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Research on Indigenous Elders: From Positivistic to Decolonizing Methodologies

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Although indigenous peoples have lower life expectancies than the social majority populations in their countries, increasing numbers of indigenous people are living into old age. Research on indigenous elders is informed by a number of research traditions. Researchers have mined existing data sets to compare characteristics of indigenous populations with non-indigenous groups, and these findings have revealed significant disparities experienced by indigenous elders. Some investigators have attempted to validate standardized research tools for use in indigenous populations. Findings from these studies have furthered our knowledge about indigenous elders and have highlighted the ways in which tools may need to be adapted to better fit indigenous views of the constructs being measured. Qualitative approaches are popular, as they allow indigenous elders to tell their stories and challenge non-indigenous investigators to acknowledge values and worldviews different from their own. Recently, efforts have extended to participatory and decolonizing research methods, which aim to empower indigenous elders as researchers. Research approaches are discussed in light of the negative experiences many indigenous peoples have had with Eurocentric research. Acknowledgment of historical trauma, life-course perspectives, phenomenology, and critical gerontology should frame future research with, rather than on, indigenous elders.

Key Words: Diversity and ethnicity, Theory, American Indian older adults, Conceptual development, Cross-cultural studies, Life course/life span, Methodology, Qualitative research methods, Quantitative research methods, Activism

This study explores various approaches to research with indigenous elders, drawing examples from indigenous groups of selected English-speaking countries, including American Indians, Alaska Natives, and Native Hawaiians in the United States, First Nations people in Canada, Māori in Aotearoa (New Zealand), and Aboriginal peoples in Australia. Increasing numbers of indigenous people in these countries are living into

old age and are the subject of a growing, although still small, body of research (Jervis, 2010). We summarize the general experience of indigenous people with colonization and research, discuss strengths and shortcomings of research traditions that inform inquiry on indigenous elders (including "decolonizing methodologies" that have emerged in response to colonization), and conclude with recommendations for future research.

Indigenous Experiences With Western Colonization and Research

According to the United Nations (UN, 2004, p. 2), "Indigenous communities, peoples and nations are those which, having a historical continuity with pre-invasion and pre-colonial societies that developed on their territories, consider themselves distinct from other sectors of the societies now prevailing on those territories. . . They form at present non-dominant sectors of society and are determined to preserve, develop and transmit to future generations their ancestral territories, and their ethnic identity, as the basis of their continued existence as peoples, in accordance with their own cultural patterns, social institutions and legal system."

The Declaration on the Rights of indigenous Peoples (UN, 2008) recognizes that indigenous peoples have "suffered from historic injustices as a result of their colonization" (p. 2). Colonization is a traumatic experience, as it is sudden, shocking, comprehensive, and imposed from outside (Sztompka, 2000). Prior to colonization, indigenous peoples had existing cultures, languages, governing structures, epistemologies, and religions. In many cases, colonizers brought their own world views and rules, and judged indigenous systems as "wrong." The new order usually was accompanied by various forms of subjugation, including diseases to which indigenous people had no immunity, physical and psychological violence, economic deprivation, cultural dispossession, and segregation and/or displacement. Subjugation often was enforced through military force, genocide, imprisonment, schools, and laws (Sotero, 2006).

Historical trauma theory links the experience of colonization to an array of problems for generations of indigenous people (Braveheart & Debruyn, 1998; Evans-Campbell, 2008; Wesley-Esquimaux & Smolewski, 2004). The colonized generations are the direct recipients of subjugation and loss, experiencing high rates of mortality from acute diseases, as well as depression, self-destructive

behaviors, hostility, and chronic bereavement. Subsequent generations are affected by the original trauma through exposure to parents and grandparents. Families may have reduced capacity to provide for their progeny and/or see government remove their children to boarding schools or foster homes to hasten assimilation (Jackson & Chapleski, 2000). Parents and grandparents also transmit information about the status of their ethnic group, including notions of racial inferiority. Over time, overt subjugation is replaced by racism, discrimination, and social and economic disadvantages. Thus, "populations historically subjected to long-term, mass trauma exhibit a higher prevalence of disease even several generations after the original trauma occurred" (Sotero, 2006, p. 94).

