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Review article

# Social and emotional wellbeing assessment instruments for use with Indigenous Australians: A critical review

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ABSTRACT

*Rationale:* There is growing recognition that in addition to universally recognised domains and indicators of wellbeing (such as population health and life expectancy), additional frameworks are required to fully explain and measure Indigenous wellbeing. In particular, Indigenous Australian wellbeing is largely determined by colonisation, historical trauma, grief, loss, and ongoing social marginalisation. Dominant mainstream indicators of wellbeing based on the biomedical model may therefore be inadequate and not entirely relevant in the Indigenous context. It is possible that "standard" wellbeing instruments fail to adequately assess indicators of health and wellbeing within societies that have a more holistic view of health.
*Objective:* The aim of this critical review was to identify, document, and evaluate the use of social and emotional wellbeing measures within the Australian Indigenous community.
*Method:* The instruments were systematically described regarding their intrinsic properties (e.g., generic v. disease-specific, domains assessed, extent of cross-cultural adaptation and psychometric characteristics) and their purpose of utilisation in studies (e.g., study setting, intervention, clinical purpose or survey). We included 33 studies, in which 22 distinct instruments were used.
*Results:* Three major categories of social and emotional wellbeing instruments were identified: unmodified standard instruments (10), cross-culturally adapted standard instruments (6), and Indigenous developed measures (6). Recommendations are made for researchers and practitioners who assess social and emotional wellbeing in Indigenous Australians, which may also be applicable to other minority groups where a more holistic framework of wellbeing is applied.
*Conclusion:* It is advised that standard instruments only be used if they have been subject to a formal cross-cultural adaptation process, and Indigenous developed measures continue to be developed, refined, and validated within a diverse range of research and clinical settings.


## 1. Introduction

Indigenous populations throughout the world have far poorer health outcomes and a lower life expectancy than non-Indigenous inhabitants (Anderson et al., 2016). In Australia, for example, Indigenous people live approximately 10 years less than their non-Indigenous counterparts (AIHW, 2014). The difference in life expectancy has been attributed to a failure to address the treatment gap in chronic diseases such as diabetes, renal disorders, and cardiovascular diseases (Vos et al., 2009) along with their associated psychological conditions (Cunningham and Paradies, 2012).

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Despite the establishment of a National policy response, such as the 'Close the Gap' Campaign in 2006, inequalities in health and wellbeing persist and, in many instances, are widening (Department of the Prime Minister and Cabinet, 2017). The headline aim of the campaign was to achieve health equality, as measured by life expectancy, by 2030 (Close the Gap, 2008). Notably absent from the targets is any standard measure of wellbeing, despite the stated aim of assessing improvements in the wellbeing of Indigenous Australians (Biddle, 2011).

A pertinent question, therefore, is what indicators of wellbeing should be included in closing the gap targets such as these? The International Group of Indigenous Health Measurement emphasised that it is critically important to have a detailed understanding of how health and wellness are viewed from Indigenous perspectives (Coleman et al., 2016) before instruments are applied to assess health equity. Accordingly, much has been discussed within Indigenous circles (Kite and Davy, 2015; Yap and Yu, 2016) about the need to better articulate and measure meaningful and culturally aligned indicators of health and wellbeing. Thus, the aim of this paper was to critically review how the domains pertinent to Indigenous health and wellbeing are currently conceptualised and to identify the relevant indicators and their associated instruments specifically used to assess these domains with respect to Indigenous Australians. In this review, the term 'Indigenous Australians' is predominantly used to refer to Aboriginal and Torres Strait Islander people. Where used to refer to Indigenous people of other nations, this is specifically addressed.

The United Nations Human Development Index (UNHDI) identifies three domains that could be applied universally to most populations: health and population, material wellbeing, and education (UNDP, 2016). These are also prominent domains relevant to the specific 'Closing the Gap' targets (Altman et al., 2008; Department of the Prime Minister and Cabinet, 2017). In addition, the Arctic Social Indicators group identified a further three prominent domain areas in the Arctic region to add to the UNHDI domains: fate control, cultural wellbeing and vitality, and contact with nature, thus resulting in six relevant domains for describing features of wellbeing in the Arctic region. A further task is to identify relevant indicators for each domain, as "an indicator should be the most accurate statistic for measuring both the level and extent of change in the social outcome of interest", (p.35). For example, life expectancy is an indicator of 'health and population', and relevant to the domain of cultural wellbeing, three indicators were considered important in the Arctic region: language retention, cultural autonomy, and sense of belonging.

How can health and wellbeing best be understood in the context of Indigenous Australians? In recent decades, the concept of quality of life (QOL) has been used to assess and compare subjective feelings of health and wellbeing in the general population, but how suitable is this concept in assessment of indigenous wellbeing? Even when applied in the general population, there is considerable confusion and uncertainty concerning the definition, conceptualisation, and taxonomy of the QOL construct (Barcaccia et al., 2013; Karimi and Brazier, 2016). It has been argued that QOL frameworks that result in measurement of objective social, economic, and health indicators, including health-related quality of life (HRQoL), are too narrow in scope, and may merely be a proxy for what is subjectively judged to be important indicators of QOL from the perspective of decision makers and not the population in question themselves (Costanza et al., 2007). Alternatively, other QOL frameworks are subjective and focus on perceived need in relation to social, economic, and health indicators (Costanza et al., 2007). For example, definitions of HRQoL tend to focus on factors that are considered to be closely associated with an individual's particular health status, often as it relates to the experience of a health condition or ailment (Karimi and Brazier, 2016). Typical definitions emphasise the impact of disease on perceptions of wellbeing. For example, HRQoL has been defined as 'the value assigned to duration of life as modified by the impairment, functional states, perceptions and social opportunities that are influenced by disease, injury, treatment, or policy' (Patrick and Erickson, 1993, p. 22), and "the extent to which one's usual or expected physical, emotional and social wellbeing are affected by a medical condition or its treatment" (Patrick and Erickson, 1993, p. 73).

Subjective theorists have recognised the need to acknowledge wider and more holistic influences on wellbeing. For example, Haas (1999) defines QOL as "a multidimensional evaluation of an individual's current life circumstances in the context of the culture in which they live and the values they hold. QOL is primarily a subjective sense of well-being encompassing physical, psychological, social, and spiritual dimensions" (p. 219). Indeed, there is increasing recognition that Indigenous health may be best understood within the wider historical, political, social, psychological and physical worlds in which health, and conversely illness, has been, and is currently being, constructed and experienced (Dockery, 2010). What is the evidence supporting these more holistic conceptualisations of QOL or wellbeing within populations such as Indigenous Australians?

It is argued that the health and wellbeing of Indigenous people is more heavily influenced by a range of historical factors, including colonisation, assimilation, racism, poverty, environmental adversity, intergenerational trauma and social exclusion (Atkinson and Nelson, 2014). Globally, there is increasing recognition of the impact of intergenerational legacies of colonisation, disruption of kinship networks, and social marginalisation upon Indigenous health (Kirmayer et al., 2014; Paradies, 2016; Prussing, 2014). In Canada, for example, it has been argued that the establishment of the Canadian residential school system and the creation of geographical 'reserves' discouraged traditional ways of living and systematically weakened family and cultural ties (Morton Ninomiya and Pollock, 2017). There is also evidence of healthcare inequalities derived from ongoing systemic racism in the Canadian health system (Goodman et al., 2017).

