

## THE IMPACT OF THE SWEAT LODGE CEREMONY ON DIMENSIONS OF WELL-BEING

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*Abstract: The importance of traditional healing practices for First Nations people<sup>1</sup> has created interest in traditional ceremonies, including sweat lodges, which are increasingly incorporated into programs serving Aboriginal people. Despite the fact that traditional healing practices have always been valued by Aboriginal people, there is virtually no research on their efficacy. The results of a pilot study that measured the impact of the sweat lodge ceremony on the physical, mental, emotional, and spiritual domains of individual participants indicated that an increase in spiritual and emotional well-being of participants was directly attributable to the ceremony.*

Although the sweat lodge has historically been an important part of Aboriginal ceremonies throughout North America, little effort has been made to investigate the healing benefits that Indigenous people have always acknowledged. Along with a rise in interest in natural and Indigenous healing practices, and a revival of traditional Indigenous ceremonies, the sweat lodge has been increasingly used by both Indigenous and non-Indigenous peoples as a means of healing in multiple dimensions of body, mind, emotion, and spirit (Aaland, 1978; Royal Commission on Aboriginal Peoples [RCAP], 1996; Smith, 2005; Walkingstick & Osborne, 1995). Furthermore, its implementation in prisons and substance abuse treatment centers attests to its recognition and growing acceptance as an important aspect of healing for persons of Indigenous descent (Brady, 1995; Jackson, 2002). We conducted a pilot study to determine if the impact of the sweat lodge ceremony could be measured using a simple pre-post experimental design. The

aim of the study was to explore whether self-reported improvements in the physical, spiritual, emotional, and cognitive dimensions could be documented using quantitative measures of physical and psychological well-being.

This study was implemented through protocols developed in consultation with the sweat lodge holders and using an Aboriginal worldview. Since it is noted in relevant literature (Castellano, 2004; RCAP, 1996) that research is often conducted and reported through a Western worldview, the investigators made every effort to write and report the findings with the direction of First Nations people. The intertribal glossing that may be present is necessary in order to offer an understanding of this project. This project, as well as its findings and protocol, are relevant for this sweat lodge but may not represent all sweat lodges.

The process of sweating for cleansing and healing has a history that extends around the world and goes back for millennia. Both the ancient Greeks and the Romans used hot baths and sweating techniques to draw out bad humors and as a general form of relaxation and social gathering. Likewise, Finnish saunas promoted cleanliness, healing, and renewed strength. Russians used a banya, which combined steam and hot air to create a humid, healing environment, while Turkish hammans and Japanese hot tubs are widely used in their respective countries (Aaland, 1978). Sweating cleanses the body of toxic elements and boosts the immune system (Smoley, 1992).

While heat and water are universal in these various manifestations of cleansing processes, only a few cultures have incorporated them into a carefully prescribed ceremony which emphasizes the spiritual element in addition to the physical healing and cleansing that are universally acknowledged. Indigenous North Americans are among those people for whom the sweating experience is a traditional ceremony that aims to purify, cleanse, and heal the body, mind, emotions, and spirit.

The definition of traditional healing developed by Velimirovic (1990) and modified by RCAP (1996) describes traditional healing as "practices designed to promote mental, physical, and spiritual well-being that are based on beliefs which go back to the time before the spread of western, 'scientific bio-medicine.'" When Indigenous people refer to 'traditional healing', they include the use of herbal remedies as well as specific ceremonies and rituals to promote spiritual, mental, physical, and psychological well-being (RCAP, 1996). Recent recognition and affirmation of the importance of traditional healing practices for Indigenous peoples by RCAP (1996) has accelerated a reversal of the historic efforts to eradicate Indigenous traditions. Along with this reversal

has come an upsurge in interest in traditional healing practices, including the sweat lodge ceremony (Borg, Delaney, & Sellick, 1997; Kirmayer, Brass & Tait, 2000)).

Increasingly, sweat lodges are being incorporated into healing programs that serve Indigenous people (Hall, 1986). The American Indian/Alaska Native Suicide Task Force Report (1996) and RCAP (1996) emphasize the need for treatment programs that incorporate traditional healing, noting that those programs that do so had greater success in preventing suicide. Duran and Duran (1995) report that counseling programs that include traditional healing approaches such as the sweat lodge have been very successful. Sweat lodge ceremonies have also been compared to group therapy processes (Colmant & Merta, 1999; Smith, 2005; Walkingstick & Osborne, 1995), although these comparisons minimize the importance of the spiritual element of sweat lodge ceremonies.

