

Attempted Suicide in American Indian and Alaska Native Populations: A Systematic Review of Research on Protective Factors

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American Indian and Alaska Native (AIAN) populations contend with disproportionately high rates of suicide. The study of protective factors is essential for highlighting resilience and formulating potential interventions for suicide. We systematically review factors that are posited to protect against suicide attempts for AIAN peoples. Seventeen (12 journal articles, five theses/dissertations) articles met inclusion criteria. Results indicate that protective factors are typically situated at one of four levels of analysis: individual (e.g., self-esteem), family (e.g., parent caring), community (e.g., positive adult relationships), and cultural (e.g., cultural spiritual orientation). Notably, there were trends in protective factors across age, sex, and geographic region. Based on these findings, we propose recommendations for moving the field forward in future identification of protective factors as a means of AIAN suicide prevention.

Public Health Significance Statement

It is incredibly important that research move forward in efforts to understand factors that protect American Indian and Alaska Native (AIAN) peoples from attempting suicide, given that they are at great risk for suicide death. These factors that might promote wellness come from many places (self, family, community, cultural, societal), though historically we have primarily focused on the individual. A more thorough understanding of protective factors as they relate to individuals from a variety of backgrounds is critical to AIAN suicide prevention.

Keywords: Alaska Native, American Indian, protective factors, systematic review, suicide

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In the United States, approximately 48,000 people died by suicide in 2018 (Centers for Disease Control and Prevention [CDC], 2018). Although suicidal thoughts and behaviors have a major impact on society, the burden of suicidality is not shared equally across all racial and ethnic groups. American Indian and Alaska Native (AIAN) individuals are more likely to think about, attempt, and die by suicide than any other racial or ethnic group, beginning at age 5 and lasting until approximately age 45 (CDC, 2018; Substance Abuse and Mental Health Services Administration, 2017). Although national statistics are useful in illustrating this disparity, they collapse across multiple regions and Tribal Nations that are not homogeneous with respect to context or suicide rates (Alcantara & Gone, 2008). There are hundreds of Tribal languages and cultures, variations in political status and rights to sovereignty

(e.g., federally recognized Tribes are seen as sovereign nations, whereas state-recognized and unrecognized Tribes have less power), and geographic contexts (e.g., reservation, rural, and urban) that fall under the umbrella term AIAN. Such heterogeneity makes it difficult to formulate a single conceptualization of AIAN suicide and emphasizes the importance of research that thoughtfully accounts for these differences.

AIAN suicide has been noted by the National Action Alliance for Suicide Prevention and the U.S. Surgeon General (U.S. Department of Health and Human Services, 2012) as a public health concern in desperate need of continued research. Since this call to action, the National Action Alliance has implemented an interdisciplinary AIAN Task Force, made up of AIAN suicidologists. This group has identified unique challenges and proposed directions for the field to advance knowledge about AIAN suicide (Wexler et al., 2015). Even so, research on suicide in AIAN populations has expanded slowly and factors that might be protective against suicide have received little attention. Moreover, Indigenous conceptualizations of wellbeing, and how to promote wellbeing, extend beyond mental health (e.g., suicide) to encapsulate holistic health and wellness (e.g., physical, spiritual; see Burnette & Figley, 2017). These understandings are often specific to communities and vital to culturally grounded suicide prevention.

For instance, MacDonald and colleagues (2013) found that practicing and holding traditional knowledge and skills, maintaining a desire to contribute meaningfully to one's community, having positive role models, and believing in one's self promoted positive general health in Circumpolar Indigenous youth. Similarly, in their systematic review, Ka'apu and Burnette (2019) noted that family and social support and engagement with Tribal cultural activities were protective for AIAN and Native Hawaiian communities, with variability across gender and geographic region. With respect to Indigenous suicide proper, no systematic review to date has examined and synthesized factors that might protect AIANs from making a suicide attempt (SA). Previous systematic reviews have greatly contributed to our field, highlighting the need for more rigorous study designs in Indigenous suicide prevention programs (including Indigenous peoples outside of North America; Clifford et al., 2013; Harlow et al., 2014; Nasir et al., 2016) and identifying risk factors for suicide—including socioeconomic characteristics, substance use, barriers to mental health services, and acculturation—in AI communities (Olson & Wahab, 2006).

Although risk is important, the study of protective factors lends insight into strengths of individuals and systems that help us to understand why and how many AIAN peoples never go on to attempt suicide despite risks (e.g., Borowsky et al., 1999). This focus on protective factors is emergent in the field and has recently been suggested as a unifying framework for AIAN youth suicide prevention (Allen et al., 2021). These protective factors might take the form of primary prevention (e.g., factors promoted at the population level to reduce the likelihood that AIAN peoples experience suicidality) or individual-level intervention (e.g., factors to promote on an individual/community level to prevent suicidality from escalating in the context of risk). The Ecosystemic Framework (EF) proposed by Burnette and Figley (2016) is a helpful model for conceptualizing the systems that impact AIAN suicide. The EF posits five levels of risk and protective factors for general wellness for AIAN peoples: societal (e.g., historical oppression, income inequality), cultural (e.g., connectedness), community (e.g., social

support), family (e.g., parental support, income), and individual. Importantly, the EF accommodates distinctive AIAN cultural and worldview differences through inclusion of a "cultural" level, and the exclusion of a "relational" level, which acknowledges that social relations flow through all levels of the model.

In the general population, protective factors are most often studied at the individual level, although the impacts of family and community are occasionally considered. School connectedness appears to be a robust protective factor for youth across multiple samples and backgrounds (e.g., general, high-risk, and sexual minority adolescents; Marraccini & Brier, 2017). Reasons for living (Bakhiyi et al., 2016), social support (Johnson et al., 2011; Kleiman & Liu, 2013), resilience (Roy et al., 2011), family support, positive attributional style, agency, problem solving ability and confidence, self-esteem, significant other support, attachment, and suicide-related beliefs have also all been identified as protective against suicidal thoughts and behaviors broadly (Johnson et al., 2011). Although some of these factors may be important for AIANs, there may be differences based on cultural and societal (e.g., historical oppression) context.

In sum, we still know very little about protective factors against suicidality for AIANs, especially when disaggregating types of suicidal thoughts and behaviors (e.g., suicide ideation, non-fatal SA, death by suicide). This disaggregation is important, because only a minority of individuals who think about suicide will go on to make a SA in their lifetime (Klonsky & May, 2014). Explanations for this limited knowledge about protective factors might lie in the methods through which AIAN suicide research is being conducted. For example, much of the research on AIAN suicide risk comes from pre-existing datasets, which are often individual-deficit or health-risk behavior focused, limiting the possibility of examining points of resilience or health-protective behaviors (e.g., Rey et al., 2022). In direct contrast to this model are growing collaborations between researchers and Tribal Nations that center strengths and formulate culturally appropriate research questions and protocols (discussed further in Rey et al., 2022). These partnerships are rare and established through an intensive process of building connections grounded in respect, sovereignty, and genuine understanding.

