

The Subjective Wellbeing of Indigenous Australian Adolescents: Validating the Personal Wellbeing Index-School Children

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Abstract By almost all measures of objective life quality, Indigenous Australians are disadvantaged relative to the general population. However, no measures of their Subjective Wellbeing (SWB) have been published. This paper presents the first such data, norm-referenced to the general Australian population. A total of 519 Indigenous adolescents, aged between 12 and 19 years, were administered the Personal Wellbeing Index-School Children, which measures SWB. This scale is a parallel form of the Personal Wellbeing-Adult. The PWI-SC exhibited adequate psychometric properties. Moreover, consistent with SWB Homeostasis theory, participants' mean SWB was within the Australian adult normative range. However, female SWB was lower than males. These results suggest that Indigenous adolescents are resilient.

Keywords Subjective wellbeing · Indigenous Australians · Adolescents · Personal Wellbeing Index

1 Introduction

'Subjective wellbeing' (SWB) can be defined as a normally positive state of mind that involves the whole life experience. While there is general agreement that SWB comprises both cognitive and affective components (e.g., Campbell et al. 1976; Diener and Diener 1996; Steel and Ones 2002), recent findings by Davern et al. (2007) have suggested that SWB is dominated by affect, in a form called Homeostatically Protected Mood (HPMood; Cummins 2010) with cognitive discrepancies playing a significant but subsidiary role. This construction of SWB has been confirmed by Tomyn and Cummins (2011a) and Blore et al. (2011).

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While the SWB of the mainstream Australian adult population has been investigated extensively over the past 10 years, as part of the Australian Unity Wellbeing Index (Cummins et al. 2010), there are no published SWB data for Indigenous Australians. In fact, reliable data on the mental health of the Australian Indigenous population is generally quite scarce (Craven and Bodkin-Andrews 2006; Dingwall and Cairney 2010; Hunter 2007). This is an important social issue because it is well established that Indigenous Australians are disadvantaged in terms of objective life quality. For example, they have life expectancies approximately 17 years lower than non-Indigenous Australians and are twice as likely to be hospitalised for poor health or to require assistance with daily living (ABS and AIHW 2008; SCRGSP 2009). Further, Indigenous Australians have over three times the rates of unemployment (i.e., approximately 16% compared with 5%) and an estimated average household income only 65% that of the nation as a whole (ABS and AIHW 2008; SCRGSP 2009). These statistics are also reflected in the circumstances of Indigenous children and adolescents.

In 2006, it was estimated that there were approximately 294,000 Aboriginal and Torres Strait Islander children and young people (aged 0–24) living in Australia, representing 4.2% of people in this age group (ABS 2011a). Indigenous youths (aged 15–24) have a mortality rate of 2.8 times higher than that of non-Indigenous youths (ABS 2011b). They also have half the rates of high-school completion; half the rate of engagement with school or employment and are 28 times more likely to be in juvenile detention (ABS and AIHW 2008; SCRGSP 2009). Additionally, they are six times more likely to be victims of substantiated abuse or neglect and are six times more likely to be teenage parents (ABS and AIHW 2008; SCRGSP 2009). Suicide rates for Indigenous male youths are three times higher than non-Indigenous male youths; whereas Indigenous female suicide rates are five times that of non-Indigenous females (ABS and AIHW 2008). Given the above, it is logical to expect that Indigenous adolescents are at greater risk of lower SWB, with higher levels of depression, than non-Indigenous adolescents. However, as suggested by Dockery (2010) and by Prout (2011), many mainstream objective indicators may be neither valid nor reliable indicators of Indigenous wellbeing as they may not reflect Indigenous values or priorities. For example, unemployment rates may not be as important as closeness of kinship group and connection to their community (Taylor 2008).

From this it is clear that understanding the SWB construct is useful because it offers insights into how individuals feel about themselves and their lives, independent of what their objective life circumstances may suggest (Diener et al. 2003). This is important because it is well established within the literature that objective and subjective indicators of QOL are weakly related (e.g., Cummins 2000; Headey and Wearing 1992; and Ng 1997). Thus, the traditional objective indicators of life quality, such as listed above, do not provide a reliable guide as to how these people perceive their lives.

There are many psychological devices that partially explain the poor linkage between objective and subjective indicators, such as Adaptation Level Theory (Helson 1965). However, a theory that offers a comprehensive explanation for the relationship between people's circumstances and their SWB is subjective wellbeing homeostasis.

1.1 SWB Homeostasis

This theory proposes that SWB is actively maintained and controlled around a 'set-point' in an analogous manner to the control of body temperature (Cummins 1995, 1998, 2010). Extensive research conducted on the Australian adult population over the years 2001–2010 as part of the Australian Unity Wellbeing Index (Cummins 2010) supports this proposition.

The 24 national surveys conducted since 2001 have revealed that the mean SWB score for personal wellbeing is approximately 75 percentage points on a standardised 0–100 scale. Moreover, when the survey mean scores are used as data, the normative range for the Australian adult population lies between 73.7 and 76.7 percentage points (Cummins et al. 2010). Thus, the average SWB of the Australian population is held around a very narrow and predictable 3.0 percentage point range.