The countries from which we draw our examples—the United States, Canada, Australia, and New Zealand—were colonized by Europeans. Among the new views imposed by European colonizers was the positivist research paradigm, in which the researcher is cast as expert, distant, and value free (Denzin, Lincoln, & Smith, 2008; Fong, Braun, & Tsark, 2003; Smith, 2012). The positivist and postpositivist paradigms are based on the idea that there is a single truth to be discovered and that scientific knowledge is far more valuable than subjective or experiential knowledge (Israel, Schulz, Parker, & Becker, 1998).

As noted by Māori scholar Smith (2012), "research is probably one of the dirtiest words in the indigenous world's vocabulary" (p. 1). As European colonizers set the standard for what is "right," their research findings compared indigenous societies against European standards and deemed indigenous societies as backwards (Denzin et al., 2008).

Wolfe (2006) argues that colonizing methodologies dually function to "dissolve native societies and erect a new colonial society on the expropriated land base" (p. 388). Colonizer (aka "settler") knowledge is produced and disseminated to support these ends. Research methodologies may include both quantitative and qualitative (ethnographic) approaches; however, data collected by these methods usually dismiss or negate indigenous knowledge and ways of knowing as they are interpreted against settler standards. Native histories and realities are suppressed as they are discounted and replaced by settler epistemologies and methods (Goodyear-Ka'opua, 2013).

The resulting picture of indigenous people as "savage" and "lesser" than whites harms indigenous groups in at least three ways: (a) stigmatizing

indigenous groups; (b) discrediting indigenous ways of learning about and relating to the cosmos, the earth, and earth's inhabitants; and (c) justifying the use of indigenous people as subjects of unethical practices, including research (Fong et al., 2003; Smith, 2012; Wilson, 2008).

This is not to say that researchers deliberately set out to cause harm through their research. However, most indigenous and non-indigenous researchers have been trained in the positivist research paradigm, which is heavily influenced by the research methods of the natural sciences dating back to the turn of the 20th century. Thus, we likely embrace it until challenged otherwise. At the same time, data are needed upon which to base social policy and service delivery, and researchers are applying quantitative and qualitative methods to obtain these data. In the next section, we review research methods being used to inform knowledge about indigenous elders.

Research Approaches

Multiethnic Data Sets

Much of what policy makers know about indigenous peoples comes from the mining of large multiethnic data sets, including birth and death registries, health surveillance systems, and medical record repositories. However, relatively small numbers of individuals in any given indigenous group challenge cross-ethnic comparisons. For example, the United States recognizes 566 different American Indian/Alaska Native (AIAN) tribes, the largest of which are the Navajo and Cherokee tribes, each with about 300,000 members (U.S. Census Bureau, 2010). National and state governments usually aggregate U.S. tribes under the AIAN label. Although this label included 6.2 million U.S. residents in 2011, it still represented only 2% of the total U.S. population. Also, the lumping together of the 566 AIAN tribes (or the 630 First Nations of Canada or the 400 Aboriginal groups of Australia) causes its own problems, as the strengths and needs of the individual groups are lost in the aggregation process (Tanjasiri, Wallace, & Shibata, 1995).

Given small numbers, life expectancy and mortality rates for indigenous peoples may not be calculated on a regular basis, and statistical methods for small samples often are needed to produce stable estimates of life expectancy, mortality, morbidity and other indicators (Jervis, 2010; Park, Braun, Horiuchi, Tottori, & Onaka, 2009). These include combining multiple years of data, lumping together disparate groups under broader labels, and comparing estimates for indigenous groups against the general population, which would include the indigenous groups, a practice that further masks differences between indigenous and dominant populations.

Epidemiologic data-mining endeavors have revealed significant health, social, and economic disparities experienced by indigenous elders. For example, life expectancy for AIAN is estimated to lag about 3 years behind that of the general U.S. population. In Hawai'i, life expectancy for Native Hawaiians is about 5 years shorter than that for Caucasians (Park et al., 2009). Māori live 8–9 fewer years than non-Māori; First Nations people live about 6.5 fewer years than the general Canadian population; and Aboriginal people live 19–20 fewer years than the general Australian population (Australian Government, 2012; Health Canada, 2011; New Zealand Ministry of Health, 2010).

