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A Culturally Informed Systematic Review of Mental Health Disparities Among Adult Indigenous Men and Women of the USA: What is known?

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Abstract

Related to a broader context of historical oppression, Indigenous peoples of the USA are overburdened with the mental health challenges that social workers tend to treat, including post-traumatic stress disorder (PTSD), depression, suicide and substance use disorders (SUD). The purpose of this systematic review is to use the Framework of Historical Oppression, Resilience and Transcendence (FHORT) to identify empirical research on risk and protective factors related to mental health and SUD amongst these populations. This systematic review includes peer-reviewed quantitative and qualitative research articles from 1980 to 2017 focusing on the mental health of US Indigenous adults. A total of thirty-eight peer-reviewed empirical articles met inclusion criteria. Results reveal adults within Indigenous populations are at a high risk for mental health outcomes, including PTSD, depression, suicide, SUD and comorbidity across these outcomes. Underlying risk factors across outcomes included historical oppression and loss, family problems and SUD. Protective factors tended to include family and social support and engagement with tribal cultural activities. Significant variability was identified based on gender and geographic regions. Given that protective factors tended to include cultural, familial and community tenets, holistic approaches are the most promising programmes for social workers to work towards.

Keywords: Indigenous, Native American and Alaska Native and American Indian and Native Hawaiian, mental health, risk and protective factors, systematic review

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Introduction

Indigenous peoples of the USA, for whom the scope of this article is limited, experience some of the most widely documented health disparities, with existing data suggesting Indigenous adults suffer a disproportionate burden of mental health problems in comparison with the general population (Gone and Trimble, 2012) yet have scarce research on the topic. 'Indigenous peoples' is a term to describe heterogeneous groups thought to be the first inhabitants of the USA and who share the history of being affected by colonisation (for the purpose of this article, we limit our scope to the USA, whom include American Indians and Alaska Natives (AI/AN) and Native Hawaiians). We include Native Hawaiians because they tend not to be included in health disparities research, likely due to the limited amount of available research. By including these populations in this review, we highlight this inattention and absence as a glaring gap in research. Mental health disparities are part of the broader context of historical oppression that affect Indigenous peoples of the USA. Many of the underlying causes of health problems for any population include social determinants of health, which encompass socioeconomic indicators (i.e. income, education, employment, living conditions, social support and access to health services) (King *et al.*, 2009). Indeed, Indigenous peoples' disparities are likely linked to social disparities and economic marginalisation, as Indigenous peoples tend to have lower income, education, employment opportunities and social mobility (Gone and Trimble, 2012).

However, unlike other majority populations, Indigenous health can also be affected by a range of cultural factors, including historical oppression and trauma, racism, loss of language and connection to the land, environmental deprivation and spiritual, emotional and feelings of disconnectedness, amongst others (King *et al.*, 2009). 'Historical oppression' is the severe, chronic and multigenerational experiences of oppression whose imposition may be and internalised into the daily lives of many Indigenous peoples (including individuals, families and communities) (Burnette and Figley, 2017). As such, for this article, we use the Framework of Historical Oppression, Resilience, and Transcendence (FHORT), an Indigenous-based approach to frame risk and protective factors within this cultural context (Burnette and Figley, 2017).

Although the populations for this inquiry are situated in the USA, health disparities exist for Indigenous peoples worldwide, a fact that has led to The Millennium Development Goals (MDG), a set of goals put forth by the United Nations (UN) to attain a more sustainable future for all populations by the Year 2030 (UN, 2018). Inequality, environmental injustice, poverty, climate change, peace and justice are amongst these goals. For the first time in 2015, mental health, well-being and the prevention of substance abuse are included as a core component (WHO, 2018), along with 'Good health and Well-being' (UN, 2018), poverty, education and equality between genders, a primary foci of the MDGs. Given these are also primary disparities amongst Indigenous peoples' (Gone and Trimble, 2012), this work is directly in line with these global goals.

