Understanding Native Women's Health: Historical Legacies

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Understanding Native Women's Health

Historical Legacies

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Purpose: Theoretical underpinnings of two theories are examined for their applicability in guiding practice and research when understanding Native American women's health outcomes. Method: Published studies testing two independent theories, historical trauma and weathering, are reviewed. Key theoretical concepts that are applicable in the study of Native women and understanding their intergenerational heritage of injustice and cultural context are discussed. Results: The authors infer underlying assumptions and definitions of both theories and present a hypothetical diagram blending both theories. Conclusion: By understanding historical legacies and the surrounding context, researchers and clinicians can develop knowledge to improve and enhance optimal health outcomes and life opportunities for Native women.

***Keywords*:** American Indian; historical legacies; historical trauma; weathering; colonization; women's health

Native Americans are an ethnically and culturally diverse population, each tribe with its own beliefs, practices, and cultural values, representing more than 550 federally recognized tribes and 200 languages. Health disparities among ethnic and diverse U.S. populations have been well documented in a number of sources, principally by the Institute of Medicine's report, *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care* (Smedley, Smith, & Nelson, 2002). Health disparities are rooted in poverty, lower socioeconomic status, and less educational attainment, all which are prevalent throughout Native communities (Indian Health Service, 2002b).

Interventions to address these health disparities should be based on research findings that foster an understanding of marginalization and the context from which it arises. Theoretical frameworks are useful to understand, describe, and explain Native women's health outcomes stemming from historical marginalization. Clinicians use theory every day in their assessments to evaluate health, identify problems, and determine best treatments. Theory aids investigators to understand phenomena, conduct research, and develop data-based interventions. Policies and practice should be based on the results of research that is conducted with theoretical underpinnings (Meleis, 1997).

Understanding Native women's health extends beyond culture, lifestyle, and genetics and includes how intersections of poverty, geography, discrimination, and racism interplay individually and collectively on health (Walters & Simoni, 2002). Theoretical frameworks are useful for understanding marginalization created by these intersections as well as the impact on health and childbearing outcomes. The purpose of this article is to describe two theories useful in conceptualizing and reflecting on the health of Native women.

Native Women's Health and Childbearing Outcomes

Access to care is frequently related to overall health outcomes. Of Native women and their families who live on or near a reservation, 10% are less likely to graduate high school or attend college and are more likely to be impoverished when compared to other minority groups (Indian Health Service, 2002b). In 1989, the median household income for Native families living on a reservation was $19,897, whereas the median income for the rest of the United States as a whole was $30,056 (Indian Health Service, 2002a).

Health disparities are well documented among Native women. The five leading causes of death for Native women

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of all ages are heart disease (19.6%), cancer (17.6%), unintentional injuries (8.8%), diabetes (6.9%), and stroke (5.1) (Centers for Disease Control, 2003). Native women are the only ethnic group where death because of chronic liver disease is in the top 10 causes of death. Among Native women age 18 and older, nearly one third have one or more cardiovascular disease risk factors, including current cigarette smoking, hypertension, diabetes, and obesity (American Heart Association, 2007). Cancer incidence rates from 1975 to 2004 varied by geographic region and cancer site among Native people, with higher cancer rates ranging from 219 (southwestern U.S.) to 611 (Alaska) compared to 404 to 578 per 100,000 non-Hispanic Whites (Espey et al., 2007). Obesity is also a significant problem for Native women (29.7%) in contrast to White women (19.8%) (National Women's Law Center, 2004). Native women 20 and older are vulnerable to diabetes, with an average diagnosed diabetes rate of 12.8% (with some Native communities ranging from 8.1% to 27.6%) compared with 13.3% for Blacks, 9.5% for Hispanics, and 8.7% for Whites (National Diabetes Information Clearinghouse, 2005). For ages 65 and older, 32.0% of Native women have type 2 diabetes, compared to 16.0% for White women (Centers for Disease Control, 2001). More Native women report smoking (34.5%) and binge drinking (17.3%) than do Pacific Islander (26.8% and 14.7%), White (22.2% and 12.9%), Black (19.5% and 5.5%), Hispanic (10.6% and 6.8%), and Asian American (6.7% and 4.2%) women (National Women's Law Center, 2004).

Another problem affecting Native women is violence. Reports indicate that Native women remain twice as likely to experience violent victimization compared to all U.S. women (Perry, 2004), and one report found that Native women experienced more rapes or sexual assaults (7 per 1,000 women) compared with Black (3 per 1,000), White (2 per 1,000), and Asian (1 per 1,000) women (Greenfeld & Smith, 1999). Interviews with 112 urban-dwelling Native women found 65% experienced some form of interpersonal violence over the course of their life (Walters, Evans-Campbell, Simoni, Ronquillo, & Bhuyan, 2006).

In addition to compromised health, Native women are at risk for poor childbearing outcomes compared to other groups due to health behaviors (Luo, Wilkins, Platt, & Kramer, 2004). More Native women were found to gain less than 16 pounds (17.5%), smoke (18.2%), and develop diabetes (5.6%) than Black (18.8%, 8.4%, and 3.4%) and White (11.9%, 13.8%, and 3.4%) women (Martin et al., 2006). Generally, Native women are least likely to begin prenatal care during the first trimester of pregnancy (69.9%) compared with all U.S. races (83.9%) and White (88.9%), Black (76.5%), and Hispanic (77.5%) women. Grossman and colleagues (2002) suggested that childbearing health disparities between Native and White infants are related to higher rates of poverty, lower levels of maternal education, and limited use of prenatal care.