Because of shorter life expectancy, indigenous people are less likely than their white counterparts to live into old age, and the percentages of older people in indigenous populations are relatively low. In Hawai'i, about 22% of the state's overall population is 60 years of age or older, but only 11% of Native Hawaiians are in this age group (Ka'opua, Braun, Browne, Mokuau, & Park, 2011). In Australia, Canada, and New Zealand, only 3%–5% of the indigenous populations are aged 65 or older, compared with 13%–14% of the general population (Australian Government, 2012; Health Canada, 2011; New Zealand Ministry of Health, 2010). Thus, although the mining of large data sets has yielded information on which health and social policies are being formulated, there are limitations caused by small numbers, aggregation of diverse groups, and the need for multiple years of data to yield stable estimates (Table 1).

Indigenous Data Sets

Indigenous data sets can provide more accurate information on indigenous peoples. For example, researchers in the United States can mine Indian Health Service (IHS) data, and IHS-generated prevalence can then be compared against prevalence in the general U.S. population. The major limitation of this approach is that only 40% of AIAN receives care through IHS facilities.

To augment available data, some governments gather additional data directly from indigenous people. Examples include the National Aboriginal and Torres Strait Islander Social Survey, administered every 6 years by the Australian Government

Table 1. Methodological Approaches: Purpose, Relevance, and Limitations

Approach	Purpose	Relevance	Limitations
Multiethnic data sets	Estimates and compares biopsychosocial indicators and outcomes	Social determinants and disparate outcomes can be identified and compared across groups	Comparisons complicated by small group size of Indigenous peoples and shorter life spans Aggregation of Indigenous groups obscures diverse needs and strengths
Indigenous data sets	Estimate health and social indicators of relevance to dominant and Indigenous populations	Allows inclusion of questions relevant to Indigenous populations Allows estimates of prevalence, outcomes, and determinants of health and well-being	In US, IHS database includes only 40% of AIAN, and funded research focused on specific tribes, thus findings may not generalize to all AIAN In other countries, data collected from Indigenous groups periodically, rather than annually
Standardized tools	Compares Indigenous and non-Indigenous peoples using standard tools	If measures are valid, allows comparison of domains across diverse cultural groups If measures are not valid, may identify culture-specific ways to viewing issues	Concept may be culture bound, so tools may not be valid across cultures Test-taking familiarity and literacy levels may compromise accuracy of results
Qualitative methods	Describes perceptions of constructs and structures within culture and context	Especially appropriate for Indigenous groups with oral traditions Seeks to gain Indigenous, rather than dominant, perspectives on constructs, issues, and solutions	Some researchers interpret Indigenous findings against western-oriented views and standards Some colonizers (mis)use qualitative findings to further control Indigenous peoples Data may not lend to between group comparisons.
Life-course perspectives	Considers contribution of individual and sociohistorical circumstances	Recognizes different experiences of Indigenous elders across cohorts/generations Can inform policy and program needs and preferences across cohorts/generations.	Not everyone in a cohort may experience or interpret historical events the same way
Participatory approaches	Engages stakeholders in defining/addressing elder issues	Addresses sensitivity to being studied Facilitates shared leadership and ownership of the research Aims to improve conditions of those studied	Power imbalance may remain between researchers and community partners. Not all PAR/CBPR result in improved conditions, often due to time and funding constraints
Decolonizing and critical perspectives	Extends PAR with more attention to colonizing history and commitment to Indigenous self-leadership of research	Emerges from Indigenous scholarship Recognizes Indigenous peoples' history of oppression in today's disparities. Allows emergence of new methodologies and approaches to research	Continued work needed to articulate best protocols for use with specific Indigenous groups Few universities teach Indigenous and critical methods Few Indigenous researchers

Notes: PAR = participatory action research; CBPR = community-based participatory research.

(2012), and the Aboriginal Peoples Survey, administered periodically by Health Canada (2011).

In the United States, federal funds have supported data collection in AIAN populations. Funding from the National Cancer Institute has supported the Education and Research Towards Health study, which collected cross-sectional data from 5,207 AIAN in South Dakota, Arizona, and

Alaska (Lanier, Redwood, & Kelly, 2012; Slattery et al., 2007). Support from the National Institute on Aging has funded data collection among AIAN in the United States southeast (Goins, Garroutte, Fox, Dee Geiger, & Manson, 2011). The AoA-funded National Resource Center on Native American Aging (at the University of North Dakota) houses a data set of AIAN elders from 171 tribal nations (Moulton et al., 2005). The longitudinal Strong Heart Study, funded by the National Heart, Lung, and Blood Institute, examines heart disease in a diverse cohort of AIAN (Rhoades et al., 2007). These studies, and others like them, are providing much needed information on indigenous elders.