At the heart of SWB Homeostasis Theory is the idea of ‘set-points’ and a construct termed ‘Homeostatically Protected Mood’ (HPMood; Cummins 2010). The idea of set-points was first suggested by Headey and Wearing (Headey et al. 1984a, 1984b; Headey and Wearing 1989). Using data from a panel study they observed that, in the absence of significant life events, people tended to maintain a relatively steady level of SWB. Moreover, if an event caused SWB to change then, over time, it tended to regain its previous level. Set-points for SWB are proposed to be under genetic control (see, e.g. Lykken and Tellegen 1996) and so may be considered an individual difference, with levels set between 60 and 90 points (Cummins 2010).

HPMood is proposed to represent the affective core of SWB and that which homeostasis is defending. It is a stable and enduring, positive mood state that is biologically based (Cummins 2010; Davern et al. 2007; Tomin and Cummins 2011a). According to Homeostasis Theory, through the process of natural selection, humans have evolved to experience a level of HPMood that is stable and positive. When people experience a level of SWB within the normal range, they generally feel happy with themselves and with the things in their lives; they are content, energised, motivated and have a strong sense of optimism about their future (Cummins et al. 2010).

Homeostasis theory predicts that under normal, relatively unchallenging life circumstances, SWB is controlled by the homeostatic system. Under these low threat conditions, people will experience a level of SWB that reflects their normal set-point range, which extends some 5–6 percentage points around each set-point. One specific prediction from homeostasis theory concerns ceiling effects. That is, the provision of additional resources to support homeostatic maintenance of SWB, such as money and supportive relationships, will have an effect on SWB that is dependent on initial levels. For example, if someone already has a loving and supportive relationship, the addition of another such relationship will have little impact on levels of SWB because the homeostatic system is already saturated with this resource.

However, the normal maintenance of SWB can be challenged by such experiences as personal loss or severe and chronic illness. Most commonly, such challenges are met by positive resources, such as money and supportive relationships, which strengthen a person’s resilience, allowing them to regain control of their SWB and return it back to its set-point range. However, when the strength of challenge exceeds a person’s resources to cope, homeostasis can be chronically defeated and depression may result.

In summary, SWB Homeostasis Theory proposes that humans have evolved a biologically-based, psychological mechanism that serves to protect and maintain levels of HPMood within an individualised set-point range. If homeostasis is defeated through strong and persistent levels of challenge, SWB moves below its set-point-range and depression is a likely outcome.

1.2 Indigenous Life Quality

The construct of SWB is consistent with the Indigenous conceptualisation of mental health as holistic. It also sits comfortably with the intrinsic value Indigenous people place on the

broad concept of wellness (Ypinazar et al. 2007). While there is a paucity of research on the SWB of Indigenous Australians, a recent review by Dingwall and Cairney (2010) identified three measures of social and emotional wellbeing either developed, or amended for, Indigenous young people as: (a) the Westerman Aboriginal Symptoms Checklist for Youth (WASC-Y; Westerman 2002); (b) Strong Souls (SS; Thomas et al. 2010); and (c) an amended version of the Strengths and Difficulties Questionnaire (SDQ; Goodman 2001; Zubrick et al. 2004).

The 53 item WASC-Y (Westerman 2002) comprises six subscales of cultural resilience, alcohol drug use, depression, suicide, impulsivity, and anxiety. In a study of 183 Indigenous adolescents from Western Australia (aged 13–17) the subscales were found to correlate predictably with results of clinical interviews and demonstrated internal reliability coefficients of .67–.88. The SS is a 25-item item measure comprising four subscales of anxiety, depression, resilience, and suicide risk. The scale was validated in a sample of 361 Indigenous youths (M age = 18.3; SD = 1.1). Reliability coefficients for the subscales ranged from .71 to .80 and exploratory factor analysis supported the four factor structure with 34.5% of the total variance accounted for.

The 25 item SDQ comprises five subscales (i.e., emotional symptoms, conduct problems, hyperactivity, peer problems, and prosocial skills). Parallel versions exist for adolescents and for carers making proxy evaluations. In a sample of 3,993 Indigenous children and adolescents (aged 4–18) the overall SDQ scale was found to have very high internal consistency ($\alpha = .93$) with reliability coefficients for the subscales ranging from .60 for peer problems to .81 for hyperactivity. A recent report using the SDQ by the Western Australian Aboriginal Child Health Survey (2005), estimated that approximately 21% of Indigenous adolescents aged between 12 and 17 years are at high-risk for clinically significant emotional or behavioural difficulties according to the carer-report version of the SDQ, compared with 13% of same age non-Indigenous adolescents. Based on self-reported SDQ scores, females were more likely to be at risk of clinically significant emotional and behavioural difficulties (13.1%) than males (9.2%).

These findings need to be interpreted in the context of pathology. With the exception of the prosocial skills subscale, all of the constructs assessed by the SDQ are indicators of ill-health or negative psychological states, not SWB. Moreover, the SDQ does not have a sensitive response format, comprising only three response options (0 = no; 1 = 'sometimes'; and 2 = 'yes'). This may result in unreliable estimations of emotional and behavioural difficulties.

1.3 A New Approach to Measuring Indigenous SWB

There are, of course, differences in how Indigenous and non-Indigenous people conceptualise mental health and wellbeing. Because of this, there is a temptation to create measures that cater specifically for this cultural group (Dingwall and Cairney 2010; Thomas et al. 2010). However, according to Cummins and Lau (2005), the problem with developing instruments for highly selected groups is that such scales are not suitable for use with the general population. Consequently, the data derived from such scales cannot be norm-referenced back to the general population. Moreover, items that specifically concern disadvantage, selectively incorporated into scales for Indigenous people, likely contribute negative evaluations. When such results are compared to mainstream indicators that do not include such items, this may encourage the erroneous belief that Indigenous Australians experience lower subjective wellbeing (Cummins et al. 2004).