All of these factors place Native women at risk for poor childbearing health outcomes, including pregnancy-associated hypertension (Martin, Hamilton, Ventura, Menacker, & Park, 2002), gestational diabetes, macrosomic infants (LaVallie et al., 2003), fetal alcohol spectrum disorder, preterm deliveries (Martin et al., 2002), sudden infant death syndrome (Randall, Krogh, Welty, Willinger, & Iyasu, 2001), low birth weight, and neonatal and postneonatal deaths (Grossman et al., 2002). Although childbearing outcomes tend to be worse for Black women, with higher rates of infant mortality (13.49 deaths per 1,000 live births), neonatal mortality (9.22), postneonatal mortality (4.34), and preterm birth (17.7), Native women have similarly poor outcomes (8.73, 4.55, 4.18, and 13.7) compared to White women (5.72, 3.86, 1.86, and 11.6) and the U.S. averages (6.84, 4.63, 2.22, and 12.5) (Mathews & MacDorman, 2006). More Native infants are born weighing more than 4,000 grams (macrosomia) (10.5%) than White (9.4%) and Black (4.8%) infants (Martin et al., 2006). Macrosomia, associated with diabetes related to maternal obesity and excessive maternal weight gain, is known to result in neonatal morbidity, neonatal injury (e.g., shoulder dystocia), maternal injury (vaginal, perineal, and cervical), and cesarean deliveries (Bloomgarden, 2000).

It is important to note, however, that childbearing outcomes for Native adolescents have been aggregated with adult women, making it difficult to link poor outcomes specifically to maternal age within this population. The average age of Native women at the time of their first child is younger (21.8 years old) compared to Black (22.7), Hispanic (23.1), and White (25.4) women (Martin et al., 2006). Although poor childbearing outcomes are often linked to young or older maternal age, Native women consistently have worse outcomes at all ages. Therefore, factors other than age may play a role in determining childbearing outcomes. Studies during the past decade that have compared childbearing outcomes between minority and White women have suggested teen pregnancy may provide biological advantages for historically disadvantaged women (Geronimus, 2001). Geronimus (2000) proposed that African American women experience health deterioration at an accelerated pace compared to White women's health. This may explain why African American women have better childbearing outcomes at younger ages (< 25 years old) than at older ages (> 25 years old) compared to White women. These differences may be explained

Table 1
Author-Inferred Theoretical Assumptions and Major Concepts of Both Theories

Historical Trauma Theory	Weathering Theory
Theoretical assumptions	
1. Traumatic events happen	1. Life is stressful, there is daily stress
2. There are survivors of these traumatic events	2. Stress from social differences can have grave health impacts
3. Survivors respond to traumatic events	3. There is a range of optimal fertility timing
4. Survivors transmit their response onto others	4. Social factors are tied to resources and linked to social mores
Theoretical major concepts	
1. Individual well-being (psychological health)	1. Cumulative stress (stress from daily living)
2. Unresolved grief (incomplete mourning)	2. Health (biologically based)
3. Intergenerational transmission (passing on psychological pain)	3. Fertility timing (optimum time for woman's body to bear child)

by integrating biological, sociological, and cultural perspectives in Native women's lives.

Theoretical Frameworks to Study Native Women's Health Outcomes

The historical and contextual factors surrounding Native women are essential elements of any conceptual framework regarding health outcomes among these women. Very few culturally specific frameworks exist that unify important historical Native American events or the current milieu of Native women. We attempt to bring to light theoretical concepts proposed in two theories, historical trauma (as described by Brave Heart, 1998) and weathering (Geronimus, 2000). Both theories provide complimentary approaches for studying Native women's health, specifically childbearing outcomes.

Theoretical Concepts of Historical Trauma Theory (HTT)

HTT legitimizes a context for understanding the significance of Native American history and how social and psychological symptoms can be transmitted across generations (Brave Heart, 1999; Brave Heart & DeBruyn, 1998). HTT proposes that a legacy of chronic trauma is transmittable to future generations (Duran, Duran, & Brave Heart, 1998). Elements of the theory are derived from psychiatry and psychology, drawn from research done with Jewish Holocaust survivors and their children.

The term *historical trauma* is used interchangeably with the terms *soul wound*, *historical legacy*, *Native American Holocaust*, *intergenerational posttraumatic stress disorder* (Duran et al., 1998), and *intergenerational trauma* to portray the transmission of trauma across generations (Kellermann, 2001a). For the purpose of this article, the term *historical trauma* is used. Marie Yellow Horse Brave Heart (2003) specifically conceptualized historical trauma as the "cumulative emotional and psychological wounding over the lifespan and across generations emanating from massive group experiences" (p. 5).

Specific theoretical concepts, relationships, and assumptions of HTT have not been fully defined (see Table 1). However, the literature on HTT is robust enough to propose working definitions and relationships and clarify critical assumptions. The three central concepts of HTT include (a) individual well-being, (b) unresolved grief, and (c) intergenerational transmission of psychological symptoms from one generation to the next. Relationships among these key concepts have been observed and tested in multiple populations including Native Americans (Brave Heart & DeBruyn, 1998), Jewish Holocaust survivors (Kellermann, 2001b), victims of natural catastrophes (Livanou, Basoglu, Salcioglu, & Kalendar, 2002), genocide victims from Bosnia (Pollack, 2003), and World War II Japanese internment camp survivors (Nagata & Cheng, 2003). Their relevance to health concerns specific to Native women has not been described.