Standardized Tools

In collecting data from indigenous peoples, researchers often aim to compare findings against those of non-indigenous groups. To do so, standard data collection instruments have been employed. Efforts to validate standard tools in indigenous populations have furthered our knowledge about indigenous elders, as well as fit of standardized measures for specific indigenous populations.

For example, Hennessey and John (1995) conducted focus groups with Pueblo Indians about the Zarit Burden Index (ZBI) prior to using it in further research. The ZBI presupposes that caregiving causes burden because it interferes with the caregiver's other activities and relationships. However, Hennessey and John found that respondents were more likely to feel burdened by the fact that other responsibilities (especially work) interfered with caregiving. For those who expressed this sentiment, caregiving constituted a culturally valued activity, and responsibility for family well-being was viewed as more important than individual needs, desires, and achievements. The researchers contextualized findings within the ethos of interdependency and reciprocity in many AIAN cultures. John, Hennessey, Dyeson, and Garrett (2001) proceeded to administer the ZBI with a larger group of Pueblo Indians and found a much more complex factor structure than did Zarit, Reever, and Back-Peterson (1980) in their psychometric testing of the scale. Consistent with the qualitative data, the factor analysis documented that guilt (should do more, could do a better job) was the most common form of caregiver burden among the Pueblo and was unrelated to other forms of burden.

These findings reflect the caveats expressed by earlier thinkers that basic social constructs, such as health, illness, stress, ethnicity, family, self, and burden, are value laden and culture bound (Kleinman, 1980; Luborsky & Sankar, 1993; Sankar, 1993). This has implications for researchers in search of valid tools for use in cross-cultural research, as well as for the practitioner who may not realize that Eurocentric biomedical constructs may be at odds with indigenous conceptualizations of physical and mental health and illness (Jervis, 2010).

Qualitative Methods

Attention to culture and context is critical when conducting research with indigenous elders, as the status of elders and their traditional roles differ across cultures. Informed by phenomenological and constructivist paradigms, qualitative research generates valuable knowledge about elders because it "attends to point of view in representing the empirical" (Gubrium, 1992, p. 582). Ethnography, used extensively in culturally anthropology, involves the direct observation of a culture by living among the individuals in a specific community or setting. Other qualitative methods include oral history, in-depth interviews, and focus groups. In theory, qualitative researchers recognize and embrace the fact that the researcher and interviewee may view a phenomenon quite differently.

Unfortunately, some qualitative researchers exploring indigenous cultures have (mis)interpreted findings that run counter to their own views, and sometimes qualitative research findings are used to marginalize indigenous peoples (Denzin et al. 2008). For example, physicians participating in focus groups to discuss why Native Hawaiians had significantly higher mortality rates than non-Hawaiians suggested that Native Hawaiians were more fatalistic and less interested in mainstream health services than other ethnic groups in Hawai'i (Braun, Look, & Tsark, 1995). Publishing these beliefs may perpetuate stereotypes among physicians, who then may treat Native Hawaiians less aggressively than non-Hawaiians. In contrast, focus groups with cancer survivors conducted several years later revealed that Native Hawaiian cancer survivors were just as proactive about their health as non-Native Hawaiian cancer survivors, insisting on diagnostic testing and second opinions when physicians downplayed their symptoms and fears (Braun, Mokuau, Hunt, Kaanoi, & Gotay, 2002).

Indigenous and non-indigenous researchers have employed qualitative methods to examine traditional roles of indigenous elders, and much of the

evidence suggests that they serve as leaders, keepers of history and cultural knowledge, and mentors to the young (e.g., Red Horse 1980; Warburton & McLaughlin, 2007). Also being explored through qualitative methods are indigenous meanings of aging. For example, Hopkins, Kwachka, Lardon, & Mohatt (2007) interviewed midlife and older Yup'ik/Cup'ik women in rural Alaska, who defined healthy aging within the framework of subsistence living and respect for elders. Lewis (2011) gathered data from elders in Southwest Alaska finding that "eldership" was not based on age but on demonstration of emotional well-being, community engagement, spirituality, physical health, and wisdom gained through life experiences. Waugh and Mackenzie (2011) interviewed indigenous elders in Sydney, who defined well aging as engagement in meaningful, culturally valued roles; this engagement strengthens personal identity and facilitates family and community health. Qualitative methods also have been used to examine indigenous perspectives on dementia (e.g., Griffin-Pierce et al., 2008), caregiving (e.g., Hennessey & John, 1995) and preferred qualities of providers (e.g., Mehl-Madrona, 2009).

