a female counselor ($p = 0.033$). Due to the high rate of anxiety in females in this study and the strong preference for a female provider among females, a *post hoc* chi-square test on anxiety and provider gender preference was performed separately for males and females, with non-significant results (male, $p = 0.133$; female, $p = 0.371$). Lastly, more of those who had experienced health care discrimination preferred traditional services ($p = 0.006$).

The results of logistic regressions for Native provider preference, traditional service preference, and biomedical service preference are shown in Table 3. We conducted multivariate analyses adjusting for gender, location, on reservation, per capita annual income in thousands, years with diabetes, and age. After controlling for other factors, summed spiritual activities was not significantly associated with Native provider preference (OR, 1.16; 95% CI, 0.99-1.36), and living on reservation was associated with increased odds of preferring a Native provider (OR, 3.32; 95%

CI, 1.49-7.40). Both summed spiritual activities (OR, 1.30; 95% CI, 1.12-1.52) and health care discrimination (OR, 2.59; 95% CI 1.24-5.39) were associated with increased odds of traditional service preference. Moderate and severe anxiety were associated with decreased odds (OR, 0.24; 95% CI, 0.06-0.91) of biomedical service preference, as was living on reservation lands (OR, 0.35; 95% CI, 0.05-0.80).

Table 2
Chi-Square Tests for Service and Provider Preference by Participant Characteristics

		Traditional Service Preference		**Biomedical Service Preference**		**Native Provider Preference**		**Provider Gender Preference**			
		%	*p*	%	*p*	%	*p*	No Pref %	Male %	Female %	*p*
Gender	Male	29.5	.855	12.6	.114	75.8	.496	**64.9**	**23.4**	**11.7**	**.000**
	Female	28.3		20.8		71.7		**50.8**	**5.1**	**44.1**	
Reservation	Off	26.5	.685	**28.6**	**.016**	**55.1**	**.001**	65.3	14.3	20.4	.263
	On	29.5		**13.9**		**78.9**		54.6	12.9	13.2	
Traditional Spirituality[a]	Low	**17.0**	**.000**	14.3	.236	**66.1**	**.010**	57.1	14.3	28.6	.855
	High	**41.7**		20.4		**81.6**		57.0	12.0	31.0	
Depressive Symptoms[b]	No	28.9	.970	17.8	.617	72.8	.592	60.1	12.9	27.0	.096
	Yes	28.6		14.3		77.1		41.2	14.7	44.1	
Anxiety[c]	No	29.5	.840	**20.5**	**.017**	72.4	.620	**57.4**	**16.1**	**26.5**	**.033**
	Yes	28.0		**6.0**		76.0		**54.2**	**4.2**	**41.7**	
Health Care Discrimination[d]	No	**24.2**	**.006**	16.1	.408	70.8	.158	58.2	15.2	26.6	.110
	Yes	**44.2**		21.2		80.8		51.9	7.7	40.4	

[a] High participation in traditional spiritual activities defined by three or more activities. [b] Depressive symptoms defined by a score of 10 or higher on the Patient Health Questionnaire 9-item. [c] Anxiety defined by a score of 16 or higher on the Beck Anxiety Inventory. [d] Participants indicating there was a time they felt they would have received better care if they belonged to a different race/ethnic group.

Table 3
Results of Logistic Regression of Service and Provider Preference

	Native Provider Preference		Traditional Service Preference		Biomedical Service Preference	
	Odds Ratio	95% CI	Odds Ratio	95% CI	Odds Ratio	95% CI
Gender (1 = female)	0.70	0.36-1.34	0.91	0.47-1.75	1.81	0.80-4.10
Location	1.04	0.52-2.08	1.09	0.56-2.12	1.08	0.47-2.46
On Reservation (1 = yes)	**2.99*** **	**1.37-6.54**	1.23	0.54-2.82	**0.35****	**0.14-0.85**
Per capita income (thousands)	0.98	0.95-1.02	1.00	0.96-1.03	0.98	0.94-1.03
Years with diabetes	1.01	0.98-1.04	0.99	0.96-1.02	1.00	0.96-1.03

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Table 3, Continued
Results of Logistic Regression of Service and Provider Preference

	Native Provider Preference		Traditional Service Preference		Biomedical Service Preference	
	Odds Ratio	95% CI	Odds Ratio	95% CI	Odds Ratio	95% CI
Age	1.01	0.98-1.03	0.98	0.95-1.01	**1.03***	**1.00-1.07**
Spiritual activities summed score	1.15*	0.98-1.34	**1.29*****	**1.11-1.50**	1.12	0.94-1.32
Depressive symptoms (1 = yes)	1.10	0.42-2.90	0.68	0.27-1.72	1.05	0.33-3.36
Moderate/severe anxiety (1 = yes)	1.01	0.44-2.31	0.59	0.25-1.38	**0.21****	**0.05-0.80**
Health care discrimination (1 = yes)	1.80	0.78-4.14	**2.72*****	**1.33-5.58**	1.67	0.69-4.08
Constant	0.74		0.59		0.05	