Four key assumptions support this theory. First, a traumatic event takes place. The traumatic event itself can range from genocide to war trauma and surviving a natural catastrophe. However, the event must be devastating and have a life-changing impact for the person it affects. Some studies have reported traumatic events situated in a finite history with a beginning and an ending marked by dates such as the Jewish Holocaust or a natural disaster (Amir & Lev-Wiesel, 2003; Livanou et al., 2002). Traumatic events have also been defined as more fluid without definite time boundaries (e.g., working as an ambulance driver; Wastell, 2002). The second assumption is that the person must have survived the traumatic event. Rarely have studies made distinctions between survivors of direct traumatic experiences (e.g., experience of Jewish concentration camp) and survivors of indirect trauma (e.g., losing relatives or escaping before

genocide). It is important to note that survivors may have varying degrees of traumatic experiences in addition to how they respond to the traumatic event (Pollack, 2003). How individuals respond to traumatic events and react to them is the third assumption. Having suffered from the traumatic event, first-generation survivors (those who experience the event firsthand) then evaluate the trauma. After evaluating the trauma, survivors can experience a wide range of reactions, from suppression of the memory to flashbacks of the traumatic event. If the person remembers the traumatic event, the impact of the memory, again, ranges from coping by reasoning the event to lesser forms of coping such as experiencing mental health problems (e.g., posttraumatic stress disorder [PTSD], depression, anxiety, anger, etc.) that affect an individual's well-being.

The final assumption addresses the form in which the individual transfers the traumatic event and how the message is received by the other person. It is possible that, depending on how the traumatic event was evaluated (e.g., coping and its current effect on the individual), transferring this event (or this message) onto another person may take on different forms (e.g., parenting practices), with a range of positive or negative intensities. This particular assumption has been challenging to test and remains central to understanding this theory.

Well-being. Well-being is defined by having little to no pervasive psychological symptoms or physical somatization. Three subconcepts key to understanding the impact of HTT are identified within the literature: (a) immediate effects, (b) long-lasting effects, and (c) severity of trauma.

The subconcept of immediate effects is illustrated in a number of studies that describe how survivors of traumatic events (e.g., natural disaster, war, etc.) are at high risk of mental health problems such as PTSD (Halcon et al., 2004; Livanou et al., 2002; Potts, 1994; Shmotkin, Blumstein, & Modan, 2003), anxiety, anger, and depression (Baider, Peretz, & Kaplan De-Nour, 1992; Livanou et al., 2002). In a retrospective survey among World War II Japanese civilian internees with PTSD, 36.7% demonstrated symptoms 6 months after their release from the internment camp (Potts, 1994). Fifty years later, 15% of the same respondents reported PTSD symptomatology within the most recent 6 months. Immediate effects indicate that the onset of psychological symptomatology happens within 2 years of experiencing a traumatic event regardless of the type of event (war trauma vs. earthquake devastation; Livanou et al., 2002; Potts, 1994). Findings clearly indicate mental health issues are to be expected immediately following traumatic events.

Research studies have also identified long-lasting effects of psychological symptoms and somatization among Jewish Holocaust survivors 50 years later compared to non–Holocaust survivors (Amir & Lev-Wiesel, 2003; E. Cohen, Dekel, Solomon, & Lavie, 2003; M. Cohen, Brom, & Dasberg, 2001). Increased psychological manifestations such as PTSD symptom scores ($p < .01$), depression, anxiety, somatization, and anger-hostility scores were noted in child survivors ($n = 43$) compared to a community sample who did not directly experience the Jewish Holocaust ($n = 44$) (Amir & Lev-Wiesel, 2003). The comparison group had a significantly ($p < .05$) higher quality of life with respect to the physical, psychological, and social domains. These findings suggest traumatic events can have long-lasting psychological effects, with particular groups experiencing more psychological problems than others.

Severity can be defined along a continuum of traumatic experiences that varies in appraisal (Halcon et al., 2004; Jaranson et al., 2004; Robinson, Rapaport-Bar-Sever, & Rapaport, 1994; Steel, Silove, Phan, & Bauman, 2002), intensity (Holbrook, Hoyt, Stein, & Sieber, 2001; Prigerson, Maciejewski, & Rosenheck, 2001), and duration (Shmotkin & Barilan, 2002; Wastell, 2002) of the traumatic event. There appear to be differences in manifestations of traumatic events among people with direct experience compared to those who did not directly experience it. One study elucidated severity of long-lasting traumatic effects among child Holocaust survivors ($n = 126$) compared to trauma experienced by individuals of European descent who had immigrated either before World War II ($n = 206$) or after World War II ($n = 145$). Comparisons found stress was significantly greater ($p < .001$) and support was significantly less ($p < .001$) among the survivors compared to prewar immigrants (Shmotkin et al., 2003).

The severity of the trauma affects both the immediate effects and the long-lasting effects. The association between severity of trauma and stress may explain why not all exposed survivors of traumatic events have short- and long-term negative effects on their well-being. Those who experience a shorter duration, mildly appraise the traumatic effect, and have an overall low level of perceived severity may have fewer negative effects on their well-being.

Unresolved grief. Another concept of HTT is unresolved grief. Unresolved grief, sometimes called unresolved mourning, is a condition under which lapses in the monitoring of reasoning are observed when traumatic events from the past are discussed (Sagi-Schwartz, Van, et al., 2003). It has been defined as a legacy of chronic trauma that is not easily mourned (Brave Heart & DeBruyn, 1998).