Regarding mental health, disparities have emerged related to Indigenous post-traumatic stress disorder (PTSD), depression, suicide and substance use disorders (SUD) (Gone and Trimble, 2012). Although a systematic review of risk and protective factors related to mental health and SUD is present for Indigenous youth (Burnette and Figley, 2016), to our knowledge, no such systematic review could be located for adults, which poses a huge gap towards ameliorating mental health disparities. To eradicate mental health disparities, social workers must first be aware of the state of knowledge regarding research on culturally relevant risk and protective factors across ecological levels (i.e. societal, community, cultural, family, relational and individual) related to mental health and SUD, as well as what is known about extant comorbidity and multimorbidity (the simultaneous presence of two or more chronic diseases or conditions) is first needed. The absence of such knowledge is a barrier towards progress towards addressing such disparities. Thus, the purpose of this systematic review is to use the ecological and culturally grounded FHORT to identify empirical research on risk and protective factors related to mental health and SUD amongst Indigenous peoples of the USA. Because such disparities are often related, we also investigate comorbidity and multimorbidity and known moderators of disparities, namely region and gender.

The FHORT

According to the FHORT, the interaction, accumulation, interconnections and balance of risk and protective factors across multiple levels (i.e. individual, family and relational, community and cultural and societal) predict whether a person experiences 'wellness' or 'well-being' (balance amongst the mind, body, soul and spirit) and transcendence after experiencing the adversity of historical oppression and other hardships. Thus, as we examine the following mental health disparities, we do so understand how they may be situated in a broader context of historical oppression, and resultant resilience and transcendence, recognising people holistically, beyond their mental health diagnosis. Historical oppression is inclusive of historical trauma, yet it is localised to specific contexts and is inclusive of the proximal factors that continue to perpetuate oppression (Burnette and Figley, 2017). Disparities must be considered in the context of such historical oppression, as such oppression may give rise to, exacerbate and perpetuate social and health disadvantages. Despite experiencing oppression, Indigenous peoples have continually demonstrated resilience and even transcendence. Resilience includes the positive adaptation despite experiencing adversity, which may include functioning well and recovering well after experiences of trauma (Fleming and Ledogar, 2008). Resilience can be present at the individual, familial, community and national levels and beyond (Burnette and Figley, 2017). Transcendence goes beyond recovering and describes where people may reach even greater levels of meaning, functioning, growth and well-being (Burnette and Figley, 2017). The focus now turns to existing research on Indigenous peoples as it relates to the most prominent mental health disparities: PTSD, depression, suicide and SUD.

PTSD

Extant research indicates that Indigenous populations experience a greater risk and prevalence of PTSD, in comparison with any other American ethnicity or race (Beals *et al.,* 2013a,b; Robin *et al.,* 1997b), which likely has to do with a greater exposure to trauma as a result of historical oppression creating adverse social environments. According to the National Comorbidity Survey, the lifetime prevalence of PTSD within the general US population is estimated to be 7–8 per cent with women being more likely to experience PTSD than men (Gone and Trimble, 2012). However, studies have shown that Indigenous populations were two to three times more likely to experience PTSD (Gone and Trimble, 2012) ranging from 15.9 to 21.9 per cent, with a major risk factor being trauma exposure (Robin *et al.,* 1997b; Beals *et al.,* 2013a). Lifetime prevalence estimates tend to vary by gender, geographic location and exposure to and the type of trauma (Robin *et al.,* 1997b; Beals *et al.,* 2013a,b). Native Hawaiians had PTSD prevalence rates up to 38 per cent (Norris and Slone, 2007). Research reports women were more likely than men to be diagnosed with PTSD, with estimates ranging from 13.2 to 25.4 per cent for women and from 5.9 to 17.9 per cent for men. In summary, exposure to trauma and PTSD tends to be higher for Indigenous peoples, and rates of PTSD vary by gender and region.