Sweat lodge ceremonies have been described as holistic experiences that improve emotional, physical, cognitive, and spiritual well-being (Wallingstick & Osborne, 1995; Wilson, 2003). Ross and Ross (1992) report that they observed sweat lodge participants were less worried and had a higher level of self-esteem after a sweat lodge. In a review of the literature, Colmant and Merta (1999) found that many American Indians spoke about the importance of socialization and friendship and the healing properties that come with laughter in a sweat lodge.

Despite the fact that traditional healing practices have been valued by Indigenous peoples for as long as oral tradition has been alive, there is virtually no research on the efficacy of these methods. As traditional healing practices continue to be prominent and accepted in Indigenous communities and increasingly valued in non-Indigenous communities, it is becoming increasingly important to document their efficacy beyond traditional testimonials. The Canadian Institutes of Health Research (CIHR) have called for an initiative to foster new investigations in Indigenous health from researchers of any discipline who are focused on health determinants, intervention, or outcomes. Priority proposals include traditional medicine and spiritual health (CIHR, 2003). Further, one of the main objectives of the Institute of Aboriginal Peoples' Health within CIHR is "to know how factors such as Aboriginal culture and spirituality can affect health and wellness." (CIHR-IAPH, 2006). The National Aboriginal Health Organization (NAHO) recognizes the health includes physical, emotional, social and cultural aspects. It includes the following goals in its Vision Statement: to "facilitate and promote research

and develop research partnerships," to "foster participation of Aboriginal Peoples in delivery of health care," and to "affirm and protect Aboriginal traditional healing practices."

In response to these mandates we conducted a pilot study on the efficacy of the sweat lodge ceremony on healing. The main hypothesis of the study was that the sweat lodge ceremony will have a measurable positive impact on one or more of the four principal components of well-being (physical, mental, emotional, and spiritual) of participants. Although it was further hypothesized that the impact will be cumulative for those who attend more than one ceremony within a short period of time, this hypothesis could not be thoroughly tested within the limitations imposed on this pilot study.

### **Study Protocols**

Research in Indigenous communities has often suffered from lack of culturally appropriate methodology and lack of involvement of the Indigenous community, its Elders, and members (RCAP, 1996). Additionally, research on spiritual and ceremonial practices often is not acceptable to Indigenous communities who regard the sweat lodge as a sacred ceremony that is outside the purview of research. The challenge in any research on Indigenous customs is thus to establish a protocol that is respectful of traditional ways; does not intrude on any ceremony; does not study the ceremony itself; involves Elders in its organization, execution, and dissemination of findings; and is culturally sensitive and appropriate in the manner in which data are collected and analyzed.

Of importance to research funders (e.g., Canadian Institutes of Health Research) as well as Indigenous communities (e.g., National Aboriginal Health Organization) is the principle that Indigenous people are involved in planning and implementation and that researchers are culturally competent. Before this study was implemented, our cultural competence within an Indigenous context had to be accepted by sweat lodge Elders.

Recognition of the importance of cultural competence, respect for Indigenous traditions and sacred ceremonies, and equal participation by Elders in all aspects of this study design and implementation resulted in the development of the study protocol. The study was designed in close collaboration between the researchers, one of whom is a First Nations healer (Métis), and two additional Elders/First Nations healers (Cree). The planning process was both extensive and intensive, and allowed for sufficient passage of time for researchers and Elders to fully process

contingencies of the study. All protocols and research instruments were discussed and approved by this group. A detailed research protocol, including consensus on all aspects of the study and dissemination of findings, was accepted by the Elders and the research team. The Elders have also participated in the dissemination of the results.

The main protocols adopted were the following.

