

Homeostatically Protected Mood as a Primary Source of Shared Variance in Subjective  
Wellbeing

Student: Ashley Ruyg

Student ID: 201154516

Supervisor: Professor Emeritus Robert Cummins

Campus: Deakin Burwood

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Signed  \_\_\_\_\_

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## Abstract

### **Background and Objectives**

A growing body of evidence shows that subjective wellbeing (SWB) mainly comprises mood. Under the theory of SWB homeostasis, this mood is conceptualised as Homeostatically Protected Mood (HPMood); a genetically endowed, background affect. HPMood is complemented by a system of stabilising forces—including the cognitive buffers of self-esteem, optimism, and control—that maintain SWB within an individually determined set-point-range. HPMood is constantly present, making it a likely source of information for heuristic processing. Accordingly, self-report measures informed by HPMood will automatically correlate. This has been supported in a recent study, where both General Life Satisfaction (GLS) and Personal Wellbeing Index (PWI) correlations with self-esteem, optimism, and control all reduced substantially after controlling for HPMood. The current study aimed to extend these findings. Multiple regression analyses were performed to examine the extent of reductions in the unique contributions of the cognitive buffers, when predicting GLS and the PWI, after controlling for HPMood.

### **Method**

Analyses were performed separately on two samples from the Australian Unity Wellbeing Index, comprising 1,486 and 3,197 respondents respectively.

### **Results**

As hypothesised, the unique contribution of the cognitive buffers to the variance in both GLS and the PWI reduced after controlling for HPMood. While the buffers initially accounted for around 13% of combined unique variance, this dropped to a negligible 1% after controlling for HPMood.

### **Conclusion**

The extent of the reductions indicate that the buffers included a high content of HPMood, and indeed provided virtually no explanatory power to levels of SWB beyond that already accounted for by HPMood. These results extend the theory of SWB homeostasis by supporting the proposition that HPMood is a primary source of shared variance in SWB for normal adult populations. This study highlights the need for future research in SWB to control for the effects of HPMood.

## Homeostatically Protected Mood as a Primary Source of Shared Variance in Subjective Wellbeing

The emergence of positive psychology (Seligman & Csikszentmihalyi, 2000) has generated much public enthusiasm for the view that subjective wellbeing (SWB) can be improved with changes to cognitions (Seligman, 2002). With growing national mental health expenditure (Australian Institute of Health and Welfare, 2015) and increased community focus on preventative measures, positive psychology interventions are now beginning to appear more commonly in general community-based settings (e.g. Norrish, 2015; Waters, 2011). However, an alternative theory suggests that biologically determined mood limits the scope of improvement for individuals already experiencing normal levels of wellbeing (Cummins, 2013). Indeed, initial evidence indicates that while effective interventions can result in large improvements for people with low-baseline levels of SWB, those with normal-baseline levels report much more modest improvements (Tomyn, Weinberg, & Cummins, 2015). With growing levels of resources directed towards potentially ineffective cognitive-based interventions on general populations, this study investigates the influence of mood as a primary source of shared variance in SWB, and highlights the need for future research to control for this impact.

### **Subjective Wellbeing**

Subjective wellbeing is defined as a generally positive state of mind comprising the whole life experience (Cummins, 2010). SWB can be measured with global self-report scales, such as General Life Satisfaction (GLS), which ask a single question like: “How do you feel about your life as a whole?” (Andrews & Withey, 1976, p. 66). Domain-specific scales, such as the Personal Wellbeing Index (PWI; International Wellbeing Group, 2013), average scores across various life domains to produce a more psychometrically robust composite measure. Evidence shows that SWB is remarkably stable for both approaches. For example, in the Australian Unity Wellbeing Index (AUWI) study of Australian adults, every survey mean score over 32 surveys and 14 years has been in the narrow range of just 73.21-76.36 percentage points for the PWI, and 75.23-79.12 for GLS (Capic et al., 2015). The dominant cognitive-affective view of SWB attributes this stability to personality. Under this view, SWB is considered to be primarily a cognitive construct, with separable affective, life satisfaction and domain specific elements, based on personality-derived positive mood (Diener, Scollon, & Lucas, 2004).