In Australia, the ongoing effects of colonisation through the impact of family separation, loss of land, social inequity, racism, and the loss of culture and identity on current Indigenous health is well recognised (Krieg, 2009; Paradies, 2016). Grief and loss brought about by colonisation and ongoing marginalisation have been identified as the central determinants of Indigenous Australian wellbeing (Swan and Raphael, 1995). For Indigenous Australians, loss can take many forms, such as the loss of land, loss of spirituality, loss of culture, loss of language, loss of freedom and bereavement (Wynne-Jones et al., 2016).

Given this background, Indigenous Australians through the landmark National Aboriginal Health Strategy (NAHS) have defined health and wellbeing (hereafter referred to as the NAHS definition) as *'not just the physical wellbeing of an individual but … to the social, emotional and cultural wellbeing of the whole Community in which each individual is able to achieve their full potential as a human being, thereby bringing about the total wellbeing of their Community. It is a whole-of-life view and includes the cyclical concept of life-death-life'* (NACCHO, 1989) (p.1). This approach highlights the understanding that social, emotional, and cultural wellbeing of the whole of community must be pursued alongside that of the physical wellbeing of individuals within that community.

Within the NAHS definition emphasis is placed on the individual within society, compared to a more Westernised mainstream biomedical model where the focus is on the "sick individual" (Neumayer, 2013) and the larger social, historical, and environmental context of the group in which the individual belongs, is

often ignored (Kagawa Singer et al., 2016). In common with "collectivist" kinship systems globally, Indigenous Australians place higher value and meaning on affiliation with the extended family and their community (Browne-Yung et al., 2013). Within this framework an individual struggles to remain well if the community as a whole is not well (Gee et al., 2014). Health and wellbeing is dependent on a complex set of relational bonds and reciprocal obligations within the kinship system (Swan and Raphael, 1995). Wellbeing is heavily dependent on spiritual connectedness to traditional lands or 'country', built over generations (Kingsley et al., 2013). Importantly, a recent qualitative study with Indigenous Australians identified the themes of connectedness to country, family and kinship, cultural knowledge, and social networks as reflecting a unique contribution to Indigenous health and wellbeing (Kilcullen et al., 2016). Interestingly, the themes of coping skills, knowledge, and social support reflected themes that are also important to non-Indigenous Australians (Kilcullen et al., 2016), perhaps pointing to a shared framework of the understanding of wellbeing in some dimensions. In another qualitative study, the same authors identified themes related to acceptance, respect, forgiveness and integrity, honesty, courage, empathy, mindfulness, and spirituality, all constructs that fit well into existing mainstream psychological frameworks such as the strengths and values-based frameworks epitomised by Acceptance and Commitment Therapy (Kilcullen et al., 2017).

Arising from the recognition that stress and emotional wellbeing in Indigenous peoples worldwide are strong determinants of physical health (Drew, 2015), the concept of social and emotional wellbeing (SEWB) has been put forward as a more culturally appropriate construct of 'wellbeing' (Day et al., 2015; Gee et al., 2014; Social Health Reference Group, 2004). SEWB is defined as "a multidimensional concept of health that includes mental health, but which also encompasses domains of health and wellbeing such as connection to land or 'country', culture, spirituality, ancestry, family, and community" (Gee et al., 2014, p.55). This approach acknowledges that wellbeing can be influenced by a wide range of external stressors including cultural dislocation, family breakdowns, discrimination and social disadvantage (Gee et al., 2014), but can, conversely, be supported and preserved by a range of socially and culturally constructed features of individual and collective life. Importantly, the concept of SEWB goes beyond traditional concepts of QOL to encapsulate positive aspects of wellbeing such as resilience (Tsourtos et al., 2015), social capital (Morrissey, 2006), and empowerment (Tsey et al., 2009). These concepts are of vital importance, since it has been acknowledged that lack of control and the broader experience of Indigenous powerlessness should be addressed in order to reduce the current gap in the preventable burden of disease (Tsey et al., 2009).

Via an extensive consultation process with key stakeholders from 2004 to 2005, the Australian government commissioned its "National Aboriginal and Torres Strait Islander Health Survey" (ABS, 2006), which identified eight measurable indicators of SEWB: psychological distress, impact of psychological distress, life stressors, discrimination, anger, removal from natural family, cultural identification and positive wellbeing. Following survey evaluation it was recommended that self-efficacy (sense of mastery), resilience (coping skills), identity (connection to land, country, and heritage), isolation and loneliness, social wellbeing (family and community cohesion), and mental health diagnoses (anxiety and depression) be added to this list (AIHW, 2009).

In summary, Having reached a consensus on identifying indicators of health and wellbeing as conceptualised by Indigenous Australians, this review will address the following questions: (a) To what extent do existing instruments adequately assess SEWB in this population? And (b), how could SEWB be better conceived, constructed, and measured in Indigenous Australians?

## 2. Methods

### 2.1. Literature search

To identify SEWB instruments that have been used with Indigenous Australians, a systematic search strategy was adopted following established synthesis of research evidence guidelines (EPPI-Centre, 2010). A literature search was performed using keywords and synonyms relating to Indigenous Australian SEWB (see supplementary material). Keywords and Boolean operators were combined to search the selected databases from 1990 to May 2016. Further references were obtained using a "pearl growing" technique (EPPI-Centre, 2010) where reference lists of papers confirmed to meet the inclusion criteria are manually browsed for further relevant keywords and references.

### 2.2. Inclusion and exclusion criteria

Papers were included if they related to the study topic (wellbeing, quality of life, mental health, health outcomes), population (Indigenous Australians), and setting (clinical, research, or survey). To avoid publication bias, unpublished reports from the "grey literature" as well as peer-reviewed, published studies were included. Papers were excluded if they focused primarily on children, or Indigenous populations based outside of Australia, and were not published in English.

### 2.3. Data extraction

Relevant papers were examined to identify the specific instrument used to assess SEWB; the main purpose for using the instrument; the specific SEWB domains assessed; the context in which the instruments were applied (e.g. research, clinical, survey); and the relevant psychometric properties of the instrument in relation to use with Indigenous Australians.

## 3. Results

Of 165 papers assessed for full-text evaluation, 33 relevant papers were selected with 22 individual instruments identified (see Fig. 1). An evaluation of the results of this literature search resulted in the identification of three major categories of SEWB instruments: (a) standard non-Indigenous instruments; (b) standard instruments adapted for Indigenous Australians; and (c) specifically developed SEWB instruments for Indigenous Australians.

### 3.1. Standard SEWB instruments

Standard instruments (Table 1) have been applied to assess wellbeing in Indigenous Australians in a variety of research settings. Quality of life and health status measures including the SF-12 and Kessler (K10) have been used mainly in nation-wide Indigenous population surveys (ABS, 2006, 2013a), which is not surprising considering the lack of alternative suitable survey instruments available. Many of these instruments that have been applied to understand the wellbeing of Indigenous Australians have their origins within British or US health systems. For example, the Health of the Nation Outcome Scales (HoNOS) was developed by the Royal College of Psychiatrists and forms part of the English Minimum Data Set for Mental Health (Wing et al., 1998). In fairness, it should be noted that these instruments were not designed to purposefully exclude Indigenous populations, rather they were meant to capture a representative sample of the general population which includes

