

AMERICAN INDIAN CHILD AND FAMILY WELL-BEING:
A SYSTEMATIC REVIEW OF RESEARCH FROM
TWENTY-TWO NATIONAL DATASETS

by

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ABSTRACT

This study seeks further understanding of American Indian and Alaska Native child and family well-being. Through a systematic review of national research on American Indian and Alaska Native children and their caregivers, it becomes possible to more clearly understand the quantity, quality, and content of this body of work. This dissertation begins by describing the literature base and theoretical framework for the research in Chapter 2. Chapter 3 involves a description of the search protocol including search terms, databases, and inclusion criteria. This chapter also includes a description of the coding strategies and data points identified for each study. The search yielded 33 included studies, which are described in detail in Chapter 4. This chapter presents results in a variety of ways, including number of articles focused on each well-being domain and indicator, author discipline, publication date of study, analysis strategy, and findings by subpopulation. Each article is assessed for quality and potential for bias. Gaps in the knowledge base in this area are also identified. This dissertation concludes by summarizing findings from the research; identifying limitations at both the study and reviewer levels; providing conclusions; and addressing implications for future research, policymaking, and social work practice. While this study did find notable gaps in the literature, it is without question that the 33 included studies represent a rich body of research for examining well-being across a number of domains and ages. This high quality body of work was created by a diverse collection of researchers both within

academic and policymaking circles. This dissertation represents the first time that research on the well-being of American Indian and Alaska Native children and families has been systematically searched and reviewed.

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CHAPTER 1

INTRODUCTION

This dissertation examines the well-being of American Indian and Alaska Native children and families by focusing on research that draws from national data. As a field, we are beginning to gain a picture of the internal and external factors that either promote or detract from well-being. To date, however, no single study has attempted to systematically collect, categorize, and synthesize the diversity of research on elements of well-being for American Indian children and families.

Existing national data sources provide a unique vehicle for exploring American Indian well-being. Much of what is currently known about the health and well-being of all children and families comes from these data. This dissertation aims to improve understanding of the ways in which researchers have drawn on these data sources to inform our knowledge of American Indian well-being. Through this systematic search and review, it becomes possible to gain a clearer picture of both what does and does not exist as it relates to well-being research as well as the quality of that work.

Efforts at the federal level have begun the task of identifying the national data sources that inform our understanding of child and family well-being. In 1994, the Interagency Forum on Child and Family Statistics was formed to “foster coordination and collaboration and to enhance and improve consistency in the collection and reporting of Federal data on children and families” (Federal Interagency Forum on Child and Family

Statistics, 2013). This interagency workgroup has representation from 22 different federal agencies. In an effort to better understand child and family well-being, this workgroup drew from 22 different national data sources. I draw on peer-reviewed research that analyzed data from any of these 22 data sources to research American Indian or Alaska Native children and families. The comprehensive catalog of national data sets I chose to explore provides the basis for a large body of research that informs public policy. An additional benefit of focusing on these data sets is that they are already collected and available to researchers for analysis. Any recommendations for additional research with this body of work will not require funding for new data collection.

Cooper (2010) argues that the first step in any research synthesis is to clearly articulate a problem to study. The author states “in its most basic form the research problem includes the definition of two variables and the rationale for studying their association” (p. 23). With this in mind, the problem I chose to explore is the well-being of American Indian and Alaska Native children and families.

Research Questions

In an attempt to explore the problem described above, this dissertation examines the following research questions:

- 1) *What is the state of American Indian and Alaska Native child and family well-being?*
 - a. *What do we know about American Indian and Alaska Native child and family well-being from national data?*
 - b. *What gaps exist within this body of literature?*
 - c. *What is the quality of this literature?*

2) *How might policy makers, researchers, and social work practitioners learn from and improve this body of work?*

Much of Chapter 2 is focused on clarifying and better understanding both the independent variable American Indian and Alaska Native children and families and the dependent variable well-being. Chapter 2 also provides a theoretical framework that underpins the research and a rationale for studying the association between these two complex variables.

Cooper (2010) states that a search of the literature is necessary after a clear problem has been articulated. Chapter Three presents the replicable protocol for searching the literature. This chapter includes a Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow-chart that details each step of the search process, including a detailed explanation of inclusion and exclusion criteria, and the process for coding each included study. The results of this search are presented in Chapter 4.

Chapter 4 also provides what Cooper describes as step three, gathering information from studies, and step four, evaluating the quality of studies. Chapter 4 includes a table description of the included studies and analyzes both the number of published works across a variety of categories (publication date, well-being domain and indicator, discipline of the first author, and others) and summarizes the findings across these included studies by well-being domain and indicator. Chapter 4 also includes a thorough analysis of the quality of each included study. Given the broad nature of the dependent variable (well-being) and the limited amount of published literature, it is not possible to conduct a meta-analysis to formally synthesize results related to particular

outcomes across studies. The review does, however, paint a detailed picture of what is and is not currently known.

Chapter 5 summarizes the results of the review and succinctly answers the first research question. This final chapter also includes a set of recommendations for researchers, policy makers, and social work practitioners designed to answer the second research question.

CHAPTER 2

REVIEW OF LITERATURE

An understanding of American Indian and Alaska Native child and family well-being relies on an examination of the literature from a few critical angles. First, existing work is useful in establishing a definition of well-being that is both broad enough to capture the multidimensional nature of the construct and clear enough to guide the analysis described in Chapter 3. The literature also provides a means to understanding the theoretical foundation of this research. Just as an understanding of well-being must represent the diversity of factors impacting the health and welfare of children and families and the unique political, cultural, and historical realities of native families, the theoretical framework for the research must also be both multidimensional and focused. Finally, the literature review provides an opportunity to explore the growing body of work on child and family well-being.

Drawing on the definition of well-being and informed by the theoretical framework, it is possible to begin to understand the current well-being of American Indian and Alaska Native children and families. By exploring both the research and the sources of that research (national data collection efforts) it becomes clear how a systematic review of this information specifically focused on native populations can improve understanding and decision making with tribal communities and ultimately serve to provide tribal nations with useful information with which to serve their citizens. As

noted in the introduction, the literature review provides a foundation for answering the following research questions:

- 1) *What is the state of American Indian and Alaska Native child and family well-being?*
 - a. *What do we know about American Indian and Alaska Native child and family well-being from national data?*
 - b. *What gaps exist within this body of literature?*
 - c. *What is the quality of this research?*
- 2) *How might policy makers, researchers, and social work practitioners learn from and improve this body of work?*

Definition of Child Well-Being

The question of how children are faring is not a new one. However, arriving at an agreed upon definition of well-being has been a daunting task for the field. In their systematic review of the child well-being literature, Pollard and Lee (2003) concluded that “inconsistent use of definitions, indicators, and measures of well-being has created a confusing and contradictory research base” (p. 69). Differences in understandings of well-being in the United States and internationally impact the way in which the concept is measured and how data are collected (Pecora & Harrison-Jackson, 2010). Despite differences in how well-being is both understood and assessed, much of the literature identifies facets of well-being that can be most easily understood as dimensions or domains (I use these terms interchangeably) and indicators.

Domains of Well-Being

Pollard and Lee (2003) suggested that those definitions of well-being that capture the multidimensional nature of the concept are the most useful and note that five definitions within the literature acknowledge the multidimensional nature of child well-being. Pollard and Lee identified five distinct domains of well-being that emerged from the literature: cognitive, economic, physical, psychological, and social.

Multidimensional well-being frameworks have been applied to individual populations. Lou, Anthony, Stone, Vu, and Austin (2008) applied a multidimensional understanding of well-being to children in out of home care. Lou et al. suggested that well-being impacts four dimensions of functioning (physical, social, emotional, cognitive) and should be considered in light of understandings of risk and resilience factors. The 2012 Federal Information Memorandum “Promoting Social and Emotional Well-Being for Children and Youth Receiving Child Welfare Services” embraced the Lou et al. understanding of child well-being in providing guidance to public and tribal child welfare systems (Administration for Children and Families, 2012).

Indigenous scholars remind us that tribal communities and families have been grappling with ways to understand the dimensions of well-being of native youth and families for centuries. This effort did not begin within academia (Sarche, Spicer, Farrell, & Fitzgerald, 2011). Much of this thinking has not been captured in writing. There is, however, a small body of scholarship that provides a glimpse into traditional cultural understandings of well-being. Cross (1997) suggested that a “Relational Worldview” was useful for understanding individual and community health. This model included four dimensions: context, mental, physical, and spiritual. The Native American Children and

Family Services Training Institute (which later became the Native American Training Institute) presented American Indian foster parents with a five dimension understanding of healthy Native development: mental, physical, moral, emotional, and social (Paulson, Gillette, Hall-Hammeren, & Long Feather, 1999).

One other such framework is the Circle of Courage, which draws from traditional native understandings of youth development to outline four components of healthy development and well-being: belonging, mastery, independence or interdependence, and generosity (Brendtro, Brokenleg, & Van Bockern, 1990; Gilgun, 2002). This understanding focuses more on the behavioral dimensions of well-being. A version of the Circle of Courage adapted from the original is seen in Figure 1.

Some recent work has looked at both traditional American Indian notions of well-being and Western frameworks of youth development to begin to see how these understandings interact and integrate with each other (Gilgun, 2002; Goodluck, 2002; Willetto, 2007). Similar efforts have taken place with First Nations populations in Canada and Aboriginal youth in Australia (Australian Institute of Health and Welfare, 2009; O'Sullivan, 2011). I have chosen to organize the analysis of well-being indicators around the seven domains of well-being identified by the Interagency Forum on Child and Family Statistics (2013). The seven dimensions are Family and Social Environment, Economic Circumstances, Health Care, Physical Environment and Safety, Behavior, Education, and Health. I made this decision for three reasons. First, because one goal of this research is to improve federal policy making, engaging well-being around a multidimensional understanding of well-being. Finally, I believe that these seven domains help achieve the goal identified in the beginning of this chapter of utilizing an

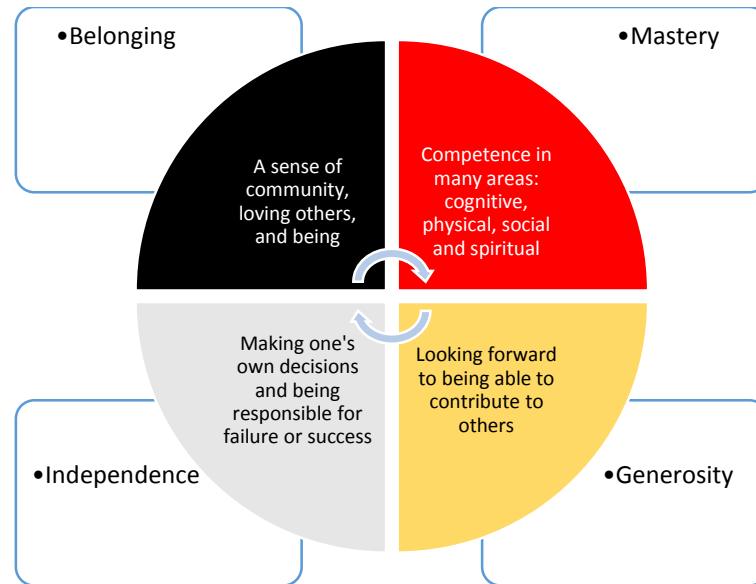


Figure 1 Circle of Courage

understanding of well-being that has both breadth and clarity.

I have attempted to visually represent the relationship between the seven domains that organize this research and those found in other models both indigenous and non-native. A quick comparison of the four frameworks presented in Table 1 reveals strengths and limitations of using the Forum's framework. The seven domains described are more specific and cut across many, if not most, of the domains found in other models. Likely because the Forum represents a collaboration of federal agencies, the domains have more of an external service provider influence. For example, health care and education are both found in the Forum's domains but not in the other models.

Indicators of Well-Being

Within each domain of well-being is a measurable facet of well-being that is critical to understanding how a particular individual or group is faring. A multitude of indicators have been examined across well-being domains. Pollard et al. (2003) found

Table 1 Well-Being Domains

Interagency Forum on Child and Family Statistics (2013)	Pollard et al. (2003)	Native American Children and Family Services Training Institute (1999)	Cross (2007)
Physical Environment and Safety Health Care Health Education Family and Social Environment Behavior Economic Circumstances	Physical Psychological Cognitive Social Economic	Physical Emotional Mental Social Moral	Physical Spiritual Mental Context

that 298 indicators of well-being have been explored within the literature. While some indicators seem to emerge as important across the literature, unique factors in well-being have been brought to light for American Indian populations.

The Kids Count project through the Annie E. Casey Foundation has been a leader in the effort to use existing data to capture child well-being. Until 2012, Kids Count used 10 indicators for well-being: low birth-weight babies, infant mortality, child deaths, teen deaths, teen births, teens not in school and not high school graduates, teens not in school and not working, child poverty, secure parental employment, and children in single-family homes (Kids Count, 2012). The most recent iteration of the Kids Count book utilizes a newly developed 16-indicator index. The new index retains the use of external variables. In a look across five national projects examining child well-being, only one of

the five (The National Child Well-Being Index) examined indicators related to emotional/spiritual well-being, but all five measured some form of social and familial connectedness (Kids Count, 2012). While Kids Count has been a leader in measuring child well-being, it is by no means the only entity capturing these data. Pecora and Harrison-Jackson (2010) point to state-level efforts such as KidsData in California as examples of organizations collecting key indicators of child well-being.

In addition to examining many of the “traditional” indicators of well-being, research with native youth has looked at other factors deemed important to this population. Examples of these unique indicators are level of enculturation or cultural connection (Zimmerman, Ramirez-Valles, Washienko, Walter, & Dyer, 1996), spirituality (Garrouette, Goldberg, Beals, Herrell, & Manson, 2003), and bicultural ethnic identity (Moran, Fleming, Somervell, & Manson, 1999). Though not all are specifically measurable indicators, Goodluck (2002) developed a matrix of strengths of American Indian or Alaska Native populations that have been described in the literature. Goodluck identified 22 strengths. The three most commonly occurring strengths in Goodluck’s matrix were extended family, spirituality, and social connections (p. 53).

The Interagency Forum on Child and Family Statistics identified 41 indicators across the seven dimensions noted above that are currently assessed through national datasets. Those indicators are identified in Appendix A. The Forum acknowledges that these 41 indicators do not paint a complete picture of well-being but are a helpful representation of what is currently known. The Forum describes the rationale for the 41 indicators as follows (Federal Interagency Forum on Child and Family Statistics, 2013):

These indicators are drawn from our most reliable statistics, are easily understood by broad audiences, are objectively based on substantial research, are balanced so

that no single area of children's lives dominates the report, are measured regularly so that they can be updated to show trends over time, and are representative of large segments of the population rather than one particular group. (p. iii)

While the literature search described in Chapter 3 did not expressly screen for presence of particular well-being indicators, many of those identified in the current body of research fall within the 41 identified by the Forum's report.

Theoretical Framework

Just as well-being is represented by a wide diversity of domains and indicators, there is currently not an agreed upon universal theory of well-being (Durayappah, 2011). In order to most effectively understand factors that influence well-being for American Indian children and families, it is essential to understand both individual behavior and external forces impacting children and families. This understanding of individual choice and external pressures has to be closely informed by an understanding of the unique strengths, needs, and histories of native communities. The individual theories and the way in which these theories interact to inform the project are depicted graphically in Figure 2.

Understanding Individual Behavior and Identity

Positive psychologist scholars often draw on the work of Hedonism Theory and Happiness Theory to understand the base desires and needs an individual expresses (Crisp, 2013; Durayappah, 2011). Durayappah drew on these and other existing theories to develop a "3P" theory that argues subjective well-being is related to Past, Present, and Prospect (future). This understanding adds a temporal lens to the theories described above. Essentially, the argument is that individual well-being is a product of the ways in

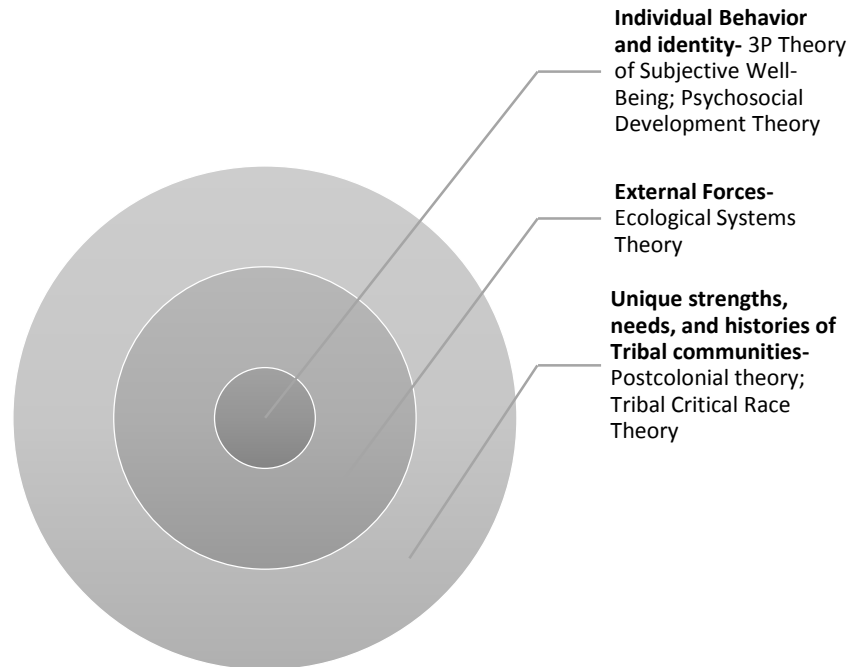


Figure 2 Theoretical Framework

which we think about and react to what has happened, what is happening, and our conceptions of what will happen (p. 9). This theoretical understanding is helpful for thinking about individual behavior and motivation but gives us little when we understand well-being as also impacted by external realities. This theory is also limited in its considerations of culture and identity.

Early writing from Erik Erikson (1950) argued that development and identity formation has to be understood within a unique cultural and community context. Erikson's work with the Lakota in South Dakota and the Yurok in Washington affirmed this belief specifically with American Indian young people. Sarche, Spicer, Farrell, and Fitzgerald (2011) examined identity formation specifically with tribal youth and outlined three interrelated dimensions of ethnic identity for native young people: ethnic identification, connection, and culture/spirituality. The authors wrote that

“contextualization of American Indian/Alaska Native ethnic identity is not complete without consideration of this population’s distinctive history of colonization...” (p. 110). Sarche et al. suggested that these historical factors emerged in Erickson’s writings but are often not explored in ethnic identity literature.

Understanding External Forces Impacting Well-Being

Ecological systems theory lacks some of the conception of individual behavior but provides a sophisticated understanding of how external forces impact individual children and families. Ecological systems theory, first proposed by Urie Bronfenbrenner (1992), captures the assertion in this dissertation that multiple levels of external structures impact the development and well-being of individual young people. Red Horse, Martinez, and Day (2001) drew on the work of Vine Deloria (1996) to express the multitude of systems impacting native communities through a tribal sovereignty framework. The authors presented a framework that describes internal and external sovereignty with multiple domains in each that can contribute to individual and community resilience and healing for children in out of home care. Alcantara and Gone (2007) examined suicidal behavior in tribal communities within an ecological framework to begin to look at internal and external factors that predict suicide. This work is useful in applying an ecological lens to well-being in tribal communities.

Understanding Unique Strengths and Needs of Tribal

Youth and Communities

Military conquest and illegal acquisition of land have been experiences shared by native peoples across the North American continent. This colonization has had a

psychological impact that is important to understand when examining well-being.

Eduardo and Bonnie Duran's text "Native American Postcolonial Psychology" drew on the theoretical work of Frantz Fanon, Edward Said, and others to explore the impact of colonial rule on the psychology of American Indian people. Duran and Duran (1995) wrote, "Our communities' indigenous knowledge were and continue to be relevant as we face the task of overcoming the colonial mind-set that so many of us have internalized" (p. 6). Many scholars have articulated that the impact of colonization has manifested in generational or historical trauma (Brave Heart & DeBruyn, 1998; Whitbeck, Adams, Hoyt, & Chen, 2004; Yellow Horse Brave Heart, 2003). Yellow Horse Brave Heart (2003) defined historical trauma as "cumulative emotional and psychological wounding over the lifespan and across generations emanating from massive group trauma experiences" (p. 7).