### **Theory of SWB Homeostasis**

As an alternative to the cognitive-affective view, the theory of SWB homeostasis (Cummins, 2010) proposes that SWB is maintained by underlying mechanisms analogous to the homeostatic systems that manage physiological states, such as body temperature. Homeostasis theory is supported by a growing body of evidence, which shows that SWB is dominated by mood rather than cognition, with personality making little contribution after controlling for mood (Blore, Stokes, Mellor, Firth, & Cummins, 2011; Davern, Cummins, & Stokes, 2007; Tomyn & Cummins, 2011). This mood affect—in the form of Homeostatically Protected Mood (HPMood)—is conceptualised as a stable, genetically endowed, positive, and underlying mood that maintains SWB within an individually determined range, around a set-point (Cummins, 2010). Recent evidence suggests that these set-points are normally distributed between 70-90 percentage points, with a theoretical population mean set-point of 80, and an average individual range of 18-20 points (Cummins, Li, Wooden, & Stokes, 2014).

Under homeostasis theory, while SWB may fluctuate following significant life events, HPMood remains unaffected. Homeostatic stabilizing forces work to restore SWB to its normal set-point-range using a system of resources comprising behaviours, adaptation, and cognitive buffers including self-esteem, perceived control, and optimism (Cummins & Wooden, 2014). These deeply embedded and biologically determined processes are considered to support SWB in the most abstract, non-specific, and highly personalised sense (Cummins, 2010). It is these processes that limit the scope for improvement in individuals already experiencing normal levels of SWB, with stabilising forces responding to both upward and downward pressures on SWB (Cummins, 2013). However, these processes can be overwhelmed by prolonged challenges to SWB, resulting in individuals operating under conditions of homeostatic defeat (Cummins & Wooden, 2014). The low scores of such individuals in population samples are considered to account for the discrepancy between the theoretical population mean set-point of 80 under homeostasis theory, and the normal GLS population mean of 77.61 points calculated in the AUWI study (Capic et al., 2015). It is these low scoring individuals who are most likely to achieve long-term gains from appropriately targeted SWB interventions (Tomyn, Weinberg, & Cummins, 2015).

### **HPMood as Information**

Despite a strong theoretical basis and substantial body of evidence, homeostasis theory and the primary role of HPMood has been largely ignored by the SWB literature. Current research is still dominated by the personality based, cognitive-affective view of SWB (e.g. Durayappah, 2011; Kjell, Daukantaitė, Hefferon, & Sikström, 2016; Oishi & Diener, 2001). This theoretical framework has been founded largely on correlational self-report evidence linking the key constructs (e.g. Costa & McCrae, 1980; Michalos, 1985; Watson & Tellegen, 1985). However as Meehl highlighted, in self-report psychology everything correlates with everything due to obscure causal factors, which he called the “crud factor” (1990, p. 204). More specifically, it has been recently suggested that self-report measures of SWB and personality automatically correlate because they are all informed by the abstract, non-specific, and highly personalised background affect of HPMood (Cummins & Wooden, 2014).

This non-specific mood may infuse judgements of SWB through heuristics (Forgas, 1995), which are cognitive shortcuts used to simplify judgemental processes (Tversky & Kahneman, 1973). To avoid making effortful cognitive comparisons, people look for the most accessible information to facilitate their decision making (Fiske & Taylor, 1991). The constant presence of HPMood makes it a likely source of such information. This offers an alternative to the cognitive-affective view of SWB, which assumes that people perform a complex cognitive integration of multiple aspects of life to process judgements for global self-report measures such as GLS (Diener, Scollon, Oishi, Dzokoto, & Suh, 2000). It is unlikely that people have specific information available to answer the abstract, non-specific and highly personal question: “How do you feel about your life as a whole?” Instead, as they consider this question, respondents are likely to reflect upon their affective state. If there is no more salient information available, the underlying background affect of HPMood is likely to inform their response as a heuristic (Cummins, 2011). This is consistent with evidence that shows GLS contains a high proportion of HPMood (Davern et al., 2007; Lai & Cummins, 2013).