1. No aspect of the study will intrude on traditional Aboriginal practices. That is, all data collection will be conducted before and after the sweat lodge ceremony. No data will be collected during the ceremony (including pre-lodge preparation rituals).
2. No information will be collected about ceremonial events in the sweat lodge ceremony.
3. Reports of the study will not report on the actual ceremony.
4. The research team will adhere to all protocol of the sweat lodge ceremony, including the offering of tobacco and print (woven cloth, usually cotton), a gift for the Elders and firekeeper(s), and food to share at the post-sweat lodge feast.
5. In order to assure anonymity of participants, no identifying information such as name, address, or social insurance number will be collected. Instead, participants will be asked to use a code that consists of their date of birth and the initial of their last name. This code is individual-specific and will not be readily duplicated (the numbers in this study are small enough that there is little possibility of two participants sharing the same code.) Participants can then use the code if they participate in additional sweat lodge ceremonies.
6. All sweat lodge participants will be invited to participate in the study. They will be given an envelope with the written informed consent form and the study instruments. They will be asked to complete the baseline instruments and place them in the envelop. After the ceremony and the feast, participants will be asked to complete the same instruments, place them in the envelope, and return it to the investigators.
7. All participants will be asked to return the forms – whether completed or not – so that there will be nothing to identify those who have chosen to participate and those who have not. Thus, neither the researchers nor the Elder(s) will be aware of who is participating.
8. Participating Elders will approve all written and oral dissemination of the results.
9. Participating Elders will be included in all oral dissemination of the results.

### **Procedures**

The project design, instrument selection, and data collection protocols were developed by the team of investigators and Elders working together. All protocols and research instruments were discussed and approved by this group and all decisions were made according to a set of specific study protocols. Respect for the sacredness of the sweat lodge ceremony was central to these protocols. Thus the study reports contain only minimal descriptions of the sweat lodge and do not detail any aspect of the ceremony or its impact of specific individuals. This study was approved by the Conjoint Faculties Research Ethics Board at the University of Calgary.

### **Instruments**

Several factors entered into the decisions about which instruments to use in this study. There are no existing instruments that measure well-being in an Indigenous framework that includes all four dimensions (physical, mental, emotional, and spiritual). Additionally, since we anticipated some participants who were not of Indigenous descent, the research instruments for this investigation needed to be relatively culture-free and psychometrically sound. Finally, since there was a limited amount of time available for completion of the instruments, they needed to be relatively short, easy to understand, and self-administered

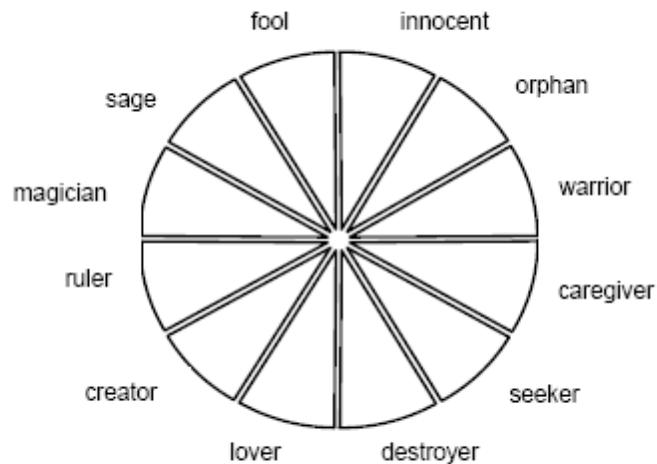
In the absence of a single instrument to measure all four dimensions of healing, two questionnaires most closely meeting the above criteria were chosen: the SF-36<sup>®</sup> (Ware et al., 1998) and The Heroic Myth Index (Pearson, 1991). The SF-36<sup>®</sup> is a multipurpose health survey that provides a generic measure (as opposed to a measure that targets a specific age group, disease, or treatment approach) of physical and mental health. It consists of 36 items that cover two main factors: (1) health concepts, including bodily pain and limitations in physical/social activities because of physical health problems; and (2) general mental health, including psychological distress and well-being, limitations in activities because of emotional problems, and vitality (energy and fatigue). In addition there is a general measure of self-perception of overall health. Ware and colleagues report that the two main scales account for 80 to 85 percent of the reliable variance in the instrument (Ware & Kosinski, 2004, p. 3), and the instrument has been normed to the general U.S. population (Ware & Kosinski, 2004, pp. 88-119). The SF-36<sup>®</sup>

can be self-administered by individuals 14 years of age and over. It has been used in multiple western European countries as well as Japan and China, and is an instrument of record in nearly 4,000 research-related publications (Ware et al., 1998).