Brave Heart and DeBruyn (1998) defined unresolved grief in the context of history of Native communities. Although each Native nation has its unique history, there

is a shared history in the Native American Holocaust. This has been described as the largest cumulative traumatic event in Native history, marked by decimation of populations from wars, disease, and starvation, removal from ancestral land, forced boarding school attendance, sterilization campaigns, children adopted outside of their Native community, relocation from reservations to cities, and banishment of practicing Native religions. High rates of poverty, low socioeconomic levels, and lower educational attainment prevalent in these communities are recognized as disadvantaged realities and believed to be the result of historical injustices and ongoing discrimination. Brave Heart and DeBruyn posited that these factors, along with unresolved grief, contribute to substance use, violence, mental health problems, and poor physical health. Likewise, they envisioned that unresolved grief manifests from cumulative traumatic events.

Pollack (2003) considered unresolved grief to be linked to the inability to properly mourn ancestors. He interviewed survivors 5 years after the Srebrenica massacres in Bosnia, identifying links between trauma experience and mourning practices. Findings indicated that the geographic placement of the burial site was important because the massacre was a horrifying traumatic event. To the survivors, the exact placement of the burial site was important: "Trauma, as it occurs in particular locations, breaks the sense of attachment to a particular place. Restoring the physical and social environment through burial and memorials mitigates the consequences of the trauma" (Pollack, 2003, p. 793). Pollack's findings illustrate how unresolved grief emanates not only from a loss of people but also from the land. Likewise, Native Americans have numerous experiences of land forcibly taken and sacred sites appropriated for resources and exploitation (Beltran, 2008).

Transmission. Studies among survivors have illustrated direct effects of traumatic events on well-being. Yet scientists debate whether or not psychological symptoms are passed on to subsequent generations. The concept of transmission is difficult to conceptualize, and the lack of clearly delineated definitions deepens this confusion. Subconcepts identified for transmission encompass (a) secondary trauma, (b) intergenerational transmission, and (c) parenting skills.

Secondary trauma, also known as secondary traumatic stress, is defined as comprising similar components as PTSD, except that the person evidencing the symptoms has not actually been exposed to the traumatic event or events but has developed them as a result of caring for someone with PTSD (Lev-Wiesel & Amir, 2001, p. 433). Studies have shown that both partners and parents (Dirkzwager, Bramsen, Ader, & van der Ploeg, 2005; Lev-Wiesel & Amir, 2001) are at risk of developing PTSD symptoms similar to their spouse or child who currently suffers from war-related PTSD (Bramsen, van der Ploeg, & Twisk, 2002). Secondary trauma is thought to stem from the demands of living with a symptomatic survivor (Lev-Wiesel & Amir, 2001). Reviews of this literature have identified no agreed-upon guidelines indicating the number of symptoms one must have to have secondary trauma (Major, 1996).

The existence of long-lasting psychological effects of traumatic events suggests that survivors are at increased risk of manifesting symptoms across their life span. Similarly, some evidence suggests these psychological symptoms can be transferred to future generations, known as intergenerational transmission (Baider et al., 2000; Yehuda, Halligan, & Bierer, 2001; Yehuda, McFarlane, & Shalev, 1998). Yehuda and colleagues (1998) interviewed Holocaust survivors ($n = 22$) and their offspring ($n = 22$) to assess lifetime trauma history, the effect of trauma on their lives, level of intrusive and avoidance symptoms in response to reminders of the Holocaust, and current and lifetime PTSD. Children of Holocaust survivors were more likely to develop PTSD from traumas in their own lives ($p < .05$) if their parents suffered from chronic PTSD. Other studies, however, have found no significant transmissions between parents and their children (Brom, 2001; Kellermann, 2001b; Sagi-Schwartz, Van, et al., 2003) nor between grandparents and their grandchildren (Bachar, Cale, Eisenberg, & Dasberg, 1994; Sagi-Schwartz, Koren-Karie, & Joels, 2003). In a study attempting to identify generational tendency for psychological problems in children or survivors (Major, 1996), a group of Norwegian-born Holocaust survivors who did not escape to Sweden and their children were compared to Norwegian-born Holocaust survivors who did escape. Psychological vulnerability in children born to survivors who did not escape was found, although differences between groups were not statistically significant and no psychiatric transmission was identified.

Although these findings are not clearly delineated and there is a suggestion that secondary traumatic stress may be an intergenerational phenomenon, future study is essential (Bramsen et al., 2002; Dirkzwager et al., 2005; Levy, Jacober, & Sowers, 1994). Equivocal findings may signify that there are dynamic responses to traumatic events and transmission onto subsequent generations. Although studies have provided conflicting evidence of transmission, researchers are beginning to search contextual factors facilitating transmission, such as parental

communication in first-generation survivors and its role in either protecting or engendering traumatic transmission (Okner & Flaherty, 1989).