In contrast to the abstract nature of GLS, the PWI comprises items addressing more specific domains of life. While responses to the PWI are still expected to be informed by HPMood, the more direct questions are also likely to prompt a higher proportion of cognitive

evaluations, resulting in proportionately lower mood content (Blore et al., 2011). This is supported by Lai and Cummins (2013), which is the only published study to date to show that HPMood is a source of shared variance between self-report measures of SWB. In that study, GLS and PWI correlations with the cognitive buffers of self-esteem, optimism, and control all reduced substantially after controlling for HPMood, with the GLS reductions exceeding the PWI reductions (Lai & Cummins, 2013). However, these results may not generalise beyond the two specific samples used. Results based on a Hong Kong convenience sample included only employed and cohabitating respondents, while results based on an Australian general population survey included only employed respondents. Given the important role that income and relationships provide as an external resource to maintaining SWB homeostasis (Cummins, 2016), it is unlikely that either of these results generalise to a broader, normal population.

### **Aims and Hypotheses**

This study aims to build upon the existing theory of SWB homeostasis by partially replicating and extending the Lai and Cummins (2013) study. It will be investigated whether HPMood is a source of shared variance for self-report measures of SWB for a normal adult population. The comparative influence of HPMood will be tested to confirm whether GLS contains a higher proportion of HPMood than the PWI. After controlling for HPMood the extent of the reduction in the unique contribution by the cognitive buffers (self-esteem, perceived control, and optimism) when predicting GLS and the PWI will also be explored. Potential implications for future SWB research and interventions aimed at general adult populations will be identified. Specifically, it is hypothesised that:

**1. In a sample from the general population, all of the measured variables will approximate the homeostatic set-point range of 70-90 percentage points.**

*Rationale.* The general, abstract and personal nature of the self-report questions will facilitate common heuristic process using HPMood as information. Therefore, all measured variables will approximate the level of HPMood.

**2. After controlling for HPMood, each of the cognitive buffers will make a lower unique contribution to the variance in GLS.**

**Rationale.** Prior to controlling for HPMood, any unique covariance between the cognitive buffers and GLS will include a high content of HPMood. Controlling for HPMood will convert this into shared variance.

**3. After controlling for HPMood, the reductions in the unique contributions by the cognitive buffers to the variance in the PWI, will be less than the reductions in GLS.**

**Rationale.** The PWI targets specific life-domains; while questions are still relatively abstract and personal, they are more direct than the broad GLS question. Due to the higher target specificity, the PWI is expected to comprise more cognitive judgement responses than GLS. Thus, controlling for HPMood is expected to result in greater reductions for GLS, with its relatively higher HPMood content.

## Method

### Participants

The data for this study came from the Australian Unity Wellbeing Index (AUWI); a long-term study into the subjective wellbeing (SWB) of Australia's general adult population that commenced in 2001. All analyses have been performed on two separate data sets: ARC22 (November 2011) and ARC25 (August 2013). The surveys comprised 1,486 (ARC22) and 3,197 (ARC25) respondents respectively, with an approximate gender balance. Ages ranged from 19 to 93 years old, with a mean age of 62 years. Notably, the samples reported a relatively high proportion of participants with Personal Wellbeing Index (PWI) scores of 50 percentage points or below, with 5.11% in ARC22 and 5.38% in ARC25, compared to approximately 4% for typical cross-sectional surveys of Australian adults (Capic et al., 2015). This is indicative of a higher proportion of respondents experiencing homeostatic defeat (Cummins & Wooden, 2014).