An alternative perspective is to determine the validity of mainstream measures of SWB with Indigenous populations (Haswell-Elkins et al. 2007). This approach allows the comparison of scale psychometric performance between Indigenous and non-Indigenous respondents and supports the potential inclusion of Indigenous information in national data sets. However, there are currently almost no published data allowing such estimations to be made (Dingwall and Cairney 2008; Haswell-Elkins et al. 2007). One measure of SWB that has potential utility in Indigenous adolescent samples is the Personal Wellbeing Index-School Children (PWI-SC; Cummins and Lau 2005) which is designed as a cross-cultural tool for measuring SWB.

1.4 The Personal Wellbeing Index—School Children (PWI-SC)

The PWI-SC is a parallel version of the Personal Wellbeing Index-Adult (PWI-A; IWG 2006) that has been re-worded for use with high-school age children, but which retains the essence of the adult version. Unlike the adult scale, which asks questions of ‘satisfaction’, items on the PWI-SC require that respondents indicate their level of ‘happiness’ with each domain. The adjective ‘happy’ is argued to be more comprehensible for school age children (Cummins and Lau 2005). The domains also use simplified wording. For example, “How satisfied are you with your future security?” is modified to “How happy are you about what may happen to you later on in your life?” The domains of the PWI-SC are the same as the adult scale and include standard of living, health, achieving in life, relationships, safety, community-connectedness and future security. Each domain is theoretically embedded to represent the first level deconstruction of the global question, ‘How happy are you with your life as a whole?’ (see the adult manual for more details of scale construction).

In 2011, Tomy and Cummins explored the psychometric properties of the PWI-SC in a sample of 351 young Australians in Victoria (Tomy and Cummins 2011b). Participants ranged in age from 12 to 20 years, with a mean age of 15.70 years ($SD = 1.75$ years). Similar to the adult PWI, domains of the PWI-SC demonstrated high inter-item reliability (Cronbach’s $\alpha = .82$) and a principle component factor analysis revealed a one-factor structure which accounted for 48% of variance. The mean SWB score (74.70 points) was within the expected normative range for adults, supporting SWB Homeostasis Theory and the notion that in normal populations, SWB is actively controlled and maintained within a narrow ‘set-point’ range of values for most people. These authors also found that female adolescents have significantly higher SWB than their male counterparts.

One reason that the PWI-SC may be applicable with Indigenous Australians is that it has been explored in a wide range of countries and cultures supporting its cross cultural applicability. For example, Casas et al. (2011) explored the psychometric properties of translated versions of the PWI in samples of adolescents (aged 12–16) from Brazil ($N = 1,588$), Chile ($N = 843$), and Spain ($N = 2,900$). The scale demonstrated adequate internal consistency with Cronbach’s $\alpha = .78$ –.81 for each country. The factor structure of the PWI in each of the respective countries was also similar, with a Principal Component analysis using the entire sample supporting a one-factor solution and which accounted for 45.85% of variance. In summary, empirical research using the PWI-SC supports its use as a valid and reliable instrument to measure the SWB of adolescents.

This cross-cultural consistency is also reflected in the performance of the adult version of the PWI within different countries as: Algeria (Tiliouine et al. 2006); Austria (Renn et al. 2009); Hong Kong Chinese (Lau et al. 2005); and New Zealanders of Maori heritage (Ganglmair-Wooliscroft and Lawson 2008).

1.5 Summary and Study Aims

It is evident that SWB is an interesting and useful construct. Moreover, SWB measurement using the PWI-SC appears to be valid and reliable (Tomynt and Cummins 2011b). This project extends such findings to Indigenous adolescents and compares the results with non-Indigenous data.

The following hypotheses are tested:

- (1) That the PWI-SC will exhibit adequate psychometric properties using data from a sample of Indigenous Australian adolescents.
- (2) That the mean SWB of Indigenous adolescents and all domains will lie within the Australian adult normative range.
- (3) That the mean SWB of Indigenous females will be higher than the mean SWB of Indigenous males.

Finally, this study aims to explore the proportion of Indigenous adolescents who score in the low range for SWB (<50) compared to the normative adult data.

2 Methodology

2.1 Participants

A convenience sample of 519 Indigenous Australian adolescents were participants in an Australian Federal Government program for disengaged young people across Australia. To be eligible for the 'Youth Connections Program', young people must be identified as being at risk of disconnecting from education or training (and therefore not attaining Year 12 or equivalent) and at risk of not making a successful transition to further study, training or employment. There were 286 males (55%) and 233 (45%) females ranging in age from 12 to 19 years with a mean age of 14.73 years (SD = 1.51 years). With respect to state of residence, 246 participants (47.4%) were from New South Wales, 138 (26.6%) from Queensland, 44 (8.5%) from the Northern Territory, 37 (7.1%) from Western Australia, 32 (6.2%) from Victoria, 14 (2.7%) from Tasmania, 7 (1.3%) from South Australia and 1 (.2%) from the Australian Capital Territory. At the time of this study, 412 (79.4%) were attending school.

Comparative data from the Australian general population have been drawn from the Australian Unity Wellbeing Index surveys as reported in Cummins et al. (2010).