To help identify the intergenerational transmission process, several investigators have focused on parenting skills (Okner & Flaherty, 1989; Rowland-Klein & Dunlop, 1998; Scharf, 2007) and social interactions (Dickson-Gomez, 2002). Okner and Flaherty (1989) examined differences in parental communication and psychological distress in children of Holocaust survivors in Israel ($n = 54$) and the United States ($n = 140$). Israeli children reported more communication by their parents ($p < .01$) and higher levels of demoralization ($p < .01$) compared to U.S. survivors. Communication for both groups of children with parents correlated negatively with anxiety (–.38, –.44), depression (–.32, –.24), and demoralization (–.26, –.36). Rowland-Klein and Dunlop's (1998) grounded theory study included interviews with six female Holocaust survivor offspring aimed at identifying the transmission process and found four prevalent themes: (a) offspring felt heightened awareness of their parents' survivor status, (b) parenting style mediated transmission, (c) offspring overly identified with parents' experiences, and (d) there was transmission of fear and mistrust. Similarly, Dickson-Gomez (2002) identified social interactions (parental communication, oral shared community history, community gossip, and how mistrust and jealousy affect communication) and *nervios* (emotional withdrawal as in being emotionally unavailable from children) as routes through which Salvadoran parents who lived in guerilla camps transmitted their expectations of violence and state oppression onto their children who did not experience the civil war.

Scientists understand very little about how trauma is transmitted to others. Investigators have pointed out the difficulty in measuring mechanisms of transmission or even the prevalence of it (Whitbeck, Adams, Hoyt, & Chen, 2004). Mixed results prevail among studies of intergenerational trauma transmission to second and third generations of traumatic event survivors. However, several factors deserve recognition. First, traumatic events are nondiscriminatory and affect people at different stations in their lives (adulthood vs. childhood). Second, children and adults filter their experiences according to their developmental stage. Investigators have suggested there are special developmental and cognitive distinctions between children and adolescents who experienced the Holocaust (Sigal & Weinfeld, 2001). Third, each individual who experiences a traumatic event has the potential to react in ways resulting in positive or negative well-being immediately and long after the event. These factors can account for differences among those survivors who do not exhibit negative psychological manifestations compared to those who do have symptoms. Although scientists are working to discover relationships within HTT, traumatic events rooted in history situate Native American women's current marginalization in society. The concepts of weathering help link negative health effects from history to the present.

Theoretical Concepts of Weathering

Although HTT articulates the phenomenon of intergenerational symptomatology of social problems on individuals, weathering theory, developed by Arline Geronimus (2000), conceptualizes racial disparities in health as physiological manifestations of social inequalities between groups. She posited that socially structured sets of opportunities (e.g., education and employment) and constraints (e.g., poverty and institutionalized discrimination) are direct sources of health disparities. These opportunities and constraints are the basis for understanding key concepts within weathering, including (a) cumulative stress, (b) health, and (c) fertility timing (see Table 1). This theory has been applied to various populations, including African Americans (Geronimus, 1992), Mexicans (Collins & David, 2004), Mexican Americans, and non-Hispanic Whites (Jenny, Schoendorf, & Parker, 2001; Wildsmith, 2002). Its past use with disadvantaged populations suggests its potential for studying Native women.

Underlying the three concepts of weathering theory are author-inferred implied assumptions. Weathering assumes that life is stressful and humans encounter stress on a daily basis. Second, stress is assumed to originate from social differences, and these have a grave impact on human health. Finally, there is a range of optimal fertility timing, or a best time for having a child, based on both biological factors (age and health status of mother) and social factors (e.g., poverty). These are tied to resources but can also be linked to societal mores.

Cumulative stress. Weathering is the progression of a woman's health over time, reflecting the cumulative impact of her life experiences, from conception to her current age (Geronimus, Bound, Waidmann, Colen, & Steffick, 2001). The stress of daily living (e.g., poor living conditions, discrimination, racism, malnutrition, unemployed, etc.) accumulates throughout a woman's life, eventually accelerating poor health. Other events that may contribute to weathering, beyond daily stress, include environmental hazards, social stressors in all environments, and persistent psychological stress related to family, work, and obligations with repeated social and economic adversity (Geronimus, Bound, & Waidmann, 1999a; Geronimus et al., 2001; Geronimus & Hillemeier, 1992). Weathering is also thought to increase over time because of increased pressure to adopt unhealthy behaviors as a means of coping with

stress (e.g., smoking, substance use, etc.; Geronimus et al., 1999a).

Health. The implied definition of health is the presence or absence of illness and disease, making it biologically based. Weathering originated from data gathered on urban dwelling African American women. African Americans have higher mortality rates regardless of income level (Geronimus, Bound, & Waidmann, 1999b; Geronimus et al., 1999a). African American women smoke more (Geronimus, Neidert, & Bound, 1993) and have higher blood levels of lead than do non-Hispanic White women (Geronimus & Hillemeier, 1992). These studies have indicated that health patterns throughout an African American woman's lifespan are different from health patterns in a non-Hispanic White woman's lifespan. Given Native American women's poor health status, we can infer that their health patterns are somewhat similar to African American women's health patterns across their life spans.

Optimal biological fertility timing. Cumulative stress affecting a woman's health may have consequences on optimal biological fertility timing. Optimal biological fertility timing can be defined as the biological age at which women have their best childbearing outcomes. There is some indication that historically marginalized women have better outcomes at younger ages than at older ages. One study analyzed birth certificate data from 96,887 singleton births to African American and non-Hispanic White mothers in Chicago from 1994 to 1996 (Rich-Edwards, Buka, Brennan, & Earls, 2003). Risk for low birth weight rose steeply with maternal age for African American women but not for non-Hispanic White mothers. For example, African American women and non-Hispanic White women had similar risks of delivering infants of low birth weight at a younger maternal age (approximately 11.2% to 11.9%). However, by age 25 non-Hispanic White women's risk for delivering low birth weight infants had decreased to about 5.0%, whereas African American women's risk had increased to 14.6%. Adjusting for maternal age, the risk of low birth weight rose more quickly with maternal age for socially and economically disadvantaged women (measured by low maternal education, single motherhood, and neighborhood poverty), regardless of race. These findings imply that hardships act cumulatively to threaten reproductive health.