### Materials

The surveys were mailed to participants and included: a letter from the primary researcher (Appendix A), plain language statement (Appendix B), ARC questionnaire (Appendix C and D), and demographic form (Appendix E). The questionnaire, which explored various aspects of SWB, included 88 questions for ARC22 and 91 questions for ARC25.



## Measures

Data were collected using an 11-point, numerical, end-defined response scale, for each of the following measures (Appendix F).

**Personal Wellbeing Index.** This study includes two measures of SWB. The first, the PWI, measures satisfaction across seven life-domains from 0 (“Not satisfied at all”) to 10 (“Completely satisfied”). The scale is considered internally reliable with Cronbach’s alpha reported between .70 and .85 (International Wellbeing Group, 2013).

**General Life Satisfaction.** The second measure of SWB, General Life Satisfaction, comprises a single question: “How satisfied are you with your life as a whole?” rated from 0 (“Not satisfied at all”) to 10 (“Completely satisfied”).

**Homeostatically Protected Mood.** This measures the three affects of happy, contented and alert (Cummins, 2010), in response to the question: “Thinking about my life in general I feel...” rated from 0 (“Not at all”) to 10 (“Extremely”). The scale is considered internally reliable for Australian samples with Cronbach’s alpha reported at .83 (Lai and Cummins, 2013).

**Self-Esteem.** This comprises five-items from Rosenberg’s (1965) Self-Esteem Scale, rated from 0 (“Do not agree at all”) to 10 (“Agree completely”). The scale is considered internally reliable with Cronbach’s alpha reported at .91 (Sinclair et al., 2010).

**Perceived Control.** This comprises Heeps’ (2000) seven-item Primary Control Scale and five-item Secondary Control Scale, rated from 0 (“Do not agree at all”) to 10 (“Agree completely”). As one question on the primary control subscale differed between surveys, it was removed from both to ensure comparability. The scale is considered internally reliable with Cronbach’s alpha reported at .90 (Heeps, 2000).

**Optimism.** This comprises the three optimistically framed questions from the Life Orientation Test–Revised (LOT–R: Carver & Scheier, 2002), rated from 0 (“Do not agree at all”) to 10 (“Agree completely”). The scale is considered internally reliable for Australian samples with Cronbach’s alpha reported at .85 (Lai & Cummins, 2013).

## Procedure

After confirming compliance with ethical procedures for Deakin University Honours research, the previously collected data were obtained from the publicly available website of the Australian Centre on Quality of Life (ACQOL, 2011, 2013).

## Results

The results for each sample are reported below, including data preparation, descriptive information, and specific results for the hypotheses.

### Preliminary Analysis

**Data cleaning.** This study used IBM SPSS Statistics 23.0 to perform all analyses. There were 1,672 responses received for ARC22 and 3,726 for ARC25. After standardising all scores onto a 0-100 point scale, the data were reviewed for cases exhibiting an acquiescent response style. Those cases which scored the maximum 100 points for each Personal Wellbeing Index (PWI) domain—15 for ARC22 and 45 for ARC25—were deleted as recommended by the PWI manual (International Wellbeing Group, 2013). Given the large samples, missing data were deleted on a case-wise basis: 105 for ARC22 (6.28% of total cases) and 348 cases for ARC 25 (9.34% of total cases).

Outliers were assessed at a number of levels as recommended by Tabachnick and Fidell (2013). At the univariate level, potential outliers were only evident below the mean, consistent with the positive nature of subjective wellbeing (SWB) data. As all scores fell within the valid 0-10 scale range, they were considered legitimate. At the multivariate level, Mahalanobis distances were calculated to identify cases with an unusual spread of extreme scores, while studentised residuals were calculated to identify cases with excessive influence on the regression solution. A total of 66 extreme cases for ARC22 and 136 for ARC25 were deleted. The remaining sample sizes of 1,486 for ARC22 and 3,197 for ARC25 were well in excess of minimums proposed by Tabachnick and Fidell.