2.2 Questionnaire and Data Collection

Participants were administered a pencil and paper version of the PWI-SC and responded to all scale items using the 11-point, end-defined scale described below.

2.3 Measures

2.3.1 General Life Happiness (GLH)

The measure of life happiness (GLH) is a single-item that asks 'How happy are you with your life as a whole'? (0 = Very Sad; 5 = Not happy nor sad; 10 = Very Happy).

2.3.2 Subjective Wellbeing (SWB)

The Personal Wellbeing Index-School Children (PWI-SC; Cummins and Lau 2005) measures SWB and is a parallel version of the PWI-Adult (IWG 2006) (see Appendix A). It comprises seven domains selected to represent the first level deconstruction of happiness with 'life as a whole' and is measured using the same 11-point scale described above. The manual for the adult PWI reports good internal reliability (Cronbach's α between .70 and .85). In the present study α is .83. GLH and SWB correlate at .68, indicating convergent validity.

2.4 Procedure

In 2011, a research partnership between the Australian Federal Government Department of Education, Employment and Workplace Relations (DEEWR) and The Royal Melbourne Institute of Technology University (RMIT) was commissioned. The aim of the partnership is to assess and monitor the SWB of disengaged adolescents participating in a government funded project that offers a range of supportive services to 'at-risk' young people across Australia. Following the provision of ethical clearance, the Project Leader from RMIT University worked closely with department staff to ensure the PWI-SC was administered in an appropriate and ethical manner, once informed consent from the young people's parent/guardian was provided.

Adolescents presenting at one of a number of service providers across Australia were invited to participate by their case managers at their initial meeting together. Prospective participants were informed that the aim of the study was to see how young people in the program are feeling about themselves and about things in their lives. They were also told that participation was completely voluntary and that they could withdraw their participation at any time.

Once informed consent to participate had been provided, case managers showed participants the 0–10 happiness rating scale as a visual aid to guide their responses. Case managers then verbally administered the GLH and PWI-SC and recorded the participants' responses.

Data collection took place between March 1st, 2011 and July 7th, 2011. Case managers entered the data from completed questionnaires by hand into an online government data base that comprised the adolescents' records/details. A secondary, de-identified data set was then exported from the government data base to the Project Leader at RMIT University in an excel spreadsheet. The data were then analysed using SPSS (2009; Version 18.0).

3 Results

3.1 Data Screening and Preliminary Analyses

To standardise the data, all reported values have been converted onto a standard 0–100 range. This procedure allows comparisons to be made between data derived from different response scales. The formula for this conversion is provided in the adult PWI manual (IWG 2006) but in the case of a 0–10 response scale the conversion simply involves shifting the decimal point one step to the right, so a response of 7 becomes 70 points.

To ensure data integrity, all responses were examined for response sets. This is deemed to occur when a respondent consistently scores at the scale minimum (0) or maximum (10) for each of the PWI-SC domains. Such a response style may indicate acquiescence, a tendency to respond in the affirmative, or failure to understand the task. Regardless of the cause, these data provide no variation and are considered unreliable. They were removed prior to the main analysis. Of the 550 respondents, 5.6% (21 male and 10 female) response sets were evident, all of which were scale maximum scores. Interestingly, 14 of these (48.4%) were 16 year olds.

SPSS frequency output showed no missing values. Examination of z-scores revealed three univariate outliers on composite PWI variable with a z-score greater than -2.88 . However, comparison of mean scores on these variables with corresponding means trimmed at the upper and lower 5% showed that none of these outliers significantly influenced mean scores on key variables. Consequently, these univariate outliers were retained within further analyses (Pallant 2001). 15 multivariate outliers were identified with a Mahalanobis distance greater than $\chi^2 = 24.322$, a criterion recommended by Tabachnick and Fidell (2007) for the corresponding degrees of freedom, and these cases were removed, leaving a total of 504 cases for analysis. Absolute skew and kurtosis values were within the acceptable ranges (<2.0 and <7.0 respectively) (Curran et al. 1996), thus demonstrating that domain scores were approximately normally distributed.

The highest observed correlation was between GLH and 'achieving in life' ($r = .59$). Thus, no multicollinearity and singularity exists in the data set. With respect to sample size, the present study adequately meets the power requirements for all major analyses as suggested by Tabachnick and Fidell (2007).

3.2 Evaluation of the PWI-SC Using Principal Axis Factor Analysis

A Principal Axis Factor Analysis evaluated the factor structure of the PWI-SC. The presence of multiple coefficients greater than .3, a significant Chi-square for Bartlett's Test of Sphericity and a Keiser-Meyer-Oklin (KMO) value greater than .6 (KMO = .88) (Pallant 2001) indicated that the data are suitable for factor analysis. Factor loadings for the seven PWI domains ranged from .42 (Future security) to .59 (Safety) and only one factor emerged with an eigenvalue greater than 1 (3.508), accounting for 50.12 percent of variance. This is the factor structure intended by the scale developers.

3.3 The Contribution of the PWI Domains to the Prediction of Life Happiness

A standard multiple regression analysis determined how much variance in general life happiness could be accounted for by the seven PWI-SC domains. According to the PWI user manual, each of the PWI domains has been chosen on the assumption that they contribute significant unique variance to the prediction of overall life happiness. Means, standard deviations and correlations between variables are presented in Table 1.