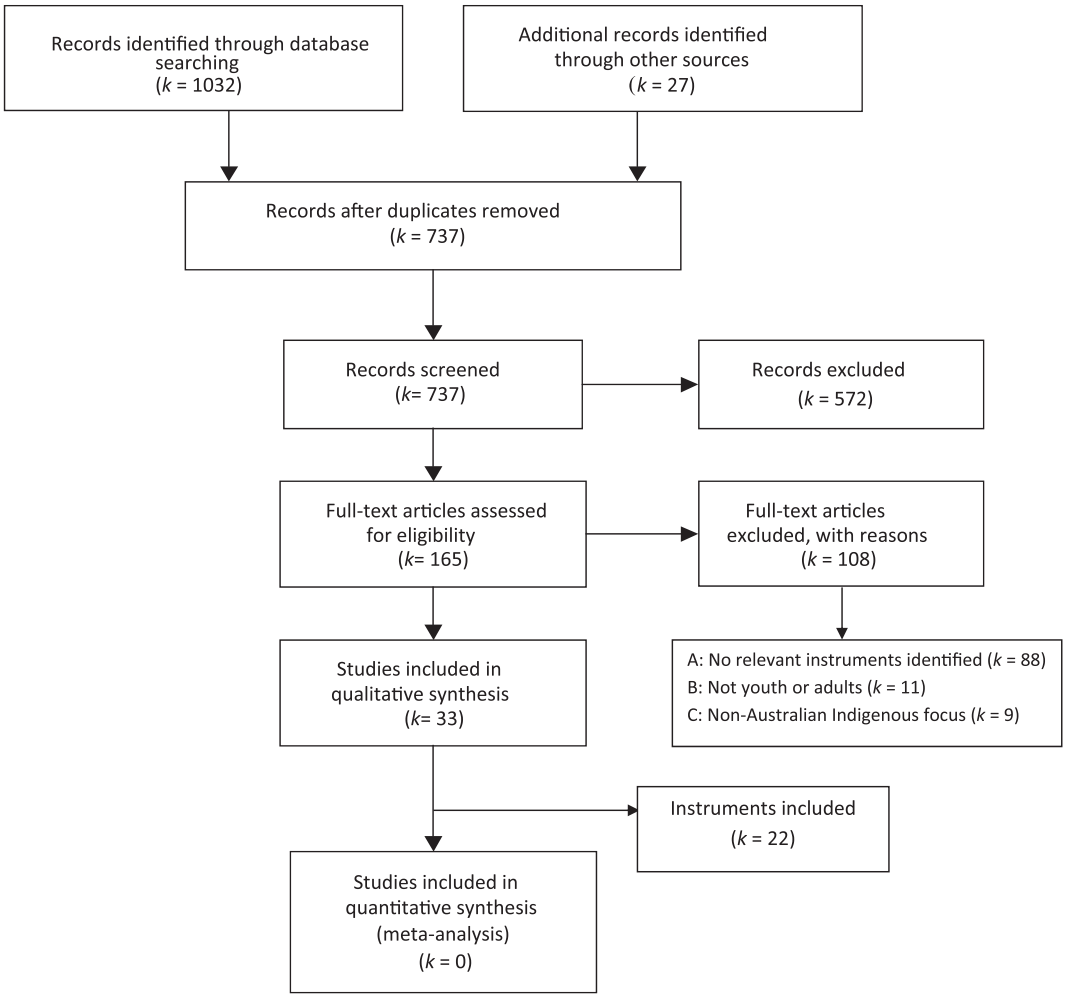


**Fig. 1.** Number of records screened and included in the review.

Indigenous peoples. It should also be noted considering the cultural shortcomings of these instruments, that they have not been used generally, to compare wellbeing across populations.

Although there has been widespread use of unmodified "Western" derived instruments with Indigenous Australians as presented in Table 1, very few studies have psychometrically evaluated their suitability for use with Indigenous populations. Some authors have acknowledged the lack of validation with Indigenous Australians (Garvey et al., 2016; Segal et al., 2016) whilst the majority fail to mention this as a limitation. Other authors justify their use by noting their previous use and validity in population studies which have combined Indigenous and non-Indigenous populations (O'Brien et al., 2016), even though Indigenous Australians would have been the minority group. Further to this, the acceptable psychometric properties of these instruments are often noted without regard to the characteristics of the population in which they were validated. The lack of cultural relevance and validation with Indigenous Australians, however, is noted in the Australian Psychological Association (APA) guidelines for use of psychological tests (APA, 2003): 'Particular caution should be exercised where tests have not been extensively tried with Indigenous people and where test norms for those Indigenous populations are non-existent' (p.4). Specifically, using standard instruments without adaptation 'presumes a universality of definition and understanding which is inappropriate' (Brown et al., 2013, p. 6).

### 3.2. Adaptation of standard instruments for Indigenous Australians

Given the absence of instruments developed specifically to assess Indigenous Australian wellbeing, cross-cultural adaptations have been carried out with the aim of modifying existing instruments to improve their cultural acceptability and suitability for use in Indigenous populations (see Table 2). One example of a systematic and comprehensive adaptation to examine an aspect of Indigenous wellbeing is Brown's adaptation of the Patient Health Questionnaire (PHQ-9) (Brown et al., 2012, 2013). The first step of this adaptation process involved conducting semi-structured in-depth interviews with traditional healers and key community informants from a range of different language groups and backgrounds (Brown et al., 2012). This qualitative phase was important for classifying the various expressions of depression and depressive symptoms. Existing depression screening instruments were then reviewed and assessed for suitability for adaptation (Brown et al., 2013), with the PHQ-9 and three other instruments selected for this process. Several multi-stage focus groups were then carried out with Indigenous elders or key bilingual informants to explore item relevance, conceptual alignment, operational equivalence and semantics. The final version of the adapted PHQ-9, consisted of 11 items and took over six months to develop (Brown et al., 2013).

A further consideration lies in addressing the diversity of Indigenous languages. It is important that the questions chosen for

**Table 1**
Standard instruments used to measure social and emotional wellbeing in Indigenous Australians.

| Name | Areas assessed | No. of items | Disease/setting applied | Psychometric information |
|---|---|---|---|---|
| AQoL-4D | Quality of life, independent living, mental health, relationships, senses | 12 | Cancer (Garvey et al., 2015; Garvey et al., 2016) Diabetes (Segal et al., 2016) | Used but not validated with Indigenous Australians |
| EuroQol (EQ5D) | Quality of life, mobility, self-care, usual activities, pain, anxiety/depression | 5 | CVD prevention (Patel et al., 2015) | Used but validated with Indigenous Australians |
| SF-36 | Quality of life, vitality, physical functioning, bodily pain, general health, physical role, emotional role, social role, mental health | 36 | Diabetes (Johnson et al., 2015; O'Brien et al., 2016) Cardiopulmonary rehabilitation (Davey et al., 2014) | Used but not validated with Indigenous Australians |
| SF-12 | Quality of life, physical health, and mental health | 12 | Diabetes (Battersby et al., 2008; Ah Kit et al., 2003) | Used but not validated with Indigenous Australians |
| SEIQoL-DW | Family relationships, cultural values, health | 15 | Drug and alcohol treatment (Chenhall and Senior, 2012; Chenhall et al., 2010) | Graphical based approach which is less reliant on literacy levels. Used but not validated with Indigenous Australians. |
| Life Skills Profile (LSP) 16 | Self-care, anti-social. withdrawal, compliance | 16 | Community mental health (Trauer and Nagel, 2012) | Used but not validated with Indigenous Australians |
| Health of the Nation Outcome Scales (HoNOS) | Psychiatric symptoms, physical health, relationships and housing | 12 | Acute mental health inpatients (Trauer and Nagel, 2012) | Used but not validated with Indigenous Australians |
| Kessler K-10 | Psychological distress | 10 | Population surveys (CER, 2010) | Used but not validated with Indigenous Australians. |
| NCCN Distress Thermometer | Psychological distress | 1 | Cancer (Garvey et al., 2015) | Used but not validated with Indigenous Australians. |
| Oral Health Impact Profile (OHIP-14) | Quality of life | 14 | Dental health (Williams et al., 2010) | Used but not validated with Indigenous Australians. |