The issue of how to measure the emotional well-being and spirituality dimensions posed some difficulties. A body of research has recently begun to emerge on the impact of spirituality on personal well-being (Anandarajah & Hight, 2001; Seybold & Hill 2001; Masters, Lensegrav-Benson, Kircher, & Hill, 2005; Miller & Thoresen, 2003; Salsman, Brown, Brechting, & Carlson, 2005; Seeman, Dubin, & Seeman, 2003; Van Hook, Hugen, & Aguilar, 2001). However, despite the development of over 70 assorted instruments intended to measure spirituality and related constructs (MacDonald, LeClair, Holland, Alter & Friedman, 1995), only a few have generated empirical research (MacDonald, 2000) and most continue to intermingle religious beliefs with spiritual dimensions. Given the cultural, ethnic and religious elements present in measures of spirituality, no culture-free instrument presently exists (MacDonald, 2000; Moberg, 2003).

Because no well-validated instruments culturally sensitive to Indigenous spirituality were available, the investigators opted for one that has been occasionally used but whose items were generally appropriate within an Indigenous context. The Heroic Myth Index (HMI; Pearson, 1991) has been used to measure aspects of spirituality and emotional well-being (Canda & Smith, 2001). It consists of 72 items that are constructed into twelve scales representing personal archetypes or personality types. These scales are then grouped into three sets of four scales each, purporting to measure aspects of the ego, soul, and self. Although well-known in popular psychology, the HMI has had little psychometric evaluation. In one examination (Marr, 1995), an exploratory factor analysis did not support the 12-scale model proposed by Pearson, although a confirmatory factor analysis did. However, inadequate sample size in that study limits its utility. Despite the lack of adequate psychometric properties, the HMI was deemed by the research team to have face validity in that it presents a reflection of Indigenous philosophy of life and interpersonal relationships, and to more clearly provide a link with Aboriginal spirituality than other instruments. Within the Aboriginal worldview, all aspects of the life's journey are inter-connected. Each person carries all 12 archetypes, although most often given labels different than those used by Pearson (such as Coyote rather than Fool). These archetypes indicate where a person is on his or her life's journey.

**Figure 1**  
**The Heroic Myth Index**



(Pearson, 1991, p. 23)

Those items that appeared to be inappropriate within a Canadian and American Indian Indigenous context were modified for the pilot study. For example, the item "I feel sexy" was replaced with "I feel passionate about life."

Since the focus of the investigation was individual change as experienced by sweat lodge participants, test-retest reliability was of primary concern. Specifically, we were interested in the stability of the measure over a time interval of approximately three hours. We also recognized that administration of the same questionnaire within such a short time frame would result in respondents remembering their initial responses, which might bias the post-sweat lodge results.

In order to control for this possibility, and to determine the test-retest stability over a short time frame, we administered the HMI to a control group. Two groups of Masters-level social work students acted as a control group and completed the HMI before a three-hour research class and again after the class was over. Test-retest reliability was strong and indicated no change between pre- and post research class measurements.

### **Data Collection**

The intent of the study was to look at the impact of the sweat lodge on a group of individuals who self-selected to attend the ceremony. The sweat lodge was located in a natural, semi-rural setting in Alberta, Canada. The data collection protocol established was that persons coming to the ceremony were asked if they would like to participate, and if agreeable, were given the two study questionnaires to complete. People arriving close to the time of the start of the ceremony were not asked because they would not have time to complete the instruments and properly prepare themselves for the ceremony. (Study protocol dictated that when the Elder indicated the ceremony was about to begin, no further data were collected.) The protocol also stipulated that the study would not be discussed during the ceremony. After the post-sweat lodge feast, participants were asked to complete the same questionnaires again. They were instructed that we were interested in comparing people's responses before and after the ceremony, and that this comparison would be based on a group of people and not one individual per se.

All data were collected by the principal investigators and a research assistant who was a First Nations Masters student in social work. Forty-two participants completed the pre- and post-sweat lodge measures. Incomplete responses by three persons reduced the final subject pool to 39 complete sets of responses. Data collection occurred over four months – November to March. The timing of the pilot study – winter – contributed to a lower than anticipated pool of participants, since many people are more likely to attend a sweat lodge ceremony (or to arrive well in advance of the anticipated start) in milder weather conditions. In addition to those who arrived too late to be offered the opportunity to participate, some people were initially reluctant but participated at a later sweat lodge ceremony.