Overcoming methodological challenges to studying protective factors is crucial, as this research is integral in achieving the ultimate goal of suicide prevention. For example, Mackin and colleagues (2012) found that the total number of protective factors endorsed by an individual moderated the relationship between risk factors and SA in AIAN youth. In other words, if an individual reported multiple sources of protection (e.g., supportive family relationships, high self-esteem), their likelihood of engaging in a SA was mitigated, even if they were at increased risk. These findings suggest that a promotion of protective factors as mechanisms of resiliency might be an effective strategy for the prevention of suicide behaviors in AIAN youth.

Similarly, developments in the AIAN suicide prevention literature focus on promoting protective factors in AIAN individuals. LaFromboise and Howard-Pitney (1995b) developed and piloted the Zuni Life Skills curriculum which was designed in collaboration with the Zuni Pueblo to prevent suicide by promoting social cognitive development (e.g., recognizing and eliminating self-destructive behavior such as pessimistic thoughts or anger reactivity). This curriculum was effective and has since been expanded into the American Indian Life Skills curriculum, which addresses

concerns across a diverse range of Tribal groups (Lafromboise & Lewis, 2008). More recently, Rasmus and colleagues (2014) developed programs for Alaska Native youth with the *Qungasvik* (“Toolbox”; see Allen et al., 2009), a Yup’ik intervention that promotes reasons for living and sobriety. This work is grounded in cultural processes and, since its creation, has been piloted as a prevention program for Yup’ik youth (Allen et al., 2018). This approach of leveraging protective factors in intervention programming has also been used by others (e.g., Barnett et al., 2020; Cwik et al., 2019; Wexler et al., 2017), demonstrating the common understanding of protective factors as being a target for intervention among researchers (e.g., Pham et al., 2021).

Given the undeniable importance of protective factors for suicide prevention, and the utility of the EF in our conceptualization of systems of protection, we aim to answer the following question in our review: *What factors, at what level of the EF, show empirical promise for protecting AIAN individuals from attempting suicide?* Through this work, we hope to synthesize advancements in this research to ultimately understand which factors show robust evidence of being protective against engagement in SAs for both AIAN adolescents and adults. The current review will examine all available published and grey literature to build a comprehensive corpus of collective knowledge. It is our hope that the findings here will provide an understanding of which factors may be beneficial for developing efficacious AIAN suicide prevention programs.

Method

In conducting this systematic review, we adhered to guidance provided by Siddaway and colleagues (2019). A research librarian (co-author A.R.) joined the project team to develop our search methodology.

Search Strategy

The research librarian designed the search strategy to target studies capturing two broad domains: American Indian populations and suicidality. Keywords (e.g., suicide, suicidal, “self-harm*,” “Alaska Native*”) and subject headings (e.g., Self-Destructive Behavior, American Indians) specific to each database were used to locate the desired literature in 12 databases and search engines. The primary search strategy was designed in PsycINFO (Ovid; search string in Table S1 in the online supplemental materials). The search was then translated to the 11 other subject-specific and multidisciplinary search platforms (detailed in Figure 1). The targeted literature was not limited by publication date, language, or type. ProQuest Dissertations and Theses, PsyArXiv, SocArXiv, and SSRN were intentionally selected to capture grey literature. The search was executed on June 29th, 2020. The total number of search results from the 12 databases was 3,361 citations, and use of EndNote revealed 1,759 duplicates and 1,602 unique items. The 1,602 items were exported into Rayyan, a cloud-based tool used to facilitate independent, masked screening (Rayyan QCRI; Ouzzani et al., 2016). Results from our search, deduplication, and screening appear in the PRISMA Flow Diagram (see Figure 1).

Citation Screening

Inclusion Criteria

We adopted two primary inclusion criteria. First, a study must have included AIAN individuals as indicated through sampling strategy and/or participant self-report. Specifically, AIAN participants must have been studied as a group, whether in between-group (e.g., comparing AIANs to other ethnoracial groups) or within-group (e.g., analyzing results from an all AIAN sample) models. If no overt designation of an AIAN group was present in the analyses, then the sample must have been composed of at least 90% AIAN individuals to qualify for inclusion. Second, a study must have statistically examined the relationship between some index of SA and some other variable that the authors present as a potential protective factor. Thus, only non-fatal SAs were included within the scope of this review. Articles were excluded if they did not conduct statistical analyses, focused only on individual case studies, sampled only Native Hawaiian or Indigenous Peoples from outside of the United States (e.g., First Nations people in Canada), or did not report original research (e.g., literature reviews).