**Table 2**
Modified or adapted instruments used to measure social and emotional wellbeing in Indigenous Australians.

| Name | Areas assessed | No. of items | Disease/setting | Psychometrics and related information |
|---|---|---|---|---|
| Kessler (K5) | Psychological distress | 5 | Population surveys (ABS, 2013a; Stewart, 2003) | Limited adaptation. 5-item version omits "worthlessness" item as considered culturally inappropriate (Stewart, 2003). Also, slight wording changes made to some items. |
| Kessler (K6) | Psychological distress | 6 | Population surveys (ABS, 2013a; Brown et al., 2015; Stewart, 2003) | 6-item version subjected to full cross-cultural adaptation and retains the "worthlessness" item. |
| Patient Health Questionnaire (PHQ9) | Depression | 11 | Heart Disease (Esler et al., 2008) Population surveys (Brown et al., 2013) | Esler et al. (2008) added an additional item (Anger). Brown et al. (2013) conducted complete cross-cultural adaptation. Reasonable reliability and validity demonstrated. |
| Pearlin Mastery Scale | Emotional stability, personal mastery | 7 | Population surveys (ABS, 2013b) Community-based chronic disease risk factor screening (Daniel et al., 2006) | Cross-cultural adaptation with translation and back translation conducted, mastery was inversely correlated with measures of perceived stress and positively correlated with health behaviours (Daniel et al., 2006). Further psychometric testing required. |
| Multidimensional Scale of Perceived Social Support (MSPSS) | Social support, family, friends and a significant other | 6 | Population surveys (Cunningham and Paradies, 2012) | Not a true cross-cultural adaptation. Subset of six items from original 12 items. Not validated with Indigenous Australians. In the NATSIHS only used with urban Indigenous Australians, not with those living in remote areas. |
| St George's Respiratory Questionnaire (SGRQ) | Symptoms, Activity and Impacts (Psycho-social) | 50 | COPD (Maguire et al., 2010) | Adapted with joint sample of Indigenous Australians with chronic obstructive pulmonary disease and Indonesians with pulmonary tuberculosis. Further psychometric testing required with Indigenous Australians. |

any adapted instrument hold the same meaning across languages (i.e. semantic equivalence) (Schmidt and Bullinger, 2003). Creating a newly developed instrument was not just a matter of directly translating and back-translating words into their respective languages. Importantly, in parallel with establishing semantic equivalence, it is also necessary to ensure that the theoretical construct of measurement has the same importance across cultures (conceptual equivalence) and items representing the construct are comparable across languages and cultures (item equivalence) (Schmidt and Bullinger, 2003). Brown et al. (2013) for example, found that, "spirit and its perceived wellbeing" was a conceptually equivalent translation for "depressed mood", but the linguistic experts could not find a conceptual equivalent for the hopelessness item of the PHQ-9.

Other standard instruments adapted for use with Indigenous Australians (see Table 2) include the Pearlin Mastery Scale and Kessler-5 (K-5 adapted from the original Kessler Psychological Distress Scale, K-10). The Kessler scales cover an important component of Indigenous SEWB, psychological distress, which has been found to be related to number of days unable to work and number of visits to a health professional among Indigenous people (Slade et al., 2009). Psychological distress has also been associated with a range of other SEWB domains including: positive wellbeing; anger; number of life stressors; mental illness stressors; racial

discrimination; and removal from natural family (AIHW, 2009). Other SEWB-related instruments have been modified for Indigenous populations via simple item deletion, rather than being subjected to the process of cross-cultural translation and adaptation, e.g. the Multidimensional Scale of Perceived Social Support (MSPSS), as such their use should be viewed with caution.

The Pearlin Mastery Scale may be particularly useful in the Australian Indigenous SEWB context with its relevance to the stress process model in which trauma, adverse life events, and chronic stressors can interfere with coping and result in illness (Pearlin, 1981). This is similar to concepts of personal control and self-efficacy, but also affects resilience, an important recognised psychosocial function in Indigenous Australians (Hopkins et al., 2012). In summary, 'adapted' instruments are those that assess components of SEWB such as general psychological distress (K5, K6 and K10), depression (PHQ9), and personal control (Pearlin Mastery). While they may address individual components of SEWB which may be relevant for both Indigenous and non-Indigenous populations (e.g. psychological distress), the standard and adapted instruments presented in Tables 1 and 2 do not address all of the components of indigenous wellbeing derived from holistic models (Gee et al., 2014; Social Health Reference Group, 2004). In particular, significant components of Indigenous SEWB such as grief, loss, and connectedness are not specifically or sufficiently covered.

### 3.3. Specifically developed SEWB instruments for Indigenous Australians

It has been increasingly recognised that cultural validation via cultural endorsement of items by key Indigenous stakeholders (Kowal et al., 2007) is important in the development of any instrument intended to measure Indigenous wellbeing. Further, the development of homegrown instruments within the cultural group and country in which they will be used can avoid the mechanical acceptance of instruments just because they are well known or have performed well in other countries and cultures (Tammaru et al., 2007). The development of SEWB instruments in recent years is a promising step in addressing criticisms aimed at the cultural shortcomings of standard and modified non-Indigenous instruments (Drew et al., 2010; Kite and Davy, 2015). However, it is pertinent to assess how well they address comprehensive holistic models of Indigenous SEWB (Gee et al., 2014) and the specific indicators of SEWB. It is also important to evaluate their performance and practical usage in both clinical and research settings.

The Here and Now Aboriginal Assessment (HANAA) screening tool (Janca et al., 2015) provides a good example of the complex multi-stage process necessary for development of an Indigenous-specific measure. The initial stage was a qualitative phase including community consultation with a focus on cross-cultural understanding of Indigenous SEWB, resulting in the creation of an Indigenous mental health glossary. The second stage was to develop the initial draft of the HANAA instrument which took the form of a semi-structured interview based on a 'yarning process'. Yarning is an informal method of conversation that is recognised by Indigenous people to share stories or provide and receive information (Walker et al., 2014). Interviews and written feedback regarding the draft version of the HANAA with key Indigenous and non-Indigenous informants such as health workers, social workers, and psychologists formed the next stage of development. The feasability, reliability, and validity of the HANAA was then evaluated in a fourth stage (Janca et al., 2015). Similarly, the Growth and Empowerment Measure (GEM) was developed initially from descriptions of the experience of empowerment from Indigenous participants in a family wellbeing program (Haswell et al., 2010), while the Strong Souls Inventory (SSI) was developed via ongoing consultation with Indigenous people and Indigenous mental health experts (Thomas et al., 2010). The common objective in the development of these instruments was to achieve cultural endorsement and validity of items assessing aspects of Indigenous Australian SEWB.

Both the HANAA and the GEM appear to focus on the broader holistic aspects of SEWB, although the broader applicability of the HANNA may come into question, since it was designed for use with psychiatric professionals and targets diagnosis and management in mental health settings (Balaratnasingam et al., 2015). In contrast, the GEM has a positive wellbeing perspective and is claimed to assess psychosocial wellbeing and empowerment at many levels – individual, family, and organisation (Haswell et al., 2010). Importantly, it is one of the only SEWB instruments that specifically seeks to assess connectedness, which is an important aspect of SEWB focusing on dimensions of family, cultural identity, and kinship (Gee et al., 2014; Liaw et al., 2011). The GEM is intended to be utilised in both clinical and research settings rather than be limited to any specific context (Haswell et al., 2010).