This theoretical lens serves as a reminder that native well-being does not exist in a vacuum but instead needs to be understood within a complex context of historical and present-day traumas. Additionally, a postcolonial frame is essential in understanding that the knowledge and leadership to move forward for these communities lies within the communities themselves. This lens is also necessary in understanding the role of the researcher with respect to native communities. Blackstock (2010) writes "non-indigenous researchers must understand how Western research was used as a colonial tool within and towards Indigenous communities and peoples. These colonial research paradigms resulted in knowledge extraction from, as opposed to knowledge benefit for, Indigenous peoples" (p. 68).

Education theorists, many of whom have been influenced by postcolonial theory,

have proposed a Tribal Critical Race Theory that furthers an understanding of the specific realities of tribal nations and their citizens (Brayboy, 2005; Haynes, 2008). Brayboy describes “TribCrit” as emerging from the work of Critical Race Theory but with specific tenets central to understanding the experiences of American Indian individuals and Tribes.

Brayboy (2005) suggests nine tenets to understanding TribCrit (pp. 429–430):

1. Colonization is endemic to society.
2. U.S. policies toward Indigenous peoples are rooted in imperialism, White supremacy, and a desire for material gain.
3. Indigenous peoples occupy a liminal space that accounts for both the political and racialized natures of our identities.
4. Indigenous peoples have a desire to obtain and forge tribal sovereignty, tribal autonomy, self-determination, and self-identification.
5. The concepts of culture, knowledge, and power take on new meaning when examined through an Indigenous lens.
6. Governmental policies and educational policies toward Indigenous peoples are intimately linked around the problematic goal of assimilation.
7. Tribal philosophies, beliefs, customs, traditions, and visions for the future are central to understanding the lived realities of Indigenous peoples, but they also illustrate the differences and adaptability among individuals and groups.
8. Stories are not separate from theory; they make up theory and are, therefore, real and legitimate sources of data and ways of being.
9. Theory and practice are connected in deep and explicit ways such that scholars must work towards social change.

By remaining cognizant of these tenants while examining individual behavior and the external realities facing children and families, it becomes possible to more clearly understand the nuances of American Indian well-being.

How Are Children and Families Doing?

Given the variability in how well-being is defined and the diversity of indicators used to measure the construct, it can be difficult to unequivocally determine whether or not child and family well-being is improving throughout the general population. Positive

progress in several key indicators has been shown over the past decade. National data collection efforts have shown consistently that several measures of child maltreatment and child placement are on the decline (Children's Bureau, 2014). In addition other family well-being indicators such as adolescent pregnancy, preterm births, and child exposure to second hand smoke have all shown steady declines. Some individual-level child indicators have also improved. Child math scores have risen to their highest level. Additionally, less children are smoking than ever before (Interagency Forum on Child and Family Statistics, 2013).

Other indicators have shown little change over recent years. The amount of children living in poverty has shown little change since 2010. The same percentage of high school graduates are going on to college as in past years. Some health indicators such as obesity rates among children and infant mortality also remain unchanged (Interagency Forum on Child and Family Statistics, 2013).

There have also been a few areas in which children and families do not seem to be faring as well as they once have. The amount of children living in inadequate or unsafe housing rose slightly from the last measure. Additionally, underage binge drinking also rose slightly (Interagency Forum on Child and Family Statistics, 2013).

We also know as a field that universal trends in child and family well-being do not tell the complete story. Disparities exist across many indicators along racial/ethnic, gender, and class lines. As one of many examples, KidsCount data for Minnesota suggest that the state ranks fifth among the 50 states for child well-being despite some of the country's worst economic disparities for children of color (Minnesota Public Radio, 2014).

How Are American Indian and Alaska Native Children Doing?

The challenges of measuring and understanding well-being for children and families becomes even more complex when attempting to determine the unique challenges and strengths of American Indian families. Native populations are at once a small portion of the population with shared legal and ethnic ties but also an immensely diverse population. When assessing on-reservation populations, the unique political, cultural, linguistic, and geographic realities must be acknowledged. The experiences of a young child in Kodiak, Alaska, are likely different than a young child in Tahlequah, Oklahoma. This diversity alone would be enough to complicate a global view of American Indian children, yet between 60–70% of native people live off-reservations in urban areas (National Urban Indian Family Coalition, 2012). In much the same way that national well-being reports only tell some of the story, the unique realities and diversity of tribal populations bring limits to what can be learned when attempting to understand the well-being of American Indian children and families.

The 2007 National Survey of Children's Health was a parent-report survey that provided a snapshot across a number of well-being indicators. A 2013 report used these data to compare native children to the general population (U.S. Department of Health and Human Services, 2013). This report is helpful in understanding how children and families from this population are faring in relation to their peers. Among other findings, this report found that native children are uninsured or underinsured more often, are less likely to have a medical home, less likely to receive family-centered medicine, and less likely to receive comprehensive, coordinated medical care. The report also found that American Indian school-aged children are less engaged in school, and less engaged in activities

outside of school. The report found that native children had fathers with more health issues and had more smoking in the home than the general population. The report also found that American Indian children are less likely to live in safe housing and neighborhoods, and less likely to feel safe in school (U.S. Department of Health and Human Services, 2013).

While the above does not paint a positive picture of how native children and their families are faring, it is important to note that for most of the well-being indicators included in the report the American Indian sample mirrored the general population. For some indicators, American Indian children are doing better than their non-native peers. For example, American Indian parents are more likely to sing and tell stories to their children, and native families are more likely to share meals together than the general population (U.S. Department of Health and Human Services, 2013).

Prior to this report, Willetto (2007) offered a summary of how American Indian children are faring across 10 well-being indicators both nationally and within two states. Willetto found that nationally and in South Dakota American Indian children fared worse than non-native peers but in New Mexico, the native population was doing better than non-native children.

A recently concluded 8-year cohort study of 671 native youth has been an important contribution to well-being research conducted with tribal communities (Whitbeck et al., 2014; Whitbeck, Yu, Johnson, Hoyt, & Walls, 2008). This study provided important findings on early adolescent substance use behavior and child and caregiver mental illness, as well as individual and community protective factors.

National Data Collection Efforts

The federal government has been involved in data collection efforts with its citizens since the creation of a formal government. Perhaps the most well-known and large spread data collection effort has been the United States Census. The U.S. Census began in 1790 in response to a provision in the U.S. Constitution requiring a decennial population count (United States Census, 2014a). Despite being indigenous to the United States, tribal populations did not begin to be counted in the United States Census until 1900 (United States Census, 2014b). Since these early efforts, national data collection initiatives have provided an invaluable source of information for decision makers, public and private funders, and the general population. These efforts have also been a source of political controversy (Anderson & Feinberg, 2000). Whether and how underrepresented ethnic and class groups have been counted has and continues to be cause for concern among those seeking an accurate picture of the needs of citizens. While changes to the Census and other data collection efforts have led to a more inclusive process and ultimately more representative data, this debate is far from over.

In addition to the way data are collected, the federal government has also evolved in terms of the amount and type of data. From public polling to national surveillance efforts, data increasingly drives decision making across the federal government. In an effort to better understand and coordinate efforts around child and family well-being, federal agencies began to coordinate through the Interagency Forum on Child and Family Statistics. Appendix E includes a brief description of each of the 22 datasets that Forum members identified as providing key information related to child and family well-being.

A few efforts have explored ways to strengthen national data collection efforts

with native populations (Deweaver, 2013; National Council of American Indians, 2014). Much of this work has drawn from national efforts in Australia to improve country-wide data collection with indigenous populations. In addition to efforts to improve the collection of national data, there have been some efforts to address gaps in knowledge by improving reporting of national data where it relates to American Indians (Westat, 2007).

Despite these important efforts, to date, no systematic review has been conducted that both provides a clear picture of what is known and unknown with respect to American Indian children and family well-being. By drawing on existing literature to understand both the theory and measurement of well-being and work with national data collection efforts, this review brings the field closer to an understanding of American Indian well-being and provides clear direction for filling the existing gaps.

CHAPTER 3

METHODS

Overview of Systematic Review

A systematic review is a method for collecting, screening, sorting, and synthesizing existing research on a given topic (Cooper, 2010). Systematic reviews are often focused on particular interventions or treatments. While systematic reviews are often focused on a particular intervention, there is precedent for reviews that examine a broader set of variables for a given population. Cooper (2010) describes this particular type of review as an “association synthesis.” The author explains that this type of review is less interested in particular intervention strategies but instead seeks to determine the range of variables impacting a given problem.

While literature reviews abound, few have attempted to systematically synthesize the state of the research with respect to American Indian and Alaska native children and families. Few systematic reviews have focused on native populations at all, although some do exist. Teufel-Shone, Fitzgerald, Teufel-Shone, and Gamber (2009) examined physical activity interventions with American Indian and Alaska native populations. Another systematic review focused on the effectiveness of cultural interventions focused on a variety of outcomes with American Indian populations (Jackson & Hodge, 2010).

Protocol

The following is a description of the search protocol developed to obtain and screen relevant research. The goal of the protocol is to aid in answering the following research questions:

- 1) *What is the state of American Indian and Alaska Native child and family well-being?*
 - a. *What do we know about American Indian and Alaska Native child and family well-being from national data?*
 - b. *What gaps exist within this body of literature?*
 - c. *What is the quality of this research?*
- 2) *How might policy makers, researchers, and social work practitioners learn from and improve this body of work?*

What follows is a description of and rationale for search terms identified, databases searched, inclusion criteria, and process for conducting the search and screen.

Eligibility Criteria

Research included in the systematic review met the following criteria:

1. Peer-reviewed
2. Published from January, 1990–May, 2014
3. Involve analysis of data from at least one of the 22 data sources used by the Interagency Forum on Child and Family Statistics
4. Include data about American Indian or Alaska Native children and/or their caregivers

What follows is further detail on and rationale for each of these inclusion criteria.

Peer-reviewed

This particular review focuses on the state of peer-reviewed literature. There is, without a doubt, excellent work that has been done that has not been published. In fact, much of the literature focused on American Indian populations has not been published in a peer-reviewed journal (Mandell, Carlson, Fine, & Blackstock, 2007). Some argue that not including unpublished work introduces an issue known as “file drawer bias” (Cooper, 2010) in which published work is often published because it has shown positive or significant results and unpublished work may be more likely to be the opposite.

Despite valid arguments to the contrary, I chose to focus solely on peer-reviewed work because it has three advantages. First it controls for some publication bias. Opening up inclusion criteria to grey literature allows for more studies to be included, but it also means that those studies known to the researcher that may not be found in a formal search will be included while other, similar work, may not be. Second, because peer-reviewed work is often that which is cited in policy circles, these articles have more of an opportunity to influence federal decision making. Finally, while the peer-review process is not without its faults and inconsistencies it does provide a level of “quality control” that does not occur with nonpublished work. While this review does attempt to assess the quality of studies included it does not exclude studies because of methodological quality issues.

Published from January, 1990–May, 2014

The goal of the date range was to establish a block of time that is large enough to catch most of the existing research but narrow enough to recognize that the well-being of children and families is dynamic and realities impacting the population 20 years ago will

often be different than those impacting today's children and families. In addition, both the quality and quantity of data collected has improved in recent decades.

Involve analysis of data from at least one of the 22 data sources
used by the Interagency Forum on Child and Family Statistics

As discussed in Chapter 2, the review is focused on federal data sources that are represented in the Interagency Forum on Child and Family Statistics. This group did the important work of identifying data sources across federal agencies that provide valuable well-being information. This review seeks to build on this work. Therefore, included research must involve original analysis of the data in at least one of the 22 data sources identified by the Forum. The language in the inclusion criteria states that included research must “involve analysis of data...” Many studies use statistics from existing reports related to these data sources to provide background information on a particular population or issue or serve as a counterfactual for original data collection. This review is interested in original analysis of these data to arrive at new conclusions.

A challenge of this work was identifying a strategy for obtaining a representative group of national data sources. Without a means to identify every possible federally funded national database that contained information about American Indian or Alaska Natives, it became important to identify a collection of quality databases that represented the breadth of sources available without overemphasizing one particular well-being domain. The 22 datasets chosen are all national-level surveys that are widely used in development of federal policy. Each of the databases are specific to the federal agency through which they were funded but contain a broad array of information relevant to understanding child and family well-being. In addition, each of the chosen databases has

a robust sample of American Indian and Alaska Native individuals. While inclusion of other national data sources may have yielded additional published work and added to the richness of the information, narrowing the search to these 22 sources ensures that the research is able to make conclusions about a body of data that are currently informing federal decision making and represent a comprehensive picture of national data. These 22 datasets were chosen for three broad reasons: 1) replicability, 2) diversity, and 3) accessibility.

A central tenant of this work is to allow for future replication. By explicitly tying the data sources used in the search protocol to the work of the Interagency Forum on Child and Family Statistics, it provides necessary structure to the search. Without some strategy for identifying a particular group of national databases, it would have been easy to choose those sources in fields that I am more familiar with than others. For example, I would have likely identified more sources in the child welfare realm but may not have identified as many possible data sources in health care. As the Interagency Forum undertakes the methodical work of screening other data sources for inclusion, future researchers wishing to replicate this project can determine whether they want to adapt the search protocol to include these additional sources or search the 22 chosen for this work. By utilizing these 22 data sources chosen by the Interagency Forum, it becomes possible to determine whether or not this body of work provides sufficient information on American Indian and Alaska Native children and families. Chapter 5 includes a critique of this body of databases.

Because each of the 22 federal agencies involved in the Interagency Forum identified one database for inclusion in the *America's Children* report, the collection of

data sources represents a diverse body of federal agencies and does not overidentify with any one particular domain of well-being. Because the sources are utilized by the Interagency Forum, it is already known that the data sources contain information across each of the eight well-being domains and, at the very least, across the 41 indicators of well-being identified by the Forum.

One of the goals of this research is to provide the beginnings of a roadmap for future AI/AN well-being work. In order for future researchers to add to this work it is important that they be able to access the databases to both conduct additional research and identify the possibilities and limitations of the variables in each for defining new, and potentially more relevant, indicators. Each of the 22 data sources is publicly accessible and each has a designated federal staff person or office available for consultation on analysis. Each of these individuals are identified on the Interagency Forum's webpage along with other important details and tools for each source.

Include data about American Indian or Alaska Native children and/or their caregivers

Because the review is focused on American Indian and Alaska Native populations this is also a key component of the inclusion criteria. Included research should not only have some percent of the sample data that are American Indian or Alaska Native but should have conducted analysis on this sample in such a way that conclusions can be drawn specifically about American Indian children or families. This is arguably the most subjective element of the inclusion criteria. As discussed in Chapter 2, defining the population in this review is challenging.

American Indians and Alaska Natives represent a sliver of the US population but

are an incredibly diverse group. This review could have focused solely on individuals enrolled in a federally recognized tribal nation but would miss those individuals who identify as American Indian but do not have the benefits of citizenship in a tribal nation or would exclude those tribal nations not included in the list of 566 tribes with federal recognition. This review could focus solely on native people living in the United States. This has some utility in that tribes within the United States borders have a unique political relationship that impacts policymakers as well as families. On the other hand, many tribal communities share customs, languages, and histories with indigenous communities on both borders.

To attempt to systematize this screening in such a way that it can be duplicated, I used the author's definition of American Indian and Alaska Native (in some cases the term Native American was used in the research). In most cases, this designation was set by the particular dataset. Most frequently the American Indian/Alaska Native category was based on self-report (or in the case of data collected with children, parent-report). Research was included if it included any sample of American Indian/Alaska Native children or caregivers.

While the category for child was easier to determine for the studies (age <18), the review made the determination to focus both on child and "family" well-being. In addition to complications with understanding how American Indian or Alaska Native are defined, there are also considerations when defining "family" for this review. I decided to specifically focus on individuals identified as providing care for children. This included but was not limited to those identified as parents, other family members identified as directly caring for a child (including grandparents or other extended family), foster or

adoptive parents (both kinship and nonkinship). I also included research in which the family was considered the unit of analysis. The article needed to expressly state that individuals in the sample were in the care of children. For example, if a study focused on experiences of young adult women but did not expressly state whether or not these women were mothers or caring for a child, the article would be excluded.

It will likely seem odd that the review does not expressly narrow based on a definition of well-being. This choice was made for a couple of reasons. First, this naturally occurs to some degree because of the data sources. Secondly, by not narrowing based on a specific set of predefined well-being indicators, it allows for a richer picture of the diversity of indicators within the literature and provides a vehicle for identifying which indicators found in the research match those identified by the Forum and which may fall outside those boundaries.

Information Sources

Fifteen databases were chosen based on general topic area. A wide net was cast to identify any databases included in the search tool EBSCO that could conceivably contain research related to well-being concepts. Those identified databases are CINAHL, ERIC, Family & Society Studies Worldwide, MEDLINE, PsycINFO, Academic Search Premier, Biomedical Reference Collection: Basic, Education Full Text (H.W. Wilson), Health and Psychosocial Instruments, Health Source - Consumer Edition, Health Source: Nursing/Academic Edition, Humanities & Social Sciences Index Retrospective: 1907–1984 (H.W. Wilson), TOPICsearch, Vocational and Career Collection, and Women's Studies International. While the search did not expressly exclude articles not published in English, the databases identified are predominately English publications, and because the

databases included in the search protocol were all funded by the United States government, no non-English sources were retrieved. No hand search of particular journals was conducted.

Search

The search cross-referenced eight population search terms using a Boolean search. The terms were separated with an “or” and followed by an asterisk to identify terms with the same root. The population terms are as follows: american indian, indian, native american, native, alaska native, alaskan native, tribal, and tribe.

The above population terms were cross-referenced with data source terms. These terms were also separated by an “or.” Those terms are as follows: air quality system, american community survey, american housing survey, current population survey, decennial census data, early childhood longitudinal study, high school transcript studies, monitoring the future, national assessment of educational progress, national child abuse and neglect data system, national crime victimization survey, national health and nutrition examination survey, national health interview survey, national hospital ambulatory medical care survey, national household education survey, national immunization survey, national survey on drug use and health, national vital statistics system, safe drinking water information system, survey of income and program participation, and youth risk behavior surveillance system.

Population level search terms attempted to provide any possible terms that would yield results related to American Indian or Alaska Native populations. Specific tribe names were not included because the data sources used were not specific to particular groups. These terms were cross-referenced with the names of each of the 22 data sources.

Study Selection

The process in Figure 3 visually depicts the ways in which the above search criteria were applied in the screening process. It is important to note that many of the articles that were screened out of the study were useful in informing the review of literature.

Data Collection

Once the search and screening of articles was completed, I coded each article with a code sheet developed prior to the search. This code sheet is found in Appendix B. The intent of the code sheet was two-fold. First, by coding each article it improves the likelihood that the study could be replicated. Secondly, it serves as the data collection tool instrumental in analyzing the studies. The coded data were entered into Microsoft Excel.

Data Items

In addition to determining the source of the articles and whether they met inclusion criteria, several data items were collected for each study.