Depression

Amongst the general adult US population, studies have reported that 6.7 per cent experienced a major depressive episode in 2015; for Indigenous peoples, however, the rate was much higher at 8.9 per cent—higher than all other ethnicities except those with multiple ethnic identities (The National Institute of Mental Health, 2015). Preliminary research has connected depressive symptoms to historical loss (Whitbeck *et al.,* 2004, Whitbeck *et al.,* 2009). On the basis of the limited research available on American Indian and Alaska Native (AI/AN)s, rates of depression for AI/AN populations range from 10 to 30 per cent (Evans-Campbell *et al.*, 2012). We use the terminology AI/ANs to denote research specifically conducted with these groups (excluding Native Hawaiians). In addition, older AI/ANs have been found to have higher rates of depressive symptomatology, with one study finding 13.24 per cent of elders having clinical depression (Schure and Goins, 2017). On the basis of limited research available on Native Hawaiians, rates of depression range from 8 to 12.2 per cent (Salvail and Smith, 2007). More research is needed to establish accurate Indigenous depression prevalence rates.

Suicide

Suicide is a major public health concern throughout the USA, being the 10th leading cause of death, with 41,149 suicides in 2013 (Centers for Disease Control and Prevention (CDC), 2015). US Indigenous peoples have the highest rates of suicide and are 1.7 times more likely than the general population to experience it (Indian Health Service, 2018). Berman would argue that this disproportionate rate amongst Alaska Natives is related to historical oppression in the forms of rapid social changes in the forms of '... critical cultural, political, and economic transitions for Alaska Natives (p. S329)'. Some research reports suicide deaths being eight times the rate of non-AI/ANs (Wexler *et al.*, 2012) and being the eighth leading cause of death for AI/AN across all ages (O'Keefe *et al.*, 2012; Wexler *et al.*, 2012; Berman, 2014; O'Keefe *et al.*, 2014). Despite the high rates, there is limited research on suicide for AI/ANs. Male subjects tend to be 3.9 times more likely to die from suicides when compared with female subjects, and the suicide rates are highest amongst AI/ANs below the age of 35 years (May *et al.*, 2002, Wexler *et al.*, 2012).

SUD

SUD is a concerning factor for AI/AN populations as recent national data suggest higher rates of SUD and greater rates of abuse and dependence than amongst the general US population (Radin *et al.*, 2015). As with other disparities, Radin *et al.* (2015) reports that historical oppression has resulted in losing a sense of community, and rebuilding and revitalising culture may be forms of SUD prevention. Age-adjusted mortality rates for Indigenous peoples for alcohol, chronic liver disease and cirrhosis, as well as drug use are 6.2, 4.2 and 1.5 times that of the general population, respectively (Whitesell *et al*., 2012). Although data are limited thus far, preliminary data from the Centers for Disease Control indicate 'the opioid epidemic' is thought to disproportionately affect AI/ANs (Tipps *et al.,* 2018). Although the rates tend to be higher, SUD varies by tribe, region and other factors; most studies are conducted on reservations and cannot be generalised across tribal communities (Radin *et al*., 2015). Prevalence rates for SUD in Native Hawaiians range from 50 to 80 per cent (Sakai *et al*., 2010), but rates are limited and may be inaccurate as this population is often grouped with Pacific Islanders and Asians. More research is needed to adequately address SUD disparities and prevalence estimates.

Comorbidity and multimorbidity: SUD and depression/anxiety/suicide

SUD contributes and is influenced by mental health problems, early trauma and childhood abuse and other factors within AI/AN communities. A history of trauma increases the odds of developing SUD and additionally, increases the rates of depression, anxiety disorders and PTSD (Robin *et al*., 1997b; O'Connell *et al*., 2005, 2006; Tann *et al*., 2007; Rieckmann *et al*., 2012; Moghaddam *et al*., 2014; Brave Heart, *et al*., 2016). Significant comorbidity and multimorbidity was identified for AIANs diagnosed with depressive and anxiety disorders, who experienced a SUD diagnosis twice as often (Rieckmann *et al*., 2012). In summary, the disparities across PTSD, depression, suicide and SUD are inseparable from the broader context of historical oppression and warrant a closer examination to understand the state of available research related to such health disparities. Distinctions related to gender, region and comorbidity/multimorbidity were common, indicating the need to be cognizant of such moderating factors.