In contrast, some of the newly developed instruments (see Table 3) are clearly designed to examine specific indicators of SWEB only. For example, The Negative Life Events Scale (NLES) was designed to measure adverse life circumstances of Indigenous Australians (Kowal et al., 2007). Similarly, a negative focus on wellbeing was apparent in the development of the SSI, which targeted psychological distress (Thomas et al., 2010), and the Westerman Aboriginal Symptom Checklist-Adults (WASC-A), which was developed to assess areas such as depression, suicidal behaviours, alcohol and drug use, impulsivity and anxiety. Having a more negative focus on wellbeing, these three instruments may have more utility in clinical settings by screening for distress, chronic stress, depression and problematic behaviours.

## 4. Discussion

### 4.1. The use of standard and modified instruments to assess indigenous SEWB

There is increasing recognition that assessment of SEWB of Indigenous Australians should consider their world view and belief systems and use culturally sensitive language and protocols (Kite and Davy, 2015). This is in line with Indigenous Australian wellbeing frameworks that are multi-dimensional and holistic, and take into account cultural factors such as identity, connectedness, and kinship (Gee et al., 2014). Even so, it remains common practice to include standard psychosocial instruments in research studies and surveys where Indigenous populations are included in the sample. These instruments may have acceptable reliability and validity in the European-Australian 'dominant culture' but this should not be the main guiding factor in their selection, and should be noted as a limitation where they are used.

Instruments that have been adapted for use with Indigenous Australians should have had the formal process of cross-cultural adaptation following recognised guidelines to make their use worthwhile within Indigenous populations. The intensive work conducted with the PHQ-9 (Brown et al., 2013) is a good example of what is required to adapt a concept from the dominant culture, such as depression, so that it becomes relevant to the target population.

### 4.2. How can indigenous SEWB be better assessed?

Evidence from the cross-cultural assessment literature indicates that there are significant differences in the concepts of wellbeing between Indigenous cultures throughout the world and the North

**Table 3**
Instruments developed specifically to measure social and emotional wellbeing in Indigenous Australians.

| Name | Areas assessed | No. of items | Disease/setting | Psychometric and other information |
|---|---|---|---|---|
| Here and Now Aboriginal Assessment tool (HANAA) | Physical health, sleep, mood, suicide risk and self- harm, substance use, memory, unusual experiences, functioning, life stressors and resilience | 10 | Inpatient and community mental health (Balaratnasingam et al., 2015; Janca et al., 2015) | Interview administered (yarning circle) 93% agreement with clinical team ratings in a small sample of n = 28. Inter-rater agreement varied by domain and ranged from 0.5 to 1.0 |
| Strong Souls Inventory (SSI) | Anxiety, depression, suicide risk and resilience | 8 | Substance use rehabilitation (Dingwall and Cairney, 2011; Thomas et al., 2010) | 8-item version derived from original 25 items. Requires further validation in more diverse settings. |
| Growth and Empowerment Measure (GEM) | Self-capacity, inner peace, healing and enabling growth, connection and purpose | 26 | Community sample (Haswell et al., 2010), family wellbeing (Kinchin et al., 2015), substance abuse (Berry et al., 2012) | Validated with convenience sample of n = 184 ATSI. Reasonable reliability and validity was obtained. Sensitivity to change was demonstrated within substance abuse treatment settings (Berry et al., 2012). |
| Westerman Aboriginal Symptom Checklist-Adults (WASC-A) | Depression, suicidal behaviours, alcohol and drug use, impulsivity, and anxiety | 6 | Population surveys (Cunningham and Paradies, 2012) | A subset of six items from the original 7-item scale (developed for young people aged 12-17) was used for adults in non-remote areas |
| Negative Life Events Scale (NLES) | Stressful life events | 16 | Population surveys (Kowal et al., 2007) | Items in the scale were chosen following consultation with Indigenous informants, but the complete process of cultural validation was not undertaken. Reasonable discriminant validity and reliability. Three items had poor discriminative ability. Further psychometric evaluation is required. |
| Supportive Care Needs Assessment Tool for Indigenous Patients (SCNAT-IP) | Physical and psychological, hospital care Information and communication, practical and cultural | 26 | Cancer outpatient clinics (Garvey et al., 2016) | Internal consistency of four domains ranged from 0.7 to 0.89. Good convergent and discriminant validity was reported. |

American/Western European cultures from which standard instruments are derived (Borsa et al., 2012). These differences in conception of wellbeing are important enough to justify the development of Indigenous-specific instruments, as opposed to the translation and adaptation of existing instruments. In the Australian context, it is recognized that development of these instruments is relatively new and more research is required to examine their psychometric properties and applicability in a variety of research and clinical settings (Newton et al., 2015). There is also an expanding body of qualitative research related to Indigenous perceptions of health and illness (Jobling et al., 2015; Waterworth et al., 2016) and interaction with the dominant health system (Artuso et al., 2013; Jobling et al., 2015; Worrall-Carter et al., 2016), which could potentially be resourced for improvement in wording of existing scale-items and the potential generation of new instruments to assess Indigenous SEWB. A promising area of qualitative research that has identified shared cross-cultural understandings of SEWB and strengths-based psychology (Kilcullen et al., 2016, 2017) is also a potentially valuable source of culturally appropriate SEWB indicators.

### 4.3. Limitations

This review is limited in that it is not a fully comprehensive systematic review and did not attempt to discover every SEWB relevant instrument available. Although all selected articles were peer-reviewed, we did not evaluate these with standard quality appraisal measures. Apart from the direct involvement of one of our co-authors on adaptation of existing instruments (Brown et al., 2013), the authors have not attempted to communicate or engage with Indigenous communities to locate further wellbeing instruments that have been used in the past or the present. It is therefore possible that other SEWB-relevant instruments may exist that might be limited to localised usage and be unpublished. Because most instruments have been tested with youth or adult populations our review did not include SEWB instruments specifically developed for children.

### 4.4. Recommendations for assessment of SEWB in Indigenous Australians

Based on the findings of this critical review, we propose the following recommendations in the development and application of instruments used to assess SEWB in Indigenous Australians:

1. Researchers and practitioners should examine SEWB within a holistic framework that emphasises positive wellbeing as well as acknowledging the variety of cultural, historical, and environmental determinants that contribute to negative wellbeing.
2. Researchers and practitioners should endeavour to investigate and use Indigenous developed instruments (such as GEM, HANAA, SSI) wherever possible to assess Indigenous wellbeing.
3. If Indigenous adapted wellbeing instruments have been used, their applicability should be viewed with caution. Attention should be paid to whether the instrument has undergone a formal cross-cultural adaptation and psychometric evaluation in an Australian Indigenous population.
4. If standard wellbeing instruments have been used, it should be acknowledged that they have not been validated for use with Indigenous Australians.
5. Further development, psychometric testing, and refinement of instruments developed specifically to assess Indigenous SEWB is required. The qualitative literature dealing with Indigenous perceptions of health, wellbeing, and dealings with the health system are potential valuable resources that could assist with this refinement.