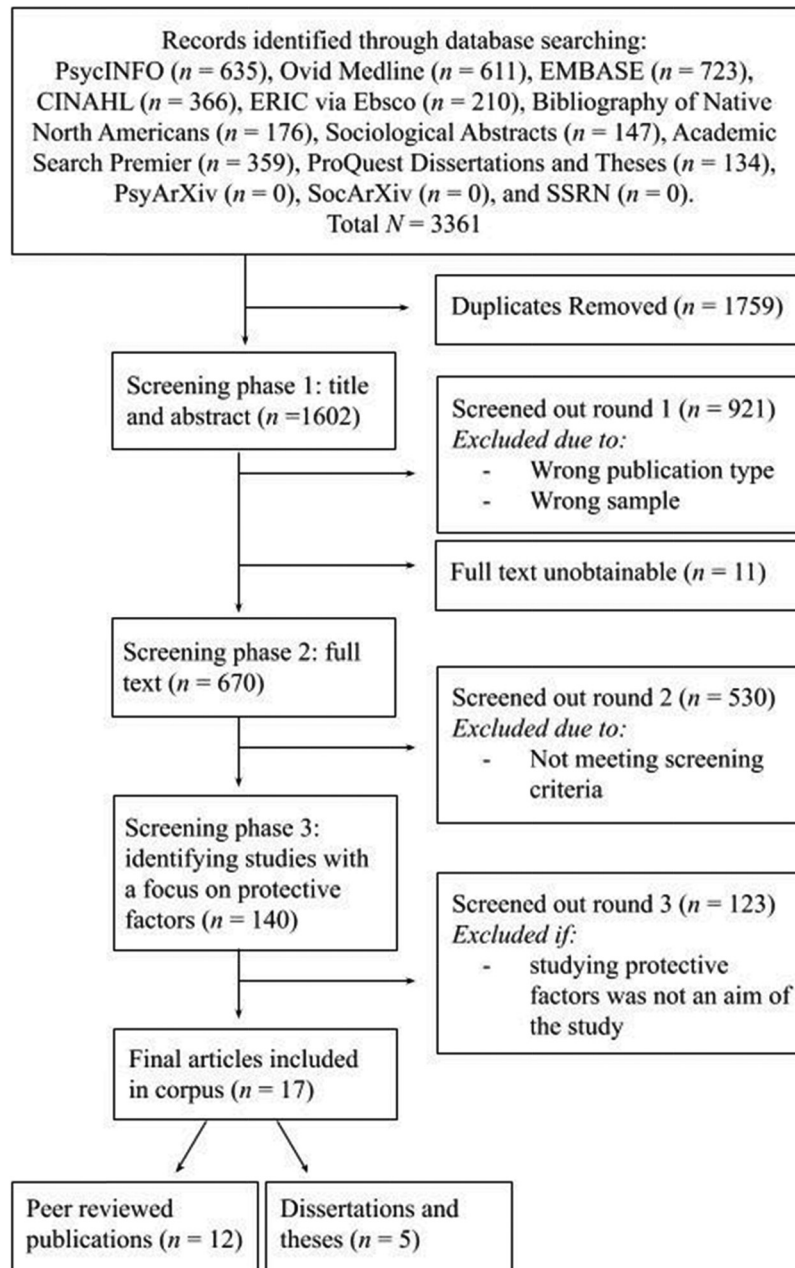
Screening

All articles were screened through an independent, masked process by two co-authors at all stages during July and August of 2020 (Figure 1). Screening was conducted through Rayyan, an online program. In the first round of screening, the initial 1,602 de-duplicated articles were screened for exclusion criteria that were clearly identifiable within the abstract (e.g., the entire sample was Indigenous to lands outside of the United States). Following this round, 821 articles were unanimously excluded and 664 were unanimously included. The remaining 117 articles were not agreed on during the masked screening. These articles were discussed, and a consensus was reached regarding the inclusion or exclusion of the articles. Following consensus, 681 articles moved forward into the full-text screening. Interrater reliability (McHugh, 2012) for this stage of screening (prior to consensus) was strong ($k = .85$).

In the second round, we proceeded to full-text screening using the same inclusion criteria. Eleven articles were unobtainable online or through interlibrary loan and were therefore not included in this review, leaving 670 articles remaining. Following the screening, 472 articles were agreed on for exclusion, 123 articles were agreed on for inclusion, and the remaining 75 articles received conflicting decisions. Each team of screeners met individually to discuss the conflicts and came to a consensus. Following consensus, 140 articles proceeded into the final round of screening. Interrater reliability at this stage (prior to consensus) was moderate ($k = .70$). This moderate reliability likely reflects the degree of variability in methodological information reported in this literature, particularly in older research studies. Specifically, many studies did not provide explicit definitions of their suicide behavior variables or of their statistical analyses, requiring careful and consensus-driven identification of these variables for screening purposes.

The final round of screening focused on limiting the corpus to articles that specifically addressed protective factors. Although recent work pushes for a clear and standardized definition of protective factors across the literature (Allen et al., 2021), in screening studies for this review, we deferred to author derived

Figure 1
PRISMA Diagram of Searching and Screening



Note. ERIC = Education Resources Information Center; SSRN = Social Science Research Network.

classifications of factors as theoretically protective. Two authors screened all 140 articles. Following this round of screening, 16 articles were agreed on for inclusion, 110 were agreed on for exclusion, and 14 required discussion and consensus resolution. Ultimately, 17 articles were included in the final corpus. Round three interrater reliability (prior to consensus) was moderate ($k = .64$), which reflects ambiguity surrounding author theorization of specific factors as being protective (as opposed to simply reflecting the inverse of risk).

Data Extraction

All papers included in the corpus were systematically coded using document templates to extract the following information: (a) author and article type (unpublished dissertation, unpublished manuscript, published peer-reviewed article); (b) sample population, setting, size, age range, and sex; (c) study methods, including time frame, data set (if secondary data analysis), and data collection methods (e.g., self-report questionnaire); (d) the level of protective

factor(s) identified (e.g., cultural, community, family, relational, or individual) and specific factor studied in relation to SAs; (e) data analysis plans, including statistical tests used and details of statistical models including the use of covariates; and (f) primary findings of the study. Extraction documents are available on request from the corresponding author.

Results

The corpus was finalized with a total of 17 original research articles that fit our criteria. Of these, 12 were published in peer reviewed journals and five are unpublished dissertations. Two articles presented as duplicates of the same results that appeared in both published and grey literature forms (Gloppen et al., 2016, 2018; Hill, 2005, 2009). Regarding the Gloppen articles, we included findings from Gloppen and colleagues (2018), because this article was more comprehensive than the 2016 conference abstract. With respect to the Hill articles, we included findings from the Hill (2005) dissertation, because the data were more comprehensive than those from the published manuscript. Below we provide some preliminary descriptions of the corpus as well as a narrative review of the findings.

Preliminary Description

Descriptive data for study samples and findings can be found in Table 1 (see Table S2 in the online supplemental materials for descriptive data of studies with null results). While all studies in the corpus were required to use statistical analyses, none were mixed methods (e.g., also including qualitative inquiry), which is a limitation because qualitative methods are uniquely positioned to capture nuanced understandings of protective factors. Importantly, all 17 articles were cross-sectional, meaning that no protective factors were tested in a manner that would indicate directionality of the tested associations with SA. Three of the 17 studies examined protective factors for adults, one study examined both adolescents and adults (e.g., ages 15–57; Garrouette et al., 2003), two studies examined adolescents and emerging adults (e.g., ages 15–24, Brockie, 2012; ages 14–20, LaFromboise & Howard-Pitney, 1995a, and the remaining 11 studies focused on adolescents.

In 12 studies, data were collected in school settings. Other settings include clinics and health centers ($n = 2$) as well as general Tribal/reservation ($n = 2$) and urban ($n = 1$) settings. Ten of the 17 studies came from large-scale data sets (see Table 1). Of the studies included, only two named specific Tribes included in their data (Erickson, 1999; Harman, 2017) and only one specified that participants were enrolled Tribal members (Garrouette et al., 2003). The majority of studies did not report on the number, names, or region of Tribes represented in the sample.

Interestingly, the majority of studies examined more than one protective factor ($mean = 5.9$, $range = 1–16$), for a total of 100 protective factors studied across the corpus (see Figure 2). Finally, the majority of articles ($n = 13$) examined a lifetime history of SA; however, more recent articles (e.g., 2017 onward) tended to restrict their examination of suicide behaviors to SAs within the past 12 months. Of the 17 papers, four did not provide the wording used in their study to inquire about SAs. Below, we present results by categorizing protective factors into four of the five nested domains of the EF: individual, family, community, and cultural

protective factors. No societal level factors were studied in this corpus.

Individual Factors

Fourteen studies examined individual level factors as potentially protective against SAs, with feelings about school and health, both mental and physical, being primary focuses. For our purposes, variables that discussed an individual's feelings or behaviors regarding school were conceptualized as individual level characteristics. In a study of youth with a history of sexual abuse, Pharris and colleagues (1997) found that feeling positively about school was protective against SAs for both male and female AIAN adolescents, but higher school performance was only significantly related to SA for males. Unexpectedly, Erickson (1999) found that higher reports of school connectedness, which was posited as a protective factor, was actually positively related to reports of past SAs in a sample of urban dwelling AI children and adolescents. The authors discussed possible explanations for this finding, including that (a) youth who feel more comfortable at school may feel more comfortable answering questions about suicide in a school-based survey and (b) being especially connected to school in an urban environment may be causing increased stress, given the need to find balance between two different cultures and worlds both at home and school.

