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Healing through language: Positive Physical Health Effects of Indigenous Language Use

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REVIEW

Healing through language: Positive physical health effects of indigenous language use [version 1; referees: 2 approved with reservations]

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Abstract

This article summarizes existing work that indicates language maintenance and revitalization efforts result in health-related benefits for Native Americans and other indigenous populations. Although forced loss of ancestral language has been a feature of life in most indigenous communities since the first contact with Europeans, the pace of loss has accelerated in the past 50 years. Among the many hardships such communities face, an especially troubling one is lowered health status. There are indications, however, that language maintenance and revitalization efforts have positive effects on physical and communal health among indigenous populations. The types of language programs currently in place are outlined along with a variety of studies that will measure health improvement outcomes correlated with language revitalization efforts. Such evidence justifies increased support for language revitalization in order to improve health.

Open Peer Review

Referee Status: **??**

	Invited Referees	
	1	2
version 1 published 09 May 2016	? report	? report
1	Richard T Oster , University of Alberta Canada	
2	Terryann Coralie Clark , University of Auckland New Zealand	

Discuss this article

Comments (1)

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Introduction

Indigenous communities have some of the worst health outcomes within their larger societies (Gracey & King, 2009). This is true across the world, for example, in Australia and New Zealand (Anderson *et al.*, 2006), Latin America (Pan American Health Organization, 2001), Canada (Frohlich *et al.*, 2006), and the United States (U.S. Commission on Civil Rights, 2004). Although many factors, such as location, poverty, and access to health facilities, contribute to this disparity, there is a growing recognition that historical trauma plays a role as well (Duran *et al.*, 1998; Sotero, 2006). The present survey examines published studies that address one salient means of recovering from historical trauma, namely, maintenance and revitalization of indigenous language. These studies consistently find that there are physical health advantages to be gained from such efforts.

The ways in which languages emerge, evolve, and fall dormant have been increasingly discussed by linguists, biologists and cognitive scientists in the last two decades (Hale *et al.*, 1992; Wang & Minett, 2005). However, health scientists have not largely embraced this discussion as relevant. Although native language is sometimes mentioned in “health literacy” (e.g. Berkman *et al.*, 2011), health related outcomes as a result of language maintenance and revitalization efforts have not received much attention. Here, we explore the limited existing literature on health outcomes of indigenous language use and outline promising research avenues for the future.

Language is a uniquely efficient means of maintaining and passing on crucial cultural knowledge and thus promotes cultural diversity (McCarty & Zepeda, 2010). Although languages have come and gone throughout history, indigenous languages in a variety of post-colonial situations have been oppressed through official policies and social pressures (Dussias, 1999; Oster *et al.*, 2014). These forced language shifts caused the loss of social and behavioral knowledge and understanding that was created over millennia, ultimately contributing to disastrous, endemic health deficits (Gracey & King, 2009; Hallett *et al.*, 2007; King *et al.*, 2009).

Emerging evidence (see “Existing studies” section below) ties individual and/or communal health to efforts that promote ancestral language and cultural fluency in a community-driven educational environment. Some of the literature addresses indigenous groups affected by the four settler states of the United States (US), Canada, New Zealand and Australia. The similarities in colonialism, history and outcomes for the original peoples outweigh the inevitable differences in specific situations. Further, the political boundaries between Canada and the US do not reflect original use and are often unrecognized by the first peoples. Here, indigenous people of North America (hereafter, called Native Americans or (NA)) will be an exemplar as we explore the ability to use one’s ancestral language as a knowledge-seeking catalyst to optimize health.

Health status

Native Americans suffer some of the poorest health statuses and health outcomes of any other racial group in the US (Indian Health Service, 2014). This includes shorter lifespans, higher death rates from a wide variety of causes, and more limited access to health services. According to the 2010 American Community Survey, NA

have a higher rate of disability than any other single group at 15%, almost 25% higher than for whites. While some of this is due to rural poverty, disparities are profound even within urban areas (as reported for Canada) (Firestone *et al.*, 2014).

Current, low socio-economic status clearly is a major factor for poor health outcomes in NAs, but NA health today also results from historical trauma and its inter-generational continuation. Federal Indian Policies from 200 years of removal, reservations, relocation/assimilation, termination, and language eradication have resulted in loss of identity, shame, guilt, unresolved grief and depression (Brave Heart & DeBruyn, 1998; Oster *et al.*, 2014), key features of historical trauma. In today’s Native America, extreme poverty, poor health, and high homicide and suicide rates are tragic outcomes of this historical trauma (Brave Heart & DeBruyn, 1998; Sotero, 2006).