Multivariate normality was assessed by analysing the residuals around the predicted dependent variable scores, as recommended by Tabachnick and Fidell (2013). While there was no indication of nonlinearity or heteroscedasticity, further screening of normality was warranted with residuals trailing off to the negative side of predicted PWI and General Life

Satisfaction (GLS) scores. At the individual variable level, frequency histograms indicated the data were negatively skewed with positive kurtosis. This is consistent with the positive nature of SWB, with the majority of scores expected to be tightly clustered towards the right hand side of the relevant distribution. Secondary control was the single exception, with a relatively normal distribution. Given the large sample sizes, the effect of skewness and kurtosis was not expected to make a substantive difference to the results (Tabachnick & Fidell, 2013).

**Factor analysis.** A principal components analysis was performed to confirm the factor structure of the independent variables, as reported in Table 1.

Table 1.

*Principal Components Analysis–Variance Accounted for.*

Measure	Variance accounted for (%)	
	ARC22	ARC25
PWI	53.74	55.37
HPMood	80.58	83.15
Self-Esteem	75.74	78.53
Perceived Control	56.82	58.48
Optimism	80.01	79.35

*Note.* PWI = Personal Wellbeing Index; HPMood = Homeostatically Protected Mood.

Using a minimum factor loading of .40, one principal component was extracted for all measures except for perceived control, which had two components consistent with the primary and secondary control subscales. Results were consistent between ARC22 and ARC25.

**Reliability of measures.** The variables were assessed for internal reliability using Cronbach's alpha as reported in Table 2.

Table 2.

*Reliability of Measures.*

Measure	Cronbach's alpha	
	ARC22	ARC25
PWI	.85	.86
HPMood	.88	.90
Self-Esteem	.92	.93
Primary Control	.86	.87
Secondary Control	.77	.78
Optimism	.87	.87

*Note.* PWI = Personal Wellbeing Index; HPMood = Homeostatically Protected Mood.

With all values above .70 as recommended by Kline (1999), the variables were considered internally reliable. Results between ARC22 and ARC25 were very similar.

## Descriptive Statistics

Descriptive information for each sample is reported in Table 3.

Table 3.

*Variable Means, Standard Deviations, and Bivariate Correlations.*

Measure	N	M	SD	Bivariate correlations					
				PWI	GLS	HPMood	SE	PC	SC
ARC22	1,486								
PWI		75.13	12.86						
GLS		77.00	14.46	.76					
HPMood		75.91	15.08	.80	.79				
Self-Esteem		78.87	13.78	.66	.66	.74			
Primary Control		71.98	14.90	.46	.44	.53	.57		
Secondary Control		47.85	19.57	.16	.14	.17	.13	.13	
Optimism		71.83	17.12	.61	.59	.65	.68	.52	.19
ARC25	3,197								
PWI		75.77	13.01						
GLS		77.33	14.18	.78					
HPMood		75.64	15.33	.82	.82				
Self-Esteem		79.58	14.04	.69	.65	.74			
Primary Control		72.88	14.34	.51	.48	.56	.63		
Secondary Control		48.64	19.55	.11	.12	.14	.13	.15	
Optimism		71.12	17.06	.61	.57	.66	.68	.56	.21

*Note.* PWI = Personal Wellbeing Index; GLS = General Life Satisfaction; HPMood = Homeostatically Protected Mood; SE = Self-Esteem; PC = Primary Control; SC = Secondary Control.

All bivariate correlations were significant at  $p < .001$  (2-tailed).