As show in Table 1, the PWI-SC domains share correlations ranging from moderate to high with GLH and low to high with each other (Cohen 1988). Results of the standard multiple regression analysis (Table 2) shows the standardised regression coefficients (β), squared semi-partial correlations (sr^2) as a measure of the unique variance contributed by each domain, and adjusted R^2 . It also shows the total contribution of unique variance across the domains and the total shared variance (total variance accounted for minus total unique variance). Comparative adult data from survey 25 of the Australian Unity Well-being Index (Cummins et al. 2011) is also presented in Table 2.

Table 1 Means, standard deviations and correlations between variables (N = 504)

Variable	Mean	SD	1	2	3	4	5	6	7	8	9
1. GLH	70.77	21.50	–								
2. Standard of living	70.95	23.21	.55	–							
3. Health	74.68	22.52	.44	.40	–						
4. Achieving in life	70.62	20.94	.49	.51	.45	–					
5. Relationships	81.27	19.18	.51	.41	.37	.44	–				
6. Safety	81.77	20.33	.56	.49	.45	.45	.54	–			
7. Community	78.59	21.34	.37	.37	.35	.39	.41	.45	–		
8. Future security	67.36	22.64	.43	.38	.29	.41	.40	.36	.41	–	
9. PWI	75.03	15.14	.68	.73	.67	.74	.71	.75	.68	.67	–

* All correlations significant at $p < .001$

Table 2 Predicting life happiness/satisfaction with PWI domains

Variable	Indigenous data		Adult data	
	N = 504		N = 1,906	
	β	sr^2	β	sr^2
1. Standard of living	.23***	.03	.33***	.064
2. Health	.12***	.01	.08**	.005
3. Achieving in life	.09*	.01	.28***	.047
4. Relationships	.16***	.02	.19***	.028
5. Safety	.22***	.03	-.04	.00
6. Community	-.01	.00	.09**	.005
7. Future security	.13***	.01	.06*	.002
	Unique variance = .11	$R^2 = .49$	Unique variance = .15	$R^2 = .55$
	Shared variance = .37	Adj. $R^2 = .48$	Shared variance = .39	Adj. $R^2 = .55$

* $p < .05$; ** $p < .01$; *** $p < .001$

The R for step this regression is significantly different from zero, $F(7, 496) = 66.602$, $p < .001$. All of the domains except ‘Community connection’ contribute significant unique variance to the prediction of GLH. Altogether, 48% of the variability (adjusted) in GLH can be predicted from these six domains. A major difference between the two groups is that the domain of ‘Safety’ makes a significant unique contribution in only the adolescent sample; while ‘Community connection’ makes a small but significant contribution in only the adult sample.

3.4 The Subjective Wellbeing of Indigenous Australian Adolescents

Table 3 displays the mean SWB and domain scores for the sample of Indigenous Australian adolescents to Australian adults and variable norms. The two columns under ‘Australian adults’ show the means and standard deviations calculated from the 48,225 individual respondents who completed the first 24 surveys of the Australian Unity

Table 3 Comparing Indigenous Australian adolescents and Australian adult PWI data

	Indigenous adolescents		Australian adults	
	N = 504		N = 48,225 (surveys 1–24)	
	Mean	SD	Mean	SD
PWI	75.03	15.14	75.19	12.40
Standard of living	70.95	23.21	77.70*	17.15
Health	74.68	22.52	74.83	19.71
Achieving in life	70.62	20.94	73.67*	18.38
Relationships	81.27	19.18	79.45	21.26
Safety	81.77*	20.33	78.76	17.91
Community connection	78.59*	21.34	70.84	19.81
Future security	67.36	22.64	70.96*	19.74

* $p < .001$

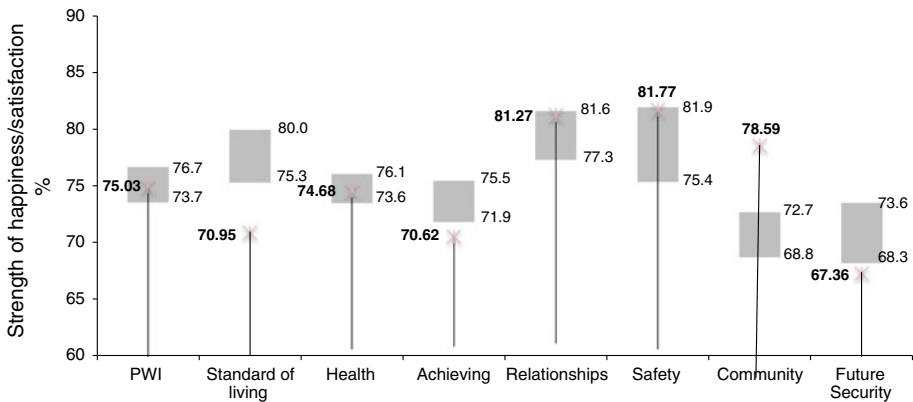


Fig. 1 The relationship between the PWI, domain-happiness scores and normative adult satisfaction data

Wellbeing Index (Cummins et al. 2010). Thus, these means and standard deviations are comparable to those shown in the two columns under the heading ‘Indigenous adolescents’.

As shown in Table 3, the mean SWB score for the 504 young Indigenous Australians is within the Australian adult normative range. However, the domain profile is different on five out of seven domains. The Indigenous adolescents score statistically significantly lower on Standard of living, Achieving in life and Future security; while scoring higher on Safety and Community connection.