### **Participants**

Forty-two people participated in the study. In three cases, the participants did not complete the post-ceremony instruments, leaving us with 39 complete, unduplicated sets of responses. While the majority of participants were Indigenous (59%), 41% were not. There were more female respondents (72%) than male. This gender composition of the subjects does not represent the gender balance at the ceremonies; rather, it reflects an aspect of the data collection protocols that skewed

respondents towards those who arrived well in advance of the start of the ceremony, most of whom were women. Many men tended to arrive at the sweat lodge site immediately before the ceremony began, and so did not have sufficient time to complete the pre-ceremony questionnaires. Participants ranged in age from 15 to 68, but the majority (51.3%) were in their 30s or 40s. Most respondents had previously attended at least one sweat lodge ceremony (76.9%) and of the nine who had not, eight were women and one was a man. Many participants (43.6%) had attended more than 10 sweat lodge ceremonies in their lifetime.

**Table 1**  
**Characteristics of Respondents**

		<b>N</b>	<b>Percent</b>
Gender	Male	11	28.2
	Female	28	78.1
Age	< 20	2	5.1
	20 to 30	8	20.5
	30 to 40	11	28.2
	40 to 50	9	23.1
	50 to 60	7	18.0
	60 +	2	5.1
Ethnic Affiliation	Aboriginal	23	59.0
	Caucasian	14	35.9
	Other	2	5.1
Previous Sweat lodge experience	Yes	30	76.9
	No	9	23.1
No. of previous sweats	1	4	10.3
	2 to 3	4	10.3
	4 to 10	5	12.8
	10+	17	43.6
Time since last sweat	No prior sweat	9	23.1
	1 week	8	20.5
	1 month	8	20.5
	6 months	8	20.5
	No > 6 months	6	15.4

## Results

The results from the HMI were analyzed using the SPSS statistical package, version 13.0. We first produced a scale reliability analysis of each of the 12 HMI scales. Scale alphas (Chronbach's) ranged from an acceptable .751 to a low of .430. A scale analysis of variance (ANOVA) for each scale indicated significant differences among scale items at the .01 to the .000 level. With the exception of one low scale alpha we could be reasonably confident that the scales were measuring an underlying construct and that the ANOVAs for each scale indicated that items within each scale were measuring different aspects of the underlying construct.

**Table 2**  
**Scale Analysis: 12 HMI Scales**

Scale	Alpha	ANOVA
Innocent	.734	.000
Orphan	.628	.000
Warrior	.638	.003
Caregiver	.787	.013
Creator	.739	.000
Sage	.430	.000
Seeker	.733	.000
Lover	.599	.000
Destroyer	.599	.000
Magician	.751	.000
Ruler	.718	.000
Fool	.604	.000

**Table 3**  
**Heroic Myth Index Paired Samples Test**

	Paired Differences				<i>t</i>	<i>df</i>	Sig. (2-tailed)	
	Mean	SD	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower				Upper
Innocentpo innocentpre	2.02703	3.76007	.61815	.77336	3.28070	3.279	36	.002**
Orphanpo orphanpre	-1.37838	4.57864	.75272	-2.90497	.14822	-1.831	36	.075*
Warriorpo warriorpre	1.29730	3.51082	.57717	.12673	2.46786	2.248	36	.031**
Caregiverpo caregiverpre	.00000	2.76887	.45520	-.92319	.92319	.000	36	1.000
Seekerpo seekerpre	-.37838	2.92832	.48141	-1.35473	.59797	-.786	36	.437
Loverpo loverpre	.70270	4.02675	.66199	-.63988	2.04529	1.061	36	.296
Destroyerpo destroyerpre	-.02703	3.85491	.63374	-1.31232	1.25827	-.043	36	.966
Creatorpo creatorpre	1.27027	4.46995	.73486	-.22009	2.76063	1.729	36	.092*
Rulerpo rulerpre	.97297	4.33645	.71291	-.47287	2.41882	1.365	36	.181
Sagepo sagepre	1.13514	3.05652	.50249	.11604	2.15423	2.259	36	.030**
Foolpo foolpre	-.45946	2.73450	.44955	-1.37119	.45227	-1.022	36	.314
Magicianpo magicianpre	.62162	5.26177	.86503	-1.13274	2.37598	.719	36	.477

Next, we performed an ANOVA to compare pre-sweat and post-sweat HMI scale scores. Of the twelve HMI scales, three (Innocent, Warrior, and Sage) yielded statistically significant differences between the pre- and post-ceremony responses, and another two – the Creator and Orphan – fell just outside of acceptable limits. Given the nature of the sample size, the results were encouraging in suggesting up to five scales that could detect pre-post significance differences.