6. While it is important to recognise individual communities with their specific colonial histories, many of the concepts and processes involved in the development of national historical trauma and wellbeing assessment instruments (e.g. development of the "Indigenous Peoples of the Americas Survey" (Brave Heart et al., 2011)), could potentially be applied transnationally and prove to be useful in the development of localised SEWB instruments.

## 5. Conclusions

The lack of appropriate instruments to measure SEWB in Indigenous Australians has contributed to the persistent 'gap' of inequity, disadvantage, and much needed allocation of evidence-based resources and research directed toward Indigenous peoples (Department of the Prime Minister and Cabinet, 2017). Success in achieving health equity is currently 'defined by the extent to which Indigenous Australians conform to a set of pre-determined, measurable characteristics of the non-Indigenous ideal' (Black and Richards, 2009, p. 10), in turn "anything that may be uniquely positive about being an Aboriginal or Torres Strait Islander person is of little relevance to the 'evidence base'" (Black and Richards, 2009, p. 10). Under the dominant biomedical model in Australia, success in closing the gap is currently defined by universally defined domains such as population health and indicators such as mortality rate-ratios. The continuing failure to reach targets specified in the Closing the Gap campaign and other similar international efforts to reduce health disparities have led many to question the appropriateness of these mono-cultural derived indicators (Kagawa Singer et al., 2016) and could motivate the inclusion of more culturally relevant indicators (Hoy, 2009). It is apparent that existing Western-developed health and wellbeing frameworks and associated instruments often fail to address issues relating to connectedness, loss, resilience, empowerment and control, so crucial to Indigenous health and wellbeing. Psychometric testing of specifically developed Indigenous SEWB instruments is still in its infancy and further research in a variety of settings is required. The availability of quality SEWB data may go a long way forward in assessing true progress in achievement of health equity.

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## Appendix A. Supplementary data

Supplementary data related to this chapter can be found at http://dx.doi.org/10.1016/j.socscimed.2017.06.046.

## References

ABS, 2006. 2004–2005 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS). Australian Bureau of Statistics, Canberra.
ABS, 2013a. 4727.0.55.001–Australian Aboriginal and Torres Strait Islander Health Survey: First Results. Australia, 2012-13.
ABS, 2013b. 4727.0.55.002–Australian Aboriginal and Torres Strait Islander Health Survey: Users' Guide, 2012-13. Australian Bureau of Statistics, Canberra.
Ah Kit, J., Prideaux, C., Harvey, P.W., Collins, J., Battersby, M., Mills, P.D., et al., 2003. Chronic disease self-management in Aboriginal Communities: towards a sustainable program of care in rural communities. Aust. J. Prim. Health 9, 168–176.
AIHW, 2009. Measuring the Social and Emotional Wellbeing of Aboriginal and Torres Strait Islander Peoples. Cat. no. IHW 24. Australian Institute of Health and Welfare, Canberra.
AIHW, 2014. Australian Institute of Health and Welfare 2014. Mortality and Life Expectancy of Indigenous Australians: 2008 to 2012. Cat. no. IHW 140. AIHW, Canberra.
Altman, J.C., Biddle, N., Hunter, B.H., 2008. How Realistic Are the Prospects for Closing the Gaps' in Socioeconomic Outcomes for Indigenous Australians? Canberra: Australian National University, 2008, Canberra.
Anderson, I., Robson, B., Connolly, M., Al-Yaman, F., Bjertness, E., King, A., et al., 2016. Indigenous and tribal peoples' health (The Lancet-Lowitja Institute Global Collaboration): a population study. Lancet 388 (10040), 131–157.
APA (2003). Australian Psychological Association Guidelines for the Provision of Psychological Services for, and the Conduct of Research with, Aboriginal and Torres Strait Islander People of Australia.
Artuso, S., Cargo, M., Brown, A., Daniel, M., 2013. Factors influencing health care utilisation among Aboriginal cardiac patients in central Australia: a qualitative study. BMC Health Serv. Res. 13, 83.
Atkinson, J., Nelson, J., Atkinson, c, 2014. Trauma, transgenerational transfer and effects on community wellbeing. In: Purdie, N., Dudgeon, P., Walker, R. (Eds.), Working Together: Aboriginal and Torres Strait Islander Mental Health and Wellbeing Principles and Practice. Commonwealth of Australia, Canberra, pp. 135–144.
Balaratnasingam, S., Anderson, L., Janca, A., Lee, J., 2015. Towards culturally appropriate assessment of Aboriginal and Torres Strait Islander social and emotional well-being. Australas. Psychiatry 23, 626–629.
Barcaccia, B., Esposito, G., Matarese, M., Bertolaso, M., Elvira, M., De Marinis, M.G., 2013. Defining quality of life: a wild-goose chase? Eur. J. Psychol. 9, 185–203.
Battersby, M.W., Kit, J.A., Pridcaux, C., Harvey, P.W., Coffins, J.P., Mills, P.D., 2008. Implementing the flinders model of self-management support with aboriginal people who have diabetes: findings from a pilot study. Aust. J. Prim. Health 14, 66–74.
Berry, S.L., Crowe, T.P., Deane, F.P., Billingham, M., Bhagerutty, Y., 2012. Growth and empowerment for Indigenous Australians in substance abuse treatment. Int. J. Ment. Health Addict. 10, 970–983.
Biddle, N., 2011. Definitions of Wellbeing and Their Applicability to Indigenous Policy in Australia: Lecture 1. Canberra: Centre for Aboriginal Economic Policy Research, Canberra, p. 20. Australian National University, 2011.
Black, D., Richards, R.C., 2009. Is 'Close the Gap'a useful approach to improving the health and wellbeing of Indigenous Australians? Aust. Rev. Public Aff. 9, 1–13.
Borsa, J.C., Damásio, B.F., Bandeira, D.R., 2012. Cross-cultural adaptation and validation of psychological instruments: some considerations. Paid. (Ribeirão Preto) 22, 423–432.
Brave Heart, M.Y.H., Chase, J., Elkins, J., Altschul, D.B., 2011. Historical trauma among indigenous peoples of the Americas: concepts, research, and clinical considerations. J. Psychoact. Drugs 43, 282–290.
Brown, A., Mentha, R., Rowley, K.G., Skinner, T., Davy, C., O'Dea, K., 2013. Depression in aboriginal men in central Australia: adaptation of the patient health Questionnaire 9. BMC Psychiatry 13, 271.
Brown, A., O'Shea, R.L., Mott, K., McBride, K.F., Lawson, T., Jennings, G.L., et al., 2015. A strategy for translating evidence into policy and practice to close the gap – developing essential service standards for Aboriginal and Torres Strait Islander cardiovascular care. Heart Lung Circ. 24, 119–125.
Brown, A., Scales, U., Beever, W., Rickards, B., Rowley, K., O'Dea, K., 2012. Exploring the expression of depression and distress in aboriginal men in central Australia: a qualitative study. BMC Psychiatry 12, 97.
Browne-Yung, K., Ziersch, A., Baum, F., Gallaher, G., 2013. Aboriginal Australians' experience of social capital and its relevance to health and wellbeing in urban settings. Soc. Sci. Med. 97, 20–28.
CER, 2010. Centre for Epidemiology and Research (2010). 2006–2009 Report on Adult Aboriginal Health in New South Wales Population Health Survey. Department of Health, Sydney, NSW. Retrieved from. http://www.health.nsw.gov.au/surveys/adult/Pages/aboriginal-06-09.aspx. on 12 March 2016.
Chenhall, R.D., Senior, K., 2012. Treating indigenous Australians with alcohol/drug problems: assessing quality of life. Alcohol. Treat. Q. 30, 130–145.
Chenhall, R.D., Senior, K., Cole, D., Cunningham, T., O'Boyle, C., 2010. Individual quality of life among at risk indigenous youth in Australia. Appl. Res. Qual. Life 5, 171–183.
Close the Gap, 2008. Close the gap: indigenous health equality summit – statement of intent. 2008. accessed at. https://www.humanrights.gov.au/publications/close-gap-indigenous-health-equality-summit-statement-intent, 9 March 2016.
Coleman, C., Elias, B., Lee, V., Smylie, J., Waldon, J., Hodge, F.S., et al., 2016. International group for indigenous health measurement: recommendations for best practice for estimation of indigenous mortality. Stat. J. IAOS 32, 729–738.
Costanza, R., Fisher, B., Ali, S., Beer, C., Bond, L., Boumans, R., et al., 2007. Quality of life: an approach integrating opportunities, human needs, and subjective well-being. Ecol. Econ. 61, 267–276.
Cunningham, J., Paradies, Y.C., 2012. Socio-demographic factors and psychological distress in Indigenous and non-Indigenous Australian adults aged 18-64 years: analysis of national survey data. BMC Public Health 12, 95.
Daniel, M., Brown, A., Dhurrkay, J.G., Cargo, M.D., O'Dea, K., 2006. Mastery, perceived stress and health-related behaviour in northeast Arnhem Land: a cross-sectional study. Int. J. Equity Health 5, 10.
Davey, M., Moore, W., Walters, J., 2014. Tasmanian Aborigines step up to health: evaluation of a cardiopulmonary rehabilitation and secondary prevention program. BMC Health Serv. Res. 14, 349.
Day, A., Nakata, M., Miller, K., 2015. Programs to improve the social and emotional wellbeing of aboriginal and Torres Strait islander communities. Aust. Soc. Work 1–8.
Department of the Prime Minister and Cabinet, 2017. Closing the Gap: Prime