Figure 1 is a graphical representation of these results. It shows the mean PWI and domain scores for the Indigenous youth as the thin vertical lines. The vertical shaded bars show the normal range for the PWI and each domain. These have been calculated using the 24 survey mean scores as data, with the range defined as two standard deviations around the mean.

It is apparent from Fig. 1 that while the adult and adolescent PWI mean scores are comparable, only three domains (Health, Relationships and Safety) lie within the adult

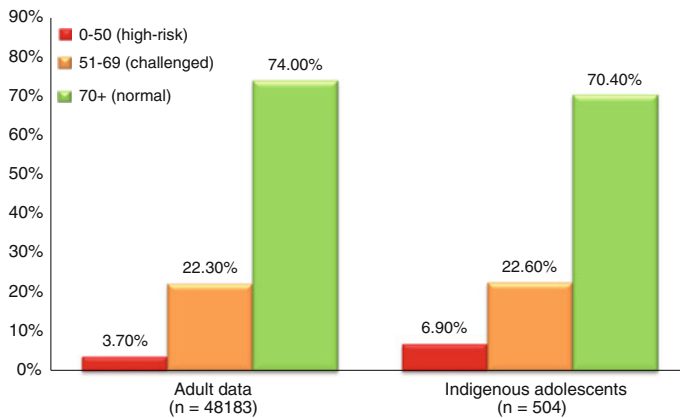


Fig. 2 The proportion of Indigenous Australian adolescents in each SWB group compared to adults. (Color figure online)

normative ranges. Of the other four domains, three are lower (Standard of living, Achieving in life and Future security) while one is higher (Community connection).

3.5 The Proportion of Adolescents at Risk

The level of SWB can be used as an indicator of depression risk (Cummins et al. 2010). The following ranges are used for this purpose: Scores of 70+ points are considered normal; scores lying between 51 and 69 points are ambiguous in their interpretation. They can indicate a normal low set-point or they can indicate a lower-than-normal SWB where a strong homeostatic challenge has reduced the SWB value of a higher set-point. Scores in this range can even signal homeostatic defeat if they come from a very high set-point. Scores of 50 points or less indicate homeostatic defeat and strong likelihood of depression. The proportion of Indigenous adolescents and adults who score in each of these SWB groupings is presented in Fig. 2.

As shown in Fig. 2, Indigenous adolescents have comparable proportions in the normal and ambiguous categories, but are almost twice as likely as adults to score in the ‘high-risk’ category. This result is consistent with the overall standard deviation for the SWB of both samples. Table 3 shows the standard deviation for the Indigenous sample to be 2.74 points higher than for adults. This reflects the increased negative skew of the adolescent sample caused by the higher proportion of people in homeostatic defeat.

3.6 Gender and SWB

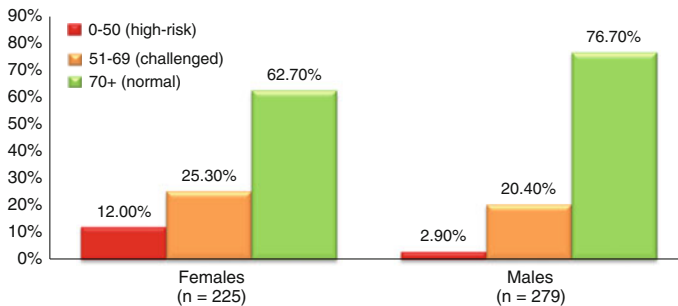
Gender differences amongst the Indigenous adolescents were tested using eight Independent Samples *t* tests. Where the assumption of equality of error variances has been violated, the SPSS option for significance when equality of variance cannot be assumed has been employed. A Bonferroni correction for Type 1 error reduces the accepted significance level to $p < .01$. These results are presented in Table 4.

The mean SWB score for males is significantly higher than for females. Males also score significantly higher than females on six of the seven domains, with the greatest difference in ‘Health’ (8.46 points, $p < .001$).

Table 4 Indigenous adolescent PWI-SC ratings by gender

PWI and domains	Male N = 279		Female N = 225		M1–M2
	M1	SD	M2	SD	
	Standard of living	73.01	22.48	68.40	
Health	78.46	19.40	70.00	25.14	8.46**
Achieving in life	73.37	19.34	67.20	22.33	6.17**
Relationships	83.44	17.33	78.58	20.97	4.86*
Safety	84.41	18.40	78.49	22.11	5.92**
Community connection	81.33	19.38	75.20	23.15	6.13*
Future security	70.43	20.89	63.56	24.14	6.87**
PWI total	77.78	13.19	71.63	16.67	6.15**

* $p < .01$; ** $p < .001$

**Fig. 3** The proportion of males and females in each SWB group. (Color figure online)

The proportion of Indigenous male and female adolescents in each SWB group is presented in Fig. 3.

As shown in Fig. 3, females are over four times as likely as males to score in the ‘high-risk’ category. While three-quarters of male adolescents score in the normal range for SWB, less than two-thirds of female adolescents score in this range.

4 Discussion

These results represent the first published data on the SWB of Indigenous Australian adolescents. Consistent with the first hypothesis, the PWI-SC exhibited high inter-item reliability; it factored as intended, and demonstrated convergent validity in accounting for 48% of the variance in the single item, measure of general life happiness (GLH). The scale also performed as well as the adult version in terms of the criterion that each domain must make a unique contribution to GLH. In the adult version, when used in Australia, six of the seven domains normally achieve this criterion, with the domain of ‘Safety’ being the odd one out. Using the adolescent data, six of the seven domains achieved the criterion, with the exception of ‘Community connection’.