Methods

This systematic review includes peer-reviewed quantitative and qualitative research articles focusing on the mental health of US Indigenous populations (AI/AN and Native Hawaiian) adults (age 15 years and older) published between the years of 1980 and 2017. A wide range of years was included due to the limited research available on mental health disparities experienced by US Indigenous adults. Articles focused on the primary mental health disparities, such as PTSD, depression, suicide and SUD. Only empirically based research articles with samples including AI/AN and Native Hawaiian adults were included; articles with solely youth samples were excluded, given the recent systematic review focusing on youth (Burnette and Figley, 2016). The following search terms were used to identify peer-reviewed articles related to adult AI/AN and Native Hawaiian mental health disparities: ('Indigenous' OR 'American Indian' OR 'Alaska Natives' OR 'Native American' OR 'Native Hawaiian') AND ('Mental Health' OR 'mental health disparities') AND ('PTSD' OR 'depression' OR 'anxiety' OR 'substance use' OR 'suicide') AND ('adult'). A variety of social science and health-related databases were used to search for relevant articles, including Google Scholar, EBSCO, PsychINFO, SocINDEX with Full Text, The Educational Resource Information center (ERIC), Academic Search Complete, PubMed and JSTOR. Eight databases from the scientific literature were searched from June 2017 to September 2017, and articles were entered into Excel spreadsheets. A hand search of reference lists of relevant studies was also conducted to locate additional published literature.

Inclusion criteria delimited the search to articles that: (i) were empirical articles; (ii) were peer-reviewed; (iii) addressed the mental health disparities of PTSD, depression, suicide, substance abuse and multimorbidity/comorbidity; (iv) were aimed at US Indigenous adults (had a population including those aged 18 years and older, although those with 15 years and older were included, given that a substantial portion of the sample were adults); (v) occurred within the USA and (vi) identified risk and protective factors related to the aforementioned outcomes (factors that results indicated exacerbates and buffered against outcomes, respectively). Native Hawaiians were included, given the disparities coupled with the gap in empirical research. Indigenous peoples outside of the USA were excluded, given distinct histories of colonisation and political contexts. After the first author completed the initial search, a total of 4,925 articles were obtained. After applying the inclusion criteria of publication date, being peer-reviewed and in academic journals, 894 articles were identified. After excluding youth and young adults, the remaining 110 articles were screened for duplicates and based on the titles and abstracts. A total of 60 articles were considered eligible based on the inclusion criteria. Of these, 22 were excluded based on the aforementioned criteria and full-text read. The second author independently reviewed all articles and ensured the inclusion criteria were properly upheld. The resultant 38 articles met the inclusion criteria for this systematic review. See Supplementary Figure S1 for a flow diagram outlining the review process reported in this manuscript, resulting in the final 38 articles.

Results

In this section, we use the FHORT to describe the results for the systematic review regarding PTSD, depression, suicide, SUD, comorbidity and multimorbidity across disorders. When the data are available, we present risk and protective factors across the ecological levels of the FHORT (community/cultural levels, family levels, relational levels and individual levels). Supplementary Table 1 reports the sample size, age range, main outcomes, gender included, region of research and identified risk and protective factors for each study. With the exception of a handful of studies that were retrospective (Kettl and Bixler, 1993; May *et al.*, 2002; Wexler *et al.*, 2012; Caetano *et al.*, 2013; Berman, 2014) and one that was longitudinal (Whitbeck *et al.*, 2004), studies had cross-sectional quantitative design structures. Due to space limitations, these details will not be repeated in the narrative.