Minister's Report 2017. Department of the Prime Minister and Cabinet, Australia viewed 06 March 2017. http://apo.org.au/node/73707.
Dingwall, K.M., Cairney, S., 2011. Detecting psychological symptoms related to substance use among Indigenous Australians. Drug Alcohol Rev. 30, 33–39.
Dockery, A.M., 2010. Culture and wellbeing: the case of indigenous Australians. Soc. Indic. Res. 99, 315–332.
Drew, N., 2015. Social and emotional wellbeing, natural helpers, critical health literacy and translational research: connecting the dots for positive health outcomes. Australas. Psychiatry 23, 620–622.
Drew, N., Adams, Y., Walker, R., 2010. Issues in mental health assessment with indigenous Australians. In: Purdie, N., Dudgeon, P., Walker, R. (Eds.), Working Together: Aboriginal and Torres Strait Islander Mental Health and Wellbeing Principles and Practice. Commonwealth of Australia, Canberra.
EPPI-Centre, 2010. EPPI-Centre Methods for Conducting Systematic Reviews. EPPI-Centre, Social Science Research Unit, Institute of Education, University of London, London.
Esler, D., Johnston, F., Thomas, D., Davis, B., 2008. The validity of a depression screening tool modified for use with Aboriginal and Torres Strait Islander people. Aust. N. Z. J. Public Health 32, 317–321.
Garvey, G., Beesley, V.L., Janda, M., O'Rourke, P.K., He, V.Y., Hawkes, A.L., et al., 2015. Psychometric properties of an Australian supportive care needs assessment tool for Indigenous patients with cancer. Cancer 121, 3018–3026.
Garvey, G., Cunningham, J., He, V.Y., Janda, M., Baade, P., Sabesan, S., et al., 2016. Health-related quality of life among Indigenous Australians diagnosed with cancer. Qual. Life Res. 25 (8), 1999–2008.
Gee, G., Dudgeon, P., Schultz, C., Hart, A., Kelly, K., 2014. Aboriginal and Torres Strait islander social and emotional wellbeing. In: Purdie, N., Dudgeon, P., Walker, R. (Eds.), Working Together: Aboriginal and Torres Strait Islander Mental Health and Wellbeing Principles and Practice. Commonwealth of Australia, Canberra, pp. 135–144.
Goodman, A., Fleming, K., Markwick, N., Morrison, T., Lagimodiere, L., Kerr, T., 2017. "They treated me like crap and I know it was because I was Native": the healthcare experiences of Aboriginal peoples living in Vancouver's inner city. Soc. Sci. Med. 178, 87–94.
Haas, B.K., 1999. A multidisciplinary concept analysis of quality of life. West J. Nurs. Res. 21, 728–742.
Haswell, M.R., Kavanagh, D., Tsey, K., Reilly, L., Cadet-James, Y., Laliberte, A., et al., 2010. Psychometric validation of the Growth and empowerment measure (GEM) applied with indigenous Australians. Aust. N. Z. J. Psychiatry 44, 791–799.
Hopkins, K.D., Taylor, C.L., D'Antoine, H., Zubrick, S.R., 2012. Predictors of resilient psychosocial functioning in Western Australian aboriginal young people exposed to high family-level risk. In: Ungar, M. (Ed.), The Social Ecology of Resilience: a Handbook of Theory and Practice. Springer New York, New York, NY, pp. 425–440.
Hoy, W.E., 2009. "Closing the gap" by 2030: aspiration versus reality in Indigenous health. Med. J. Aust. 190, 542–544.
Janca, A., Lyons, Z., Balaratnasingam, S., Parfitt, D., Davison, S., Laugharne, J., 2015. Here and Now Aboriginal Assessment: background, development and preliminary evaluation of a culturally appropriate screening tool. Australas. Psychiatry 23, 287–292.
Jobling, K., Lau, P., Kerr, D., Higgins, R.O., Worcester, M.U., Angus, L., et al., 2015. Bundap Marram Durn Durn: engagement with Aboriginal women experiencing comorbid chronic physical and mental health conditions. Aust. N. Z. J. Public Health 40 (51), S30–S35.
Johnson, D.R., McDermott, R.A., Clifton, P.M., D'Onise, K., Taylor, S.M., Preece, C.L., et al., 2015. Characteristics of Indigenous adults with poorly controlled diabetes in north Queensland: implications for services. BMC Public Health 15, 325.
Kagawa Singer, M., Dressler, W., George, S., Panel, N.I.H.E., 2016. Culture: the missing link in health research. Soc. Sci. Med. 170, 237–246.
Karimi, M., Brazier, J., 2016. Health, health-related quality of life, and quality of life: what is the difference? Pharmacoeconomics 34 (7), 645–649.
Kilcullen, M., Swinbourne, A., Cadet-James, Y., 2016. Aboriginal and Torres Strait islander health and well-being: implications for a cognitive behavioural Therapy framework. Aust. Psychol. 51, 453–462.
Kilcullen, M., Swinbourne, A., Cadet-James, Y., 2017. Aboriginal and Torres Strait Islander health and wellbeing: social emotional wellbeing and strengths-based psychology. Clin. Psychol. 1–11.
Kinchin, I., Jacups, S., Tsey, K., Lines, K., 2015. An empowerment intervention for Indigenous communities: an outcome assessment. BMC Psychol. 3, 1–5.
Kingsley, J., Townsend, M., Henderson-Wilson, C., Bolam, B., 2013. Developing an exploratory framework linking Australian Aboriginal peoples' connection to country and concepts of wellbeing. Int. J. Environ. Res. Public Health 10, 678–698.
Kirmayer, L.J., Gone, J.P., Moses, J., 2014. Rethinking historical trauma. Transcult. Psychiatry 51, 299–319.
Kite, E., Davy, C., 2015. Using Indigenist and Indigenous methodologies to connect to deeper understandings of Aboriginal and Torres Strait Islander peoples' quality of life. Health Promot. J. Aust. 26, 191–194.
Kowal, E., Gunthorpe, W., Bailie, R.S., 2007. Measuring emotional and social well-being in aboriginal and Torres Strait islander populations: an analysis of a negative life events scale. Int. J. Equity Health 6, 1–12.
Krieg, A., 2009. The Experience of Collective Trauma in Australian Indigenous Communities, pp. S28–S32.
Liaw, S.T., Lau, P., Pyett, P., Furler, J., Burchill, M., Rowley, K., et al., 2011. Successful chronic disease care for Aboriginal Australians requires cultural competence. Aust. N. Z. J. Public Health 35, 238–248.