The factors identified above combine to create a picture of weathering in African American women's health. Geronimus (2000) suggested that optimal fertility timing may be at younger ages for African American women (compared to non-Hispanic White women) to capture these women during a healthier time of their lifespan. There may also be cultural differences in accepting early fertility timing. For example, African American grandparents may be more likely to support and help raise grandchildren if they are relatively young and healthy themselves.

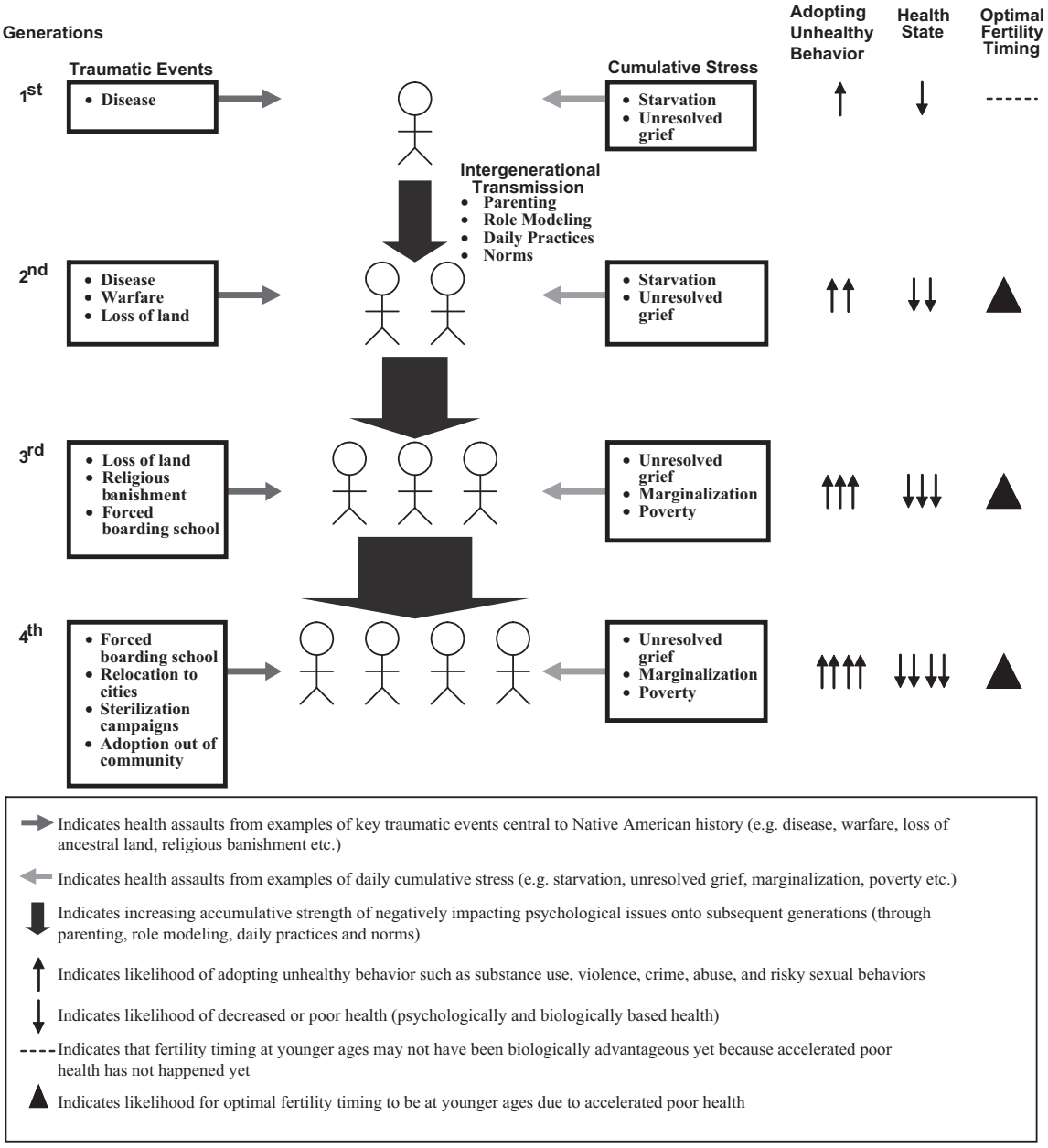
Although Native women tend not to have high rates of low birth weight, they do have poor maternal and infant outcomes (e.g., gestational diabetes, macrosomic infants), which may indicate a weathering process specific to their situation. Although weathering has not been tested on Native women, over the course of their lifetimes they may deliver with less complications at younger ages than at older ages, indicating an earlier optimal biological fertility timing. Similar to African American families, Native families may have more support from grandparents and extended family members to help care for young children.

Applying Historical Trauma and Weathering

Both theories have significant potential to frame our understanding of Native women's health and childbearing outcomes. Brave Heart (2003) used HTT to understand the effects of traumatic events specific to the Lakota people. The effects manifested within this community, collectively called historical trauma responses, include high rates of alcoholism, suicide, homicide, mental health problems and poor health conditions. Brave Heart considered these collective responses to be direct results of four key historically traumatic losses. These include (a) the 1890 Wounded Knee Massacre, (b) trauma from war, starvation, and displacement, (c) separation of Lakota children from families when sent to boarding school, and (d) population decimation by one third during the tuberculosis outbreak between 1936 and 1941.