PTSD

Ten studies identified the prevalence of PTSD within Indigenous populations (Robin *et al.*, 1997a,b; Duran *et al.*, 2004, 2009; Libby *et al.*, 2005; Archambeau *et al.*, 2010; Evans-Campbell *et al.*, 2012; Beals *et al.*, 2013a,b; Ehlers *et al.*, 2013). Several studies indicated social determinants of health, related to historical oppression that contributed to PTSD disparities. At the community/cultural level, Evans-Campbell *et al.* (2012) identified societal/cultural influences on PTSD for Indigenous populations, including historical oppression, encompassing loss of land, loss of traditional culture, and the experiences of Indian boarding school as risk factors for PTSD. Studies conducted by Beals *et al.* (2013a) and Ehlers *et al.* (2013) indicated that high-risk environments/communities (i.e. environments where there was an increase in poverty, violence and availability of illegal substances) contribute to trauma exposure and PTSD, of which no gender differences were identified (Beals *et al.*, 2013a). Regional differences included communities with poor education systems, and limited opportunities for higher education and employment tended to have an increased prevalence of PTSD in the Northern Plains, whereas only a lack of employment opportunities increased the prevalence of PTSD in the Southwest (Beals *et al.*, 2013a).

The remaining studies had factors that intersected between both individual and familial levels. Studies with only female participants (Duran *et al.*, 2004, 2009) determined that child maltreatment and exposure to intimate partner violence (IPV) were significant risk factors for PTSD. Many other studies supported the role that IPV and child maltreatment, including child sexual abuse, are primary forms of trauma. Studies conducted by Robin *et al.* (1997a) and Robin *et al.* (1997b) concluded that there was a strong relationship between PTSD and other psychiatric disorders and trauma, along with child sexual abuse and physical assault, the latter finding also reported by Libby *et al.* (2005). Studies indicated that women were more likely to have been exposed to trauma (primarily by family members) (Beals *et al.*, 2013a,b) and that this resulted in PTSD (Robin *et al.*, 1997a,b; Beals *et al.*, 2013b); that trauma type varied by gender, with women being exposed to more interpersonal trauma (Beals *et al.*, 2013b). Finally, in a sample of college students in rural Hawaii, Archambeau *et al.* (2010) indicated that high rates of stressful life events, IPV and violence perpetration led to a PTSD diagnosis.

Depression

Six studies identified the prevalence of depression within the AI/AN and Native Hawaiian population, with rates varying by region and tribe (Kaholokula *et al.*, 1999; Beals *et al.*, 2005a; Roh *et al.*, 2015; Burnette *et al.*, 2016; Çayır *et al.*, 2017; Schure and Goins, 2017). All studies determined that a risk factor for depression was trauma at either the individual, family or community level. Thus, if historical oppression has given rise to greater exposure to trauma, and trauma is associated with depression, trauma may mediate the relationship between historical oppression and depression. Burnette (2016) and Roh and colleagues (2015) examined the risk and protective factors related to depressive symptoms in adults over the age of 50 years, reporting that major risk factors for adult depression included adverse childhood events (ACE) (e.g. child maltreatment and witnessing IPV) and that the vast majority (75.6 per cent) were exposed to at least one trauma, with 31.8 per cent exposed to three or more traumas, a rate much higher than the general populations (Roh *et al.*, 2015). Cayir *et al.* (2017) examined the depressive symptoms in AI elders (over the age of 55 years), and results indicated that individuals who experienced a traumatic event and exhibited trauma symptoms were 3.7 times more likely to experience depressive symptoms when compared with individuals who experienced a traumatic event with no trauma symptoms. Being older and lower education were risk factors for depressive symptoms. Amongst rural Native Hawaiians, Kaholokula *et al.* (1999) identified that the overall prevalence of depressive symptoms for rural Native Hawaiians was 15 per cent, with risk factors being lower education and disruptive marital status. Thus, age and education tend to moderate depressive symptoms in variable ways, depending on the setting and sample. Across studies, a high level of social support and self-efficacy (Schure and Goins, 2017) was found to be a buffer (protective factor) against depressive symptoms (Roh *et al.*, 2015; Burnette *et al.*, 2016; Çayır *et al.*, 2017; Schure and Goins, 2017).