Seven studies examined factors related to positive mental health and self-image in this literature. Indeed, good emotional health, positive mood, and positive self-image were all found to be associated with a lower prevalence of SAs for AIAN adolescents in both reservation and urban settings (Borowsky et al., 1999; Erickson, 1999; Pettingell et al., 2008). Chino and Fullerton-Gleason (2006) found that children who think their lives have purpose also demonstrated lower rates of SA. A recent study by Gloppen and colleagues (2018) examined internal assets, a factor that was created from items such as, "I feel in control of my life and future." For youth who were either the victim or perpetrator of bullying at school, higher internal assets was protective against reported SAs within that same 12-month period (Gloppen et al., 2018). Finally, hope, which was posited to be protective against SA by O'Keefe (2012), was found to be positively associated with SA in a sample of American Indian college students. The author notes that this finding, in some ways, is in line with past research that indicates that higher levels of hope may be associated with setting unrealistic goals, which, when are not met, might actually skew an individual toward attempting suicide (O'Keefe, 2012).

Finally, four studies in the corpus examined factors related to physical wellness as being potentially protective against suicide behaviors. Mackin and colleagues (2012) found that both eating breakfast and subjective reports of good physical health were associated with a lower prevalence of past-year SA in a sample of adolescents. Further, Dillard and colleagues (2017) found that, when considering demographic, clinical, and service utilization factors, increased ambulatory visits outside of primary care were protective against having a suicide-related visit for AIAN adults; however, the authors note that the operative mechanisms accounting for this were not entirely understood.

The examination of individual level protective factors is the most thorough across the corpus, and evidence for the importance of emotional health appears robust for youth from both reservation

Table 1
Study Descriptives and Select Findings

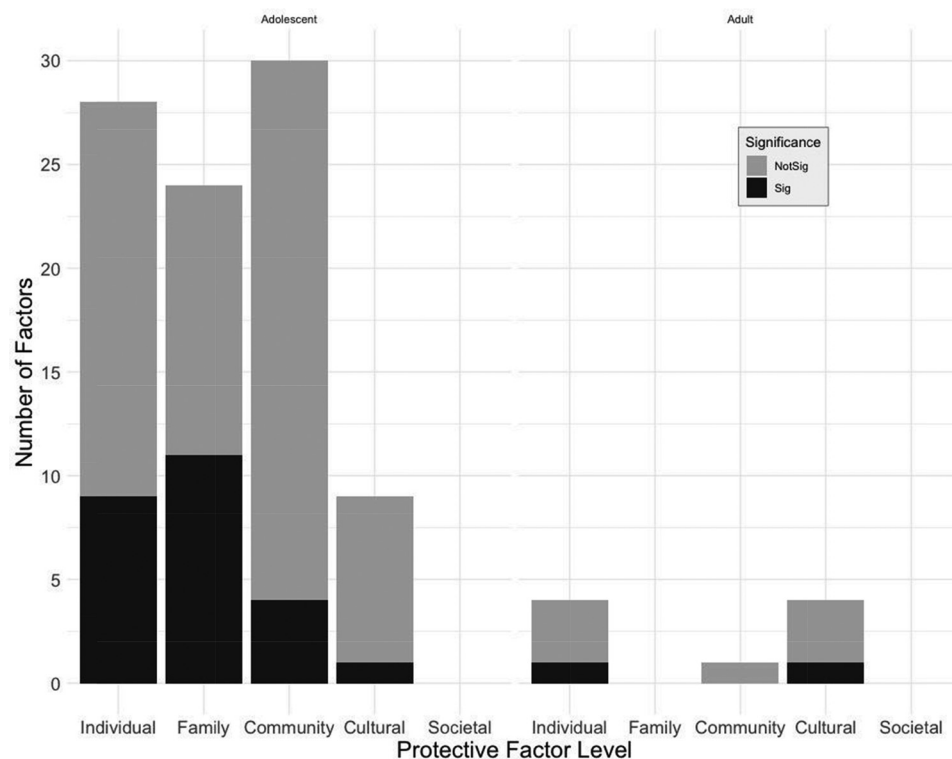
Article	N	Sample	Age or Grade	Select Findings
Borowsky et al. (1999; pub)	11,666 Indigenous SA = 1,984	AIAN- 200 Reservation schools (NAIAHS)	Ages 12–18	AI teens who reported discussing problems with friends or family members (F; Cm), good emotional health (I), and a sense of connectedness with family (F) were less likely to report a past SA. For females, having a nurse or clinic in their school (Cm) was associated with lower reports of SA.
Chino and Fullerton-Gleason (2006; pub)	690 Indigenous SA = 167	AI- New Mexico	Grades 6–12	Feeling that life has a purpose (I)
Christensen (1999; diss)	266 Indigenous SA = 54	AIAN- Utah Convenience Sample	Ages 12–19	For females, religious attendance was negatively associated with lifetime history of suicide attempt (CI)
Dillard et al. (2017; pub)	64,528 Indigenous SA = 890	AIAN- rural and urban, seen in Alaska health clinics	<i>M</i> age = 31.9 <i>SD</i> = 11.4	Increased ambulatory health visits (I) were associated with a lower likelihood of any suicide related clinic visit within a four-year period.
Erickson (1999; diss)	569 Indigenous SA = 86	AI- Urban, 66.1% Ojibwa/ Chippewa/ Anishinaabe, 22.9% Lakota/ Dakota/ Sioux, 18.8% Other (IRIS)	Ages 9–15	Among AI teens, self-reported positive self-image (I) and perceptions of family caring (F) were associated with lower lifetime history of SA. Overall school connectedness (I) was associated with a higher lifetime history of SA, which was opposite to the hypothesis.
FitzGerald et al. (2017; pub)	2,792 Indigenous SA = 388	AIAN- New Mexico (NM-YRRS)	Grades 9–12	Among males and females, parent/guardian knows where they are when not home (F) Among females, having teacher/school adult listens to them (Cm), and an outside adult who tells them when they do a good job (Cm) Among males, perception that their parent/adult believe that they will be a success (F/Cm) was associated with decreased reports of SA within the past 12 months
Fullerton et al. (2019; pub)	2,218 Indigenous SA = 288	AIAN- New Mexico (NM-YRRS)	Grades 9–12	Child's perception of parental or guardian's belief in their success (F) was associated with lower rates of past year suicide attempt
Garrouette et al. (2003; pub)	1,456 Indigenous SA ≈ 126	AI-Northern plains enrolled Tribal members (AI-SUPERPPF)	Ages 15–57	Those with a high score on a cultural spiritual orientations scale (CI) were half as likely to report SA as compared with those with a low score.
Gloppen et al. (2018; pub)	1,409 Indigenous SA = 89	AIAN- Minnesota (MSS)	Grades 8, 9, 11	Internal assets (I) and feeling safe at school (Cm) were associated with significantly lower odds of having attempted suicide in the past year for youth who reported being the victim or perpetrator of bullying.
Mackin et al. (2012; pub)	502 Indigenous SA = 53	AIAN- Oregon (OHT)	Ages 12–18	Eating breakfast (I) and good physical health (I) were associated with lower reports of SA in the past year.
O'Keefe (2012; diss)	158 Indigenous SA = n.r.	AIAN- college students, 26 Tribes	Ages 18–24	Contrary to hypotheses, hope (I) was positively associated with past 12-month SA.
Pettingell et al. (2008; pub)	569 Indigenous SA = 88	AI- Urban	Ages 9–15	For males, parental prosocial behavior norms (F) For males and females, positive mood (I)
Pharris et al. (1997; pub)	1,157 Indigenous SA = n.r.	AI- 200 reservation schools; 53 tribes (NAIAHS)	Grades 7–12	For both females and males, positive feelings about school (I) For females, family attention (F), parental expectations (F), parental caring (F) For males, protective factors included family caring (F), involvement in traditional activities (CI), and doing well in school (I)