Well-being domains and indicators

Because, as noted by the Interagency Forum on Child and Family Statistics, each of the 22 datasets included information relevant to determining well-being for children and their caregivers, the studies were not included or excluded based on the presence of particular indicators. This allowed for a broad picture of well-being across all included studies. The seven well-being domains identified by the Forum's report provided much of the framework for organizing the well-being indicators found within each study. Each

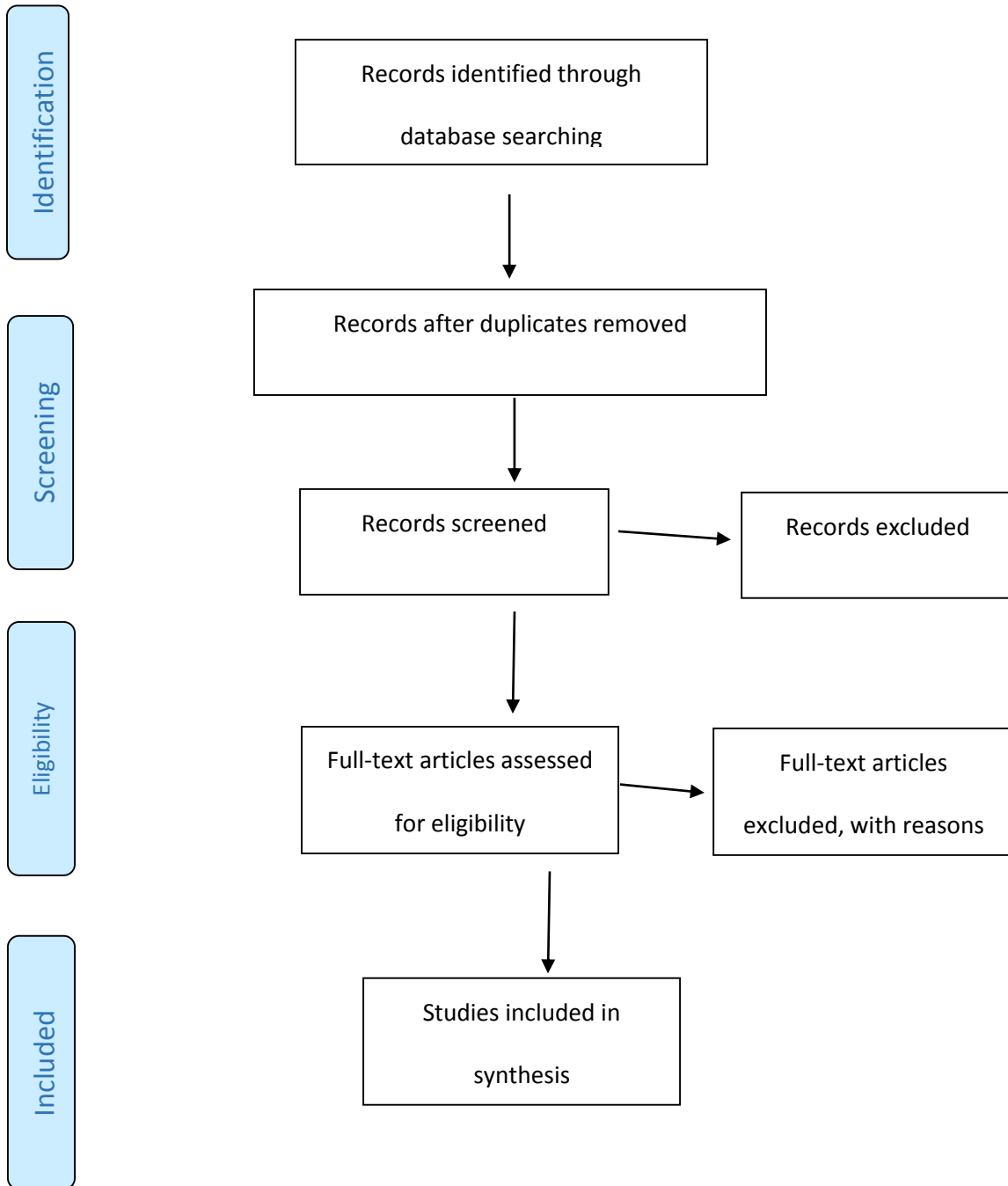


Figure 3 Prisma Flow Chart

included study was coded to determine which of the well-being domains identified (Family and Social Environment, Economic Circumstances, Health Care, Physical Environment and Safety, Behavior, Education, and Health). Included studies were coded to determine which well-being indicators were being examined.

First author discipline

In an effort to determine which academic and policy disciplines were most closely engaged in the work of analyzing these well-being data, each article was coded to determine the discipline. Discipline was operationalized as the department or agency listed as affiliated with the first or corresponding author for each paper. This strategy allowed for a snapshot of the disciplines involved in the work but was limited in that those authors with multiple appointments or multidisciplinary teams were only coded based on the singular department listed for the first author.

Dataset

Each article was coded to determine which of the 22 national datasets were analyzed. As noted in the inclusion/exclusion criteria, those studies that focused on other datasets or did not include original analysis were excluded. Some studies included data from multiple datasets.

Total AI/AN sample

Each included study was coded to determine the total AI/AN sample. For those studies that included data related to children and their caregivers as well as data related to noncaregiving adults, only the relevant (children and/or caregivers) sample was coded.

AI/AN population

In addition to the total AI/AN sample, a notes field was completed to identify the specific population (age, sampling criteria, other considerations). This information was summarized as “population” in the results table. Population was organized into five broad categories: infants (birth–12 months), young children (13–35 months), children (36 months–12 years), adolescents (13–17 years), caregivers (those specifically identified as parents or others caring for children (e.g., grandparents raising grandchildren), and family units (studies that identified the sampling frame as entire family units instead of individuals).

Analysis

Univariate, bivariate, and multivariate analysis strategies were identified for each included study. Type of analysis was only identified if it was used to understand the target outcomes. Those analyses that were used to prepare the data (weighting, etc.) were not identified. Articles were coded based on the most complex analysis strategy that was used. For example, if an article used both bivariate and multivariate techniques, it was coded as multivariate.

Focus on American Indian/Alaska Native populations

A dichotomous yes/no code was used to note if the included study was specifically focused on American Indian or Alaska Native populations or if AI/AN children or caregivers were simply one of several groups upon which conclusions were drawn in the paper. Whether the research specifically focused on American Indian and or Alaska Native populations most often emerged in the title of the article. As a secondary

check, I examined the research conclusions to identify whether conclusions were solely made about American Indian children and families or about other groups as well.

AI/AN findings

Findings related to American Indian and/or Alaska Native children or caregivers were summarized for each study. These findings are in bullet form in the results table and organized by population in Chapter 4.

Limitations

The limitations, if noted by the author, were summarized for each of the studies. Many of the included studies expressed limitations to the research findings. These limitations informed the assessment of quality and the summary of bias across studies.

Quality Assessment

Research quality was not an inclusion or exclusion criterion; however, each included study was assessed to determine quality. Although most existing measures of research quality are focused on intervention research, there are a few measures that were useful in determining quality of retrospective, cross-sectional studies such as those included. After assessing the relevance of a number of possible checklists, the STROBE Checklist (2007) was determined to be most useful. This checklist is included in Appendix C. Each study was coded to determine which of the checklist items were met, which were not applicable, and which were not met. A percentage of “yes” items and a description of issues present is found in Chapter 4.

In an effort to holistically determine research quality, I also assessed the included studies based on appropriate reporting of racial/ethnic/cultural (REC) factors. Few

checklists assess these elements, but the GAP-REACH checklist developed to determine quality reporting of REC factors in psychiatric studies proved useful in this exercise (Lewis-Fernandez et al., 2013). The GAP-REACH checklist is included in Appendix D. As with the SPORE checklist, the percent of “yes” responses is calculated, and any issues are summarized.

A table in Chapter 4 summarizes findings on both checklists for each included study. The table also includes a Low-Medium-High scale based on these two checklist results. If the mean percent of the two checklist scores was less than 60% the article was determined to have “Low” quality. If the mean percent of the two checklists scores was between 61–80% the study was determined to have “Medium” quality. Those scoring over 80% were determined to have “High” quality.

Knowledge Gap Assessment

Identifying gaps in current knowledge is a common and critical component of systematic review research (Cooper, 2010). Few studies are systematic about identifying these gaps, however (Robinson, Saldanha, & Mckoy, 2011). The author’s note that existing, tested, processes for identifying gaps in knowledge are scarce, and those that do exist often are focused on intervention studies (Robinson, Saldanha, & Mckoy, 2011). I have attempted to examine what is not currently known in as systematic a way as possible. The Agency for Health Care Research and Quality framework for determining gaps in existing knowledge, while focused on intervention research, provides a helpful tool for beginning this assessment. This framework identifies four ways in which a knowledge gap may occur (Robinson, Saldanha, & Mckoy, 2011). These four reasons are

- 1) Insufficient or imprecise information

- 2) Biased information
- 3) Inconsistency or unknown consistency
- 4) Not the right information

To this end, the research within each well-being domain was examined to determine which, if any, of the above four issues applied. In many cases, the author themselves raised these issues in either conclusions or limitations sections. These thoughts combined with my own were summarized for each study, and an analysis of this information was conducted to identify themes (gaps) across studies.

Risk of Bias in Individual Studies

In addition to research quality, a study-level determination of risk of bias was conducted. Because all of the studies are using existing data and most are doing so through a cross-sectional lens, similar biases emerged across studies. These results were coded and are summarized in table form in Chapter 4. Identification of bias drew heavily from the way in which Shadish, Cook, and Campbell (2002) categorized threats to external validity. That collection of authors identified and organized external forces that could potentially be responsible for limiting the strength and generalizability of research.

CHAPTER 4

RESULTS

This chapter provides a description of the search conducted using the search criteria described in Chapter 3 and a description of the included studies. Those studies were coded, sorted, and analyzed. That process is described in this chapter.

Study Selection

An initial search of the literature and record screen was conducted in May, 2014. The search and screening results are described through the PRISMA flow chart in Figure 4.

This individual screening yielded 33 articles that met final inclusion criteria. These articles were coded and a content analysis was conducted to determine what domains and indicators of well-being they examine, which data sets yield the most relevant research, what can be concluded from the research, and what elements of well-being we do not yet have adequate research.

Included Studies

Summary information relevant to the 33 included studies is presented in Table 2. Each article was coded to determine which dataset was analyzed. This information is summarized in Figure 5. In some cases, multiple national datasets were analyzed. Four of the Interagency Forum identified datasets were not used in any of this research.

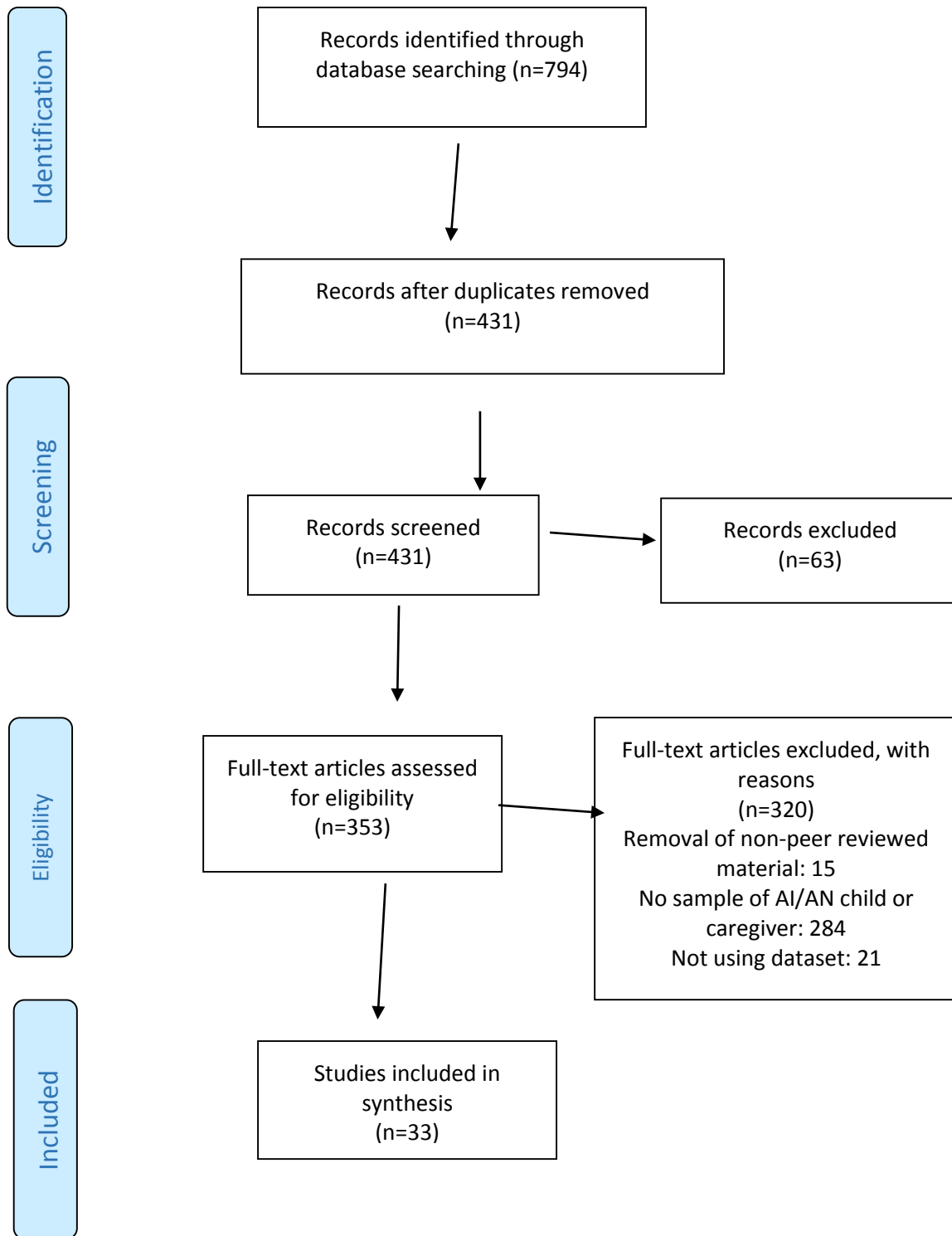


Figure 4 Completed Prisma Flow Chart

Table 2. Included Studies

Author(s)	Title	Dataset(s)	Well-being Domain(s)	Well-being Indicator(s)	Population	Total AI/AN Sample	AI/AN Focus
Akiba et al.	Standards based mathematics reforms and mathematics achievement of American Indian/Alaska Native Eighth Graders	NAEP	Education	Mathematics and reading achievement	Adolescents	213	Y
Amon et al.	Factors associated with Hepatitis A vaccination among children 24 to 35 months of age: United States, 2003	NIS	Health care	Immunization	Young children	Not reported	N
Bachman et al.	Racial/ethnic differences in smoking, drinking, and illicit drug use among American high school seniors 1976–1989	Monitoring the Future	Behavior	Regular cigarette smoking, alcohol use, illicit drug use	Adolescents	537	N
Brim et al.	Asthma prevalence among US children in underrepresented minority populations: American Indian/Alaska Native, Chinese, Filipino, and Asian Indian	NHIS	Health	Asthma	Young children; Children; Adolescents	489	N

Table 2 Continued

Brown et al.	Child, parent and situational correlates of familial ethnic/race socialization	ECLS-K	Family and social environment	Ethnic/racial heritage socialization	Children	320	N
Chen, Balan, & Price	Association of contextual factors with drug use and binge drinking among white, native american and mixed race adolescents in the general population	NSDUH	Behavior	Alcohol use; Illicit drug use	Adolescents	1,123	N
Cummings, Wen, & Druss	Racial/ethnic differences in treatment for substance use among U.S. adolescents	NSDUH	Behavior	Alcohol use; Illicit drug use	Adolescents	325	N
Dakil et al.	Racial and ethnic disparities in physical abuse reporting and child protective services interventions in the United States	NCANDS	Family and social environment	Child maltreatment	Infants; Young children; Children; Adolescents	28,507	N

Table 2 Continued

Fuller-Thomson & Winkler	American Indian/Alaska Native grandparents raising grandchildren: Findings from the Census 2000 Supplemental Survey	ACS-Census	Family and Social Environment; Economic Circumstances	Family Structure and Children's Living Arrangements; child poverty; secure parental employment	Caregivers	319	Y
Groom et al.	Underimmunization of American Indian and Alaska Native Children	NIS	Health Care	Immunization	Infants; Young Children; Children	424–510	Y
Gunderson	Measuring the extent, depth, and severity of food insecurity: an application to American Indians in the United States	CPS	Economic Circumstances	Food Insecurity	Families	1,143 households with children	Y

Table 2 Continued

Hibel, Faircloth, & Farkas	Unpacking the placement of American Indian and Alaska Native students in special education programs and services in the early grades: School readiness as a predictive variable	ECLS-K	Education	Special Education Services	Children	255	Y
Huyser, Takei, & Sakamoto	Demographic factors associated with poverty among American Indian and Alaska Natives	ACS-Census	Economic Circumstances	Child Poverty	Infants; Young children; Children; Adolescents	75,384	Y
Johnson et al.	American Indian/Alaska Native uninsurance disparities: A comparison of 3 studies	CPS; NHIS; MEPS	Health Care	Health Insurance Coverage	Infants; Young children; Children; Adolescents	2,168	Y

Table 2 Continued

Lee et al.	Alcohol dependence symptoms among recent onsent adolescent drinkers	NSDUH	Behavior	Alcohol use	Adolescents	128	N
Lesane-Brown et al.	Negotiating boundaries and bonds: Frequency of young children's socialization to their ethnic/racial heritage	ECLS-K	Family and social environment	Ethnic/racial heritage socialization	Children	307	N
Miksza & Gault	Classroom music experience of US elementary school children: an analysis of the Early Childhood Longitudinal Study of 1998-1999	ECLS-K	Education	Fine arts and music experience	Children	Not reported	N
Moon et al.	The influence of parental, peer, and school factors on marijuana use among Native American adolescents	NSDUH	Behavior	Illicit drug use	Adolescents	287	Y
Nomaguchi & House	Racial-ethnic disparities in maternal parenting stress: the role of structural disadvantages and parenting values	ECLS-K	Family and social environment	Parenting stress	Children	Not reported	N

Table 2 Continued

Oraka et al.	Racial and ethnic disparities in current asthma and emergency department visits: findings from the national health interview study, 2001–2010	NHIS	Health	Asthma	Infants; Young children; Children; Adolescents	88	N
Ravello et al.	Substance use and sexual risk behaviors among American Indian and Alaska Native high school students	YRBS	Behavior	Alcohol use; Illicit drug use; Sexual activity	Adolescents	1,564	Y
Singh & Yu	Trends and differentials in adolescent and young adult mortality in the United States, 1950 through 1993	NVSS; NLMS	Physical Environment and Safety	Adolescent injury and mortality	Adolescents	3,494	N
Singh & Yu	U.S. childhood mortality, 1950 through 1993: Trends and socioeconomic differentials	NVSS; NLMS	Physical environment and safety	Child injury and mortality	Young children; Children; Adolescents	535	N

Table 2 Continued

Singh, Siahpush, & Kogan	Disparities in children's exposure to environmental tobacco smoke in the United States, 2007	CPS	Physical environment and safety	Environmental tobacco smoke	Infants; Young children; Children; Adolescents	Not reported	N
Singleton et al.	The Alaska Haemophilus Influenzae Type b experience: Lessons in controlling a vaccine-preventable disease	Census; NIS	Health care	Immunization	Young children; Children	27,485	Y
Smith et al.	The association between having a medical home and vaccination coverage among children eligible for the Vaccines for Children program	NIS	Health	Immunization	Young children	3,751	N
Sparks	Do biological, sociodemographic and behavioral characteristics explain racial/ethnic disparities in preterm births?	ECLS-B	Health	Preterm birth and low birth weight	Infants	600	N

Table 2 Continued

Sparks	Racial/ethnic differences in breastfeeding duration among WIC-eligible families	ECLS-B	Health	Diet quality	Caregivers	550	N
Sparks	Rural-urban differences in breastfeeding initiation in the united states	ECLS-B	Health	Diet quality	Infants	865	N
Strine et al.	Vaccination coverage of American Indian/Alaska Native children age 19 to 35 months: Findings from the National Immunization Survey, 1998–2000	NIS	Health Care	Immunization	Young children	996	Y
Wallace et al.	Race/ethnic, socioeconomic factors and smoking among early adolescent girls in the United States	Monitoring the Future	Behavior	Regular cigarette smoking	Adolescents	728	N
Watt	Alcohol use and cigarette during pregnancy among American Indian/Alaska Natives	NSDUH	Behavior; Physical Environment and Safety	Alcohol use; Regular cigarette smoking; Environmental tobacco smoke	Caregivers	111	Y
Wu et al.	Racial/ethnic variations in substance related disorders among adolescents in the United States	NSDUH	Behavior	Alcohol use; Illicit drug use	Adolescents	1,122	N

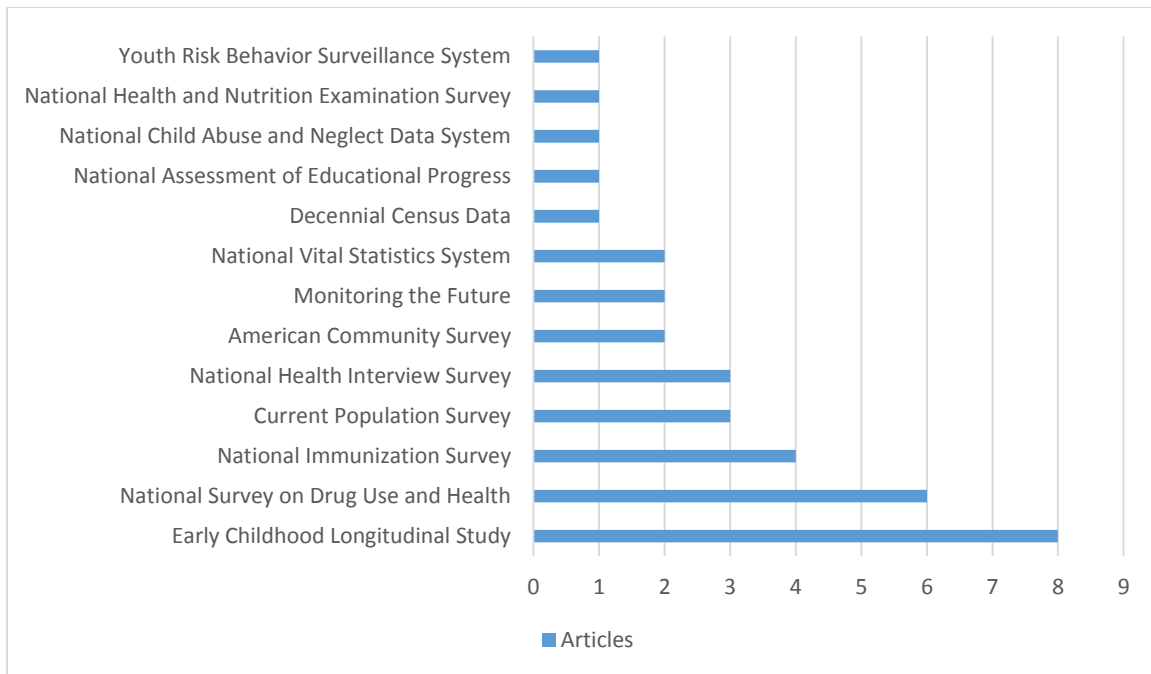


Figure 5 Number of Articles in Each Dataset

Well-Being Domains and Indicators

Included research for each well-being domain is described below. For each domain, research was focused on a particular set of indicators. Findings for each indicator are included, and information is provided to determine whether each particular indicator was found in the Federal Interagency Forum on Child and Family Statistics' (2013) report or if it emerged specifically within this body of work.