For example, forced attendance at boarding schools, where youth often were sexually, physically, emotionally, and verbally abused, was a traumatic event with the potential for being internalized and later manifesting as psychological symptoms. The resulting psychological symptoms may have been transmitted (transmission) onto family members (secondary traumatic stress) and passed onto subsequent generations (intergenerational transmission), in the absence of culturally appropriate ways for healing (unresolved grief). Trauma and resulting health problems are compounded by the cumulative stress of living life in the wake of past historical atrocities and ongoing marginalization (e.g., poverty, discrimination, racism, unemployment indicative of weathering). Cumulative stress has dire implications, accelerating health deterioration and increasing pressure to adopt unhealthy behaviors (e.g., smoking and

Figure 1
Hypothetical Application Blending Historical Trauma and Weathering Theories to Native American Health



substance use). Health effects of HTT are compounded by the stresses described in weathering. The two have a synergistic effect, ultimately resulting in overall current poor health among Native women (e.g., high rates of substance use, smoking, diabetes, and obesity) and a future for poor maternal and child outcomes.

Figure 1 illustrates a hypothetical application of these theories. Because neither has been blended or fully tested with the Native population, we are limited to theoretical conjecture how both interact together on Native women's health. This figure represents how major concepts from these theories may demonstrate an intergenerational legacy affecting at least four generations of Native families. Moving downward from the first to the fourth generation reveals a cycle of intergenerational effects, affecting health behaviors and health state.

The first generation experienced contact with European influences directly through disease and daily stress accumulated over their lifetimes. Diseases, such as measles and smallpox, devastated Native communities. Entire communities and families were wiped out, leaving survivors to cope with decreased manpower, influencing health behaviors and their ability to maximize resources (e.g., food, shelter, and clothing). Survivors, facing tremendous loss and grief, may not have been able to process this devastating reality through their cosmology, resulting in poorer physical health (weathering) and psychological well-being and unresolved grief (historical trauma). This process may have been dynamically transmitted onward (intergenerational transmission) to future generations through behaviors (e.g., substance use, violence, crime, risky sexual behaviors, and abuse) and beliefs.

Members of the second generation, in turn, experiencing their own traumatic events (e.g., disease, warfare, loss of land), cumulative stress from daily living (e.g., starvation and grief), and unresolved psychological transmission from the first generation, adopt unhealthy coping behaviors, resulting in poorer overall health, then transmit this process onward to the third generation. Figure 1 demonstrates that similar devastating events (e.g., loss of land) and stresses of daily living (e.g., poverty) pervaded across generations. In the absence of culturally appropriate ways of healing (because Native religious practices were banned until 1978) and with continued assimilation into Western culture, this cycle continues, as demonstrated by Figure 1, throughout subsequent generations with additional stressors, traumatic events, and unhealthy behaviors. Although situation dependent, unhealthy behaviors may have included substance use, violence, crime, abuse (psychological, sexual, and physical), and risky sexual activities. Health, as defined by both theories, narrowly focuses on biologically and psychologically based outcomes, possibly resulting in poor health conditions such as heart disease, cancer, unresolved psychological issues, diabetes, and substance dependency. Health deterioration may lead to optimal fertility timing at younger ages.

A case study is useful to illustrate how this framework applies to Native women's childbearing health. A low-income, smoking, 15-year-old Native female has lived with her binge-drinking grandparents on and off for the past 10 years, as both her parents are in and out of jail for domestic violence and are unable to provide a stable home life. She becomes pregnant after a sexual encounter without protection at a party, where she had been drinking and also tried methamphetamines for the first time. After 4 months of missing her period, which she attributes to recreational drug use and being athletic, she takes a home pregnancy test. Positive results find her depressed and increasing her smoking. One of two men may be the father; she is not entirely sure of the events at the party. She feels close to an aunt, but she does not want to burden her aunt, who is a single mother of four who works double shifts. Thinking she can ignore her issue, she goes out over the weekend to party with friends. Over the weekend, a friend and cousin die in a car crash attributed to drinking and driving. For the next 2 months she is depressed, while friends and family members believe her weight gain is because of her recent loss. During this time, she presents to the emergency department with severe abdominal pain, where a toxicology screen and pregnancy test are administered. *How do historical trauma and weathering apply to this case?*

Recent deaths possibly contribute to unresolved grief with this young woman, especially in the absence of positive coping practices. Substance-using family members, death, potential rape experience, and possible victimization of domestic violence are likely to negatively affect her psychological well-being and be sources of cumulative stress. Intergenerational transmission of prior generational problems (e.g., traumatic events, cumulative stress, and intergenerational transmission from previous generations) manifests itself in parenting practices (negligent parenting), role modeling (e.g., binge drinking and domestic violence), and norms (e.g., few consequences for youth to engage in underage drinking), influencing this young woman through her beliefs and practices. Not entirely cognizant of how to cope, she smokes, drinks alcohol, engages in risky sexual behavior, and tries meth. Ultimately, the intergenerational transmission of psychological problems (e.g., parenting practices, role modeling and norms), cumulative stress over her lifetime (e.g., not having a stable home, marginalization, and poverty), pressure to adopt unhealthy coping behaviors (e.g., substance use and risky behaviors), and unresolved grief (e.g., loss of family members to substance use) situate her physical health for rapid deterioration over her lifetime. Weathering may result in heart disease, cervical cancer, lung cancer, substance dependency, and diabetes. Despite social issues compromising her ability to care for an infant, with her current health behaviors, likelihood for increasing stress, and pressure to adopt unhealthy coping behaviors over her lifetime, as an adolescent she may be in her optimal *biological* fertility timing window, rather than having children at an older age when her health has been rapidly weathered further and her future for caretaking has been compromised.