The descriptive information was very similar between ARC22 and ARC25, with sample size being the only notable difference. The mean scores for the PWI and GLS fell within the reported normative ranges calculated by Capic et al. (2015; PWI = 73.87-76.78; GLS = 76.08-79.13), as two standard deviations either side of the population mean scores for the 32 surveys of the Australian Unity Wellbeing Index. The mean scores for the remaining variables fell within the relatively narrow range of 71.12 to 79.58 points, except for secondary control which had mean scores below 50 points. All correlations were significant at  $p < .001$ , and while all independent variables were positively correlated, multicollinearity was not evident with the maximum correlation at  $r = .82$ . Using Ferguson's effect size guidelines (2009) most correlations were in the moderate to high range ( $r > .50$ ). The main exception was the inter-correlations with secondary control that were mostly trivial ( $r < .20$ ). The lack of meaningful relationships between secondary control and the other variables,

coupled with its low mean scores, resulted in the decision to exclude secondary control from further analysis.

### **Hypothesis 1**

**In a sample from the general population, all of the measured variables will approximate the homeostatic set-point range of 70-90 percentage points.** As reported in Table 3, the mean scores of the included variables (excluding secondary control) fell between 71.12 to 79.58 percentage points. These results support the proposition that the variables would all approximate HPMood.

### **Hypothesis 2**

**After controlling for HPMood, each of the cognitive buffers will make a lower unique contribution to the variance in GLS.** A multiple hierarchical regression was performed to assess the relative contribution of each of the cognitive buffers and HPMood, when predicting the outcome variable GLS. The cognitive buffers of self-esteem, primary control, and optimism were entered as the predictors in Model 1, and HPMood was added in Model 2. The results are reported in Table 4.

Table 4.

*Multiple Hierarchical Regression to Predict GLS.*

Measure	ARC22				ARC25			
	$\beta$	$sr$	$\Delta sr$	$sr^2$	$\beta$	$sr$	$\Delta sr$	$sr^2$
Model 1								
Self-Esteem	.45 ***	.31		.10	.46 ***	.31		.09
Primary Control	.04	.04		.00	.06 ***	.05		.00
Optimism	.27 ***	.19		.04	.22 ***	.16		.02
$R^2$				.47 ***				.45 ***
Adjusted $R^2$				.47				.45
Unique Variance				14%				11%
Shared Variance				33%				34%
Model 2								
Self-Esteem	.12 ***	.07	-.24 ***	.01	.09 ***	.05	-.26 ***	.00
Primary Control	-.02	-.02	-.06	.00	-.01	-.01	-.06 *	.00
Optimism	.10 ***	.07	-.12 ***	.00	.03 *	.02	-.14 ***	.00
HPMood	.65 ***	.41		.17	.74 ***	.47		.22
$R^2$				.64 ***				.68 ***
Adjusted $R^2$				.64				.68
$\Delta R^2$				.17 ***				.23 ***
Unique Variance				18%				22%
Shared Variance				46%				46%

Note.  $sr^2$  = proportion of unique variance accounted for.

The  $sr$  values from Model 1 and Model 2 were converted into Fisher's Z to test for significance of  $\Delta sr$ .

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

In Model 1, the cognitive buffers accounted for 47% and 45% of the total variance in GLS. Self-esteem and optimism both contributed to the unique variance, accounting for 14% and 11% between them. Following the introduction of HPMood in Model 2, the predictive power increased for both studies to a total of 64% and 68% of the variance in GLS accounted for. This is considered a strong effect using Ferguson's effect size guidelines (2009). Of the total variance, an increased proportion was unique (18% and 22%), however this mostly comprised HPMood. While the unique contributions by self-esteem and optimism remained statistically significant, their combined contribution of around 1% is considered a trivial effect (Ferguson, 2009). To assess the significance of the reduction in unique covariance, the semi-partial correlations from Model 1 and Model 2 were converted to Fisher's Z and compared. The reductions for all variables that made an initial unique contribution were significant ( $p < .001$ ). These results, which were very similar for ARC22 and ARC25, support the proposition that the variables would include a high content of HPMood.

### Hypothesis 3

**After controlling for HPMood, the reductions in the unique contributions by the cognitive buffers to the variance in the PWI, will be less than the reductions in GLS.**

The multiple hierarchical regression from Hypothesis 2 was repeated, this time with the PWI as the outcome variable. The results are reported in Table 5.