Family and Social Environment

Four articles included research relevant to the family and social environment domain. This research focused on three different indicators of well-being. One of these three indicators was identified in the Forum's Report (child maltreatment). The findings for the three indicators are presented in Figure 6 and in Table 3.

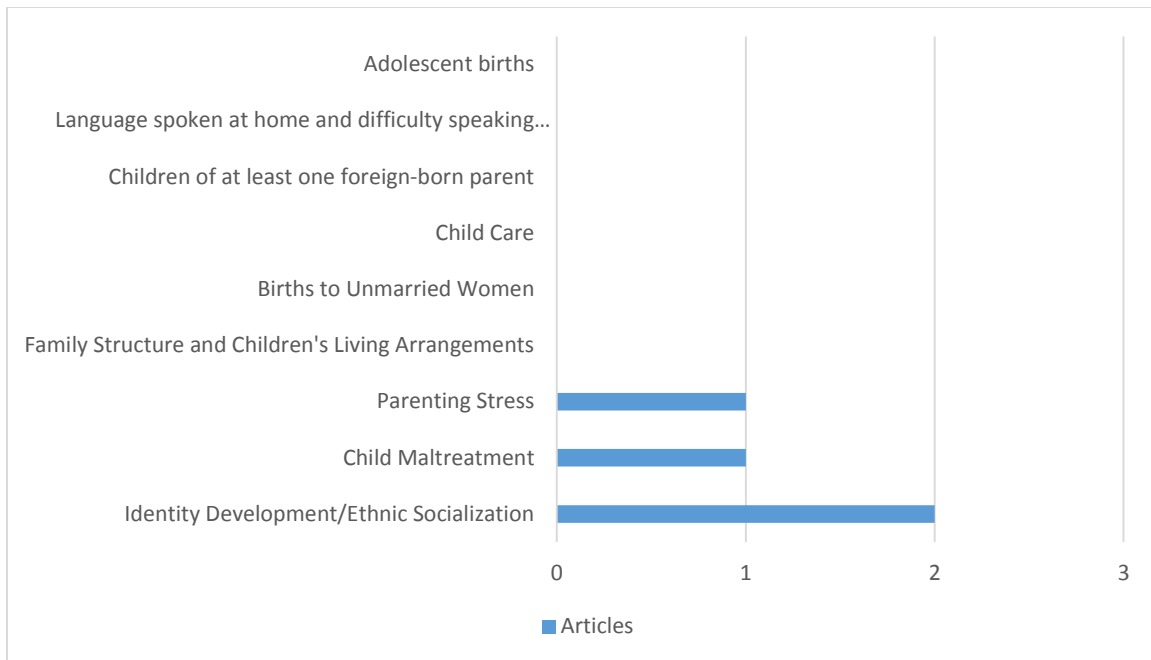


Figure 6 Number of Articles by Family and Social Environment Indicators

Economic Circumstances

Two articles included research related to economic circumstances. This research focused on two different indicators of well-being identified in Figure 7. Both of these indicators are identified within the Forum's Report. That report identifies two other indicators that this body of work does not include research on. The findings for the two indicators are presented in Table 4.

Health Care

Six articles addressed the health care domain. These articles addressed two indicators of health related well-being depicted in Figure 8. Both of these indicators were identified in the Forum's report. That report identified two other indicators of health care that were not addressed in this research (oral health and usual source of health care). The findings for the two indicators are included in Table 5.

Table 3. Family and Social Environment Findings by Indicator

Family and Social Environment Findings by Indicator		
Child Maltreatment	Identity Development/Ethnic Socialization	Parenting Stress
<ul style="list-style-type: none"> • AI/AN have lower odds of physical abuse reports than other groups (Dakil et al., 2011). • AI/AN families had lower odds of receiving family preservation services (Dakil et al., 2011). • AI/AN children had higher odds of receiving foster care, mental health, substance abuse, and education/employment services (Dakil et al., 2011). • AI/AN children have the highest death rate from abuse (Dakil et al., 2011). • AI/AN children are equally likely to have substantiated abuse as other groups (Dakil et al., 2011). 	<ul style="list-style-type: none"> • AI/AN families were significantly more likely than White families to discuss ethnic/racial heritage with their children (Brown et al., 2010). • AI/AN families were more likely to discuss heritage with girls rather than boys (Brown et al., 2010). • Education was related to talking about heritage. Married AI/AN parents were less likely to discuss heritage (Brown et al., 2010). • Public school enrollment was positively linked to conversations about heritage (Brown et al., 2010). • The percentage of families that had a family member who talked about ethnic/racial heritage several times a week or more was largest among those with young AI/AN children (Lesane-Brown et al., 2010). 	<ul style="list-style-type: none"> • AI/AN mothers had the lowest scores of any of the groups on the Parenting Stress Index both with and without controls significant for both kindergartners and third graders (Nomaguchi & House, 2013). • AI/AN parental stress scores were lower after controlling for structural and parenting factors (Nomaguchi & House, 2013).

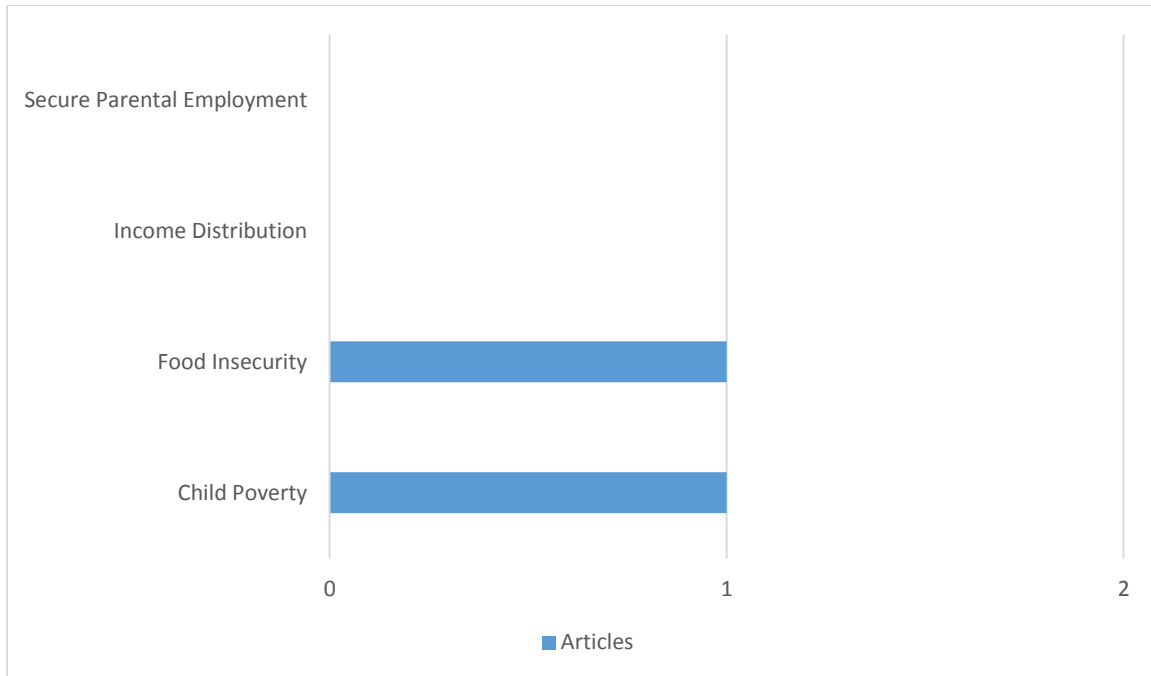


Figure 7 Number of Articles by Economic Circumstance Indicators

Table 4. Economic Circumstances Findings

Economic Circumstances Findings by Indicator	
Child Poverty	Food Insecurity
<ul style="list-style-type: none"> AI/AN children are significantly more likely to be in both absolute and relative poverty as compared to White children (Huyser, Takei, & Sakamoto, 2014). 	<ul style="list-style-type: none"> The effect of being an American Indian on the probability of being food insecure is positive and significant for all three measures for the all-income and the low-income sample of households with children (Gunderson, 2008). No significant difference in food insecurity for AI/AN households based on urban vs. rural (Gunderson, 2008).

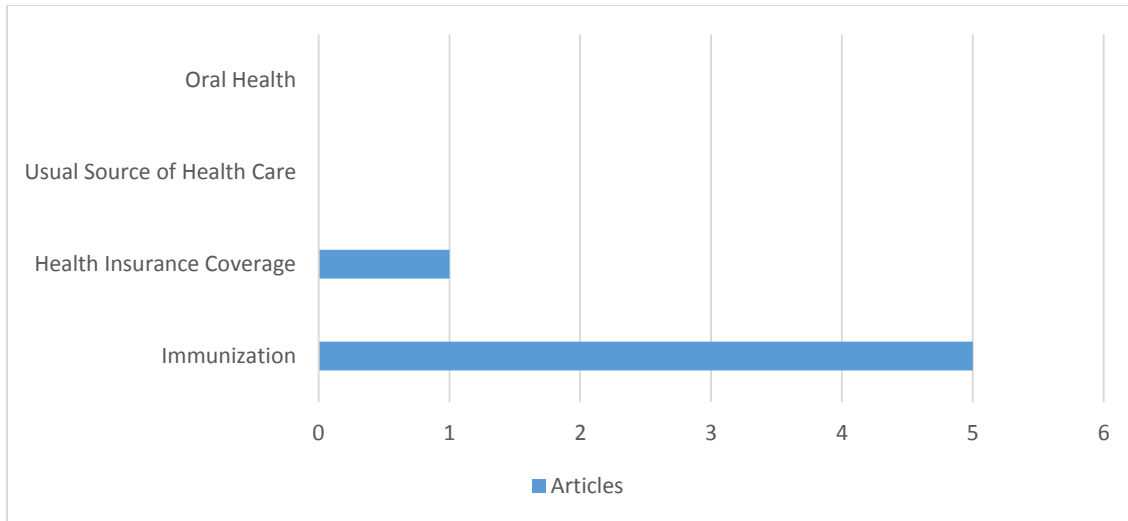


Figure 8 Number of Articles by Health Care Indicators

Physical Environment and Safety

Four articles addressed the physical environment and safety domain. These articles included research on three different well-being indicators in this area, adolescent injury and mortality, child injury and mortality, and environmental tobacco smoke, and are depicted in Figure 9. All three of these indicators were identified in the Forum's report. The findings for these three indicators are included in Table 6.

Behavior

Twenty-one included articles were focused on behavior. This research addressed four indicators of well-being, all of which were identified within the Forum's report and are depicted in Figure 10. The findings related to these indicators are included in Table 7.

Education

Three articles involved research in the Education domain. This research focused on three indicators. One of the indicators is included in the Forum's report (Mathematics

Table 5 Health Care Findings by Indicator

Health Care Findings by Indicator	
Health Insurance Coverage	Immunization
<ul style="list-style-type: none"> • All-year uninsurance disparities were significant for AI/AN children in the CPS sample but not the NHIS or MEPS data sets (Johnson et al., 2010) • Point-in-time uninsurance disparities for AI/AN children were significant for NHIS but not MEPS (Johnson et al., 2010) 	<ul style="list-style-type: none"> • AI/AN children had significantly lower vaccination coverage rates in 4 of the 6 years studied (Groom et al., 2008) • In all 6 years there were at least 2 vaccines that were significantly less provided to AIAN children (Groom et al., 2008) • Higher coverage for Indian Health Services area residents were never observed (Groom et al., 2008) • In 2002 Indian Health Services area residents were significantly less likely to receive full immunization schedules (Groom et al., 2008) • AI/AN children had largest odds of being Hepatitis A vaccinated (Amon et al., 2006) • AI/AN children were most likely to not receive all doses of vaccines (Smith et al., 2005) • Those AI/AN children that had a medical home were least likely to miss a vaccination dose (Smith et al., 2005)

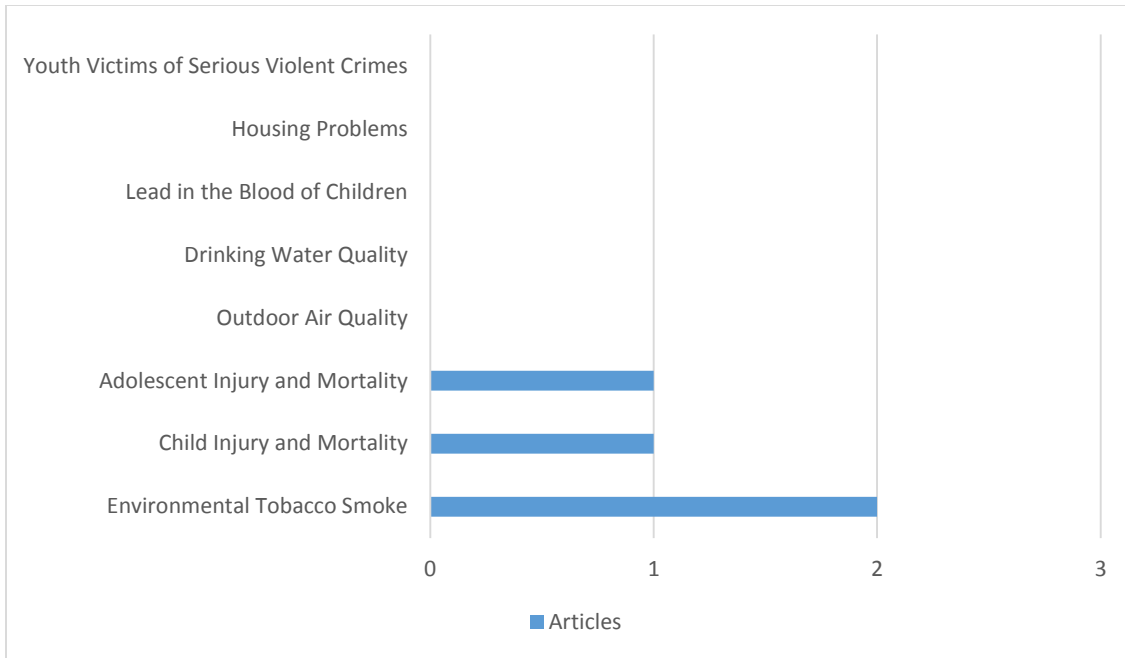


Figure 9 Number of Articles by Physical Environment and Safety Indicators

Table 6 Physical Environment and Safety Findings by Indicator

Physical Environment and Safety Findings by Indicator		
Environmental Tobacco Smoke	Child Injury and Mortality	Adolescent Injury and Mortality
<ul style="list-style-type: none"> AI/AN mothers had significantly higher rates for smoking during pregnancy before control (education, age, anxiety, depression; Watt, 2012) AI/AN mothers had lower rates of smoking after controls. Socioeconomic factors account for the difference (Watt, 2012) 	<ul style="list-style-type: none"> Black, AI/AN, and Hawaiian male and female children had the highest death rates for children ages 1–4 and 5–14 (Singh & Yu, 1996b) 	<ul style="list-style-type: none"> AI/AN were four times more likely to die from external causes than Whites (Singh & Yu, 1996a) AI/AN adolescents were 4.8 times more likely to die from firearms (Singh & Yu, 1996a)

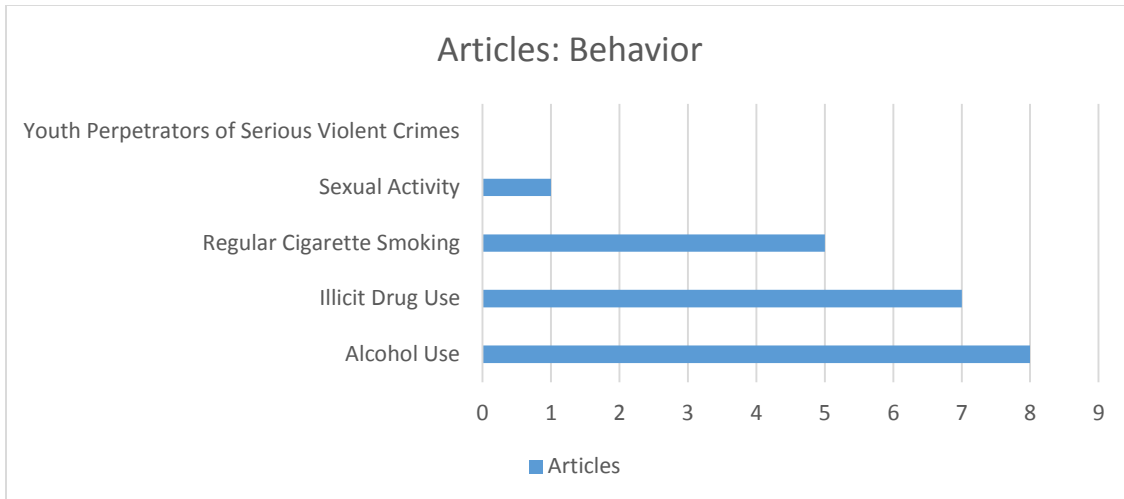


Figure 10 Number of Articles by Behavior Indicators

and Reading Achievement); the other two indicators emerged in this body of work.

Findings relevant to this domain are depicted in Figure 11 and presented by indicator in Table 8.

Health

Six articles fell within the Health domain. These articles provided research on three indicators of health, depicted in Figure 12. Each of these three indicators were identified within the Forum's Report. That report identified five other indicators for which none of the included studies addressed. Findings related to health indicators are included in Table 9.