Maguire, G., Anstey, N., Kelly, P., Molanus, B., Tchan, M., Currie, B., 2010. Quality of life assessment – validating in a remote indigenous Australian and Indonesian setting. Respirology 15. A31.
Morrissey, M., 2006. Community, social capital and indigenous health in the Northern territory. Ethn. Health 11, 229–246.
Morton Ninomiya, M.E., Pollock, N.J., 2017. Reconciling community-based Indigenous research and academic practices: knowing principles is not always enough. Soc. Sci. Med. 172, 28–36.
NACCHO (1989). National Aboriginal Community Controlled Health Organisation Submission to: Committee Secretary Senate Select Committee on Men's Health April 1989.
Neumayer, H., 2013. Changing the conversation: strengthening a rights-based holistic approach to aboriginal and Torres Strait islander health and wellbeing. http://iaha.com.au/policy/ (accessed 21 July 2016).
Newton, D., Day, A., Gillies, C., Fernandez, E., 2015. A review of evidence-based evaluation of measures for assessing social and emotional well-being in indigenous Australians. Aust. Psychol. 50, 40–50.
O'Brien, P.E., DeWitt, D.E., Laurie, C., Brennan, L., Wentworth, J.M., Anderson, M., et al., 2016. The effect of weight loss on indigenous Australians with diabetes: a study of feasibility, acceptability and effectiveness of laparoscopic adjustable gastric banding. Obes. Surg. 26, 45–53.
Paradies, Y., 2016. Colonisation, racism and indigenous health. J. Popul. Res. 33, 83–96.
Patel, A., Cass, A., Peiris, D., Usherwood, T., Brown, A., Jan, S., et al., 2015. A pragmatic randomized trial of a polypill-based strategy to improve use of indicated preventive treatments in people at high cardiovascular disease risk. Eur. J. Prev. Cardiol. 22, 920–930.
Patrick, D.L., Erickson, P., 1993. Health Status and Health Policy: Quality of Life in Health Care Evaluation and Resource Allocation. Oxford University Press, New York, 1993.
Pearlin, L.I., 1981. The stress process. J. Health Soc. Behav. 22, 337–356.
Prussing, E., 2014. Historical trauma: politics of a conceptual framework. Transcult. Psychiatry 51, 436–458.
Schmidt, S., Bullinger, M., 2003. Current issues in cross-cultural quality of life instrument development. Archives Phys. Med. Rehabilitation 84 (Suppl. 2), S29–S34.
Segal, L., Nguyen, H., Schmidt, B., Wenitong, M., McDermott, R.A., 2016. Economic evaluation of Indigenous health worker management of poorly controlled type 2 diabetes in north Queensland. Med. J. Aust. 204, 196.
Slade, T., Johnston, A., Oakley Browne, M.A., Andrews, G., Whiteford, H., 2009. 2007 national survey of mental health and wellbeing: methods and key findings. Aust. N. Z. J. Psychiatry 43, 594–605.
Social Health Reference Group, 2004. In: National Strategic Framework for Aboriginal and Torres Straits Islander People's Mental Health and Social and Emotional Well Being 2004-09. National Aboriginal and Torres Straits Islander Health Council and National Mental Health Working Group, vol. 2004. Department of Health and Ageing, Canberra.
Stewart, G., 2003. Possible Measures of Psychological Distress, its Impact, and Social Support. AIHW Workshop for the Australian Indigenous Health Survey of 2004. NSW: Department of Health.
Swan, P., Raphael, B., 1995. "Ways Forward": National Consultancy Report on Aboriginal and Torres Strait Islander Mental Health. Australian Government Publishing Service, Canberra.
Tammaru, M., Lember, M., Polluste, K., McKenna, S.P., 2007. Cultural adaptation of quality of life measures. Scand. J. Rheumatology 36, 406–407.
Thomas, A., Cairney, S., Gunthorpe, W., Paradies, Y., Sayers, S., 2010. Strong Souls: development and validation of a culturally appropriate tool for assessment of social and emotional well-being in Indigenous youth. Aust. N. Z. J. Psychiatry 44, 40–48.
Trauer, T., Nagel, T., 2012. Outcome measurement in adult Indigenous mental health consumers. Adv. Ment. Health 11, 106–116.
Tsey, K., Harvey, D., Gibson, T., Pearson, L., 2009. The role of empowerment in setting a foundation for social and emotional wellbeing. Aust. e-Journal Adv. Ment. Health 8.
Tsourtos, G., Ward, P.R., Lawn, S., Winefield, A.H., Hersh, D., Coveney, J., 2015. Is resilience relevant to smoking abstinence for Indigenous Australians? Health Promot. Int. 30, 64–76.
UNDP, 2016. Human Development Report 2016. United Nations Development Programme, New York, USA.
Vos, T., Barker, B., Begg, S., Stanley, L., Lopez, A., 2009. Burden of disease and injury in aboriginal and Torres Strait islander peoples: the indigenous health gap. Int. J. Epidemiol. 38.
Walker, M., Fredericks, B., Mills, K., Anderson, D., 2014. 'Yarning' as a method for community-based health research with indigenous women: the indigenous women's wellness research program. Health Care Women Int. 35, 1216–1226.
Waterworth, P., Dimmock, J., Pescud, M., Braham, R., Rosenberg, M., 2016. Factors affecting indigenous west Australians' health behavior: indigenous perspectives. Qual. Health Res. 26, 55–68.
Williams, S.D., Parker, E.D., Jamieson, L.M., 2010. Oral health-related quality of life among rural-dwelling indigenous Australians. Aust. Dent. J. 55, 170–176.
Wing, J.K., Beevor, A.S., Curtis, R.H., Park, S.B., Hadden, S., Burns, A., 1998. Health of the nation outcome scales (HoNOS). Research and development. Br. J. Psychiatry 172, 11–18.

Worrall-Carter, L., Daws, K., Rahman, M.A., MacLean, S., Rowley, K., Andrews, S., et al., 2016. Exploring Aboriginal patients' experiences of cardiac care at a major metropolitan hospital in Melbourne. Aust. Health Rev. 40, 696–704.
Wynne-Jones, M., Hillin, A., Byers, D., Stanley, D., Edwige, V., Brideson, T., 2016. Aboriginal grief and loss: a review of the literature, Australian Indigenous HealthBulletin. viewed 06 March 2017. http://apo.org.au/node/67488.
Yap, M., Yu, E., 2016. Operationalising the capability approach: developing culturally relevant indicators of indigenous wellbeing – an Australian example. Oxf. Dev. Stud. 1–17.