These results are very similar to those reported by Tomy and Cummins (2011b) in their study involving high-school students in Victoria. Interestingly, these authors report similar unique (11.5%, current study 11.0%) and shared variance (40.5%, current study 37.0%)

contributed by the domains to the prediction of GLH. This suggests that the same underlying factors may be driving SWB judgments in Indigenous and non-Indigenous groups.

The failure of the domain ‘Community connectedness’ to make a unique contribution to GLH is counter intuitive given the value placed on community and kinship group within Indigenous culture. However, it may be that the wording of the item “How happy are you about doing things away from your home?” is not an adequate reflection of the concept of ‘community’ as understood by Indigenous people. Amongst Indigenous populations, the connection to community has significant and emotional value attached to it and comprises connections to the land, past, kinship group, cultural practices and rituals, and belief systems (Dockery 2010; Thompson et al. 2000). Thus further investigation of this domain for use with Indigenous populations will need to be considered in future studies. It seems likely that the essence of community connection may be better accounted for by a more culturally sensitive and/or appropriately worded item.

In adult samples, it is the domain of ‘Safety’ that fails to make a unique contribution. It is only retained because it does so in other countries (IWG 2006). Here, however, as also found by Tomyń and Cummins (2011b), the domain of Safety contributed 3% unique variance. This finding supports Tomyń and Cummins who suggest that the relative contributions of these domains to GLH/life satisfaction are not equivalent for adults and adolescents. These results also support the idea of ‘domain compensation’ (Best et al. 2000) wherein domains under threat are counter-balanced by higher satisfaction in other domains, thereby maintaining overall SWB within the normal range. This is proposed as one of the homeostatic devices.

4.1 The SWB of Indigenous Australian Adolescents

Consistent with the second hypothesis, the SWB sample mean at 75.03 percentage points falls within the Australian adult normative range of 73.7–76.7. This finding supports SWB Homeostasis Theory and the notion that in normal populations, SWB is actively controlled and maintained within a narrow ‘set-point’ range of values which approximates three quarters of a scale maximum score (e.g., Cummins 1995, 2010; Cummins and Nistico 2002). The maintenance of SWB within the expected range is even more remarkable due to the fact that many young people sampled are deemed to be at risk of disconnecting from education or training and not making a successful transition to further study, training or employment, and likely to be experiencing a level of challenge in their lives.

This result also challenges the exclusive focus on objective indicators (e.g., ABS 2008) and suggests that while such measures as physical health, literacy and numeracy, and employment rates, are important indicators in their own right, they do not reflect the totality of Indigenous wellbeing. However, these findings in no way negate or minimise the severity of the problem of poor objective outcomes experienced by many Indigenous adolescents, nor detract from the importance of efforts to close the gap in health and welfare between Indigenous and non-Indigenous Australians. Notably, however, the Indigenous adolescents are two times more likely than Australian adults to score less than or equal to 50 points, and are therefore at greatest risk of depression.

In terms of domain comparisons, the Indigenous adolescents scored significantly lower than adults on ‘Standard of living’, ‘Achieving in life’ and ‘Future security’. Participants also scored lower on the domain of ‘Standard of living’ ($M = 71.0$) than adolescents sampled by Tomyń and Cummins (2011b) ($M = 73.9$) and adolescents from Spanish speaking countries ($M = 84.1$) (Casas 2011). In addition to relative disadvantage

compared with non-Indigenous peoples (ABS and AIHW 2008; SCRGSP 2009), young people in this sample are at greater risk of disengaging from school and less likely to be in paid employment. Therefore, social comparisons to peers who have more money and/or material possessions may contribute to lower perceptions of happiness with 'the money you have and the things you own'. This explanation is consistent with Cummins (2003) proposition that homeostasis is less influential at the level of domains than it is for overall SWB.

A lower score for the domain of 'Achieving in life' may reflect the fact that young people in this sample are at-risk of disengaging from school with 20.6% of respondents not attending school at the time this study took place. Australian society places great importance on completing school and so lack of school attendance may be a cause, at least in some part, of a lower mean score on the item which asks 'how happy are you with the things you want to be good at'.

Collectively, these results may offer an explanation as to why the mean score for the domain of 'future security' was significantly lower than the adult mean. A lower perceived standard of living in conjunction with a lower sense of achieving in life may foster a negative outlook on life and sense of hopelessness and uncertainty about the future amongst some of the adolescents. Further research exploring whether such findings can be replicated in samples of Indigenous adolescents who are engaging successfully with education and/or training is warranted.

The sample of Indigenous adolescents scored significantly higher than adults on the domains of 'Safety' and 'Community connection'. The mean scores for 'Safety' in this sample (81.77) are comparative to the mean score found in a sample of adolescents from the general non-Indigenous school age population (81.40) by Tomy and Cummins (2011b). One explanation for adolescents' high scores on this domain may be they are not as perceptive of risks and threats to their safety as adults—as is evident by their high prevalence of risk taking behaviours (Kelley et al. 2004). Furthermore, executive functioning capacities responsible for meta-cognition, reasoning and risk-perception continue to develop into young adulthood thereby making adolescents less cognisant of risks (Kuhn 2009). Similar mean scores on this domain amongst Indigenous and non-Indigenous adolescents may suggest that an inflated sense of safety is universal amongst this age group.