Note. AI = American Indian; AN = Alaska Native; SA = suicide attempt; pub = published; diss = unpublished thesis or dissertation; n.r. = not reported; CI = cultural; Cm = community; F = family; I = individual; NAIAHS = the National American Indian Adolescent Health Survey; IRIS = Indian Youth Resiliency Impact Study; NM-YRRS = New Mexico Youth Risk and Resiliency Survey; AI-SUPERPPF = American Indian Service Utilization, Psychiatric Epidemiology, Risk and Protective Factors Project; OHT = Oregon Healthy Teens Study; MSS = Minnesota Student Survey.

and urban backgrounds. Results for school level factors are ultimately mixed but may be more important for youth with stressful life histories (e.g., Pharris et al., 1997). Importantly, adults were only included very minimally, limiting any conclusions that can be

drawn about individual level protective factors for individuals in adulthood. Finally, sex differences seem to be less thoroughly examined in individual level factors within the corpus as compared with family, community, and cultural factors.

Figure 2
Frequencies and Significance of Protective Factors Examined Within the Literature Organized by the Levels of the Ecosystemic Framework and Age Group



Note. Significance in the figure legend refers to whether the protective factor was found to be significantly related to suicide attempt in the reviewed manuscript through their analysis of data. Sig = statistically significant; NotSig = statistically nonsignificant.

Family Factors

Several interesting themes were identified throughout the literature that supported the role of family as a potential protective factor against SAs for youth. Family factors were examined in nine studies, but of note, none of these studies assessed familial impacts on adult populations. High family connectedness (defined as: feeling your family understands, pays attention to you, and has fun together) was associated with fewer reported SAs for reservation-based youth (Borowsky et al., 1999). This same study also found that discussing problems with friends and family was associated with fewer reported SAs.

Similarly, children and teens from urban schools who reported higher perceptions of family caring were less likely to report a lifetime SA (Erickson, 1999). Pharris and colleagues (1997) examined family protective factors across binary sex among youth with a history of sexual abuse, finding that having a family that pays a lot of attention was significantly related to lower reports of SAs for female adolescents. Similarly, for male adolescents, believing that their family cares about their feelings was associated with lower reports of SA (Pharris et al., 1997).

Five of the seven studies examined factors specific to parents. In the same study by Pharris and colleagues (1997), results revealed that having parents that care and hold high parental

expectations were related to lower reports of SAs for female, but not male, adolescents. Parental prosocial behavior norms, which are defined as youths' perception of their parents' disapproval regarding antisocial behavior such as being arrested, violence, dropping out of school, substance use, or pregnancy, were associated with lower reports of lifetime SAs for AI male, but not female, youth in urban settings (Pettingell et al., 2008).

The impact of parents' beliefs that their child will be a success, knowing where children are when they are not home, and caring about child's schoolwork was examined by both FitzGerald and colleagues (2017) and Fullerton and colleagues (2019). Fullerton and colleagues (2019) found that parents' belief of child's success was related to a lower prevalence of SAs when covarying for student age, sex, average grades in school, and parents' education. This finding was the only positive adult relationship that remained significantly protective against SA when considering other positive adult relationships (e.g., teachers, neighbors) in the same model. However, FitzGerald and colleagues (2017) conducted separate analyses by sex and only found support for this variable for male AIAN youth. Further, FitzGerald and colleagues (2017) found that parents knowing where children are when they are not home was related to significantly lower reports of SAs in both male and female youth when analyzed separately (whereas Fullerton and

colleagues did not find evidence for this variable as a protective factor when they considered other positive adult relationships in the same model).

The protective nature of family, and in particular, parents, appears to be quite robust across the literature. However, there are notable sex differences in which factors, relevant to which family members, might provide protection. Importantly, these factors seem to be generally protective for youth from both urban and reservation settings, as well as those with particularly stressful life histories.

Community Factors

Results from our review suggest that community characteristics, which were examined in 11 studies, are mixed in their protective nature in relation to SAs for AIAN youth. Only one of these studies examined community factors in adult populations, finding no significant protective factors (Hill, 2005). The role of positive relationships with adults within communities was examined as a protective factor against suicide for adolescents. FitzGerald and colleagues (2017) found that female youth who endorsed positive adult relationships in their community were less likely to have reported a past year SA. Fullerton and colleagues (2019), on the other hand, found that no community adult relationships were protective against SAs for AIAN youth. However, two important distinctions exist between the two studies: unlike FitzGerald and colleagues (2017), Fullerton and colleagues (2019) did not analyze data separately across binary sex. Additionally, Fullerton and colleagues (2019) included other positive adult relationships (e.g., parent, teacher) in their model.

Several school-based characteristics have been posited as community protective factors against suicide for AIAN youth. For our purposes, school-based variables that were interpersonal or structural in nature were cast as community level characteristics. In general, the research corpus revealed a lack of consensus around the possible protective nature of positive relationships with adults at school. FitzGerald and colleagues (2017) reported that positive relationships with teachers were associated with a lower prevalence of SAs among AIAN female youth, but not for males. Similarly, two additional studies that examined positive adult relationships across binary sex failed to find support for school-based adult relationships as a protective factor for male youth (Gloppen et al., 2018; Pettingell et al., 2008); however, these studies also did not find evidence that these relationships were protective for AIAN female youth. Further, one study by Fullerton and colleagues (2019) noted that youths' connection to school-based adults was not significantly protective above and beyond additional positive adult relationships (e.g., parents).