Included Indicators Compared to Strengths Identified in Literature

It is possible to cross-reference those indicators identified in the included research with the matrix of strengths identified by Goodluck (2002) as emerging in the AI/AN literature. This comparison is seen in Table 10. This is a limited comparison, to a degree, because the strengths identified by Goodluck are not all measurable indicators, but it does

Table 7 Behavior Findings by Indicator

Behavior Findings by Indicator			
Cigarette Smoking	Alcohol Use	Illicit Drug Use	Sexual Activity
<ul style="list-style-type: none"> • Lifetime and 30 day cigarette use are highest for AI/AN girls (Wallace et al., 2009) • Daily cigarette use are also highest for AI/AN girls (Wallace et al., 2009) • Number of parents in the home is related to use but to a lesser degree for AI/ANs (Wallace et al., 2009) • Attendance at low SES schools was related to cigarette use for AI/ANs (Wallace et al., 2009) 	<ul style="list-style-type: none"> • AI/AN pregnant women are significantly less likely to use alcohol than White women with and without controls (Watt, 2012) • Of the 26 risk behavior variables, odds were greater among AI/AN than White students for 18, split evenly with Black students with greater risk for substance use (Ravello et al., 2014) • AI/AN adolescents had the highest rate of substance use (Wu et al., 2011) • Native Americans, adolescents of multiple races, and white adolescents had a higher prevalence of using both alcohol and drugs (Wu et al., 2011) • AI/AN adolescents had the highest prevalence of substance use disorders (Wu et al., 2011) 	<ul style="list-style-type: none"> • AI/AN parental monitoring was significantly associated with lower marijuana use (Moon et al., 2014) • AI/AN school relationships were not related to marijuana use (Moon et al., 2014) • AI/AN youth who reported a closer level of school relationships also reported having more friends who did not engage in substance use behaviors (Moon et al., 2014) • AI/AN youth who had more friends who engaged in substance use behaviors also reported increased marijuana use. (Moon et al., 2014) • AI/AN had the highest rate of substance use (Wu et al., 2011) 	<ul style="list-style-type: none"> • AI/AN adolescents were at a lower risk for sexual behavior than White adolescents (Ravello et al., 2014)

Table 7 Continued

<ul style="list-style-type: none"> • Half pack daily use of cigarettes is highest among AI/AN youth (Bachman, 1991) 	<ul style="list-style-type: none"> • Relative to Whites, substance abuse treatment rates for Native Hawaiian/Pacific Islanders and AI/AN were higher but not statistically significant (Cummings, Wen & Druss, 2011) • AI/AN adolescents were more likely to experience alcohol withdrawal or cut-down symptoms (Lee et al., 2011) • No significant different for tolerance, amount of substance drank, time spent obtaining, drinking or recovering, giving up activities to drink, and dependence (Lee et al., 2011) • Binge drinking was higher among Native American adolescents (Chen, Balan & Price, 2012) • Negative views of substance use decreased the odds of Native Americans drinking (Chen, Balan, & Price, 2012) 	<ul style="list-style-type: none"> • Native Americans, adolescents of multiple races, and White adolescents had a higher prevalence of using both alcohol and drugs (Wu et al., 2011) • AI/AN had the highest prevalence of substance use disorders (Wu et al., 2011) • AI/AN adolescents had the highest use rates for all substances except hallucinogens and tranquilizers (2nd highest for both; Wu et al., 2011) • Native American and mixed-race adolescents were at significantly higher risk of illicit drug use than were White adolescents. (Chen, Balan, & Price, 2012) • None of the social bonding variables were significant protective factors for illicit drug use for Native Americans (Chen, Balan, & Price, 2012) 	
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Table 7 Continued

	<ul style="list-style-type: none"> • Alcohol use among AI/AN males is second highest to white males (Bachman, 1991) • Alcohol use among AI/AN females is second highest to white females (Bachman, 1991). 	<ul style="list-style-type: none"> • Proportion of Delinquent peers increased odds of illicit drug use but not to the same degree as it did for Whites (Chen, Balan, & Price, 2012) • Income predicted illicit drug use for AI/AN but not for other groups. (Chen, Balan, & Price, 2012) • Prevalence rates for marijuana are highest among AI/AN females and males (Bachman, 1991) • Prevalence rates for cocaine use are highest among AI/AN (Bachman, 1991) • Rates of other illicit drug use are highest among AI/AN (Bachman, 1991) 	
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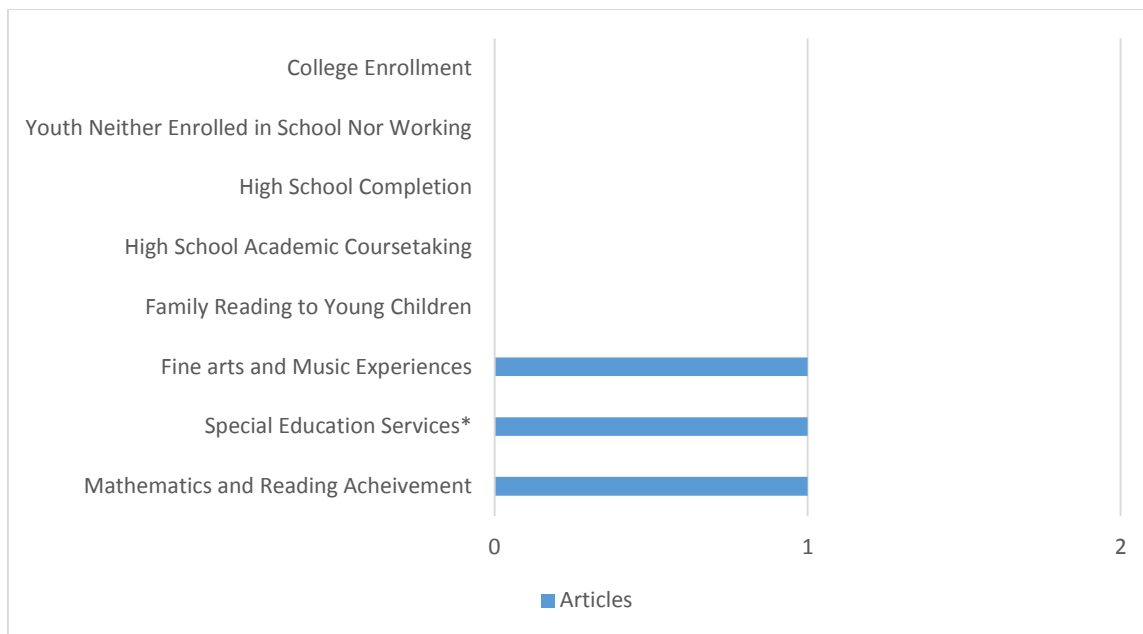


Figure 11 Number of Articles by Education Indicators

Table 8 Education Findings by Indicator

Education Findings by Indicator		
Mathematics and Reading Achievement	Special Education Services	Fine Arts and Music Experiences
<ul style="list-style-type: none"> AI/AN students performed significantly lower than White students but significantly higher than African American students and no difference between Latino students (Akiba et al., 2008) AI/AN children were significantly less likely than any group to be taught by a teacher with a math or math education major (Akiba et al., 2008) Poverty level of the schools was highest among AI/AN students (Akiba et al., 2008) 	<ul style="list-style-type: none"> When AI/AN placement in special education was controlled with student test scores, overplacement rates were nearly 0 (Hibel, Faircloth, & Farkas, 2008) 	<ul style="list-style-type: none"> Native American students received significantly less time on music; Native American children were significantly more likely to be engaged in music lessons (Miksza & Gault, 2014)

Table 8 Continued

<ul style="list-style-type: none"> • AI/AN children were taught at the smallest schools compared to other groups and most likely to be in rural settings (Akiba et al., 2008) • Controlling for school readiness, children of all races and ethnicities in schools with a high proportion of AI/AN students have the same odds of placement as non-AI/AN students (Hibel, Faircloth, & Farkas, 2008) • AI/AN children were less likely to be taught by teachers who reported knowledge of math standards (Akiba et al., 2008) 		
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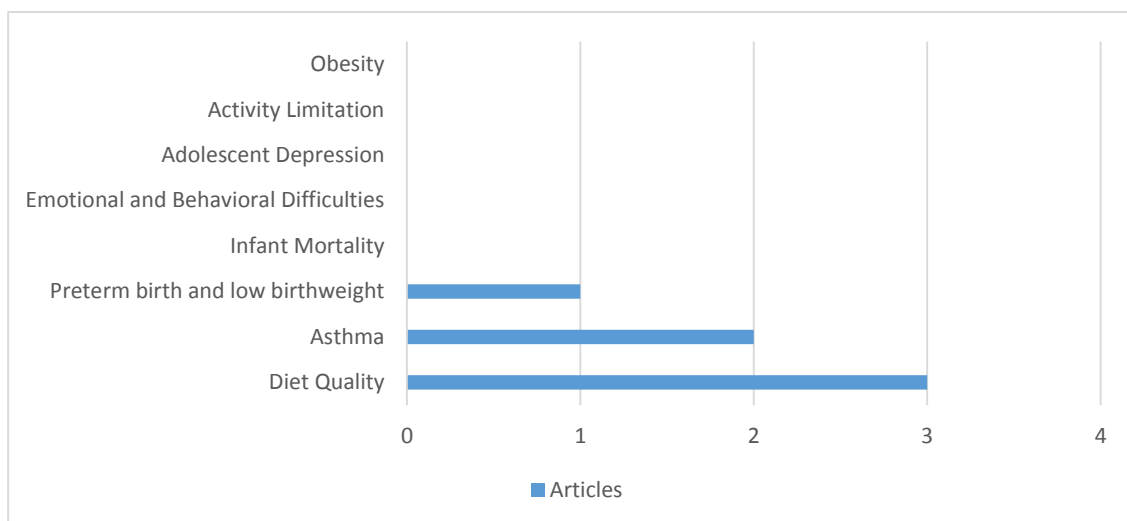


Figure 12 Number of Articles by Health Indicators

Table 9 Health Findings by Indicator

Health Findings by Indicator		
Preterm Birth and Low Birthweight	Diet Quality (including Breastfeeding)	Asthma
<ul style="list-style-type: none"> • Preterm births are highest among AI/AN populations (Sparks, 2009) • WIC usage is a protective factor for preterm births with AI/AN mothers (Sparks, 2009) • AI/AN mothers with low pregnancy weight gain are at higher risk for preterm births (Sparks, 2009) • AI/AN mothers are most likely to experience medical complications prior to or during pregnancy (Sparks, 2009) • AI/AN mothers are more likely to have a preterm birth than White mothers before and after control variables. (Sparks, 2009) 	<ul style="list-style-type: none"> • Rural Native American mothers have much higher odds of initiating breastfeeding than their urban counterparts (Sparks, 2010) • Breastfeeding survivorship (duration) was highest among AI/AN, Foreign Born Mother of Hispanic children, non-Hispanic women, and Asian mothers (Sparks, 2011) 	<ul style="list-style-type: none"> • AI/AN children had second highest rate of current and lifetime asthma (Black children were first in both; Brim et al., 2008) • AI/AN children had highest rate of asthma attacks without control variables (Brim et al., 2008) • AI/AN were first in all three (current, lifetime, and attacks) when controls were applied (Brim et al., 2008) • AI/AN children were more likely to have current asthma than Whites (Oraka et al., 2013) • AI/AN children were more likely to have an asthma related emergency visit than Whites (Oraka et al., 2013)

Table 10 Indicators Compared to Strengths Identified in AI/AN Literature

Indicators in Included Studies	Strengths Identified in AI/AN literature (Goodluck, 2002)
Ethnic Identity Socialization Child Maltreatment Child Poverty Food Insecurity Immunization Health Insurance Coverage Usual Source of Health Care Alcohol Use Cigarette Use Environmental Tobacco Use Adolescent Injury and Mortality Child Injury and Mortality Illicit Drug Use Sexual Activity Mathematics and Reading Achievement Fine arts and Music Experiences Special Education Services Preterm and low birth weight Asthma Diet Quality Parenting Stress	Bicultural Identity Tribal Identity Cultural Identity Extended Family Spirituality Social Connections School Non-traditional Cultural Orientation Childcare customs Language View of Children Tribal Affiliation Dreams Traditions Community Stories Resistance Sovereignty Separation Tribal Colleges Suspicion & Mistrust Intertribal Celebrations Kinship & Mutual Assistance Healing Practices Humor Political Activism Doing-Helping Style Reciprocity Number of Children Personal Relationships Respect Optimism Ritual Generosity Role of Mother Overcoming Trauma Land Return to the Reservation Group Orientation Adaptation Relational Interdependency

paint a picture of the level of resonance (or lack of) between this body of literature and those constructs identified as important in a specifically indigenous body of work.

Findings by Population

Tables 11 and 12 organize findings across the 33 included articles by subpopulations. Those findings that crossed multiple subpopulations are included in each category. Infants were defined as children under 12 months. Young children were those children 12–35 months old. Children were ages 36 months to 12 years. Adolescents were children 13 to 17 years old.

First Author Discipline

The discipline of the author was determined by information found for correspondence with the first author and is depicted in Figure 13. Two articles did not specify discipline. The remaining articles came from 10 disciplines with policymakers being the largest single group (n = 11).

Publication Date

Articles were coded by publication date to determine when well-being research is being conducted. The line graph in Figure 14 captures both new articles by year (blue) and the cumulative amount of articles (orange).

Total AI/AN Sample

Studies were coded with AI/AN samples and depicted in Figure 15. These samples were categorized into equal groups with the exception of those with samples larger than 1000 individuals. Four studies did not report a sample

Table 11 Findings by Population

Infants	Young Children	Children
<ul style="list-style-type: none"> • Preterm births are highest among AI/AN populations (Sparks, 2009) • AI/AN mothers are more likely to have a preterm birth than White mothers before and after control variables (Sparks, 2009) • All-Year uninsurance disparities were significant for AI/AN children in the CPS sample but not the NHIS or MEPS datasets (Johnson et al., 2010) • Point-in-time uninsurance disparities for AI/AN children were significant for NHIS but not MEPS (Johnson et al., 2010) • AI/AN have lower odds of physical abuse reports than other groups (Dakil et al., 2011) • AI/AN families had lower odds of receiving family preservation services (Dakil et al., 2011) 	<ul style="list-style-type: none"> • Black, AI/AN, and Hawaiian male and female children had the highest death rates for children ages 1–4 and 5–14 (Singh & Yu, 1996b) • All-Year uninsurance disparities were significant for AI/AN children in the CPS sample but not the NHIS or MEPS datasets (Johnson et al., 2010) • Point-in-time uninsurance disparities for AI/AN children were significant for NHIS but not MEPS (Johnson et al., 2010) • AI/AN children had significantly lower coverage rates in 4 of the 6 years; (Groom et al., 2008) • In all 6 years there were at least two vaccines that were significantly less provided to AI/AN children; (Groom et al., 2008) • Higher coverage for Indian Health Services area residents were never observed. (Groom et al., 2008) 	<ul style="list-style-type: none"> • AI/AN children had second highest rate of current and lifetime asthma (Black children were first in both; Brim et al., 2008) • AI/AN children had highest rate of asthma attacks without control variables (Brim et al., 2008) • AI/AN were first in all three (current, lifetime, and attacks) when controls were applied (Brim et al., 2008) • AI/AN children were more likely to have current asthma than Whites. (Oraka et al., 2013) • AI/AN children were more likely to have an asthma related emergency visit than Whites (Oraka et al., 2013) • AI/AN students performed significantly lower in Math than white students but significantly higher than African American students and no difference between Latino students (Akiba et al., 2008) • AI/AN children were significantly less likely than any group to be taught by a teacher with a math or math education major (Akiba et al., 2008)

Table 11 Continued

<ul style="list-style-type: none"> • AI/AN children had higher odds of receiving foster care, mental health, substance abuse, and education/employment services (Dakil et al., 2011) • AI/AN children have highest death rate from abuse (Dakil et al., 2011) • AI/AN populations are equally likely to have substantiated abuse as other groups (Dakil et al., 2011) 	<ul style="list-style-type: none"> • In 2002 Indian Health Services area residents were significantly less likely to receive full immunization schedules (Groom et al., 2008) • AI/AN children had largest odds of being Hep A vaccinated (Amon et al., 2006) • AI/AN children were most likely to not receive all doses of vaccines (Smith et al., 2005) • Those AI/AN children that had a medical home were least likely to miss a vaccination dose (Smith et al., 2005) • AI/AN children were second most likely to not have a medical home (next to Hispanics; Smith et al., 2005) • AI/AN children are significantly more likely to be in both absolute and relative poverty as compared to White children (Huysen, Takei, & Sakamoto, 2014) 	<ul style="list-style-type: none"> • AI/AN were taught at the smallest schools compared to other groups and most likely to be in rural settings (Akiba et al., 2008) • Poverty level of the schools was highest among AI/AN students (Akiba et al., 2008) • AI/AN were less likely to be taught by teachers who reported knowledge of math standards (Akiba et al., 2008) • AI/AN children were less likely to be taught by teachers using manipulatives (Akiba et al., 2008) • Teachers of AI/AN students were less likely to use standards based curricula (Akiba et al., 2008) • When AI/AN placement in special education was controlled with student test scores, overplacement rates were nearly zero (Hibel, Faircloth, & Farkas, 2008) • Controlling for school readiness, children of all races and ethnicities in schools with a high proportion of AI/AN students have the same odds of placement as non AI/AN students (Hibel, Faircloth, & Farkas, 2008)
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Table 11 Continued

	<ul style="list-style-type: none"> • AI/AN have lower odds of physical abuse reports than other groups (Dakil et al., 2011) • AI/AN families had lower odds of receiving family preservation services (Dakil et al., 2011) • AI/AN children had higher odds of receiving foster care, mental health, substance abuse, and education/employment services (Dakil et al., 2011) • AI/AN have highest death rate from abuse (Dakil et al., 2011) • AI/AN children were equally likely to have substantiated abuse as other groups (Dakil et al., 2011) 	<ul style="list-style-type: none"> • Native American students received significantly less time on music; Native American children were significantly more likely to be engaged in music lessons (Miksza & Gault, 2014) • Black, AI/AN, and Hawaiian male and female children had the highest death rates for children ages 1–4 and 5–14 (Singh & Yu, 1996b)
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Table 12 Findings by Adolescents and Caregivers

<u>Adolescents</u>	<u>Caregivers</u>
<ul style="list-style-type: none"> • Lifetime and 30 day cigarette use are highest among AI/AN girls (Wallace et al., 2009) • Daily cigarette use are also highest among AI/AN girls (Wallace et al., 2009) • Number of parents in the home is related to use but to a lesser degree for AI/ANs (Wallace et al., 2009) • Attendance at low SES schools was related to higher cigarette use for AI/ANs (Wallace et al., 2009) • Half pack daily use of cigarettes is highest among AI/AN (Bachman, 1991). • AI/AN pregnant women are significantly less likely to use alcohol than White women with and without controls (Watt, 2012) • Of the 26 risk behavior variables, odds were greater among AI/AN than White students for 18, split evenly with Black students with greater risk for substance use (Ravello et al., 2014) • AI/AN had the highest rate of substance use (Wu et al., 2011) • Native Americans, adolescents of multiple races, and White adolescents had a higher prevalence of using both alcohol and drugs (Wu et al., 2011). 	<ul style="list-style-type: none"> • AI/AN mothers are most likely to experience medical complications prior to or during pregnancy (Sparks, 2009) • WIC usage is a protective factor for preterm births with AI/AN mothers (Sparks, 2009) • AI/AN mothers with low pregnancy weight gain are at higher risk for preterm births (Sparks, 2009) • Breastfeeding survivorship (duration) was highest among AI/AN, Foreign Born Mothers Of Hispanic Children, Non-Hispanic Women, and Asian mothers (Sparks, 2011) • Rural Native American mothers have much higher odds of initiating breastfeeding than their urban counterparts (Sparks, 2010) • Significantly higher rates for smoking during pregnancy before control (education, age, anxiety, depression; Watt, 2012) • AI/AN pregnant mothers had lower rates of smoking after controls. When anxiety and depression are removed as control, socioeconomic factors still account for difference (Watt, 2012)

Table 12 Continued

<ul style="list-style-type: none"> • AI/AN had the highest prevalence of substance use disorders (Wu et al., 2011) • Relative to Whites, substance abuse treatment rates for Native Hawaiian/Pacific Islanders and AI/AN were higher but not statistically significant (Cummings, Wen, & Druss, 2011) • AI/AN adolescents were more likely to experience withdrawal or cut-down symptoms (Lee et al., 2011) • No significant difference for tolerance, amount of substance drank, time spent obtaining, drinking or recovering, giving up activities to drink, and dependence (Lee et al., 2011) • Binge drinking was higher among Native American adolescents (Chen, Balan, & Price, 2012) • Negative views of substance use decreased the odds of Native Americans drinking (Chen, Balan, & Price, 2012) • Alcohol use among AI/AN males is second highest to White males. (Bachman, 1991) • Alcohol use among AI/AN females is second highest to White females (Bachman, 1991) • AI/AN parental monitoring was significantly associated with lower marijuana use (Moon et al., 2014) • AI/AN school relationships were not related to marijuana use (Moon et al., 2014) 	<ul style="list-style-type: none"> • The effect of being an American Indian on the probability of being food insecure is positive and significant for all three measures for the all-income and the low-income sample of households with children (Gunderson, 2008) • No significant difference in food insecurity for AI/AN households based on urban vs. rural (Gunderson, 2008) • AI/AN families were significantly more likely than White families to discuss ethnic/racial heritage with their children (Brown et al., 2010) • AI/AN families were more likely to discuss heritage with girls rather than boys (Brown et al., 2010) • Education was related to talking about heritage. Married AI/AN parents were less likely to discuss heritage (Brown et al., 2010) • Public school enrollment was positively linked to conversations about heritage (Brown et al., 2010) • The percentage of families that had a family member who talked about ethnic/racial heritage several times a week or more was largest among those with young AI/AN children (Lesane-Brown et al., 2010) • AI/AN had the highest rate of substance use (Wu et al., 2011)
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Table 12 Continued