Suicide

Related to depression, in 1993, Kettl and Bixler conducted a retrospective study analysing death certificates of ANs in Alaska (average age at suicide was 26.4 years), reporting rapid cultural change—which has been identified as a risk factor in other research (e.g. rapid historical loss, changing cultural norms, language, traditions (Burnette, 2015a)—as a risk factor with 21 per cent having attempted suicide and having alcohol abuse and depression. Indeed, alcohol abuse was a near universal risk factor across studies, with rates of such abuse for suicidal respondents ranging from 36 to 87 per cent (Kettl and Bixler, 1993; May *et al*., 2002; LeMaster *et al*., 2004; Wexler *et al*., 2012; Caetano *et al*., 2013; Berman, 2014). At the family level, having a family history of substance abuse was also a recurrent risk factor (Wexler *et al*., 2012; Caetano *et al*., 2013;). Being younger (ranging from 15 to 37 years) tended to be a risk factor across studies as well (Kettl and Bixler, 1993; LeMaster *et al*., 2004; Caetano *et al*., 2013; Berman, 2014), along with male gender being a risk for completed suicides; yet females may be at an increased risk for suicide attempts, with modes of attempts also varying by gender (Kettl and Bixler, 1993; May *et al*., 2002; LeMaster *et al*., 2004; Wexler *et al*., 2012).

Caetano *et al*. (2013) identified risk factors that were components of historical loss, which included loss of culture, historical trauma, ethnic discrimination, poverty and unemployment and family problems. Wexler *et al*. (2012) completed a study in the Northwest region of Alaska during 2001–2009 and identified risk factors that included being single and not cohabitating, being unemployed, not having an education, SUD, abuse and depressive signs. Berman (2014) examined suicide amongst male AN between the ages of 15 and 37 years. Risk factors included remote communities, communities with fewer non-Natives and communities with evidence of cultural divides. Importantly, community fragmentation is a result of historical oppression, a tactic used during colonisation to divide and conquer Indigenous communities (Burnette, 2015a,b). Protective factors included communities with higher incomes, marital status (more married individuals), traditional elders (which may be indicative of opportunities for enculturation, a culturally based protective factor related to resilience), communities located on the road system and number of households receiving public assistance. Finally, O'Keefe *et al*. (2014) examined interpersonal suicide risk from two components: thwarted belongingness (extreme feelings of disconnectedness) and perceived burdensomeness (feeling that one's existence burdens family, friends, and/or society), reporting that only perceived burdensomeness significantly predicted suicidal ideation, yet the interaction of perceived burdensomeness and thwarted belongingness also significantly predicted suicidal ideation. Having social support, self-esteem and self-efficacy gained through extended family support were considered protective factors. O'Keefe *et al*. (2013) also reported that hope was protective against suicidal ideation. Close knit families and communities have been found to be culturally relevant aspects of resilience, and this was apparent through these results (Burnette, 2018).

SUD

SUD is a concerning factor for AI/AN populations as recent national data suggest higher rates of SUD and greater rates of abuse and dependence amongst these populations. This is ironic, given that SUD was primarily introduced during European colonisation, often as a tool of manipulation to gain land and resources (Burnette, 2015b). Six studies identified the prevalence of various SUD and the associated risk and protective factors amongst AI/ANs (May and Gossage, 2001; Mitchell *et al*., 2003; Spicer *et al*., 2003; Whitbeck *et al*., 2004; O'Connell *et al*., 2005; Radin *et al*., 2015). The most common substance problem amongst AI/AN populations is alcohol abuse and dependence. Walls *et al*. (2013) identified that over 73 per cent ($n = 452$) of the adults in their study met the DSM-III criteria for alcohol abuse, identifying historical loss, perceived discrimination, women and younger ages as risk factors. Enculturation and engagement with culture provided protective factors against historical loss but did not eliminate the effects of discrimination (Whitbeck *et al*., 2004). Radin *et al*. (2015) identified similar culturally based protective factors, such as maintaining culture and traditions, basic education and education about drugs and alcohol and family and community involvement (Radin *et al*., 2015). AI/ANs that were not reservation-based drank more frequently than those on the reservations (Whitbeck *et al*., 2004; Radin *et al*., 2015).