Additional school related factors were examined, including feelings associated with school and school resources. Specifically, Gloppen and colleagues (2018) found that students who were either perpetrators or victims of bullying at school were at higher risk of SAs; however, feeling safe at school was protective against this association, being related to lower reports of SAs and overall positive mental health. In another study, female youth who reported having a clinic or nurse in their school were less likely to report past SAs than those without a clinic or nurse (Borowsky et al., 1999). Together, these studies demonstrate that some community factors, particularly as they relate to school, may have positive effects in reducing attempted suicide for AIAN youth. From these

results, nothing can be said about the impact of community factors for AIAN adults. One consistent theme in these findings is that socialization based on biological sex seems to impact the protective nature of particular factors. In addition, geographic region may be particularly relevant to which school based or relational community factors are protective (see Table 1).

Cultural Factors

Seven studies examined the potential protective impacts of facets of AIAN cultural orientations and practices or cultural affiliations against attempted suicide. Among these studies, Pharris and colleagues (1997) found that higher involvement in traditional cultural activities was associated with lower prevalence of SAs for male youth with a history of sexual abuse but not female youth with a similar history. Several studies have since examined the potential impact of religiosity or cultural orientation as a protective factor. Garrouette and colleagues (2003) found that a culturally based spiritual orientation was associated with a lower prevalence of SAs for Northern Plains (AI) adolescent and adult Tribal members. In the same study, Garrouette and colleagues (2003) noted that simply holding Indigenous cultural or Christian spiritual beliefs was not significantly related to lower reports of SAs. Finally, Christensen (1999) examined church attendance as a posited protective factor for AI adolescents in the state of Utah. However, findings revealed that, although no significant relation between the two variables existed for male AI youth, AI female adolescents who reported attending church were significantly more likely to report a lifetime history of SAs.

These studies, while examining a host of culturally salient variables, are quite varied in the populations they examine both with respect to age and Tribal affiliation (see Table 1). Notably, none of these studies looked at protective factors specific to AIAN Tribal cultures. Previous research has shown that individual Tribal culture is important when examining risk for suicide (see Bolton et al., 2014). Given the heterogeneity of AIAN peoples, and the importance of tribal culture in defining what constitutes a protective factor, more research is necessary to better understand how culture might stymie engagement in suicide behaviors. With this in mind, these results regarding cultural level factors should be interpreted with caution. However, these results do seem to indicate that there may be some differences in which cultural factors are salient to AI people depending on biological sex or gender socialization.

Null Findings

In addition to findings reported here, a number of studies examined additional cultural ($n = 4$; Brockie, 2012; FitzGerald et al., 2017; Harman, 2017; Hill, 2005; Scheel et al., 2011), community ($n = 6$; Brockie, 2012; Chino & Fullerton-Gleason, 2006; Erickson, 1999; Hill, 2005; LaFromboise & Howard-Pitney, 1995a; Pharris et al., 1997), family ($n = 3$; Chino & Fullerton-Gleason, 2006; Christensen, 1999; Mackin et al., 2012), and individual ($n = 5$; Christensen, 1999; Fullerton et al., 2019; Harman, 2017; Hill, 2005; LaFromboise & Howard-Pitney, 1995a) level factors, failing to evidence any additional protective factors for AIANs (see Figure 2 and Table S2 in the online supplemental materials). Whether these null findings are substantive, or an artifact of research design, is unclear in many of these cases. Although many of these

studies examined factors that were similar to one another and to those from studies that reported significant results, in no cases were the same constructs examined across multiple samples, making it difficult to aggregate knowledge across studies.

Discussion

In this systematic review, we synthesized research that examined protective factors with respect to SAs among AIAN peoples. In our analysis, we noted that there was a lack of a unified theory grounding this work and proposed that the EF developed by *Burnette and Figley (2016)* may be beneficial for considering protective factors for AIAN peoples. Additionally, many gaps remain in the literature, including the preponderance of cross-sectional designs, scarcity of inclusion of AIAN adults, heterogeneity of protective factors and findings, and limited size of the corpus. Notably, very few published articles ($n = 12$) met our criteria for inclusion, demonstrating that protective factors are remarkably understudied for these populations. Indeed, in another systematic review by *Fetter and colleagues (2022)*, 45 papers studying risk factors for SAs met very similar screening criteria.

This paucity in research is unsettling, given that AIAN peoples are at the highest risk for death by suicide when compared with all other ethnoracial groups in the United States from childhood until age 45 (*CDC, 2018*). Further, researchers have underscored the importance of understanding within-group strengths or assets as to avoid a narrative of inherent pathology within communities (e.g., *Seligman & Csikszentmihalyi, 2000*). This work represents the fields' preliminary steps toward understanding factors that might protect AIAN individuals from making a SA. Clearly, a wealth of future research is needed, though we gleaned some valuable insights from this corpus.

Individual-level protective factors were most frequently studied and emerged with some of the most robust evidence. Indeed, evidence for the protective nature of positive mental and physical health was garnered for AIAN adolescents from various backgrounds (e.g., urban, reservation). However, while some studies examined very similar factors, no studies examined the exact same factors using the same wording or measures. This largely limits the conclusions we can draw. Continuing to round out this area within the literature through a more systematic examination of individual level protective factors across age, gender, sex, and Tribe will help to refine understanding of which factors should be targets for potential interventions.

Family characteristics, which seem to center around feelings of being cared for, emerged with some of the most consistent protective findings in the corpus. However, these factors were not explored within adult populations. Whether this is attributable to the limited size of the corpus or to the way we as a field imagine adults as needing, or rather not needing, to be protected through their family relationships, cannot be said. However, this notion is in contradiction with Indigenous worldviews, wherein family and community ties remain important to foster throughout the lifespan and may be conceived as relevant for reducing suicide risk at any age. Given the robustness of family level findings for adolescents, we encourage future researchers to consider the relationships that AIAN individuals maintain with their families through adulthood, and how the qualities of those relationships may provide protection against engagement in SAs.

Community characteristics emerged as generally mixed for youth and almost entirely unstudied for adults (see *Figure 2*). The primary community setting examined for youth was school, which is reasonable, because school is likely their primary access point to the community. However, the breadth of community settings or relationships generally was limited in the corpus. Additional important aspects of communities that appear untapped in the literature thus far might include neighbors, community groups or clubs, workplaces, and so on. More work is necessary to theorize and identify additional potentially protective factors that fall under this level of the EF, particularly as they relate to adults.

Many of the studies that examined cultural protective factors recruited small samples, and it remains unclear whether the lack of significant findings in the majority of the studies was substantive. However, it is not entirely surprising that findings were not robust, given the nonspecific cultural factors included in the corpus, heterogeneity of AIAN identities, and the lack of specificity in the corpus regarding participants' race (e.g., AIAN), nationality (e.g., the specific Tribal Nation one is enrolled in, such as the Cherokee Nation of Oklahoma), or ethnicity (e.g., Cherokee). Indeed, rather than examining factors that are particular to specific Tribal nations or cultures, most studies examined factors that might index involvement in any Tribal culture (e.g., "involvement in traditional activities" in *Pharris et al., 1997*; "cultural values" and "cultural socialization" in *Harman, 2017*). In studying cultural protective factors, it may be particularly important to adapt questions to specific communities and to account for other important contextual factors such as historical loss (*Walls et al., 2016*).