Indigenous language loss and language use

The loss of languages worldwide has been substantial over the past 200 years. Many linguists estimate that half to 90% of the world’s languages will be moribund by the end of this century (Grenoble & Whaley, 1998; Hale *et al.*, 1992; Whalen & Simons, 2012). Even so, there was little concentrated effort to retain and revitalize language among NA communities until recently, aided by the passage of the Native American Languages Act of 1990. Despite subsequent progress, NA languages are still rapidly losing speakers and the knowledge residing in their languages.

Language and culture are intertwined, and neither completely determines the other (McCarty & Zepeda, 2010), but language use is a substantial indicator of cultural coherence. Many NA communities are engaged in the revival of language and culture (see examples Table 1), and raising the health of the community is often an explicit goal. For example, Stephanie Fielding (Mohegan Tribe, Council of Elders), states, “The Mohegan language program is more than a cultural effort, it is aimed at bringing our community together to improve its cohesion and health” (personal communication, 20 April 2016). There are indications that such efforts can be successful (e.g., Hinton, 2001:225), but the next section will survey published studies that more directly assess the effects of language maintenance (i.e., for first language (L1) speakers) and language revitalization (i.e., for second language (L2) learners).

Existing studies

Native health, from their own perspective, includes four domains: spiritual, mental, emotional and physical; a disruption in any part, is a loss in ‘health’ (Moss, 2015). More often there are several domains affected, so each must be considered in this discussion.

Spiritual life has always been key for American Indians. Intergenerational trauma or historical trauma has been termed as a ‘spiritual injury’, or ‘soul wound’. A large driver of this trauma was the taking away of language (Duran *et al.*, 1998). Prayers and ‘medicine men’ have utilized indigenous languages traditionally (Moss, 2000). In many cases it is the spirit that is being healed.

While the present survey focuses on the physical effects, mental and emotional factors certainly play a role in suicide.

Table 1. Types of language learning environments and programs for Native American (NA) languages. L1/L2 indicates whether the language is a first language (L1) or learned later in life (L2) for the target population. Ratings of “poor” are often due to small numbers available.

Type of Environment/ Program	Examples	L1/L2	Feasibility for Use in Retrospective Research	Feasibility for Use in Prospective Research
Learning from L1 parents	Previously: About 200 US NA languages; currently: about 30; www.ethnologue.org	L1	Good	Poor
Regular gatherings of L1 speakers	Zuni (Moss, 2000); Wisconsin “keckīwak elders” meetings	L1	Moderate	Good
Master/Apprentice	Cf. Hinton (2001)	L1 + L2	Poor	Poor
School instruction, classroom	Cf. Cantoni (1996)	L2	Moderate	Good
Immersion schools	Hawaiian (Wilson, 2012); Alutiiq (www.alutiiqlanguage.org)	L2 + L1	Good	Good
Learning from L2 parents	Myaamia (www.myaamiacenter.org); Wampanoag (www.wlrp.org)	L2 + L1	Poor	Moderate

[Hallett et al. \(2007\)](#) found the youth suicide rate for indigenous bands in British Columbia in which 50% of the community is conversationally fluent (L1) to be 1/6th that of less fluent bands. The language factor was predictive even when other correlated cultural factors were subtracted from the analysis.

On the physical side, another study found that the percentage of smokers in US Southwestern tribes, where indigenous languages are widely spoken, was only 14 percent as compared to 50 percent among Northern Plains tribes, where language use is sparse ([Nez Henderson et al., 2005](#)). A survey study in California ([Hodge & Nandy, 2011:797](#)) found that those who could speak their ancestral language were more frequently classified in a (within-study defined) “good” wellness group (82.4%) than were those who could not speak it (70.1%). A survey of residents of the Hopi reservation found that language use was positively correlated with “practicing Hopi behaviors to keep healthy” ([Coe et al., 2004:405](#)). A recent study found that Canadian First Nations groups with greater cultural retention, as indexed by language use, had significantly lower rates of diabetes after factoring out socioeconomic factors ([Oster et al., 2014](#)). All of these studies combined L1 and L2 speakers.

In Australia, speaking an Aboriginal and/or Torres Strait Islander language was found to reduce several health risk factors such as excessive alcohol consumption (8% vs. 18% for English monolinguals), illicit drug use (16% vs. 26%), and violence victimization (25% vs. 37%) ([Australian Institute of Aboriginal and Torres Strait Islander Studies \(AIATSIS\), 2005:3](#)). Those who spoke their heritage language were also found to have half the rate of “poor health” as those who had switched to English ([Trewin & Madden, 2005:95](#)). Alcohol, violence and drug use (especially methamphetamines) are problematic in NA populations at rates exceeding the general US population ([IHS, 2014:191](#)).

One result based exclusively on L2 learners examined high school graduation rates, which are taken as a health indicator

by the National Institutes of Health, in a Hawaiian language immersion school. The Nāwahī program in Hawaii has a 100% graduation rate ([Wilson, 2012](#)), compared to 70% for standard schools ([Kamehameha Schools, 2009](#)).