Overall, AI/ANs consumed a larger quantity of alcohol per drinking day than the US reference population. Binge drinking patterns tended to be paramount in the Indigenous samples of this review (May and Gossage, 2001; O'Connell *et al*., 2005). Researchers explained this pattern through the impact of historical oppression, discussing the ways alcohol was used as a tool of colonisation (O'Connell *et al*., 2005). Age, unemployment and marital status were differentially associated with SUD, depending on the region. Utilising the same data set as Spicer *et al*. (2003), Mitchell *et al*. (2003) examined lifetime drug use. Regardless of gender, lifetime alcohol use was high (ranging from 37.6 to 73.4 per cent), followed by use of marijuana, cocaine and inhalants (Mitchell *et al*., 2003). May and Gossage (2001) reported that the drug of choice in the Plains and Plateau cultures was marijuana and prescription pills. Radin *et al*. (2015), in contrast, identified alcohol as the most prevalent substance being used/abused in Washington State, followed by methamphetamine, marijuana, heroin and prescription pills. Other demographic risk factors included being younger, cohabitating, lower education and poverty, and these varied by region (Radin *et al.*, 2015). As indicated, virtually all factors, including substance used most frequently, varied by region.

Comorbidity and multimorbidity: SUD and depression/anxiety/suicide

Although many of the studies touched briefly on the comorbidity and multimorbidity of these outcomes, eight studies identified the prevalence of multiple DSM disorders in AI/AN populations, with 'all' studies indicating SUD was a risk for other psychiatric disorders (Beals *et al.*, 2005b; Duran *et al.*, 2005; O'Connell *et al.*, 2006; Tann *et al.*, 2007; Rieckmann *et al.*, 2012; Moghaddam *et al.*, 2014; Brave Heart *et al.*, 2016). Duran *et al.* (2005) identified that in a primary care setting, 39 per cent of AI adults experienced alcohol, drug and mental disorders at the same time. Beals *et al.* (2005a) and Beals *et al.* (2005b) reported that men were more likely than women to have comorbid disorders, and engagement with culture (engaging in traditional language and traditional healers) was a protective factor for the Southwest tribe (Beals *et al.*, 2005b), a finding supported by O'Connell *et al.* (2006). O'Connell *et al.* (2006) also noted that drinking was correlated with acute and chronic physical conditions (such as liver disease, pancreatitis, seizures and traumatic injuries). Tann *et al.* (2007) studied the risk of alcoholism, diabetes and depression in all fifty states and indicated that AI/AN and Native Hawaiians had the highest risk when compared with all other ethnicities, also experiencing multimorbid conditions. Finally, Brave Heart *et al.* (2016) indicated that AI/ANs had a higher prevalence of psychiatric disorders relative to non-Hispanic whites in 33 per cent of the fifteen individual disorders assessed, and AI/AN women were at increased risk for such disorders.

Discussion

Just as the MDGs prioritise inequalities, poverty, social, SUD and mental health and well-being, the importance for social workers to understand how the origin of AI/AN disparities may relate to historical oppression cannot be emphasised enough. Results reveal adults within Indigenous populations in the USA are at a high risk for mental health outcomes, including PTSD, depression, suicide, SUD and the various interactions of comorbidity. Using the FHORT to examine themes of risk and protective factors across levels, risk factors for PTSD, SUD and suicide at the historical and cultural levels included historical trauma and oppression, loss of land and culture and ethnic discrimination.