<ul style="list-style-type: none"> • AI/AN youth who reported a closer level of school relationships also reported having more friends who did not engage in substance use behaviors (Moon et al., 2014) • AI/AN youth who had more friends who engaged in substance use behaviors also reported increased marijuana use (Moon et al., 2014) • Native Americans, adolescents of multiple races, and White adolescents had a higher prevalence of using both alcohol and drugs (Wu et al., 2011) • AI/AN had the highest prevalence of substance use disorders (Wu et al., 2011) • AI/AN had the highest use rates for all substances except hallucinogens and tranquilizers (2nd highest for both; Wu et al., 2011) • Native American and mixed-race adolescents were at significantly higher risk of illicit drug use than were White adolescents (Chen, Balan, & Price, 2012) • None of the social bonding variables were significant protective factors for illicit drug use for Native Americans (Chen, Balan, & Price, 2012) • Proportion of delinquent peers increased odds of illicit drug use but not to the same degree as it did for Whites (Chen, Balan, & Price, 2012) • AI/AN children have highest death rate from abuse (Dakil et al., 2011) 	<ul style="list-style-type: none"> • AI/AN mothers had the lowest scores of any of the groups on the Parenting Stress Index both with and without controls significant for both kindergartners and third graders (Nomaguchi & House, 2013) • AI/AN mothers showed a "suppressor effect" after controlling for structural and parenting factors—Stress scores were lower after controlling for structural and parenting factors (Nomaguchi & House, 2013)
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Table 12 Continued

<ul style="list-style-type: none"> • Income predicted illicit drug use for AI/AN but not for other groups (Chen, Balan, & Price, 2012) • Prevalence rates for marijuana are highest among AI/AN females and males (Bachman, 1991) • Prevalence rates for cocaine use are highest among AI/AN (Bachman, 1991) • Rates of other illicit drug use are highest among AI/AN (Bachman, 1991) • AI/AN adolescents were at a lower risk for sexual behavior than White adolescents (Ravello et al., 2014) • AI/AN adolescents were four times more likely to die from external causes than Whites (Singh & Yu, 1996a) • AI/AN adolescents were 4.8 times more likely to die from firearms (Singh & Yu, 1996a) • AI/AN have lower odds of physical abuse reports than other groups (Dakil et al., 2011) • AI/AN families had lower odds of receiving family preservation services (Dakil et al., 2011) • AI/AN children had higher odds of receiving foster care, mental health, substance abuse, and education/employment services (Dakil et al., 2011) • AI/AN children were equally likely to have substantiated abuse as other groups (Dakil et al., 2011) 	
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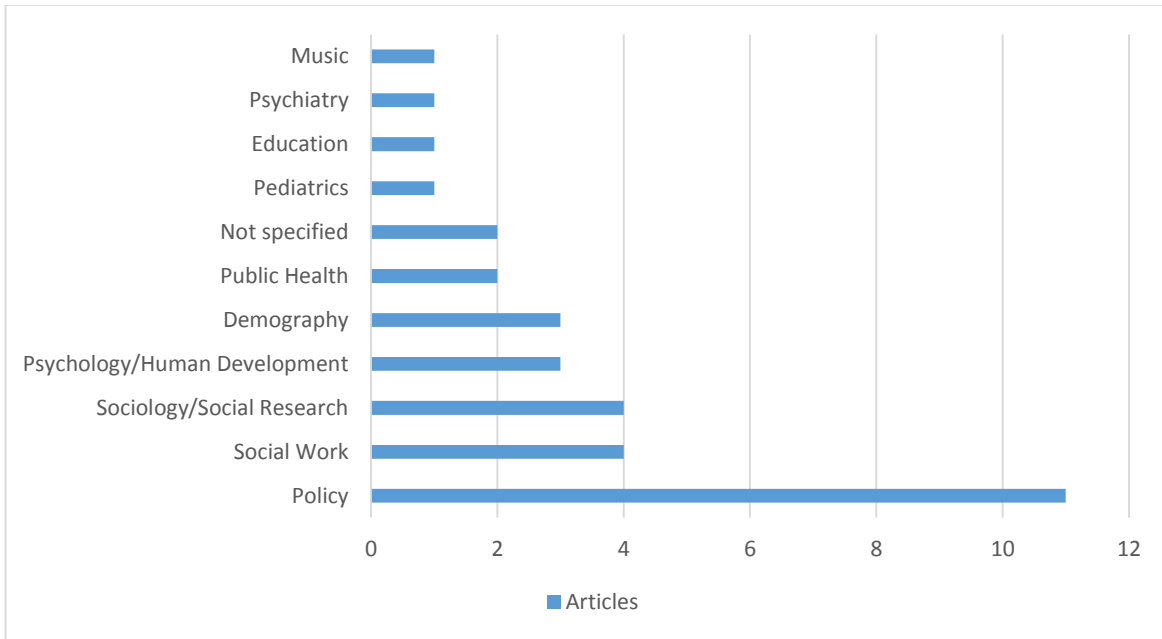


Figure 13 Number of Articles by First Author Discipline

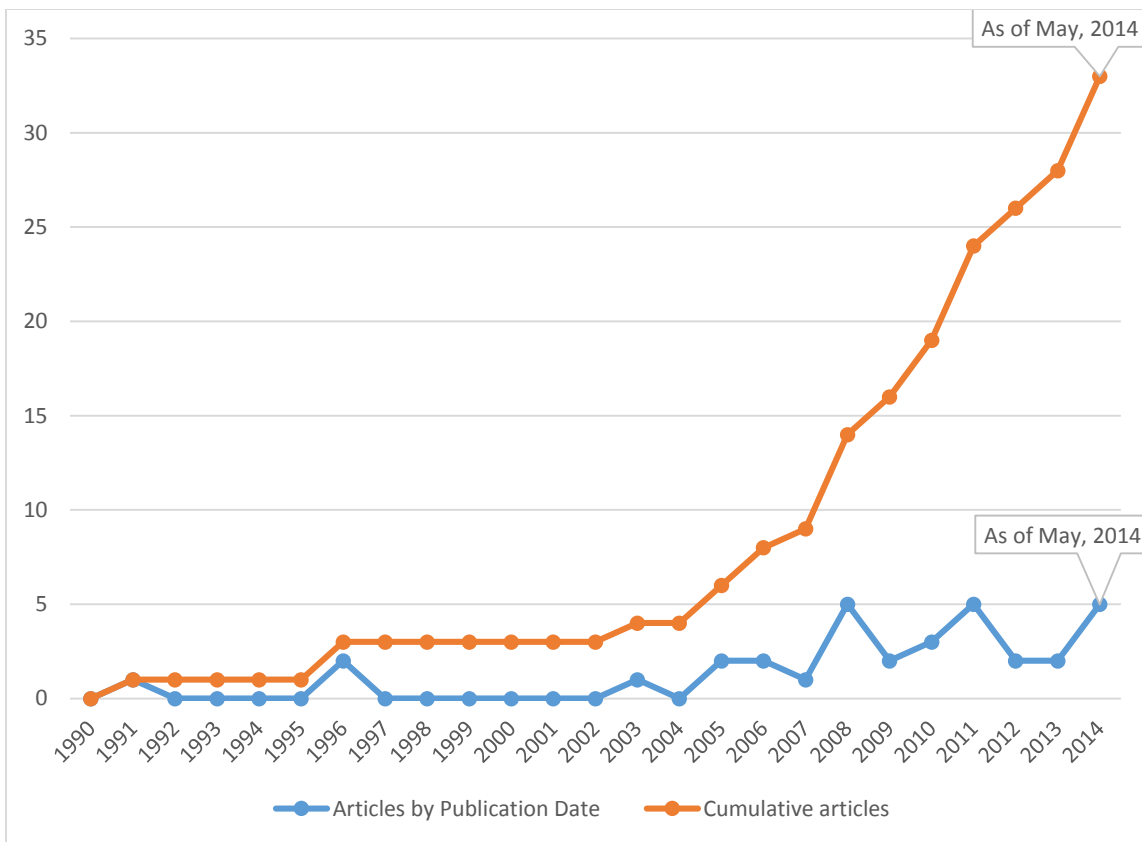


Figure 14 Number of Articles by Publication Date

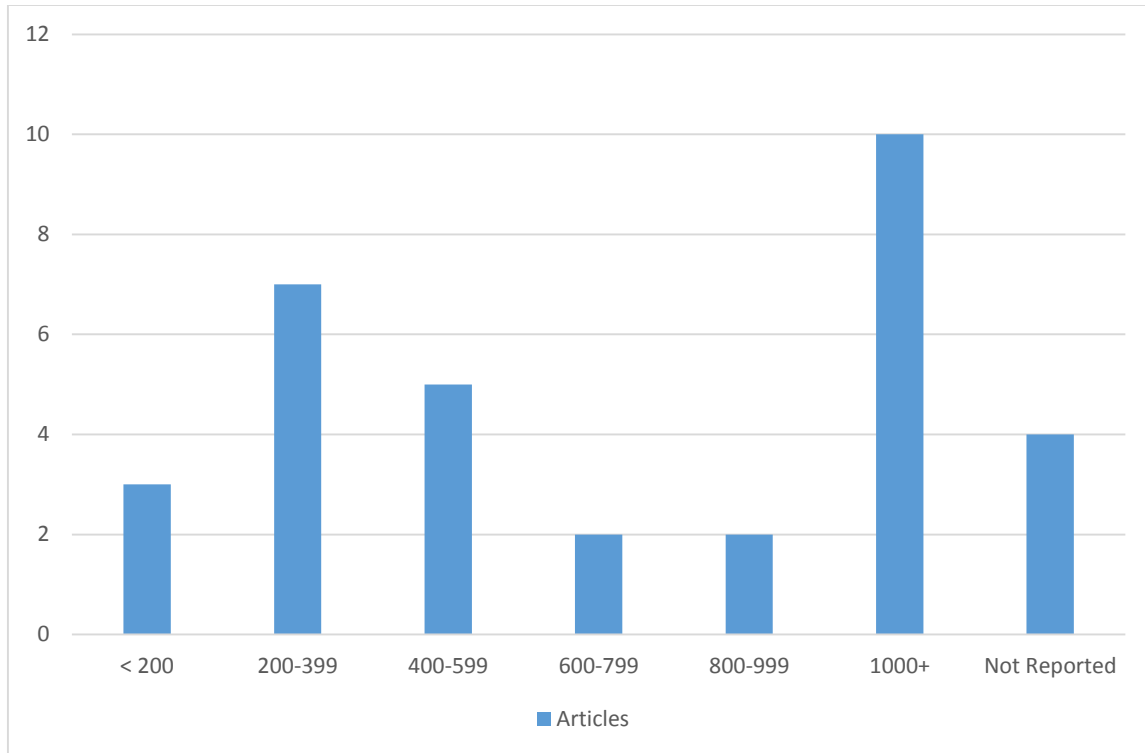


Figure 15 Number of Articles by Sample Size Categories

AI/AN Population(s)

Figure 16 identifies the number of articles across each subpopulation.

Analysis

Many of the articles included multiple types of analysis, and several different approaches to bivariate and multivariate analyses were used throughout this body of work. For purposes of briefly summarizing analysis strategies across the 33 studies, each article was coded for strategy involving the most types of variables. For example, if an article utilized both bivariate and multivariate analysis, it would be coded as “multivariate.” The most common type of univariate strategy was to analyze rates or frequencies (most commonly death or immunization rates). Bivariate strategies were most commonly used to determine between group differences. This was most frequently

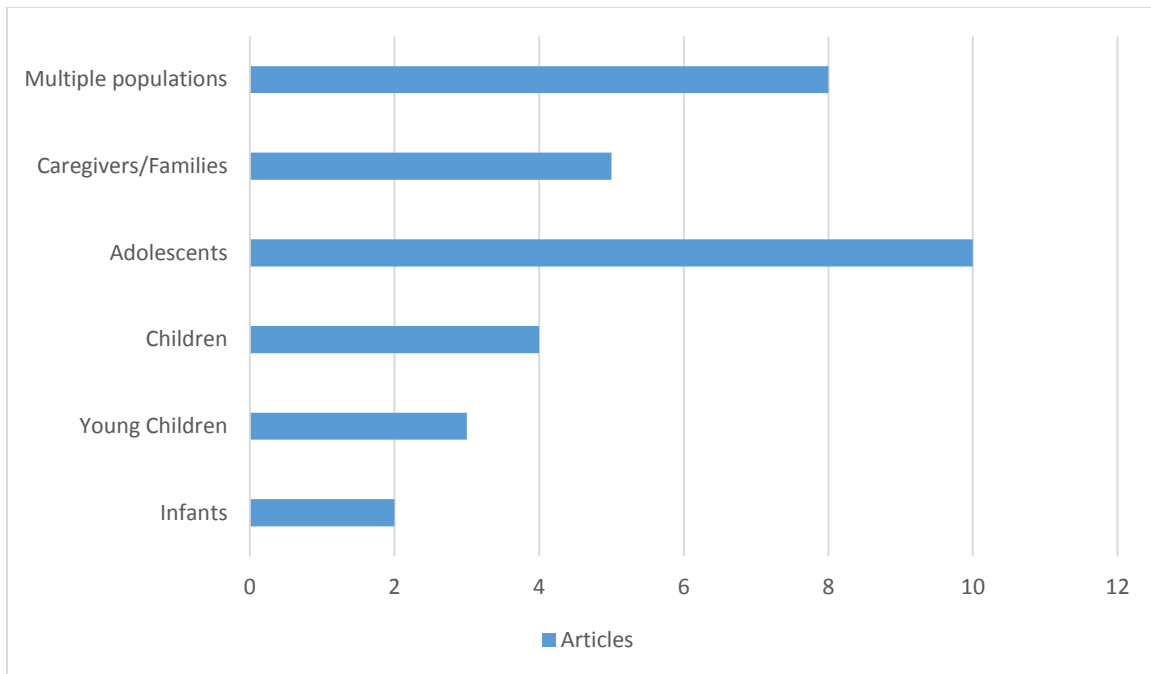


Figure 16 Number of Articles by Subpopulation

chi-square or independent t-tests. Regression analysis was the most common type of analysis in the articles and was used to test relationships between multiple variables. This information is summarized in Figure 17.

Focus on AI/AN Populations

Each article was coded based on whether it focused specifically on AI/AN populations or not. Twenty-one of the articles were not expressly focused on AI/AN populations but included a sample. This information is depicted in Figure 18.

Quality of Included Studies

Each article was assessed for quality using two methods. The STROBE Checklist (STROBE Statement, 2007) was used to determine overall quality of reporting and the GAP-REACH Checklist (Lewis-Fernandez et al., 2013) was used to determine quality as

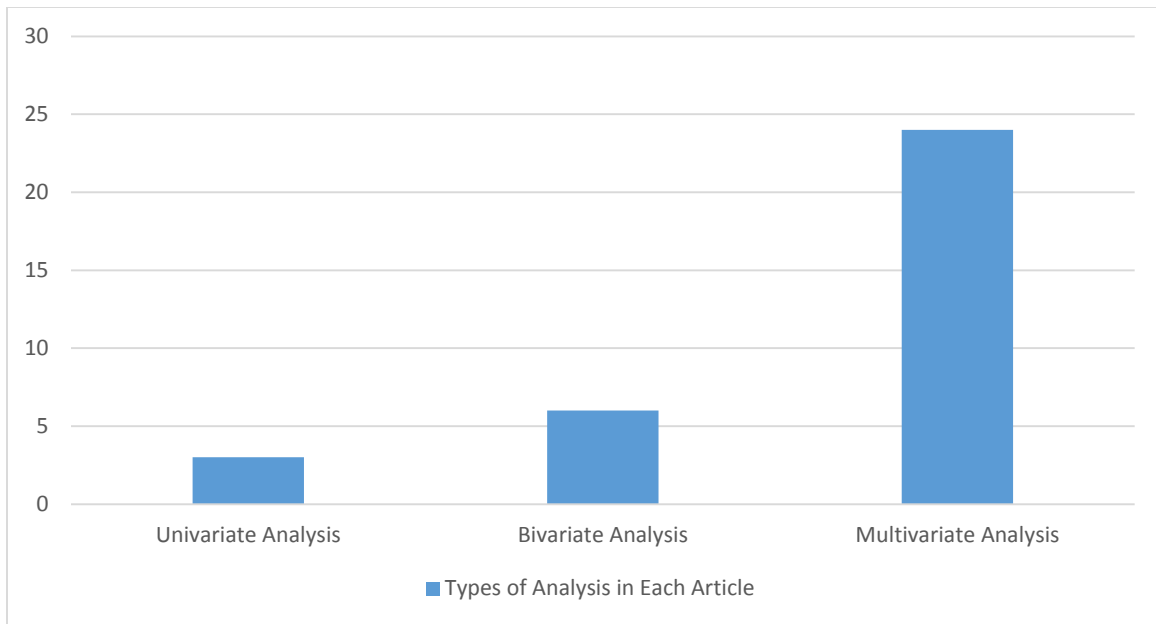


Figure 17 Number of Articles by Type of Analysis

it relates to reporting of racial/ethnic/cultural (REC) factors. The scores for each checklist were calculated, and the mean of these two scores was used to determine overall quality. As noted in Chapter 3, those articles with scores of 60% or less were determined to have “Low” quality. Those articles scoring between 61%–80% were found to have “Medium” quality, and those articles scoring over 80% were said to have “High” quality. Issues that emerged from each checklist assessment were identified in a “comments” column below. Additionally, the most pressing threats to external validity or bias was determined for each article. The quality of included studies is described in Table 13.

Knowledge Gap Assessment

Determining gaps in the existing knowledge and directions for future research is a critical component of systematic reviews but one rarely done in a systematic way (Robinson, Saldanha, & Mckoy, 2011). In an effort to identify gaps in a more transparent

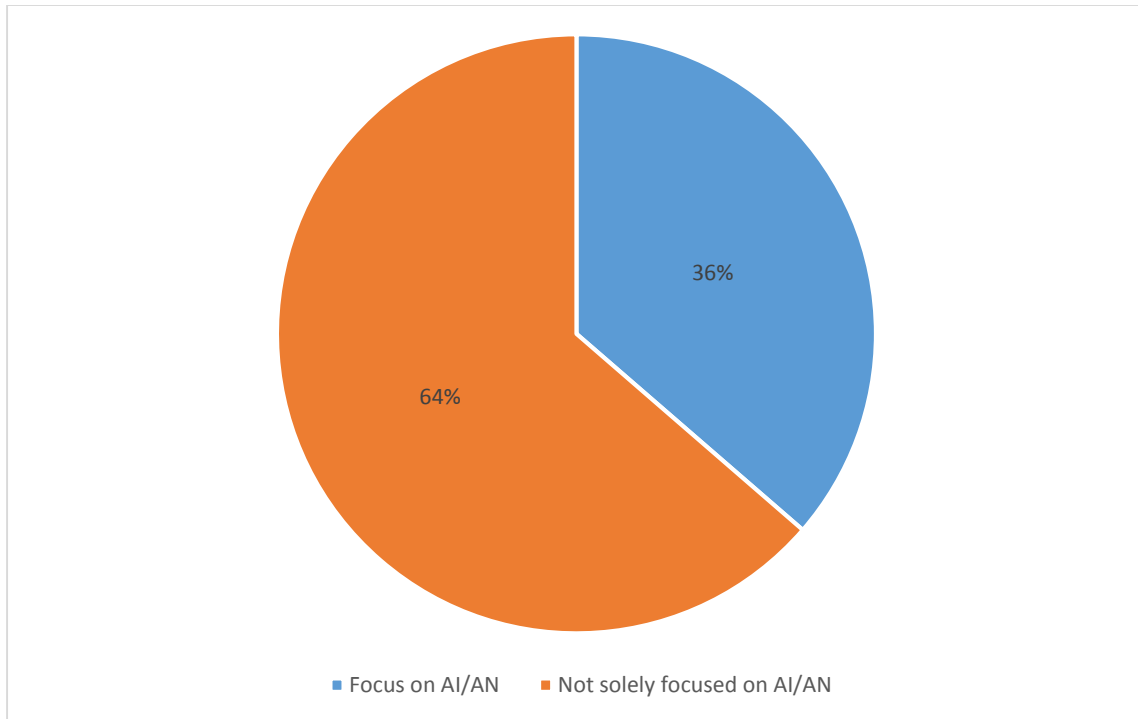


Figure 18 Percentage of Articles by Focus

and consistent way, I have chosen a multitiered approach. For each of the seven well-being domains that serve as the framework for this dissertation, I have done a content analysis of each article to determine what, if any, directions for future research were identified within each study. This method alone is limited, however, because those domains that contain more research naturally contain more author's thoughts on future research. For this reason, I have tried to fill in this gap by drawing from American Indian well-being literature to provide any additional directions for future research. This information is presented in table form for each domain. Twelve of the 33 included articles (36%) did not include recommendations for future research. Table 14 summarizes those recommendations from the other 21 research articles. The recommendations for future research may not all be able to be conducted using the 22 included datasets as they currently exist.