Why focus on language?

Language transmission is a particularly effective means of reinforcing culture and has the benefit of integrating most cultural and communal activities. Language is also an extremely efficient means of establishing membership or inclusion in a community. Studies that might disentangle language and culture are possible, but the approach argued for here takes it as a given that language is the most efficient means of transmitting, maintaining, and even reviving culture.

There are different kinds of environments and programs for language learning and use ([Table 1](#)). Evaluation can be a challenge, whether the study is retrospective or prospective, due to large differences in specifics and small numbers in many cases. Census data can, with limitations, add to the results. Prospective studies could compare such health measures as absentee rates from school or changes in the Youth Risk Behavior Surveillance System ([YRBSS; Centers for Disease Control and Prevention, 2004](#)). While indirect, these measures can be obtained for all children, allowing larger cohorts than would be possible if only eventual negative outcomes were measured.

The main recommendation suggested by these studies, then, is that language programs prospectively include assessment of health outcomes along with the core of the program (see also [Marmion et al., 2014:46](#)). In this way, samples across the wide variety of programs can be compared, with the expectation that those with the most positive health outcomes can be replicated in other programs. Comparisons, both in effectiveness and cost, to standard health programs are also needed, given that language programs are typically less expensive than many other types of programs.

Conclusion

Language programs in NA communities hold the promise of improving the mental and physical health of those who participate in them. All generations seem able to take advantage of this possibility. Data exist on palliative effects of use of a Native language and/or cultural practices on smoking (Nez Henderson *et al.*, 2005), suicide rates (Hallett *et al.*, 2007) and alcohol (Torres Stone *et al.*, 2006; Whitbeck *et al.*, 2004) and substance abuse (First Peoples' Heritage Language and Culture Council, 2012:213), but many more issues are likely to be evident as more data are collected. A return to native spirituality has been shown to improve treatment results (Berry *et al.*, 2012; Gone & Calf Looking, 2015), an effect that could be expected to increase with inclusion of the ancestral language. As Tulloch *et al.* (2013) point out, the many informal programs that have appeared recently are not well studied and may require novel methodologies.

The Endangered Language Fund has launched a program called Healing Through Language to facilitate the support and assessment of language programs throughout Native America (www.healing-throughlanguage.org). Communities throughout the US and elsewhere have started language programs with a wide range of models. Because this one type of program can, apparently, lead to positive outcomes in so many areas, we would expect to find a substantial return in health benefits on investment in language programs in Native America.

Speaking an indigenous language in and of itself may not be solely responsible for improved health status; rather, community validation of the indigenous knowledge system, community-driven tribal education, comprehending indigenous medicine, and youth empowerment through language and culture identity formation all play significant roles in the ability of a minority language to thrive and for the community to experience healthy outcomes from the collective effort.

Author contributions

All authors reviewed the literature and provided input to and reviewed all drafts of the manuscript.

Competing interests

No competing interests were disclosed.

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[Reference Source](#)

Open Peer Review

Current Referee Status: ? ?

Version 1

Referee Report 21 September 2016

doi:10.5256/f1000research.9315.r14157



Terryann Coralie Clark

School of Nursing, University of Auckland, Auckland, New Zealand

Thank you for the opportunity to review this review.

I think this article is of significant importance for indigenous peoples and links ancestral wisdom with some evidence. I do think that the article is weak in some areas:

Abstract

I think the abstract could be stronger. It is unclear what you conclude and what evidence you have. e.g. Evidence suggests that language maintenance can be associated with improved health, social and education outcomes for American Indians and indigenous populations. This is evidenced by ...

Introduction

The links between language and well-being need to be stronger. Need more evidence that language is associated with well-being. What are the theories about how language and cultural maintenance, cultural connection improve outcomes? Think your paper would be stronger if it maintained its international literature focus - there is more evidence if you use Australia, NZ and other indigenous people. Need to state what the purpose of the paper is. What you intend to review.

Health status

This section could be stronger. There is a lot of evidence about poor health among indigenous peoples. What is health from an indigenous perspective?

Indigenous language and loss

Talking about 'language loss' suggests that it was somehow accidental. Language was a purposeful way to colonise indigenous peoples.

Existing studies (Evidence to support language revitalisation?)

Not sure about this heading - what is meant by existing studies? Watch causation language - these are associations e.g. "speaking an indigenous language was found to reduce several health risks (p.3)" - should read speaking and indigenous language was associated with reduced risk.

Why focus on language?

Think this section should come earlier - what is the theory that language is a powerful protective factor? The table provided is unrelated to the content and doesn't add much. Unsure what this is for - link to purpose statement at the beginning. e.g. The purpose of this review is to review the literature about the

importance of language to indigenous well-being and identify the programmes and data available that might be evaluated? Need more on this as it is not clear from your review.