Exposure to these traumas not only increase the marginalisation for Indigenous people but also perpetuate the negative cycle between poverty and mental health, as highlighted in the MDGs (WHO, 2018). Culturally relevant protective factors that offset disparities included traditional upbringings and maintaining culture, as well as family and social support. Results also reveal considerable overlap of risk factors across mental health outcomes, with a dominant risk factor being trauma—both historical oppression and contemporary trauma. Underlying risk factors occurred across ecological levels, including historical oppression and loss, social determinants of health (e.g. low income and education), family problems and SUD. Thus, this review supports the UN's MDGs and their holistic approach (UN, 2018).

Despite the numerous overlaps, the review found significant variability in risk factors based on specific demographic information, primarily gender (being female for most outcomes) and geographic regions. More accurate and culturally specific research is needed to further examine the 'opioid epidemic' and its prevalence for Indigenous peoples by tribe, gender and region (Tipps *et al.*, 2018). Indeed, variability was consistently found by gender in all outcomes, with women being particularly vulnerable to many mental health outcomes. Another noticeable variability was in geographic location, although it was hard to determine a particular trend based on location as it varied per outcome and on risk and protective factors.

Limitations and future research

Although this review was inclusive of AI/ANs and Native Hawaiians, the scarce research available focused mostly on AI/ANs. This is an important exclusion in the known research related to Indigenous peoples of the USA. More research is needed specific to the context of the Indigenous peoples of Hawaii. Moreover, extreme caution should be had with many of the prevalence statistics, particularly those reporting low prevalence of depression juxtaposed with known disparities in suicides amongst AI/ANs. As overwhelmingly demonstrated in this review, rates vary by tribe, region, gender and arguably data collection method and should not be generalised beyond their context. As such, there is no shortcut to identifying precise prevalence data and associated factors amongst Indigenous populations; culturally specific and culturally relevant research approaches are needed to establish an accurate portrayal of mental health/wellness. In addition, although the majority of AI/ANs reside in urban locations, it is significant to note that only three studies sampled these areas. The remaining geographical areas sampled were predominately from the Southwest and Northern Plains, with limited sampling from the Northwest, Northeast, Southeast, Midwest, Alaska and Hawaii. In addition, this study focused on Indigenous populations in the USA. Future studies should systematically explore this topic in international settings, since the gap in research exploring mental health disparities amongst Indigenous adults is also present more broadly in the literature on Indigenous people outside the USA.

Although protective factors were identified, almost half of the studies did not include a discussion of protective factors, indicating a need for a more nuanced and strengths-based approach to understand health equity. Furthermore, although some studies included a cultural framing, many did not. This may be related to a perceived disincentive to include cultural information into manuscripts when publishers view Indigenous issues as ‘niche’ or specialised topics. Publishers need to be inclusive of Indigenous populations, as they exist worldwide and are inseparable from the broad gaps in well-being for all (UN, 2018). More research incorporating cultural frameworks, such as the FHORT, is needed. In closing, this review identified risk and protective factors that can inform interventions for culturally relevant and effective interventions to promote health equity and prevent health disparities.

Implications and conclusion

Parallel to the FHORT, given many of the factors driving disparities share historical and structural causes, social workers must work to address, understand and acknowledge these underlying factors. Given that protective factors and concomitant resilience tended to include cultural, familial and community tenets, holistic social work programmes that address life challenges and enhances overall health and well-being are the most promising (UN, 2018; WHO, 2018). Risk and protective factors related to disparities occur across ecological levels and include historical, structural, and social determinants of health. As such, social work programmes to address Indigenous disparities must also include policies that redress historical oppression and trauma, economic growth initiative, equitable educational opportunities, cultural enrichment programmes, community-based programming and family supports. Although individual-level programmes will always be needed, social workers can contribute to developing programmes that integrate the protective factors of culturally based programming, coupled with providing tangible resources, promoting economic and social mobility and equity. Finally, given disparities vary by gender, evidence-informed programming need to be tailored and developed with gender in mind.

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Supplementary material

Supplementary material is available at *British Journal of Social Work* online.

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