Table 13 Quality of Included Studies

Author(s)	Title	STROBE Checklist	Gap-Reach Checklist	Overall Quality	Comments	Potential Threats to Validity
Akiba et al.	Standards based mathematics reforms and mathematics achievement of American Indian/Alaska Native eighth graders	93%	88%	High	<ul style="list-style-type: none"> • Insufficient discussion of design in title or abstract • No discussion of limitations in terms of REC factors 	<ul style="list-style-type: none"> • Measurement Bias: Measures were based on student and teacher self-report. The two sets of responses were not strongly correlated

Table 13 Continued

Amon et al.	Factors associated with Hepatitis A vaccination among children 24 to 35 months of age: United States, 2003	67%	50%	Low	<ul style="list-style-type: none"> • Insufficient discussion of design in title or abstract • Insufficient background information • Insufficient discussion of covariates • Insufficient discussion of variable measures • Insufficient discussion of study size • No discussion of missing data • No definition of REC factors • No description of sample in terms of REC factors • No description of how REC factors were assessed • No discussion of study limitations in terms of REC factors 	<ul style="list-style-type: none"> • Selection Bias: Sample was based on individuals with a “landline” telephone • Measurement Bias: Vaccination records are based on provider records and could be incomplete
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Table 13 Continued

Bachman et al.	Racial/ethnic differences in smoking, drinking, and illicit drug use among American high school seniors 1976–1989	47%	75%	Medium	<ul style="list-style-type: none"> • Insufficient discussion of design in title or abstract • Insufficient background information • Insufficient discussion of study objectives • Insufficient discussion of study setting • Insufficient discussion of eligibility criteria • Insufficient discussion of study size • No discussion of missing data • No definition of REC factors • No test of bivariate associations between REC variables and outcome variables 	<ul style="list-style-type: none"> • Measurement Bias: Adolescent substance use is based on self-report • Selection Bias: Sample does not include individuals not in school or in residential settings
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Table 13 Continued

Brim et al.	Asthma prevalence among US children in underrepresented minority populations: American Indian/Alaska Native, Chinese, Filipino, and Asian Indian	100%	88%	High	<ul style="list-style-type: none"> • No definition of REC factors 	<ul style="list-style-type: none"> • Statistical Conclusion Bias: Small sample size of AI/AN may misrepresent relationships • Selection Bias: Sample was limited to English speakers
Brown et al.	Child, parent and situational correlates of familial ethnic/race socialization	87%	63%	Medium	<ul style="list-style-type: none"> • Insufficient description of design in title or article • No discussion of missing data • No definition of REC factors • No discussion of how groups were assessed in terms of REC factors • No discussion of limitations in terms of REC factors 	<ul style="list-style-type: none"> • Measurement Bias: Measure of ethnic socialization does not capture communication outside of the family

Table 13 Continued

Chen, Balan, & Price	Association of contextual factors with drug use and binge drinking among white, native American and mixed race adolescents in the general population	100%	100%	High	<ul style="list-style-type: none"> • Measurement Bias: Responses were based on adolescent self-report • Statistical Conclusion Bias: Small sample of AI/AN could misrepresent associations with this group 	
Cummings, Wen & Druss	Racial/ethnic differences in treatment for substance use among U.S. adolescents	93%	75%	High	<ul style="list-style-type: none"> • No discussion of missing data • No definition of REC factors • No discussion of how groups were assessed in terms of REC factors (self-report, etc.) 	<ul style="list-style-type: none"> • Selection Bias: Only English speakers were sampled

Table 13 Continued

Dakil et al.	Racial and ethnic disparities in physical abuse reporting and child protective services interventions in the United States	73%	100%	High	<ul style="list-style-type: none"> • Insufficient discussion of eligibility criteria • Insufficient discussion of all variables • Insufficient discussion of variable measurement • No discussion of missing data 	<ul style="list-style-type: none"> • Setting Bias: Different state laws regarding reporting and handling of maltreatment impact the sample
Fuller-Thomson & Winkler	American Indian/Alaska Native grandparents raising grandchildren: Findings from the Census 2000 Supplemental Survey	47%	88%	Medium	<ul style="list-style-type: none"> • Insufficient discussion of design in title or abstract • Unclear study objectives • Insufficient discussion of research setting • Insufficient discussion of eligibility criteria • Insufficient description of statistical methods • Insufficient description of subgroup analysis methods 	<ul style="list-style-type: none"> • Statistical Conclusion Bias: Small sample issues may impact ability to determine relationships • Selection Bias: Sample was narrowed to only those that self-identified as AI/AN solely

Table 13 Continued

Groom et al.	Underimmunization of American Indian and Alaska Native children	94%	100%	High	<ul style="list-style-type: none"> • No discussion of missing data 	<ul style="list-style-type: none"> • History Bias: Several years of data were pooled and could misrepresent the population changes over time • Measurement Bias: AI/AN classification was based on medical provider and individuals may have been misclassified
Gunderson	Measuring the extent, depth, and severity of food insecurity: an application to American Indians in the United States	88%	100%	High	<ul style="list-style-type: none"> • Insufficient discussion of design in the title or abstract • No discussion of missing data 	<ul style="list-style-type: none"> • Measurement Bias: Measure of food insecurity may not capture community-level protections.

Table 13 Continued

Hibel, Faircloth, & Farkas	Unpacking the placement of American Indian and Alaska Native students in special education programs and services in the early grades: School readiness as a predictive variable	100%	88%	High	<ul style="list-style-type: none"> • No definition of REC factors 	<ul style="list-style-type: none"> • Measurement Bias: Study does not examine school level variables in explaining special education placement
Huyser, Takei, & Sakamoto	Demographic factors associated with poverty among American Indian and Alaska Natives	87%	100%	High	<ul style="list-style-type: none"> • Insufficient description of research objectives • Insufficient description of covariates 	<ul style="list-style-type: none"> • Measurement Bias: Measures of poverty are solely based on income

Table 13 Continued

Johnson et al.	American Indian/Alaska Native uninsurance disparities: A comparison of 3 studies	93%	88%	High	<ul style="list-style-type: none"> • No discussion of missing data • No definition of REC factors 	<ul style="list-style-type: none"> • Selection Bias: Sample size may not be adequate for determining unique factors of subpopulations • Setting Bias: Sample was drawn predominantly from counties that did not contain reservations
Lee et al.	Alcohol dependence symptoms among recent onsent adolescent drinkers	93%	63%	Medium	<ul style="list-style-type: none"> • No discussion of missing data • No definition of REC factors • No discussion of how groups were assessed in terms of REC factors (self-report, etc.) • No discussion of study limitations in terms of REC factors 	<ul style="list-style-type: none"> • Measurement Bias: Measures were self-report and retrospective.

Table 13 Continued

Lesane-Brown et al.	Negotiating boundaries and bonds: Frequency of young children's socialization to their ethnic/racial heritage	87%	75%	High	<ul style="list-style-type: none"> • Insufficient study design description in title or abstract • Insufficient description of study design early in the paper No definition of REC factors • No discussion of limitations in terms of REC factors 	<ul style="list-style-type: none"> • Measurement Bias: Instrument captured the frequency but not the content of racial/ethnic heritage conversation. Measure was based on self-report of conversation
Miksza & Gault	Classroom music experience of US elementary school children: an analysis of the Early Childhood Longitudinal Study of 1998–1999	81%	88%	High	<ul style="list-style-type: none"> • Insufficient study design description in title or abstract • No discussion of potential sources of bias • No discussion of missing data • No discussion of study limitations in terms of REC factors 	<ul style="list-style-type: none"> • Measurement Bias: Music education was based on teacher report. Unclear operational definition of outside music experiences

Table 13 Continued

Moon et al.	The influence of parental, peer, and school factors on marijuana use among Native American adolescents	94%	88%	High	<ul style="list-style-type: none"> • No discussion of missing data • No discussion of how groups were assessed for REC factors (self-report, etc.) 	<ul style="list-style-type: none"> • Measurement Bias: Marijuana use was determined through self-report • Statistical Conclusion Bias: Study did not include community factors as potential predictors
Nomaguchi & House	Racial-ethnic disparities in maternal parenting stress: The role of structural disadvantages and parenting values	100%	100%	High		<ul style="list-style-type: none"> • Measurement Bias: Measure of parent stress may not capture cultural differences in responses to stress

Table 13 Continued

Oraka et al.	Racial and ethnic disparities in current asthma and emergency department visits: findings from the national health interview study, 2001–2010	87%	88%	High	<ul style="list-style-type: none"> • Insufficient description of research setting • No discussion of missing data • No description of how groups were assessed in terms of REC factors (self-report, etc.) 	<ul style="list-style-type: none"> • Measurement Bias: Asthma related Emergency Visits was determined by parent-report
Ravello et al.	Substance use and sexual risk behaviors among American Indian and Alaska Native high school students	94%	88%	High	<ul style="list-style-type: none"> • No discussion of instrument sensitivity • No definition of REC factors 	<ul style="list-style-type: none"> • Selection Bias: Sample was school-based, so those not in school were not included • Setting Bias: Bureau of Indian Education schools were not included

Table 13 Continued

Singh & Yu	Trends and differentials in adolescent and young adult mortality in the United States, 1950 through 1993	33%	63%	Low	<ul style="list-style-type: none"> • No discussion of study design in title or abstract • Insufficient explanation of rationale • No discussion of study hypotheses • Insufficient discussion of data collection • Insufficient discussion of eligibility criteria • Insufficient discussion of outcome variables • Insufficient discussion of variable measurement • Insufficient discussion of quantitative analysis • No discussion of missing data • No definition of REC factors 	<ul style="list-style-type: none"> • Statistical Conclusion Validity: Study reports associational relationships but does not include explanation of tests used
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Table 13 Continued

Singh & Yu	US childhood mortality, 1950 through 1993: Trends and socioeconomic differentials	47%	50%	Low	<ul style="list-style-type: none"> • No discussion of study hypotheses • Insufficient discussion of data collection • Insufficient discussion of eligibility criteria • Insufficient discussion of outcome variables • Insufficient discussion of variable measurement • Insufficient discussion of quantitative analysis • No discussion of missing data • No definition of REC factors • No description of sample in terms of REC factors • No description of how groups were assessed in terms of REC factors (self-report, etc.) 	<ul style="list-style-type: none"> • Statistical Conclusion Validity: Study reports associational relationships but does not include explanation of tests used
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Table 13 Continued

Singh, Siahpush, & Kogan	Disparities in children's exposure to environmental tobacco smoke in the United States, 2007	87%	50%	Medium	<ul style="list-style-type: none"> • Insufficient description of covariates • Insufficient description of covariate measures • No definition of REC factors • No description of the sample in terms of REC factors • No discussion of how groups were assessed in terms of REC factors (self-report, etc.) • No discussion of study limitations in terms of REC factors 	<ul style="list-style-type: none"> • Measurement Bias: Environmental tobacco smoke is operationalized as at least one individual in the home that smokes. Measure is also based on parent-report
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Table 13 Continued

Singleton et al.	The Alaska Haemophilus influenza Type b Experience: Lessons in Controlling a Vaccine-Preventable Disease	86%	63%	Medium	<ul style="list-style-type: none"> • Insufficient description of background • No description of missing data • No description of how groups were assessed for REC factors (self-report, etc.) • No tests of bivariate associations between REC variables and any outcome variables • No description of limitations in terms of REC factors 	<ul style="list-style-type: none"> • Setting Bias: Immunization rates were identified only for the State of Alaska • Statistical Conclusion Bias: Comparison data assumes that vaccine rates would have stayed the same without intervention
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Table 13 Continued

Smith et al.	The association between having a medical home and vaccination coverage among children eligible for the Vaccines for Children Program	87%	25%	Low	<ul style="list-style-type: none"> • Insufficient description of outcome variables • No description of missing data • No definition of REC factors • No rationale in terms of REC factors • No description of sample in terms of REC factors • No description of how groups were assessed for REC factors (self-report, etc.) • No discussion of REC factors in interpretation of results • No discussion of study limitations in terms of REC factors 	<ul style="list-style-type: none"> • Measurement Bias: Information was gathered after the period of immunization • Selection Bias: Sample was determined by presence of a landline • Statistical Conclusion Bias: Missing data at several points in the sampling
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Table 13 Continued

Sparks	Do biological, sociodemographic and behavioral characteristics explain racial/ethnic disparities in preterm births?	94%	75%	High	<ul style="list-style-type: none"> • No description of missing data • No definition of REC factors • No description of sample in terms of REC factors 	<ul style="list-style-type: none"> • Measurement bias: Potential issues with validity and reliability of information found on birth records
Sparks	Racial/ethnic differences in breastfeeding duration among WIC-eligible families	88%	88%	High	<ul style="list-style-type: none"> • Inadequate description of eligibility criteria • No discussion of potential sources of bias • No definition of REC factors 	<ul style="list-style-type: none"> • Selection Bias: Sample only included individuals that met income requirements for WIC program • History Bias: Missing data from Wave 1 were imputed with data from Wave 2 • Measurement Bias: Items were based on self-report

Table 13 Continued

Sparks	Rural-urban differences in breastfeeding initiation in the united states	94%	88%	High	<ul style="list-style-type: none"> • No description of study design in title or abstract • No definition of REC factors 	<ul style="list-style-type: none"> • Statistical Conclusion Bias: Sample size means that regional differences between subgroups could not be determined
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Table 13 Continued

Strine et al.	Vaccination coverage of American Indian/Alaska Native children aged 19 to 35 months: Findings from the National Immunization Survey, 1998–2000	25%	88%	Low	<ul style="list-style-type: none"> • Insufficient description of design in abstract or title • No abstract included • Insufficient description of background • Insufficient description of covariates • Insufficient description of variable measures • Insufficient explanation of study size • Insufficient description of quantitative analysis • Insufficient description of all statistical methods • No description of missing data 	<ul style="list-style-type: none"> • Selection Bias: Sample only included those with a landline telephone • Statistical Conclusion Bias: Multiple years of cross-sectional data were combined for analysis
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Table 13 Continued

Wallace et al.	Race/ethnic, socioeconomic factors and smoking among early adolescent girls in the United States	100%	100%	High	<ul style="list-style-type: none"> • Selection Bias: Students are sampled so those that have dropped out or are frequently absent are not included • Statistical Conclusion Bias: Not strong enough sample to disaggregate subgroups • Measurement Bias: Cigarette use is based on student self-report
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Table 13 Continued

Watt	Alcohol use and cigarette during pregnancy among American Indian/Alaska Natives	67%	63%	Medium	<ul style="list-style-type: none"> • Study design not presented early in the paper • Covariates not clearly defined • Covariate measures not clearly described • Missing data not addressed • Analytical methods for sample not clearly described • No definition of REC factors • No discussion of how groups were assessed in terms of REC factors (self-report, etc.) • No discussion of limitations in terms of REC factors 	<ul style="list-style-type: none"> • Measurement Bias: Alcohol use during pregnancy was determined based on mother self-report
Wu et al.	Racial/ethnic variations in substance related disorders among adolescents in the United States	87%	88%	High	<ul style="list-style-type: none"> • Insufficient description of study design in title or abstract • No discussion of missing data • No definition of REC factors 	<ul style="list-style-type: none"> • Measurement Bias: Substance use is based on self-report

Table 14 Knowledge Gap Assessment

Well-being Domain	Author identified future research	Additional future research	AHRQ Knowledge Gap
Family and Social Environment	<ul style="list-style-type: none"> • Future research is needed to examine parenting and parenting stress across racial and ethnic groups. Research should include questions for both mothers and fathers and should explore the role of culture and racism on parent stress experiences.(Nomaguchi & House, 2013). • Future research should explore the impact of boarding schools and out of home placement on grandparents raising their grandchildren (Fuller-Thomson & Minkler, 2005). • Future research should examine ethnic/race socialization as a potential predictor for school and socioemotional success. Researchers should also examine the interplay of class and gender messages with ethnic socialization (Brown et al., 2007). • Researchers should explore the contexts and messages of racial/ethnic socialization (Lesane-Brown et al., 2010). • More research is needed to explore at risk communities to better understand contributing factors to physical abuse (Dakil et al., 2011) 	<ul style="list-style-type: none"> • Future research should explore the degree to which extended family is a protective or promotional factor for well-being • Future research should explore differences between kinship and nonkinship setting for children experiencing or at risk of child maltreatment • Future research should examine the relationship between peer relationships and well-being indicators • Future research should examine cultural connectedness and engagement and its relationship to well-being outcomes 	<ul style="list-style-type: none"> • Insufficient or imprecise information

Table 14 Continued

<p>Economic Circumstances</p>	<ul style="list-style-type: none"> • Researchers should examine reduced migration, geographic isolation, tribal economic development, school quality, and racism in the labor market as potential predictors of poverty. Researchers should also explore family and household structure and its relationship to poverty (Huyser, Takei, & Sakamoto, 2014). 	<ul style="list-style-type: none"> • Future research should examine community-level protections for poverty including bartering, giveaways, and other traditional community activities • Future research should examine “toxic stress” as a potential impact of poverty 	<ul style="list-style-type: none"> • Insufficient or imprecise information
<p>Health Care</p>	<ul style="list-style-type: none"> • Increasing AI/AN sample sizes in national surveys, including questions regarding the provision of IHS services to better ascertain the role of IHS in delivering care to the AI/AN population, and conducting ongoing analyses of trends in immunization coverage may improve the monitoring of coverage for this population (Groom, 2008) 	<ul style="list-style-type: none"> • Future research should examine strategies for retaining AI/AN families in a medical home setting. • Future research should explore particular birth and early life interventions (doulas, home visitors, etc.) on health outcomes 	<ul style="list-style-type: none"> • Insufficient or imprecise information
<p>Physical Environment and Safety</p>	<p>None Identified</p>	<ul style="list-style-type: none"> • Future research should explore the impact of public health campaigns on mortality reduction • Future research should examine poverty and community infrastructure challenges on housing safety 	<ul style="list-style-type: none"> • Insufficient or imprecise information

Table 14 Continued

<p>Behavior</p>	<ul style="list-style-type: none"> • Further research is warranted to develop a better understanding of the different degrees to which contextual factors influence binge drinking and illicit drug use among various racial and ethnic groups (Chen, Balan, & Price, 2012) • Future studies should utilize a longitudinal perspective to better understand marijuana use. Biomarkers instead of or in addition to self-report could have strengthened the findings. Future studies could account for tribal affiliation and whether or not a respondent lived on a reservation. • Lack of research on culturally relevant prevention programs for AI/AN high schoolers (Ravello et al., 2014) • Future research should further explore barriers to treatment and better understand sources of racial/ethnic differences (Cummings, Wen, & Druss, 2011) • Research should help understand the relationship between SES and girls smoking as well as to other substance use outcomes and explain racial/ethnic disparities. Longitudinal data is recommended to see developmental trends (Wallace et al., 2009). 	<ul style="list-style-type: none"> • Future research should examine predictors of abstinence. • Future research should examine tribally created treatment strategies. 	<ul style="list-style-type: none"> • Biased information
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Table 14 Continued

<p>Education</p>	<ul style="list-style-type: none"> • Researchers should improve measures to more accurately capture whether classroom experiences are relevant to “culturally embedded daily experiences” (Akiba, Chiu, & Zhuang, 2008) • Researchers should examine the role of music program cuts on music education experiences (Miksza & Gault, 2014). 	<ul style="list-style-type: none"> • Future research should examine curricular content on AI/AN history and other topics as a predictor of school engagement • Research should examine students longitudinally to determine intervention points for improving postsecondary enrollment 	<ul style="list-style-type: none"> • Insufficient or imprecise information
<p>Health</p>	<ul style="list-style-type: none"> • Additional data on AI/AN populations will allow for studies that examine contextual factors for elevated asthma prevalence. Brim et al. recommends research on impact of obesity, child rearing, and environmental exposures (Brim et al., 2008) • Future research needed on emergency department visits and utilization (Oraka et al., 2013). Several variables that could impact special education for AI/AN children are: poverty, bias, size of school district, minority student enrollment. (Hibel, Faircloth & Farkas, 2008). • Future research should examine breastfeeding duration and reasons for stopping, as well as examining other variables including rural/urban composition. (Sparks, 2010). 	<ul style="list-style-type: none"> • Future research should examine child and adolescent diet quality • Future research should explore traditional diet choices as a potential protection against obesity 	<ul style="list-style-type: none"> • Insufficient or imprecise information

CHAPTER 5

DISCUSSION

Summary of Evidence

The research question driving much of Chapter 4 was broad: What is the state of American Indian and Alaska Native child and family well-being? This is a challenging question to answer even with the most robust of data. To begin to answer this question I examined three subquestions: 1) What do we know about American Indian and Alaska Native child and family well-being from national data?, 2) What gaps exist within this body of literature?, and 3) What is the quality of this research?