The SF-36<sup>®</sup> was scored using the statistical scoring packing developed for the instrument (SF Health Outcomes Scoring Software, QualityMetric, 2006). A majority of participants in the study reported either very good (59%) or excellent (29%) health. The SF-36<sup>®</sup> scores indicated that only six (15%) of respondents reported problems with physical health that might interfere with activities of daily living or role functioning. This number was not sufficiently large to secure significant results in a quantitative analysis. An ANOVA comparing the pre- and post-sweat lodge scores showed no significant difference in overall health scores or in health scores of the two main scales (physical and mental health).

## Discussion

Although the HMI scales were constructed within a Euro-centered frame built on a Jungian worldview (Pearson, 1991), each of the scales that showed pre-post differences in respondent scores may be interpreted within an Aboriginal context as aspects of Indigenous spirituality: a connectedness with all of creation, and one's relationship to other people, the spirits, the land (Cajete, 2000; McLennan & Khavarpour, 2004).

When participants leave the sweat lodge ceremony they are reminded to say "all my relations" as an affirmation of the relationship that humans share with all aspects of creation: living things (such as two-legged and four-legged creatures, those that live in the waters, and plants that grow in all places), the wind, the sun, the waters, all inanimate objects that are part of creation (such as the rocks, the earth, and the mountains), and the spirit world which many Aboriginal people acknowledge co-exists with the physical world. Along with this connection comes the responsibility to take care of and respect all creation.

The items in the HMI were originally intended to map archetypes by which people live their lives. Founded on principles of Jungian psychology, the archetypes are presented as energies which reside "within the unconscious psychological life of all peoples everywhere"

(Pearson, 1991, p.6). While this perspective may be appreciated by people whose traditions stem from the Western European worldview that separates mind and matter, body and soul into separate components, it may not fit an Indigenous worldview that encompasses mental, emotional, physical, and spiritual aspects of life as integrally related. Most Western research instruments are based upon measurable, objective criteria, whereas an Aboriginal perspective tends to include a large subjective component. The Western perspective also is largely deficit-based, and instruments of functioning are predominantly focused on individual inadequacies (Cowger, 1994). Recent attention has been focused on the importance of a strength-based perspective in the helping professions (Smith, 2006). Rather than focusing on disease, dysfunction, and pathology, this perspective looks at assets instead of deficiencies and emphasizes individual resiliency. This view fits very well with an Aboriginal epistemology. The HMI embraces a subjective and strength perspective.

Many of the items in the HMI are also suggestive of Indigenous spirituality: the belief in the connectedness of all things, that people take care of each other and all aspects of life, that there is a basic goodness in all creation and all people (Cajete, 2000; Mehl-Madrona, 2003). When re-interpreted through this Indigenous worldview, the scales of the HMI take on meaning that highlights connections that are fundamental for Indigenous people.

An excellent example of this interpretation can be found in the Caregiver scale. The items all reflect aspects of taking care of others and putting the needs of others before one's own. This behavioral style has been described in the social work and psychology literature as symptomatic of co-dependency or as an altruistic question of "social desirability" (Rubin & Babbie, 2001). An Indigenous worldview emphasizes the fact that all people are connected and responsible for each other (Cajete, 2000, p. 77). Placing the needs of the group before others is a fundamental aspect of this "tribal mind" orientation. It is also representative of one of the most important values of many Aboriginal people, accountability.