Life-Course Perspectives

Life-course, cohort, and resiliency perspectives are proving useful in better understanding diverse experiences of aging across generations of indigenous elders. For example, over the life course, cumulative adversity for some and cumulative advantage for others result in diverging trajectories and increasing inequality (Hatch, 2005). Gerontologists also understand that each person's "historical world" provides different opportunities and constraints, and thus aging is experienced differently by age, ethnic, racial, economic, and geographical cohorts (Riley, 1971).

Jackson and Chapleski (2000) used the life-course perspective to better understand different cohorts of Anishinaabeg elders in the Great Lakes. Their model considered ways in which various life stages intersected with specific historical periods. For example, cohorts born before 1940 may have been relocated from their families to federal boarding schools. In these settings, they were not allowed to speak their own language or practice their cultural traditions, and many were abused. Other federal policies of the time encouraged relocation to urban areas to work in manufacturing. Cohorts born after 1960 had a different experience, as the U.S. government began reversing its assimilation policies and creating programs to help tribes develop tribally owned business ventures.

A research team in Hawai'i built on the work of Jackson and Chapleski (2000) to create a similar framework for Native Hawaiian elders (Browne, Mokuau, & Braun, 2009). This work resulted in a historical timeline that identifies key cultural and historical markers (both good and bad) in the lives of Native Hawaiian elders. The timeline links to health and social-health delivery strategies and offers a rationale for culturally based solutions targeted to different cohorts of elders.

Participatory Approaches

Indigenous groups have grown wary of what they call "helicopter" or "smash and grab" research, where researchers come, take, advance their careers, and leave, with no discernible good accruing to the community (Fong et al., 2003; Kovach, 2009). To redress this, more indigenous and non-indigenous researchers are using participatory action research (PAR) or community-based participatory research (CBPR) approaches. By definition, these transformative and relational approaches aim to engage people in research that improves their well-being (Kovach, 2009). More specifically, CBPR (a) recognizes the community as a unit of identity; (b) builds on the strengths and resources of the community; (c) facilitates a collaborative, equitable partnership in research, through an empowering and power-sharing process that attends to social inequalities; (d) fosters co-learning and capacity building among partners; (e) attains a balance between data generation and intervention; (f) focuses on the local relevance of public health problems and on ecological perspectives that attend to multiple determinants of health; (g) involves systems development in a cyclical and iterative process; (h) involves all partners in the broad dissemination of results; and (i) commits to sustainability (Israel et al., 1998). Following a systematic literature review on use of PAR with older adults, Blair and Minkler (2009) concluded that PAR studies are labor intensive and challenging but improve the quality of the research, build skills in participating elders, and result in more action-oriented outcomes.

The literature includes several examples of PAR and CBPR projects with indigenous elders. Dickson and Green (2001) describe a project with 40 First Nations grandmothers on health promotion. Participants appreciated the control they had over

the research and reported increases in knowledge, skills, healing, networking, and communication with local government. Wexler (2011) described a CBPR study investigating Inupiaq cultural resilience. The group used intergenerational dialog to collect data, which also provided opportunity for communication among elders, adults, and youth, thus supporting the transmission of cultural knowledge.

Several gerontologists are working with Indigenous groups to develop and test interventions based on cultural values and on traditional roles of elders. For example, Roué (2006) described how, among the James Bay Cree Indians, some elders welcomed troubled youngsters into their hunting camps, and by initiating them to life on the land succeeded in restoring their relationship with the world. Puchala, Paul, Kennedy, & Mehl-Madrona (2010) describe the success of a clinical program in which elders used traditional cultural stories and spirituality to help First Nation families transform conditions underlying domestic violence. A participatory research project with Native Americans in Montana tested the Māori-based family-conferencing approach to help families at risk of elder abuse. This intervention built on values of family and self-determination and incorporated spirituality and ritual (Holkup, Salois, Tripp-Reimer, & Weinert, 2007).