Discussion

When combined, these two theories provide lenses to understand the significance of historical events and contexts surrounding Native women's health outcomes, especially those related to childbearing. Their use permits an approach to develop a knowledge base reflecting minority voices and experiences outside of dominant Western culture. Together, both examine Native women in the context of their history, which (a) illuminates differences between marginalized and dominant populations, (b) illustrates how stress manifests for minority cultures, (c) raises awareness of an intergenerational legacy, and (d) contributes to knowledge development on ongoing stressful environments for Native women and their families and communities as they are juxtaposed within a dominant Western culture and ensuing poor health outcomes.

However, both theories are limited to vague conceptual development, indicative of theories in their infancy. Multiple definitions of concepts appear within this literature, making relational statements difficult to develop among concepts. In addition, both theories possess overlapping concepts such as health or wellness. Each theory conceptualizes an individual's state of being. For weathering, health is implied with or without disease (as measured by prevalence of smoking or heart disease). Following the psychological traditions of HTT, health is similar to well-being, with a particular emphasis on mental health (as measured by PTSD and depression scales).

Conflicting evidence indicates a need to clearly delineate all concepts. Because descriptions of both theories are indistinct, the authors have inferred assumptions and defined key concepts and assumptions. Many studies addressing historical trauma have operationalized key concepts in different ways, making the continued development of this theory more complex and the importance to achieve clarity well founded. Weathering has been used with large-scale retrospective chart reviews and surveys found in databases. Conducting similar studies with Native communities could prove challenging based on identifying the population because of multiple definitions for what *is* Native American (e.g., based on blood quantum, tribal membership, or self-identification) and the well documented case for racial misclassification (Epstein, Moreno, & Bacchetti, 1997; Stehr-Green, Bettles, & Robertson, 2002).

Of note is that striking differences arise when using historical trauma, which was developed from Jewish Holocaust survivors, with Native communities. Both devastating events affected millions of lives and future generations. Although some agree that transmission of traumatic effects has ended by the third generation in Jewish Holocaust survivor populations (Bachar et al., 1994; Sagi-Schwartz, Koren-Karie, et al., 2003), this may not be the case for Natives. Scharf (2007) pointed out that consideration for severity of experience and the number of family members who experienced traumatic events may mediate continued transmission.

The Native American Holocaust began in 1492 and has continued until the present time. Many generations have been directly affected, and the trauma is ongoing, ever present (Whitbeck et al., 2004). Although the Jewish Holocaust has gained wide public recognition and has been the subject of many movies and books and been recognized as an important era in history, more than 500 years after the start of the Native American Holocaust the public is only just beginning to learn how the "West" was won and lost. Public recognition and discourse on the atrocities of the Jewish Holocaust and survivors may contribute to community-wide healing in addition to any mental health services utilized by community members. In contrast, Natives were forced into silence as their cultures, communities, and very existence faced annihilation.

Finally, although both share a common view for positive health outcomes, each theory addresses separate dimensions of health (e.g., mental health and biology). Neither theory incorporates nor acknowledges the need for a holistic approach, which is central when working with Native populations. Investigators have found that symptoms stemming from the Native American Holocaust not only affect physical and psychological health but also affect environmental (Dogson & Struthers, 2005), economic, social, intellectual, political, and spiritual well-being (Struthers & Lowe, 2003). Likewise, further investigation must be extended beyond the individual and family and include community members, as Whitbeck and colleagues (2004) found Native elders attributed a major source of loss to the erosion of traditional family and community ties. To effectively care for Native families and communities, the aim must be for holistic approaches that reflect Native cultural health and illness conceptions.

Conclusion

This article neither intends to disentangle urban and reservation-based Native health outcomes nor attempt to overgeneralize all Native women and their families. However, it does address commonalities shared by Natives, as a marginalized group, in the context of their history and present-day health. Key historical events (population decimation, removal from and loss of ancestral land, forced boarding school attendance, sterilization campaigns, and

relocation from reservations into urban areas) have directly and indirectly affected all Native women and their families.

Historical trauma can be used to understand the ramifications of the generational spiral of psychological manifestations affecting not one generation but subsequent generations by inquiring about parenting patterns, coping mechanisms, responses, and family, community, and personal well-being. Through this perspective, the relationship of current and cumulative stresses and responses to societal illnesses within a community can be examined. Meanwhile, weathering provides exploration of environmental processes affecting biological outcomes. It challenges preconceived notions regarding childbearing patterns and legitimizes early fertility timings (e.g., teen pregnancies) among marginalized populations, giving voice and support to these women's experiences and life situations. Clinicians and researchers are uniquely positioned to understand how continued marginalization affects a woman's environment and her resulting stress load. In turn, these factors may be identified, measured, and changed by using interventions to address health disparities among Native children to ensure future healthy generations.

Native history is not one of immigration but one of forced eviction and systematic cultural genocide. Theoretical paradigms appropriate for Native women are holistic in nature and recognize the legacy of accumulating traumatic events stemming from the Native American Holocaust, which reverberates today. By recognizing underlying historical legacies and the context of the Native population's experience, we can develop knowledge to assist us in providing the best and most comprehensive care for this population aimed at eliminating health disparities and enhancing optimal health outcomes and life opportunities.

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