The scores for the Caregiver scale were high and showed no difference between the pre- and post-sweat responses. This suggests that participants espoused a worldview that included taking care of others as a predisposition to the sweat lodge experience. However, an ANOVA of the scale scores on the Caregiver scale and ethnic identification indicated that there were significant differences (.037) between Indigenous and Caucasian respondents before the sweat (Indigenous persons had a

higher caregiver score), but that these differences diminished afterwards (significance .060). The Caregiver scale was the only one where there was a difference in responses between Indigenous and Caucasian respondents either before or after the ceremony; this may point to a transformational component of the sweat lodge that brings people closer together in this feeling of connectedness. Elders often refer to this as a transformation through “connection to spirit.” When individuals connect to the love within themselves they will feel connected to all things outside of themselves. Many Aboriginal people believe that healing is not possible unless we “connect to spirit” first.

The Innocent scale reflects the theme that people are loving and look after each other. It contains items that affirm a positive worldview of human nature and the willingness of people to take care of each other. Participants clearly felt more positive about the world being a safe place after the sweat lodge than before. Likewise, the Sage scale reflects a worldview that all of creation is connected, that there is a balance, and that life has many teachings about this universality. It is represented by such statements as “I see the present as part of the past” and “I try to find the real meaning in things.” Inherent in Indigenous spirituality is the sacredness of relationship with all of creation (Brave Heart, 2001; Brown, 1953, 1989).

Native spirituality also embodies the concept of responsibility in the context of facing adversity so that the people may be protected (Brave Heart, 2001). Thus, the Warrior scale is an expected aspect of spirituality that encompasses the importance of taking care of self and others despite the risks that may be involved. It is embodied in statements such as “I can’t sit back and let a wrong go by without challenging it,” and “I put fear aside and do what needs to be done.”

Two other scales, the Orphan and the Creator, fall just outside of statistically admissible range, but are included here because with a larger sample they may well fall inside these limits. The items in the Creator scale also directly reflect an Indigenous spiritual view. They include statements such as “I am in the process of creating my own life” and “I try to be true to my inner self wherever I am” and may be thought of as responding to the free will in each of us. Free will is inherent in each individual and is connected to our intuition and instinct. This aspect of “self” needs to be developed in order for individuals to make accountable decisions in life.

The Orphan scale shows a decrease in value from the pre- to the post-ceremony responses, indicating that participants felt less that life is one heartache after another, less abandoned, and less betrayed by others.

The Orphan scale contains the following items:

- As a child I could depend on adults to take care of me
- Life is one heartache after another
- I fear those in authority
- I feel abandoned
- Most people I have trusted have betrayed me
- Important people in my life have let me down

We examined the pre- and post-scale scores for difference according to age, gender, ethnic affiliation, and previous sweat lodge experience. ANOVA of the pre-sweat lodge scores by each of these variables showed no statistically significant differences between groups. Those with previous sweat lodge experience had significantly higher scores before the sweat lodge on the Warrior, Seeker, and Creator scales. The increase in scores of the self-discipline (Warrior), self-actualizer (Seeker) and developer of a new life (Creator) scales may be due to the effect of previous sweat lodge experiences. They may also be attributable to predisposing personal characteristics such as a heightened sense of spirituality that leads a person to attend this ceremony. For no known reason, Caucasian respondents had a lower score on the Caregiver scale before the ceremony. These differences were not significant in post-sweat lodge scores.

Because the study participants were drawn from the general population, and subjects reflected norms of a healthy population, the non-significant findings on the SF-36<sup>®</sup> scores were not totally unexpected. In addition, since the sweat lodge ceremonies were held during the coldest months of the year, in a relatively cold climate, the lack of attendance of those in frail health may also be attributable to the cold and to anxiety about traveling to a rural location for fear of inclement weather.

### **Limitations**

This study was limited by some factors common to pilot studies and also by the lack of research precedents in Aboriginal healing practices. Budget constraints limited the time for data collection to a few months and the location to a single sweat lodge site. This precluded our

ability to test the second hypothesis (that effects for the participants will be cumulative over multiple sweat lodge ceremonies). As noted earlier, the time of year (winter months in a northern climate) greatly reduced the number of people in less than good health who would venture out. People who are depressed may also be less likely to venture out into a rural area (the location of this and most sweat lodges) in cold and potentially inclement weather.