Finally, Indigenous adolescents scored significantly higher than adults on the domain of 'Community connection'. While issues have been raised surrounding the meaning of this domain amongst Indigenous populations, a core feature of Indigenous culture is the strong importance placed on family, community, and the extended kinship group (Dockery 2010). Indeed, the needs of the family and community are often considered more important than the needs of the individual (Thompson et al. 2000). Therefore, it is not surprising that adolescents in this sample reported high happiness 'about doing things away from your home'. It is also possible that strong links to community contribute to high happiness with safety as members of the kinship group feel supported and protected by each other.

4.2 Gender and SWB

The third hypothesis was not supported. Against our expectation that the gender difference would be the same as Australian adults (Cummins et al. 2010), and Victorian adolescents (Tomy and Cummins 2011b), with females higher than males, the reverse was found. Indeed, male SWB (77.78) is substantially greater than for females (71.63). Consistent with this trend, females were found to be over four times more likely than males to score 50 or less on the PWI-SC, indicating a greater risk for depression. These findings are also

inconsistent with Tomy and Cummins (2011b), who found non-Indigenous female adolescents to have higher SWB than males.

The finding that Indigenous females have lower SWB is consistent with research by Zubrick et al. (2004) ($N = 1,073$) who found that Indigenous females from Western Australia aged 12–17 experienced more emotional challenges than males. Using the SDQ (Goodman 2001), 32% of females reported low self-esteem relative to 21.4% of males; 14.6% of females reported emotional challenges relative to the 7.8% of males; and 19.5% of females reported suicidal thoughts compared with 11.9% of males. The higher proportion of female respondents who scored 50 points or less on the PWI-SC suggests that they may experience a greater number of stressors that challenge homeostasis than males. For example, Indigenous females are a high risk group for teenage pregnancy, exposure to violence, abuse and assault, and poor physical health (Burns et al. 2010). Furthermore, it is reported that young Indigenous females aged 15–24 are less likely than males (i.e., 28% compared with 22%) to be studying or employed, thus, may experience a lower standard of living and be less optimistic about their futures (SCRGSP 2009).

4.3 Study Limitations and Future Directions

A major limitation of this study is the possibility of acquiescent responding (see Cronbach 1946), that is a desire to please their case managers who were verbally administering the scale. However, following the removal of overt acquiescent responses and multivariate outliers, we would expect the influence of potentially inflated scores provided by some respondents to be minimal.

It should also be noted that this sample is not representative of Indigenous Australian young people. The sample comprised young people either disengaged, or ‘at-risk’ of disengaging with education, family, friends, employment and with their community. Similarly, the sample was not geographically representative. This is an important issue as research has found that Indigenous people living in remote and rural areas report fewer social and emotional problems than people living in urban locations (Zubrick et al. 2004). A future study should aim to obtain a more representative cross-section of the Indigenous Australian population so more reliable conclusions can be drawn.

5 Summary and Conclusions

Using a convenience sample of young Indigenous Australians who were participants in the Australian Federal Government Department of Education, Employment and Workplace Relations (DEEWR) Youth Connections program for disengaged young people, the PWI-SC was found to exhibit adequate psychometric properties. This finding has major implications for the assessment of SWB amongst Indigenous Australians using a scale designed to be referenced back to the mainstream Australian population. However, this research, which aims to facilitate cross-cultural inclusion, does not mitigate the need for research that seeks increased understanding of how SWB is conceptualised within cultures. In contrast, both approaches are deemed to contribute to a deeper and more holistic understanding of wellbeing. With respect to their SWB, it was determined that mean SWB for this sample was within the expected Australian adult normative range. This finding supports SWB Homeostasis Theory and the notion that SWB is actively controlled and maintained around a narrow set-point of values for most people. This finding also casts a shadow of doubt on the unsubstantiated assumption that Indigenous Australians will

experience low SWB because they often score quite poorly on objective indicators of quality of life. Finally, the finding that females have lower SWB than males is inconsistent with adult and adolescent non-Indigenous data and suggests that young Indigenous females are at greater risk for depression than males. Overall, the results suggest that a higher proportion of young Indigenous Australians than seen in the mainstream population have low SWB, and that the great majority of these are female. However, the data indicates that on the whole, young Indigenous Australians are a resilient group of people with collective mean happiness within the expected normal range.

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Appendix

See Table 5.

Table 5 Wording of PWI-A and PWI-SC

Domain	PWI-A	PWI-SC
1. Standard of living	How satisfied are you with your standard of living?	How happy are you about the things that you have? Like the money you have and the things you own?
2. Health	How satisfied are you with your health?	How happy are you with your health?
3. Achieving in life	How satisfied are you with what you are achieving in life?	How happy are you with the things that you want to be good at?
4. Relationships	How satisfied are you with your personal relationships?	How happy are you about getting on with the people you know?
5. Safety	How satisfied are you with how safe you feel?	How happy are you with how safe you feel?
6. Community connectedness	How satisfied are you with feeling part of your community?	How happy are you about doing things away from your home?
7. Future security	How satisfied are you with your future security?	How happy are you about what may happen to you later on in your life?
8. Spirituality—religion	How satisfied are you with your spirituality or religion?	N/A

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