Further, because of colonization, AIAN peoples exist on a spectrum of cultural connectedness and even Tribally specific factors may be more or less meaningful to any given individual based on their Tribal and/or family history. A strong and positive ethnic identity is well-established as resiliency-building and health-promoting for minoritized individuals (*Rivas-Drake et al., 2014*). Engagement in Tribal culture and a strong ethnic identity has been posited by Indigenous scholars as a means to protect AIAN individuals against suicidality (e.g., *Cwik et al., 2019*), although AIAN populations remain underrepresented in ethnic identity research (*Smith & Silva, 2011*). Given that cultural and societal level factors are inextricably linked (e.g., cultural genocide enacted at the federal level resulting in fewer fluent language speakers in a community), accounting for these contexts in tandem is likely essential. This also applies when considering faith or spirituality, because there is a long, harmful history between AIAN peoples and the church (e.g., *Brave Heart & DeBruyn, 1998*, on Historical Trauma), and connection to the church vastly differs at the individual level. Although we did not find much evidence for cultural protective factors here, this area should certainly be pursued further, preferably within or comparing Tribes and regions.

Gender, biological sex, age, regionality, ethnicity, and Tribal Nation are all important demographic variables that likely influence the impact of proposed protective factors. Of note, no studies meaningfully distinguished between participant sex and gender, making it difficult to know whether findings are attributable to biological sex, gender identity, or gender socialization. However, there do seem to be sex differences in the literature regarding which factors provide protection against SAs, particularly as they relate to interpersonal or relational contexts (e.g., positive relationships with adults). Given that so few studies in the corpus

examined adults, we are unable to compare protective factors across multiple developmental periods or draw conclusions about the effects of age. Finally, although some studies detailed the regionality or Tribal Nation of their participants, most omitted this information altogether. Individual Tribal culture is incredibly important in understanding which factors incur risk for suicide (Bolton et al., 2014). It logically follows that the same may be true for protective factors. More research on protective factors for specific Tribal nations or AIAN populations (e.g., urban) is warranted.

Societal Level Protective Factors

Clinical psychology emerged in force after the Second World War as an applied health profession (Benjamin, 2005). As health service psychologists, clinical psychologists are trained to identify pathology and treat afflicted individuals. This orientation is evidenced by the current corpus, where indeed individual level protective factors were the most robustly studied. Although an approach grounded in health service psychology may be useful in addressing psychopathology, it is quite limited in its ability to understand the impact of larger ecosystems. Certainly “individual” pathology is situated within the context of the community and society in which a person resides. For AIAN peoples, this calls to mind a multiplicity of upstream, longstanding societal level problems that undoubtedly affect suicide risk. However, these societal level factors are rarely considered by psychologists in understanding risk or protective factors against suicide. In the current corpus, societal level factors did not appear at all.

Historical and present forms of colonization, racism, violence, and oppression have had longstanding effects on the lives of AIAN peoples. These effects are perpetuated by the continued failure of the federal government to fulfill treaty responsibilities and respect Tribal sovereignty (e.g., Warne & Frizzell, 2014). The detrimental nature of these societal factors is exemplified in the disproportionate rates of physical health problems, poverty, unemployment (Sarche & Spicer, 2008), imprisonment (Greenfeld & Smith, 1999), sexual assault and rape (Rosay, 2016), and indeed, death by suicide (CDC, 2018), experienced by AIAN people. Further, the cyclical progression of colonization has been linked to commensurate increases in deaths by suicide in other Indigenous populations (Hicks, 2007). Indeed, Hicks (2007) documents the processes of incorporation and sedentarization of Indigenous Inuit people across Greenland, Canada, and Alaska during the 1950s, which fundamentally altered economic, political, and social circumstances. At the same time, these communities experienced dramatic increases in deaths by suicide (Hicks, 2007). In a society that produces this level of hardship for AIAN peoples, is it plausible to expect that individual resilience is the most effective path to wellness? Instead, perhaps U.S. society has an obligation and responsibility to move toward remediation with respect to altering the social and structural determinants of AIAN suicide.

Indeed, until there are large-scale actions regarding these longstanding societal truths, the burden of suicidality is likely to continue to plague AIAN communities. Chandler and Lalonde (1998) provide an incredibly clear example of how societal influences shape suicide risk across the EF for Indigenous peoples. In their study, the authors demonstrated how the presence of six community-level factors, which represented community administrative capacity and local control, are linearly related to death by suicide for First Nations

Indigenous people in British Columbia, Canada. Specifically, odds of death by suicide for individuals from Indigenous bands with zero of the six factors were roughly ten-fold those for individuals in bands with all six factors. These six factors included land claims, self-government (e.g., having economic and political independence within their traditional territory), cultural facilities, and exercising control over education services (e.g., individual bands exercising control over education funding through agreements with local school districts), police and fire services, and health services (Chandler & Lalonde, 1998). From this work, Chandler and colleagues (2003) derived the cultural continuity theory of suicide, which exemplifies how protective and risk factors interact across ecological systems. Cultural continuity exercised at the community level is theorized to disrupt the societal-level impacts of colonialism and provide protection at the individual level. For clinical psychologists, such a theory is useful in demonstrating the distinction between protective factors and protective mechanisms, as well as delineating how these mechanisms interact with risk factors across ecological levels to inform clinical conceptualizations and research.

In the United States, there exist few examples of movement toward ameliorating harmful societal impacts. The Indian Claims Commission Act of 1946 represents one of the few federal level actions to move toward remediation for AIAN communities. During this time, there were several hundred settlements of AIAN land claims, which granted monetary payouts and recognized sovereignty over certain lands and waters to individual Tribal Nations. Future moves toward remediation have been outlined previously by the United States Commission on Civil Rights (2018), which covers domains of criminal justice and federal safety, health care, education, housing, and economic development. Examples of such steps include economic investments in Indian Country, such as building infrastructure and providing funding for schools, justice programs, health care, and so on. Further, the United States should treat Tribal Nations as sovereign entities, just as they would with other governments. This includes self-determination over ancestral lands and resources, health care, education, departments of first responders, and other systems. Additional opportunities for remediation imagined by our research team include culturally sensitive suicide prevention infrastructure (e.g., crisis hotlines with AIAN clinicians or volunteers), anti-racism work, and addressing (mis)representation issues and AIAN visibility in media and society (e.g., AIAN mascots; see American Psychological Association [APA], 2006).