*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$

DISCUSSION

This study illuminates the mental health treatment preferences among AIs with type 2 diabetes from two northern Midwest tribal communities. Given the high rates of mental health conditions among those with diabetes (Anderson et al., 2001; Grigsby et al., 2002; Li et al., 2008; Lin & Korff, 2008) and the negative consequences of mental health conditions on diabetes outcomes among AI/ANs (Knaster et al., 2015; Sahota et al., 2008; Singh et al., 2004; Walls et al., 2014), the investigation of mental health treatment preferences has great importance. We investigated the rates of perceived effectiveness of and comfort with multiple mental health services, and created a composite service preference for those services that were endorsed as both effective and very comfortable. We explored how service and provider preferences were related, and investigated the bivariate and multivariate relationships among traditional service preferences, biomedical service preference, and provider preferences with several participant characteristics.

We found that the majority of participants in this study perceived all but the Internet as effective for help with an emotional or personal problem; however, fewer felt very comfortable using the services (Figure 1). Family members were perceived as the most effective and most comfortable preferred service. There was no clear distinction between biomedical service preference (i.e., mental health professional and family doctor), and traditional service preference (i.e., tribal elder and traditional healer), in contrast with a prior community-based sample of AI/ANs, where more individuals perceived traditional services as effective compared to biomedical services (Walls et al., 2006). Much of the prior research has utilized probability or convenience samples with entire communities/tribal rolls serving as sampling frames. Notably, our sample included only individuals

who were identified through medical records, meaning they had used the biomedical health system. As such, our sample may be biased to prefer biomedical services or blended care for mental and emotional health problems compared to those who have not used biomedical services. Additionally, differences in measurement of effectiveness may explain some differences between our results and those of prior work. Walls and colleagues (2006) measured effectiveness on a scale from *Not at all effective* to *Extremely effective*, and collapsed "Very" or "Extremely" effective to ascertain the perceived effectiveness of services; our measure of effectiveness was either yes or no, failing to capture varying levels of effectiveness across services.

Bivariate phi coefficients provide a picture of the relationship between different service and provider preferences (Table 1). For instance, preference for a mental health professional was most strongly correlated with preference for a family doctor and 12-step meetings, while preference for traditional healer was most strongly correlated with preference for a tribal elder. On the other hand, Native provider preference was associated only with service preference for a tribal elder, a traditional healer, and a family member. These results hint that different clusters of patients may exist, with some preferring traditional, some preferring biomedical, some open to both, and some not endorsing either. Further research is needed to characterize these groups and evaluate their patterns of service utilization.

Service Preference

In Table 2 and Table 3, we evaluated the impact of various participant characteristics on both service and provider preferences. More of those with higher traditional spirituality, and more of those having an instance of health care discrimination, preferred traditional services (i.e., tribal elder and traditional healer), even after controlling for other factors. Each additional spiritual activity was associated with 1.29 times higher odds of traditional service preference, and having a past incident of health care discrimination was associated with 2.72 higher odds of traditional service preference, consistent with prior literature (Beals et al., 2006; Novins et al., 2004; Walls et al., 2006). A recent study investigating potential differences between younger-old AI adults (ages 50-64 years) and older-old AI adults (ages 65 years and older) identified important predictors of attitudes toward mental health services (Roh et al., 2015). For the younger group, being female and having more social support were associated with better attitudes, while perceptions of the stigma associated with mental health service use were associated with worse attitudes (Roh et al., 2015). For the older group, having health insurance was associated with better attitudes, while age and each additional chronic disease were associated with worse attitudes (Roh et al., 2015). While this study did not measure cultural identity, it elucidated several other important correlates that can impact mental health attitudes, and showed that these may differ by age cohort.

After controlling for other factors, we found those with anxiety had 79% lower odds of biomedical service preference compared to those without, suggesting that those with a demonstrated need for mental health treatment are less open, or more averse, to formal care. Those living on reservation lands had 65% lower odds of preferring biomedical services compared to those living off reservation. This is an important consideration for health clinics on reservation lands; those who live on the reservation and have used the clinic for diabetes management in the past may not find the customary medical services offered acceptable for mental and emotional problems. These findings in tandem underscore the need to provide acceptable alternatives and access points for mental health treatment, reaching and caring for patients in ways and places they want.