Important to the CBPR process are tribal and community-based institutional review boards (IRB), especially those established by specific indigenous groups to oversee research in their communities (Fong et al., 2003). These bodies tend to bring all research proposals to full review, including those typically exempted or expedited by university IRBs. This review improves the appropriateness of the design and instrumentation, identifies ways community members can gain skills and employment through the research, minimizes chances of group harm or stigmatization from the research, and may mandate how data and findings can be shared (Fischer & Ball, 2003; Manson, Garroutte, Goins, & Henderson, 2004).

Decolonizing and Critical Perspectives

Among indigenous researchers and "allied others," efforts have extended to decolonizing research methods (Denzin et al., 2008; Kovach, 2009; Smith, 2012; Wilson, 2008). These efforts, which aim to put research on indigenous peoples under the control of indigenous peoples, are in line with the UN Declaration on Human Rights for indigenous Peoples (UN, 2008), which states that

Indigenous peoples have the right to maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions, as well as the manifestations of their sciences . . . They also have the right to maintain, control, protect, and develop their intellectual property over such cultural heritage, traditional knowledge, and traditional cultural expressions." (p. 11)

Decolonized methodologies draw on a number of theoretical orientations relevant to gerontology. These include phenomenological and transformative approaches that inform qualitative and PAR approaches. Also important is critical theory, which aims to promote social justice by exposing and questioning the power dynamics of society, including power inequities based on race (critical race theory) and gender (feminist theory). As noted above, positivistic research constructs are enmeshed in the culture and worldview of Euro-American society and serve to support its continuation by judging which research constructs are valid, determining how constructs are defined, and deciding which variables need to be controlled (Wilson, 2008). Critical theory challenges the Euro-American ethnocentricity of most social science theory, requiring researchers to "identify wider societal influences on the problems that are examined, to explore how theorizing is done, and to analyze the consequences of different patterns of research and theory building" (Luborsky & Sankar, 1993, pp. 440–441).

Critical theory has been applied in gerontology to examine who benefits from and is harmed by normative standards of aging. For example, Holstein and Minkler (2003) used critical gerontology to examine the elements of successful aging proposed by Rowe and Kahn (1997), including freedom from disease and disability, high cognitive and physical functioning, and social and productive engagement. Holstein and Minkler argue that Rowe and Kahn's operationalization of successful aging only works for older adults who have benefited from a lifetime of cumulative advantage. In this light, their notions of successful aging may actually cause harm to older people who have experienced a lifetime of disadvantage and therefore would not be deemed to have aged successfully. Those who would be harmed the most by this vision of successful aging are elders who already are marginalized, including older women and poor, minority, immigrant, and indigenous elders. Ranzijn (2010) agrees writing that the concept of "active aging" devalues the life experiences of Australian Aboriginals. Alternative conceptions of positive aging, such as "aging well"

or "authentic aging," would be more inclusive and respectful of cultural diversity.

Although indigenous research methodologies build on phenomenological, transformative, and critical approaches, these approaches are still Eurocentric. Kovach (2009), of Cree and Saulteaux ancestry, identifies characteristics of indigenous methodologies used by indigenous scholars, including (a) holistic epistemology; (b) story; (c) purpose; (d) the experiential; (e) tribal ethics; (f) tribal ways of gaining knowledge; and (g) an overall consideration of the colonial relationship. Because tribes differ, a specific tribe's methodology is localized to a tribe's place, language, protocol, and worldview. For example, dreams can be an important source of information for some indigenous groups, such as the Cree and Mi'kmaq in Canada and Aboriginal Australians but not for others (dé Ishtar, 2005; Kovach, 2009; Loppie, 2007).

Indigenous methodologies, then, take research further along the path of recognizing self-determination of indigenous peoples and supporting indigenous leadership in the conceptualization and carrying out of research and in the interpretation and dissemination of research findings. In this distillation, indigenous approaches echo those advocated and practiced by Freire (1986). He referred to this theory-action-reflection cycle as "praxis," which he defined as "reflection and action upon the world in order to transform it" (p. 36). Through praxis, he wrote, oppressed people can acquire a critical awareness of their own condition and with their allies struggle for liberation.