In addition to addressing societal issues that influence suicide indirectly, culturally adapted (e.g., Kohrt et al., 2017) and cultural grounded (e.g., Allen et al., 2018) suicide prevention programming may be a useful tool for AIAN suicide prevention. Importantly, conventional forms of prevention may be ineffective for AIANs because they are culturally misaligned with AIAN understandings and ways of being (Wexler & Gone, 2012). For example, prior collaborations from Suicide Awareness Voices of Education (SAVE) and the Mille Lacs Band of the Ojibwe resulted in community created and approved suicide prevention materials, including a suicide prevention radio public service announcement, poster, and brochure. More work of this nature, as well as research regarding how effective it is in preventing suicide, is in order. Rather than placing the burden of resilience and change on individual AIANs experiencing suicidality, psychology needs to look much farther “upstream” in the chain of causality toward societal level structures to truly prevent AIAN suicide and improve AIAN lives.

Future Research

Limitations of the current literature likely contribute to the lack of clarity in the framing of protective factors and the specific findings. We noted in curating the corpus that conceptualizations of protective factors (e.g., as primary prevention or individual intervention) were not well delineated across many studies, leading to uncertainty about how these factors are thought to ultimately protect against suicide. Definitions of protective factors have developed considerably over time as buffering risk at the individual level (e.g., Masten et al., 1990; Rutter, 1985; e.g., see Mackin et al., 2012, in our corpus) or representing the inverse of risk factors (e.g., unidimensional factors where protection is on one end of the continuum and risk is on the other; e.g., in our corpus see Chino & Fullerton-Gleason, 2006). Another more-recent perspective includes examining protection through a multi-system resilience framework (Masten & Motti-Stefanidi, 2020), wherein complex systems are able to promote adaptive ability to specific risks (rather than being protective “generally”). This framing was largely missing from our corpus.

In a recent review, Allen and colleagues (2021) discuss the distinctions between protective factors, protective mechanisms, and resilience, highlighting how a lack of clarity in past research has hampered progress in the field of AIAN suicide prevention science. They further introduce concepts of self-continuity and cultural-continuity to put forth their “unifying framework” of protective factors in strengths-based, culturally responsive AIAN suicide intervention and prevention. Finally, they put forth recommendations for application of a protective factors framework that aim to address barriers, many of which we identified in our corpus (e.g., clarifying theory underlying protective factors, moving beyond the individual; see Allen et al., 2021, for full recommendations).

In addition to ambiguity in the framing of protective factors, there was considerable uncertainty promoted by the mixed findings in the corpus. Few protective factors remained significant across all studies in which they are examined. This inconsistency may reflect meaningful differences in sample (e.g., age group, region), faulty research designs (e.g., being underpowered to detect the expected effect size), or, in part, to “researcher degrees of freedom,” choices that are made by the research teams on how to quantify variables and formulate models (Silberzahn et al., 2018), all of which are scientifically sound, but may nonetheless produce incomparable results. This issue was exacerbated by an insufficient description of methods in some studies, making it increasingly difficult to understand how particular factors were assessed. We recommend that researchers thoroughly describe all methods in future manuscripts in ways that allow for replication.

A related limitation is the size of the corpus itself. Given our focus on SA, our corpus does not include studies focused on protection against maladaptive outcomes broadly or protection against suicide ideation specifically. Differentiating these outcomes is important, as many individuals who think about suicide will not go on to attempt; thus, understanding the protective factors that influence these trajectories could be key for preventing suicidal behaviors. However, with so few studies, it is incredibly difficult to demonstrate that any one protective factor is robust across different communities (e.g., urban versus reservation based) or developmental periods (e.g., adolescence versus adulthood). It is quite apparent that in this field, we need more research that centers the strengths of Indigenous peoples who do not go on to engage in

suicide behaviors. Specifically, we need more studies to validate potential protective factors in multiple contexts and over time. Despite the limited validation of these protective factors, they are actively shaping intervention efforts (e.g., Wexler et al., 2017). Importantly, institutional funding and community engagement are two necessities to produce this research.

Another primary limitation is that all studies included here are cross-sectional. This corpus merely examines characteristics of individuals who are less likely to report a SA in the recent or remote past. Although cross-sectional data are helpful for hypothesis creation, longitudinal designs are necessary to understand the temporal relationship between any given posited protective factor and a SA. Furthermore, longitudinal designs that account for the minutes, hours, and days leading to a SA, such as Ecological Momentary Assessment (Shiffman et al., 2008), might be most useful in understanding what factors are protective when someone is at imminent risk for a SA. This is a direction in which the general field of suicidology is moving (e.g., see Kleiman et al., 2017), and these novel approaches would likely prove beneficial for understanding AIAN suicide as well.

As previously mentioned, this research has almost entirely excluded AIAN adults. This trend in some ways is understandable, given that adolescence and early adulthood are the developmental stages at which suicide rates rapidly rise among AIAN peoples. However, rates are highest for AIANs during early adulthood (e.g., ages 20–24; CDC, 2018) and the field would benefit from understanding more about SA across the life course. For example, what are some strengths that are found in older adult AIAN populations who demonstrate low rates of suicide and how do we instill those strengths in our young people? Future work should focus on adolescence as a developmental period of interest while also thoroughly examining the life course.

Finally, we suggest that the field use the EF to ensure that our study of protective factors is grounded in context across all levels of the EF and that we are making a concerted effort to study protection outside the individual level. Providing context for our samples and the study of protective factors is important, as AIAN peoples’ identities and experiences do not exist in isolation. Instead, we might use the EF to understand and contextualize how these identities and experiences interact, as well as how they impact protective factors at each level. For example, sexual and gender minority youth are at increased risk for suicide when living in areas of high structural stigma (e.g., states with laws that are exclusionary; Hatzenbuehler & McLaughlin, 2014). Understanding the societal (e.g., state-level stigma) contexts for sexual and gender minority AIAN youth may then influence how we think about factors being particularly protective (e.g., feeling like they belong in their family or community).

There are many factors across levels of the EF that may be important for having a nuanced understanding of how protective factors operate (e.g., community socioeconomic status, family structure). As mentioned, we also encourage psychological science to explore potential protective factors at the societal level of the EF—in addition to incorporating societal level factors into research more broadly to appropriately contextualize individual factors—and to imagine societal protective factors beyond what we’ve discussed here. Although societal level risk factors, such as historical trauma, racism, and income inequality, are easy to identify (Burnette & Figley, 2016), critical engagement with the

potential for societal level protective factors is essential if we are to ever realize the goal of AIAN suicide prevention.

Conclusion

Unfortunately, we still know very little about what factors might protect AIAN peoples from making a SA. However, there do seem to be factors related to interpersonal relations and mental, physical, and emotional health that have the potential to be protective. This area remains in desperate need of more research, as AIAN relatives die every day by suicide and psychological science has not done enough to provide Tribal Nations and communities with sufficient direction for how they might prevent suicide among their people. In continuing this research, the field of AIAN suicidology may find guidance in adopting a unifying theory, such as the EF, as a lens through which we view protective factors. Further, our collective knowledge would benefit from a more robust examination of protective factors for AIAN populations by age, gender, and Tribal Nation or location. With more scientists committed to understanding mechanisms of protection for AIAN peoples through rigorous scientific methods, we may finally be able to move the needle with respect to the ultimate goal of saving lives.

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