Conclusions

Should be more focused.

Overall - I think this is useful information for indigenous peoples but it requires a significant restructure and rewrite to make it cohesive.

I have read this submission. I believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Competing Interests: No competing interests were disclosed.

Referee Report 07 June 2016

doi:[10.5256/f1000research.9315.r14162](https://doi.org/10.5256/f1000research.9315.r14162)



Richard T Oster

Department of Medicine, University of Alberta, Edmonton, AB, Canada

This is a timely and important article. Indigenous peoples continue to voice the importance of culture and language revitalization for their well-being. As a result, more and more research is being conducted linking language and health in Indigenous populations. A review or summary of that work is needed, hence the current article. I commend the authors for undertaking this vital task. Generally, the article is well written and informative. However, I found that some sections were not thoroughly explored and the authors would do well by deepening their literature review and expanding on their ideas. My comments are as follows:

1. I suggest the authors capitalize the term “Indigenous” throughout the article.
2. Abstract, third sentence: it is not clear what the authors mean by “communities” here. Also, compared to what population is their “lowered health status”?
3. Abstract: it would be useful to add a sentence on *how* language revitalization is thought to improve health.
4. Introduction: the authors state that this current article is a survey. This is a bit confusing. The authors should be clear on what type of article this is. It is not a quantitative survey, systematic review, meta-analysis, review, or literature search. As the article is now, an “opinion piece” seems more appropriate. However, I’m hoping that the authors can expand on many of their ideas and

explore the known literature further. In which case, the article may be appropriately termed a “review”.

5. Introduction, paragraph 3, last sentence: I’m not sure that the references cited support the claim being made that language shifts have caused the health deficits we see today among Indigenous populations. Perhaps the authors can rework this sentence.
6. Health status: this is one of the sections that seems lacking in its scope. Perhaps the authors can expand and describe some of the major health disparities among Indigenous populations. Some epidemiological data would be helpful to the reader to understand the scope of the disparities.
7. Indigenous language loss and language use: it would be helpful to the reader if the authors provided examples of some of the Indigenous languages. What are some of the major Indigenous languages worldwide? How many are there? How many have been lost? It would also be helpful if the authors provided some data on how much Indigenous languages are being spoken today around the world and in North America.
8. Existing studies and why focus on language sections: These sections in particular need to be expanded upon. Are the authors able to conduct a formal literature search? Perhaps with keywords? Also, the authors may want to explore and include other literature that has explored the relationship between language/culture and emotional/mental health. The extensive writings of Laurence Kirmayer come to mind as a good place to start. What is explicitly missing from this article is the *how* piece... How does language revitalization lead to better health? Is it due to enhanced sense of identity (as Chandler and Lalonde argue)? Enhanced spiritual health? Enhanced sense of community/belonging? The provision of strong role models that teach the language? Protection from early life traumas? There is also an entire field of neurological research that has looked at how learning multiple languages can impact the brain and health. The authors would do well to explore these different areas and give the reader an idea on the *how*. Even looking into some of the qualitative research with Indigenous peoples suffering from some of the major health problems that Indigenous populations face (e.g. diabetes) would be beneficial as often language/culture is brought up as a key determinant of health in these studies. Moreover, has there been research that has shown *not* shown a relationship between language and health? Lastly, second paragraph, last sentence: Has there been work done that specifically examined language loss and sense of spiritual well-being?
9. I was pleased that the authors recommend that future studies aimed at language revitalization include assessments of health outcomes. Perhaps the authors could expand on what these health assessments may look like? What should be measured and how?
10. Conclusion: It would make more sense perhaps to include and expand upon the Berry 2012, Gone 2015, and Tullouch 2013 references in the “existing studies” or “why focus on language” sections.
11. Last paragraph of conclusion: the ideas presented in this paragraph seem to come out of nowhere as they have not been discussed earlier in the article. Again, the authors would do well to really spend some time reading and then summarizing in the “existing studies” or “why focus on language” sections the known literature on how and why language revitalization may lead to improved health. These sections are the place (as opposed to the conclusion) to introduce and describe in-depth the other contributors related to speaking an Indigenous language that may be responsible for improved health status.

I have read this submission. I believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Competing Interests: No competing interests were disclosed.

Discuss this Article

Version 1

Reader Comment 10 May 2016

Nick Thieberger, University of Melbourne, Australia

Some additional references that may be useful:

Bialystok, E., Craik, F. & G. Luk, G. 2012. Bilingualism: consequences for mind and brain. *Trends in Cognitive Sciences* 16(4): 240-250.

Biddle, N. and H. Swee. 2012. 'The Relationship Between Wellbeing and Indigenous Land, Language and Culture in Australia'. *Australian Geographer* 43: 215–232.

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Competing Interests: No competing interests were disclosed.