With primarily healthy participants it was not possible to measure changes in perceived physical health. Additional limitations were imposed by the structuring of most SF-36<sup>®</sup> questions, which inquired about “normal daily activities.” In this study most participants were active adults who experienced few limitations caused by their health. An instrument that assesses perceived pain or bodily discomfort may be applicable to more participants. The use of a single sweat lodge and its Elders limits the generalizability of the results. Future studies that use multiple sweat lodges (and Elders) and can extend over four seasons will address these issues.

The limitations inherent in a study of Indigenous healing practices stem in part from the challenges of adapting Western research methodologies within Aboriginal communities. While this study had a control group of graduate students to measure the stability of the two instruments used, no control group is possible within the sweat lodge environment. Those who come to participate cannot be asked to be randomly assigned to a control group, nor to delay participation (such as in a “cross-over group” design). Even if a delay were possible, Elders maintain that there is great benefit to those who are within the ceremonial grounds during the sweat lodge, and thus there is no practical way to control for this influence. Because of the historical misuse of research in Aboriginal communities, many potential participants were wary of the study and some participated after being exposed to the research team on several occasions.

Respect for the sacred circle surrounding the sweat lodge meant that latecomers could not be asked to participate. Although no records were kept of participants versus non-participants, the research team estimated that between 40% and 50% of potential participants were missed because of late arrivals. This would skew results of the study, yet is an unavoidable complication in a naturalistic setting.

Additional factors limiting the generalizability of this study include those imposed by the research instruments. While the SF-36<sup>®</sup> has strong psychometric properties and has been used in a number of cultures, its acceptability by the Aboriginal community has not been

reported. Some participants had a negative reaction to the box and "x" format for responses, noting that this design was antithetical to an Aboriginal perspective. The limited response options (a three-point scale) of most questions also runs counter to Aboriginal views that are more fluid. On the other hand, the HMI was more positively received, in part because of its focus on personal issues and relationships (which are important within an Aboriginal context), and in part because the response options were more extensive (a seven-point scale). However, the HMI lacks the instrument validation of the SF-36<sup>®</sup>. Future work should include modification and testing of the HMI or a variation thereof that would be an acceptable measure of aspects of Aboriginal spirituality.

### **Conclusions**

This study aimed to measure changes in well-being of sweat lodge ceremony participants using two instruments, the SF-36<sup>®</sup> and the HMI, to track physical, mental, emotional, and spiritual health. Attendees at sweat lodge ceremonies at a semi-rural, natural site in Alberta, Canada completed the instrument before and after the ceremony. Extensive preparations and protocol assured that the data collection was outside of the sacred circle of the ceremony. Physical health outcomes did not change, in part because participants (two-thirds of whom were Aboriginal) were in self-reported good or excellent health and noted no change in this after the ceremony. Additionally, the SF-36<sup>®</sup> was not designed to measure changes in health over a very short interval (several hours) and was not well received by many Aboriginal participants.

Of note, the results indicate that change in spiritual and emotional well-being as a result of participating in a sweat lodge ceremony can be measured (using the HMI), and that participants are more similar in spiritual and emotional dimensions after the ceremony than before. It is significant that we found changes in spirituality, because such changes are a fundamental component of healing within an Indigenous paradigm. Further confirmation of these findings is dependent on a larger sample and the use of multiple sweat lodge sites so the findings can also be generalized beyond the study population. An extended study can also examine if these effects are cumulative over several sweat lodge ceremonies. While the importance of Aboriginal healing ceremonies has been acknowledged by many governmental bodies and academic scholars, this is the first known demonstration of Indigenous healing using a quantitative approach. It is a pilot study that should be replicated on a larger scale.

The intent of this study was to demonstrate that the sweat lodge ceremony produces positive change in participants that can be measured along one or more dimensions of physical, mental, emotional, and spiritual well-being. "Connection to spirit" is the beginning of the healing journey for many Aboriginal people, who recognize that healing involves a balance in those four dimensions. The balance cannot be attained until a person has become aware of and responsive to the spiritual component of his or her own life. To the extent that healing begins with this spiritual connection, the sweat lodge ceremony creates a positive change in participants' self-reported sense of connection to life.

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### **Footnote**

<sup>1</sup>The terms First Nations, Aboriginal, and Indigenous are used interchangeably to denote Canadian people of Indigenous descent.

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In keeping with the protocol that Aboriginal people should be involved with research involving their customs, rituals, and knowledge, we would also note that Kerrie Moore is Métis.