The literature provides a few examples of how researchers are attempting to decolonize research with indigenous elders. Bartlett and colleagues (2007) reported on the use of a decolonized research approach with Métis and First Nations peoples in Manitoba, Canada, which included six processes—rationalizing, enabling, facilitating, experiencing, accepting, and enacting decolonizing research. Dé Ishtar (2005), a white Irish-Australian woman, lived with 13 women Aboriginal Australian elders as they developed an innovative research methodology based on indigenous self-determination, feminist phenomenology, the Tjukurrpa (dreaming), and relationships with each other, ancestors, and land. Mehl-Madrone (2009) demonstrated how a research study can be presented in an indigenous way, "first by situating the author, telling a story, explaining the methodology, describing the elders and what they said, and ending with a story to dramatize the conclusions as indigenous elders

would do" (p.20). Loppie (2007) described the process she undertook to incorporate indigenous principles into research with First Nations elders, providing lessons on how to enter indigenous communities, speak from the heart, and allow intuition and dreams to be included as data.

Discussion

Although this review focused on the experiences of indigenous elders, findings have applications to other marginalized or minority groups, including new immigrants, nonmainstream religious groups, and individuals who are lesbian, gay, bisexual, transgendered, and intersex. There is evidence that these groups experience disparities, and as with indigenous peoples, these disparities flow from isolation, discrimination, acculturation, and/or lack of power. Research on these groups is constrained similarly by small numbers, lack of significant representation in population-based data sets, and limited group-specific data sets. Thus, recommendations presented below regarding research with indigenous elders have relevance for other marginalized groups.

First, we recommend that more research be conducted to advance understanding of indigenous elders. The major question raised by this study is, "how should this research be conducted, and who should conduct it?" All the approaches, theories, and perspectives reviewed above are valid and can yield data useful to indigenous people and to those who work with them. Federal entities and other funders should continue to support the creation and analysis of data sets that can be tapped to answer research questions related to indigenous well-being. Certainly, standardized tools proposed for use with indigenous populations should be validated with those populations before they are employed. Qualitative methods will continue to allow gerontologists to gather detailed and nuanced information on topics of interest, and these methods have great potential to introduce non-indigenous researchers to indigenous perspectives (Wilson, 2008). CBPR and PAR approaches are recommended because they allow indigenous people (including elders) to be navigators of their own inquiry, and these approaches aim to improve the lives of those engaged in the research (Blair & Minkler, 2009; Freire, 1986; Wilson, 2008).

Gerontologists working with indigenous (and other marginalized) peoples also should gain an understanding of social phenomenology, critical

gerontology, the life-course perspective, and relational and feminist theories. These perspectives question the idea that there is one truth and challenge the Euro-American ethnocentricity of positivistic and postpositivistic paradigms. They guide researchers to identify and build on community strengths and to "make things better," in contrast to many epidemiological studies that tend to identify disparities and social determinants of (poor) health, without resulting in improved conditions for indigenous peoples (Holkup et al., 2007). Transformative and critical paradigms also support training of research participants in political processes to achieve change (Denzin et al., 2008)

Ideally indigenous research should be led, designed, controlled, and reported by indigenous people (Denzin et al., 2008; Kovach, 2009; Smith, 2012; Wilson, 2008). To do so, more effort is needed to increase the number of indigenous researchers. In fact, university programs are attracting more indigenous students, and some government funding is available to support the advancement of indigenous and other underrepresented people in the sciences. More universities are offering courses on indigenous methodologies, participatory approaches, and research with small samples. indigenous faculty members are being hired to establish degree programs in indigenous studies and to lead their teaching and research activities. More universities also are allowing the use of indigenous methodologies in dissertation research (Wilson, 2008), and indigenous scholars should be supported to further articulate protocols and practices for use with specific indigenous groups (Bartlett et al., 2007). Writing in language helps advance indigenous rights and cultures. For example, the University of Hawai'i allows students to write and present theses and dissertations in the Hawaiian language, which was codified as the state's second official language in the early 1980s, even though less than 5% of Hawai'i residents speak it.

In conclusion, gerontologists should recognize that even with the best intentions on the part of researchers, scientific findings sometimes have been used to disempower, stigmatize, and control indigenous peoples. Future research in the growing field of indigenous gerontology requires partnership with indigenous elders, families, and communities, and the use of participatory and transformative research methods. Especially needed are more indigenous researchers in gerontology to develop and apply appropriate research processes for enhancing our understanding of indigenous elders.

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