In essence, this approach looked at three elements of the existing national well-being research, the quantity, quality, and content.

Quantity

The search and inclusion criteria outlined in Chapter 3 yielded 33 articles that utilize national datasets to provide new well-being research on American Indian children and families. When we examine the quantity of this material further, we can conclude a few important things:

- There is published material in all seven domains of well-being. This material focuses on 20 different indicators of well-being.
- More published research exists in the Behavior domain than in any other well

-being dimension for this group

- Specifically, more published literature focused on AI/AN alcohol use than any other indicator.
- More published research focuses on AI/AN adolescents than any other group of AI/AN children and caregivers.
- The least amount of material is in the Economic Circumstances domain.
- There are fewer published articles on AI/AN infants than any other group of AI/AN children and caregivers. This is perhaps understandable because it represents the smallest slice of time (birth to 12 months) but is notable given the importance of this period of life.
- Despite most research focusing on adolescent behavior, the dataset used most frequently was the Early Childhood Longitudinal Survey, which examines a broad array of education and health outcomes for infants, young children, and kindergartners.
- The quantity of published articles that meet these criteria appears to be on the rise. Analysis of the amount of published material by year indicates that the mid-2000s represented a shift in which increasingly more material on this subject was published.
- This material is being authored by individuals from 11 different disciplines. Policymakers are authoring more of this published material than any other group.

Quality

In addition to simply understanding how much published material exists that informs this topic, the dissertation sought to understand the quality of this material. A few

conclusions can be made:

- The overall quality of the research appears to be high. Twenty-one of 33 articles (64%) were deemed overall high quality based on the SPORE and GAP-REACH checklist scores. Three of the studies met 100% of the criteria for both checklists.
- Included articles were similar when assessed for overall quality of reporting and quality of reporting specific to racial/ethnic/culture factors. The SPORE checklist yielded a mean score of 81.8% across the 33 studies. The GAP-REACH checklist yielded a mean score of 79.8% across the 33 articles.
- The most common issue with overall reporting quality was a lack of discussion of missing data in terms of both how much data were missing and any analytical strategies used to address these data.
- The most common issue with reporting of racial/ethnic/cultural factors was an inadequate definition of racial/ethnic factors. In most articles, authors did not explain how ethnic groups were identified (for example, self-report, parent report, birth or medical records, tribal citizenship rolls).
- The most common potential source of bias identified was measurement bias in terms of survey data that were collected. This was most often a result of self-report measures where the study respondent was the primary source of data, with little triangulation of these responses.
- While not explicitly a quality criterion, sample size is an important element of generalizability. The samples appear to be high relative to other bodies of American Indian research. Only one of the articles had a sample less than 100 and the largest group of articles had samples over 1000.

Content

It may be overly simplistic, but one way to examine findings on AI/AN well-being is through a good news/bad news lens. When we think about what is going well and what is not, it is often done so in comparison to non-native peers. But this can be problematic when issues of color and income stratification are considered. For example, in some cases comparing people of similar economic circumstances may be more appropriate. The picture of well-being is incomplete, but it does offer some encouraging signs and some areas in need of attention.

Good news

When compared to non-native populations, AI/AN children were

- Less likely to experience physical abuse.
- Less likely to engage in risky sexual behavior as adolescents.
- Less likely to use marijuana when monitored by parents.
- Performing higher than some groups and lower than others in math, this despite being least likely to receive standards based math education and least likely to receive math education from an instructor with a math degree.

When compared to non-native populations, AI/AN parents were

- Less likely to use alcohol when pregnant.
- Less likely to experience parenting stress.
- More likely to discuss racial/ethnic heritage with young children.
- Less likely to smoke during pregnancy when socioeconomic status is a control.
- More likely to breastfeed longer.

Bad news

When compared to non-native populations, AI/AN children were

- More likely to have asthma. Past and current asthma as well as asthma attacks and emergency room visits for asthma were all highest among AI/AN children.
- More likely to die from physical abuse. Although, as noted above, AI/AN children were not more likely to experience substantiated abuse.
- More likely to die from external causes, including firearms.
- More likely to use illicit substances including alcohol, cocaine, and marijuana in adolescents.
- More likely to use cigarettes.
- More likely to experience poverty.
- More likely to die as a child under 5.
- Less likely to receive music education in schools.
- Less likely to be taught math by teachers with math degrees.

When compared to non-native populations, AI/AN caregivers and families were

- Less likely to receive family preservation services. This is especially concerning given the tenants of the Indian Child Welfare Act (ICWA; Gross, 2003).
- Less likely to be insured.
- More likely to experience problems related to birth and pregnancy.
- More likely to experience food insecurity.
- More likely to have preterm births.

Other news

Some of the relevant findings did not fit quite so cleanly into a good news/bad news frame. Some of these findings were

- AI/AN children were equally likely to experience substantiated physical abuse as other groups but had higher odds of receiving foster care, mental health, substance abuse, and education/employment services. While it is good news that services are being provided when needed, it may be a cause to examine whether this population is receiving intervention that is disproportionate to their need. This is especially true with respect to foster care as an intervention strategy.
- There seems to be some element of both good and bad news in the immunization research. Groom et al. (2008) found that AI/AN children were less likely to receive their schedule of vaccinations and even more at risk for inadequate vaccination when served by Indian Health Services. However, Amon et al. (2006), found AI/AN children most likely to receive Hepatitis A vaccines.
- AI/AN children were more likely to be placed in special education but not when school readiness and test scores were controls.

Limitations

When examining limitations in a systematic review, there are two levels of limitations: those of the studies and those of the review process.

Study-Level Limitations

While this body of research is valuable, there still remains limited work to draw on for identifying indicators of well-being for American Indian and Alaska Native children

and families.

- The indicators in the included studies do not closely match identified strengths in AI/AN communities. Few of the areas identified by native researchers as key community and individual strengths emerged in this body of work. When the 22 indicators examined in this research were cross-referenced with those strengths identified by Goodluck (2002) as emerging in the indigenous literature as important, few similarities emerged.
- Little research focused on a holistic vision of well-being. All of the included articles focused on between one and three indicators.
- Little research examined within group differences, and instead nearly all of the studies examined differences between a broad AI/AN population with non-native ethnic groups. This is a useful comparison, but understanding differences within the native sample (urban vs. rural, non-reservation vs. reservation, geographic differences, American Indian vs. Alaska Native, etc.) would be helpful for developing interventions more catered to this diverse population.

Review-Level Limitations

- I was the only screener utilizing criteria to determine included studies. A second screener would have helped ensure a more reliable screening process that was less vulnerable to drift.
- Similarly, I was the only screener for quality assessment. While using existing checklists helped ensure a reliable assessment, an additional screener would have strengthened the reliability of findings.
- While the quality assessment did attempt to examine quality in a holistic fashion,

the checklist used to examine quality of racial and ethnic reporting was not specific to American Indian or Alaska Native populations. To my knowledge no such research-based quality assessment checklist exists. The development of such a tool would be useful for use in other systematic reviews.

- The database search was limited by databases available within EBSCO. While this was a broad array of databases, there may be other work available that uses these data that did not emerge in the search.
- The nature of the inclusion criteria likely means that important research on AI/AN well-being were not included.
- This study focused on research using existing data sources. Without a more thorough analysis of the data sources themselves it is difficult to fully determine what other indicators are possible.

Dataset Limitations

As noted in Chapter 2, the 22 national data sources chosen for this work mirror those identified by the Interagency Forum on Child and Family Statistics. This body of 22 data sources represents a replicable, diverse, and accessible body of federally supported work. Utilizing this body of work allowed me to both gain a comprehensive picture of national data and also allows for a critique of the data sources to identify if others may add to the potential information on American Indian and Alaska Natives.

- Given the importance of child welfare to child well-being outcomes and the fact that only one article on child maltreatment met inclusion criteria, it is recommended that the Forum consider including additional national data sources relevant to this population. Two possibilities are National Survey of Child and

Adolescent Well-Being, a nationally representative longitudinal survey of children and families involved in child protection cases, and LONGSCAN, a federally funded collection of child injury and maltreatment studies.

- Though not representative of the general population, the data available through Indian Health Services would be valuable additional information related to the health, health care, and wellness of American Indian children and families served through this federal program.
- While the included data sources do provide valuable information on the behavior of adolescents, this is clearly an area in need of close examination. Inclusion of the Behavioral Risk Factor Surveillance System (BRFFS) funded through the Centers for Disease Control, which is the world's largest telephone health survey, would strengthen this information.
- The Administration for Children and Families is in the process of updating national Head Start data collection efforts to include research on tribal Head Start programs. As this information becomes available, it will add to the depth of AI/AN education research with a specific emphasis on early education.

These are by no means the only potential additional data sources for consideration but represent some early thinking on ways in which this important body of 22 databases might be enhanced to provide information on the well-being of children and families.

Conclusions

This body of work provides valuable information on a diversity of well-being indicators across key domains. Several peer-reviewed works and policy statements have highlighted how little is known about American Indian and Alaska Native well-being.

While this study did find notable gaps in the literature, it is without question that the 33 included studies represent a rich body of research for examining well-being across a number of domains and ages. This high quality body of work was created by a diverse collection of researchers both within academia and policy circles. To my knowledge these research articles have not been examined as a single body of work, and it is my hope that our understanding of American Indian and Alaska Native child and family well-being is improved through this approach.

We know that, by several metrics of well-being, AI/AN children and families are struggling compared to non-native populations. This is not an especially new or surprising finding. What this study provides, however, is a clearer understanding of the specific ways in which this population is struggling. What we also now know is that there is cause for optimism. There are several indicators in which American Indian children and caregivers are outperforming their peers or doing equally well despite greater challenges.

We know that more research is needed. This, again, is not a particularly novel or surprising finding. What is useful, however, is that we have a much clearer understanding of the particular areas of well-being that need further exploration. Despite several data sources that specifically sample students, this body of work provides little information about education. We have some information about math education and achievement and music experiences. We also know something about special education experiences. Despite emerging research on the impact of poverty on healthy development, we know little about the economic circumstances of native children and families. We have limited information on differences between urban and reservation-based children and families.

We have very limited information on the strengths of American Indian communities identified as relevant to American Indians (see Table 10). When we examine indicators in the included research with those that emerge in indigenous theoretical work, it is clear that there is a difference in language and approach.

Implications for Researchers and Policy Makers

The knowledge gap assessment in Chapter 4 found several areas for future research within each of the seven identified well-being domains. In most cases, the predominant issue was less related to the quality of existing information and more related to the lack of information but in each case. The field's understanding of well-being would be enhanced by a more complete picture of the well-being domain that incorporates recommendations from indigenous communities and scholars.

Future research should help the field better understand the possibilities within these existing national datasets. If American Indian and Alaska Native scholars can help articulate indicators that inform our understanding of native child and family well-being, it will become possible to determine if these data are available within the 22 national datasets. These data represent an incredible wealth of variables that may help us better understand AI/AN well-being. Additionally, it would serve AI/AN scholars to have an instrument for determining research quality that is specific to American Indian and Alaska Native populations and context.

One of the strengths of this research is that recommendations for additional research are practical. Because these data are currently collected, secondary analysis remains a potential possibility for early career investigators that may not have the infrastructure and experience to obtain funding for large-scale, original intervention

research. A small amount of research funding specifically targeted at helping us understand what we already have may serve to empower early-career researchers (ideally American Indian investigators), not continue to burden communities with additional data collection, and provide valuable information.

There does not seem to be a coordinated effort to present a comprehensive picture of AI/AN child and family well-being. The structures are in place for this effort, but tribal leadership and American Indian scholars would need to be fully engaged in informing federal agencies and researchers about priorities, indicators, and dissemination vehicles. We need to know more but, more importantly, we need to know better. As this research demonstrates, researchers from across a wide diversity of disciplines are informing our knowledge but perhaps without a vehicle to communicate with each other. An approach that intentionally drew on the knowledge of AI/AN scholars to inform future research focused around indicators deemed important to tribal communities would serve to bridge the gap between what we know about well-being and what native communities are saying is important.

Implications for Social Work Practice

Research is ultimately only useful to the degree that it informs and improves practice. Despite limitations, the findings within these 33 articles can serve to guide improved practice. One clear implication for practice is that American Indian and Alaska Native children and families are experiencing some dramatic challenges to their well-being. Given the trust responsibility codified in law that commits the federal government to protect the health and well-being of American Indian tribes, this is especially concerning and should serve as a call to increased action. Tribal communities,

themselves, are an integral partner in this effort and have the expertise and self-determined authority to guide these interventions. As the findings from the included research on child and adolescent mortality suggests, this is literally a matter of survival for American Indian children.

We know from this body of work that American Indian children and families experience interventions differently, but there is not any research that supports the notion that American Indian children are inherently or biologically more likely to perform worse in school or that AI/AN caregivers are any more likely to abuse their children or any particularly innate reasons for well-being deficits. This suggests that differences in well-being are a product of differences in services, environments, and other external factors. This seems to point to two things first, that interventions to date have not done an adequate job of serving this population, but secondly, that this is fixable. Practice with American Indian children and families should involve interventions that are targeted at known well-being concerns, built by or at the least informed by specific community strengths and traditions, and rigorously tested.

APPENDIX A

NATIONAL INTERAGENCY FORUM ON CHILD AND FAMILY STATISTICS

DOMAINS AND INDICATORS

Family and Social Environment

- Family Structure and Children's Living Arrangements
- Births to Unmarried Women
- Child Care
- Children of at Least One Foreign-Born Parent
- Language Spoken at Home and Difficulty Speaking English
- Adolescent Births
- Child Maltreatment

Economic Circumstances

- Child Poverty
- Income Distribution
- Secure Parental Employment
- Food Insecurity

Health Care

- Health Insurance Coverage
- Usual Source of Health Care/Immunization
- Oral Health

Physical Environment and Safety

- Outdoor Air Quality
- Environmental Tobacco Smoke
- Drinking Water Quality
- Lead in the Blood of Children
- Housing Problems
- Youth Victims of Serious Violence Crimes
- Child Injury and Mortality
- Adolescent Injury and Mortality

Behavior

- Regular Cigarette Smoking
- Alcohol Use
- Illicit Drug Use
- Sexual Activity
- Youth Perpetrators of Serious Violent Crimes

Education

- Family Reading to Young Children
- Mathematics and Reading Achievement
- High School Academic Coursetaking
- High School Completion
- Youth Neither Enrolled in School nor Working
- College Enrollment

Health

- Preterm Birth and Low Birthweight
- Infant Mortality
- Emotional and Behavioral Difficulties
- Adolescent Depression
- Activity Limitation
- Diet Quality
- Obesity
- Asthma

APPENDIX B

CODE SHEET

Article # _____ Code Date: _____ Coder _____

Title:

Authors: _____

Source (if journal article): JN _____ Year: ____ Vol. ____

Pages ____

Screening

- Peer-reviewed
- From January, 1990-May, 2014
- Involve analysis of data from at least one of the 22 data sources used by the Interagency Forum on Child and Family Statistics
- Include data on American Indian or Alaska Native children and/or their caregivers

1. Peer-reviewed Yes(1) No(2)
2. Published between 1990 and April 2014 Yes(1) No(2)
3. Involve analysis of data from at least one of the 22 data sources used by the Interagency Forum on Child and Family Statistics Yes(1)
No(2)
4. Include data on American Indian or Alaska Native children and/or their caregivers Yes(1) No(2)
5. Focus on at least one indicator of well-being Yes(1) No(2)

6. Dataset(s)

7. Domains of Well-being

8. Indicators of well-being

9. American Indian/Alaska Native Sample Size:

n=_____ (input not recorded if not sample is given)

10. Characteristics of Sample:**11. Analysis (Circle all that apply):**

Univariate (1)

Bivariate (2)

Multivariate (3)

12. Focus on AI/AN?:

- Yes (1)
- No (2)

13. Findings:

Briefly summarize the relevant findings of the study:

14. First Author Discipline:

Identify discipline based on contact information for first author.

15. Comparison to Non-Native Populations:

- Yes (1)
- No (2)

16. Future Research:

Briefly describe future research needs identified by the author

17. Limitations:

Briefly describe limitations identified by the author

APPENDIX C

SPORE CHECKLIST

	Item No	Recommendation	Yes	No	N/A
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract			
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found			
<hr/> Introduction <hr/>					
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported			
Objectives	3	State specific objectives, including any prespecified hypotheses			
<hr/> Methods <hr/>					
Study design	4	Present key elements of study design early in the paper			
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection			

Participants	6	<p><i>(a) Cohort study</i>—Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up</p> <p><i>Case-control study</i>—Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls</p> <p><i>Cross-sectional study</i>—Give the eligibility criteria, and the sources and methods of selection of participants</p>
		<hr/> <p><i>(b) Cohort study</i>—For matched studies, give matching criteria and number of exposed and unexposed</p> <p><i>Case-control study</i>—For matched studies, give matching criteria and the number of controls per case</p>
Variables	7	<hr/> <p>Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable</p>
Data sources/ measurement	8*	<hr/> <p>For each variable of interest, give sources of data and details of methods of</p>

assessment (measurement). Describe comparability of assessment methods if there is more than one group

Bias	9	Describe any efforts to address potential sources of bias
Study size	10	Explain how the study size was arrived at
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why
Statistical methods	12	<p>(a) Describe all statistical methods, including those used to control for confounding</p> <p>(b) Describe any methods used to examine subgroups and interactions</p> <p>(c) Explain how missing data were addressed</p> <p>(d) <i>Cohort study</i>—If applicable, explain how loss to follow-up was addressed</p> <p><i>Case-control study</i>—If applicable, explain how matching of cases and controls was addressed</p>

Cross-sectional study—If applicable,
describe analytical methods taking account
of sampling strategy

(e) Describe any sensitivity analyses

APPENDIX D

GAP-REACH CHECKLIST

Question	Yes	No	N/A
1. Are the following terms (or related terms) used in the article title or abstract? (Race, ethnicity, culture, Hispanic/Latino, Black/African American, White/Caucasian, Asian American, American Indian, Ethno-national group)			
2. Do the authors provide a definition or conceptualization of REC factors?			
3. Do the authors discuss the rationale for the study topic or study design in terms of REC factors?			
4. Do the authors describe their sample in terms of REC variables?			
5. Do the authors indicate how these groups were assessed in terms of REC factors?			
6. Do the authors mention whether a specific language proficiency was a requirement for study entry?			X
7. Did the authors specify a method to determine language proficiency?			X
8. Do the authors mention the relevance of the REC characteristics of the interviewers vis-à-vis the REC characteristics of the participants?			X
9. Do the authors mention the relevance of the language fluency of the interviewers vis-à-vis the language fluency of the participants?			X
10. Were the study instruments originally created in the language of the study population?			X
11. Do the authors assess the measurement equivalence of the instruments for all the defined REC populations in the study?			X
12. Do the authors test the bivariate associations between REC variables and any outcome variables?			
13. Do the authors refer to any REC factors in the interpretation of their results?			
14. Do the authors discuss study limitations in terms of REC factors?			

APPENDIX E

INTERAGENCY FORUM ON CHILD AND FAMILY STATISTICS:

FEDERAL AGENCIES

Department of Agriculture

Economic Research Service

Department of Commerce

U.S. Census Bureau

Department of Defense

Office of the Deputy Under Secretary of Defense Military Community and Family Policy

Department of Education

National Center for Education Statistics

Department of Health and Human Services

Administration for Children and Families

Agency for Healthcare Research and Quality

Eunice Kennedy Shriver National Institute of Child Health and Human Development

Maternal and Child Health Bureau

National Center for Health Statistics

National Institute of Mental Health

Office of the Assistant Secretary for Planning and Evaluation

Office of Adolescent Health

Substance Abuse and Mental Health Services Administration

Department of Housing and Urban Development

Office of Policy Development and Research

Department of Justice

Bureau of Justice Statistics

National Institute of Justice

Office of Juvenile Justice and Delinquency Prevention

Department of Labor

Bureau of Labor Statistics

Women's Bureau

Department of Transportation

National Highway Traffic Safety Administration

Environmental Protection Agency

Office of Children's Health Protection

Office of Management and Budget

Statistical and Science Policy Office

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