Provider Preference

Significant gender differences existed in regards to provider gender concordance, with females demonstrating a preference for a female provider. This finding mirrors prior literature (BigFoot-Sipes et al., 1992). Significant differences in provider gender preference also were seen for those with and without anxiety. Results of our initial bivariate analysis seem to suggest that a higher proportion of those with anxiety preferred a female provider than did those without anxiety, but no differences were found between anxiety and provider gender preference when males and females were analyzed separately. The difference in provider gender preference by anxiety in this study appears to be an artifact of the difference between genders.

The overwhelming majority (79%) of participants in this study indicated they would prefer a Native provider. More participants living on reservation, and more of those with higher traditional spirituality, preferred a Native provider should they need to use one. This finding mirrors research among AI/AN college students; those who had stronger Indigenous cultural affiliation preferred counselors who shared similar cultural attitudes and values (Bennett & BigFoot-Sipes, 1991; BigFoot-Sipes et al, 1992; Johnson & Lashley, 1989; Stewart et al., 2013). After controlling for other factors, higher participation in spiritual activities had a non-significant odds of 1.15, while living on reservation was associated with 2.99 times higher odds of preferring a Native provider. This finding implies the need to support efforts to train and supply AI/AN reservation communities with Native providers.

Racial concordance often has been proposed as a proxy for culturally sensitive care (van Ryn & Burke, 2000), and could prove vital for decreasing co-occurring mental health and diabetes disparities among AIs. Prior research suggests that AI patients with higher self-reported ethnic identity rated racially different providers lower for several aspects of the medical interaction (Garroutte, Sarkisian, Goldberg, Buchwald, & Beals, 2008). When the provider and patient are racially concordant, the quality of the provider-patient interaction and the patient health outcomes

are positively impacted (Powe & Cooper, 2004; Saha, Taggart, Komaromy, & Bindman, 2000). Increasing the availability of AI mental health providers may enable AIs with type 2 diabetes and mental health problems to have a more positive view of treatment and to benefit from improved outcomes. In addition, racial concordance may significantly positively influence patients' perceptions of health care relationships (Blanchard, Navar, & Lurie, 2007) and, given that effective mental health services rely on building the therapeutic alliance and interpersonal relationship (Allen, Lewis, & Johnson-Jennings, 2016; Wampold, 2001; Wampold, Imel, Bhati, & Johnson-Jennings, 2006), it may positively influence mental health service outcomes (Green et al., 2003), especially among tribal members. Racial concordance also has been seen to significantly influence important health care satisfaction factors in the patient-provider relationship (Saha, Komaromy, Koepsell, & Bindman 1999). Hence, racial concordance in mental health treatment may be of high importance among AIs who have type 2 diabetes and mental health needs. The Institute of Medicine has suggested increasing the percentage of racial/ethnic minority providers, including AI/ANs, to decrease health disparities. Racially concordant relationships are argued to improve provider-patient communication, improve patient adherence, and, ultimately, improve health care outcomes based on shared cultural values, beliefs, and experiences (Betancourt, Green, & Carrillo, 2002; Institute of Medicine, 2003).

Limitations

The results of this study must be interpreted in light of the limitations and context of the study design. Our cross-sectional study design precludes temporal inferences, making it difficult to declare causality. Given the diversity that exists among tribal groups across the U.S., this study may not generalize to other AI/AN communities. While 22% of our participants did not live on reservation lands, they were sampled from a reservation clinic and lived near the reservation. As such, urban AI/ANs and those attending urban Indian Health Service facilities are not fully represented in this study. This research assessed comfort with and perceived efficacy of services, but failed to capture actual utilization of these services; there may be differences between subjective reports of preference and actual use.

CONCLUSIONS AND FUTURE DIRECTIONS

This study addressed an important area of mental health service preference and patient-provider concordance among AIs with type 2 diabetes. Overall, these findings suggest that AI/ANs with type 2 diabetes who have utilized biomedical services may prefer racially concordant providers and traditional services for mental health problems. We also found a strong preference for family members for help with an emotional or personal problem (regarding both perceived efficacy and

comfort level). Thus, racial concordance, traditional forms of healing, and familial preference are important constructs to examine while conducting mental health research among AI/ANs. A need exists for increasing promotion and training of AI/AN mental health providers in educational settings, and for training family members to provide informal mental health support. Furthermore, given it is unlikely that racially concordant providers could serve all AI/AN patients, cultural training for non-AI/AN providers and integration of traditional healing practices into the clinic setting could improve care. In doing so, tribally provided health services may work congruently and complimentarily with the health beliefs of patients whose culture may differ from conventional biomedical health care.

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