Table 5.

#### *Multiple Hierarchical Regression to Predict the PWI.*

Measure	ARC22				ARC25			
	$\beta$	$sr$	$\Delta sr$	$sr^2$	$\beta$	$sr$	$\Delta sr$	$sr^2$
<b>Model 1</b>								
Self-Esteem	.44 ***	.30		.09	.48 ***	.32		.10
Primary Control	.06 **	.05		.00	.07 ***	.05		.00
Optimism	.28 ***	.20		.04	.25 ***	.18		.03
$R^2$				.49 ***				.51 ***
Adjusted $R^2$				.49				.51
Unique Variance				13%				13%
Shared Variance				36%				38%
<b>Model 2</b>								
Self-Esteem	.10 ***	.06	-.24 ***	.00	.15 ***	.09	-.23 ***	.01
Primary Control	-.01	-.01	-.06	.00	.01	.01	-.05 *	.00
Optimism	.11 ***	.08	-.12 ***	.01	.08 ***	.05	-.12 ***	.00
HPMood	.66 ***	.42		.17	.65 ***	.42		.17
$R^2$				.66 ***				.69 ***
Adjusted $R^2$				.66				.69
$\Delta R^2$				.17 ***				.18 ***
Unique Variance				18%				18%
Shared Variance				48%				51%

Note.  $sr^2$  = proportion of unique variance accounted for.

The  $sr$  values from Model 1 and Model 2 were converted into Fisher's Z to test for significance of  $\Delta sr$ .

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

In Model 1 the cognitive buffers accounted for 49% and 51% of the total variance in the PWI. The buffers all made unique contributions, accounting for 13% unique variance between them. Following the introduction of HPMood in Model 2, the predictive power increased for both surveys with a total of 66% and 69% of the variance in the PWI accounted for. This is a strong effect according to Ferguson's effect size guidelines (2009). Of the total variance, an increased proportion was unique (18%), however this mostly comprised HPMood. While the unique contributions by self-esteem and optimism remained statistically significant, their combined contribution of around 1% is considered a trivial effect (Ferguson,



2009). These PWI results were similar to the GLS results presented in Table 4. The reductions in the unique covariance contributed by each of the buffers were compared for the PWI and GLS. To assess the significance of the differences, the semi-partial correlations ( $\Delta sr$ ) from Tables 4 and 5 were converted to Fisher's Z and compared. All differences were non-significant. These results, which were very similar between ARC22 and ARC25, fail to support the proposition that GLS would have a higher content of HPMood than the PWI.

In further analyses, partial correlations were performed to compare the bivariate inter-correlations for the PWI to GLS, before and after entering HPMood as a covariate. The results are reported in Table 6.

Table 6.

*Comparison of PWI and GLS Bivariate and Partial Correlations, with HPMood as Covariate.*

Measures	ARC22			ARC25			Combined Average			
	PWI	GLS	Difference in reduction	PWI	GLS	Difference in reduction	<i>r</i> , <i>pr</i>	Reduction (%)	<i>r</i> <sup>2</sup> , <i>pr</i> <sup>2</sup>	Reduction (%)
<b>Self-Esteem</b>										
<i>r</i>	.66 ***	.66 ***		.69 ***	.65 ***		.66		.44	
<i>pr</i>	.16 ***	.17 ***		.22 ***	.12 ***		.17		.03	
<i>r - pr</i>	.50 ***	.49 ***	.01	.47 ***	.53 ***	-.06 ***	.50	75%	.41	94%
<b>Primary Control</b>										
<i>r</i>	.46 ***	.44 ***		.51 ***	.48 ***		.47		.22	
<i>pr</i>	.06 *	.04		.11 ***	.04 *		.06		.00	
<i>r - pr</i>	.39 ***	.40 ***	-.01	.40 ***	.44 ***	-.04 *	.41	86%	.22	98%
<b>Optimism</b>										
<i>r</i>	.61 ***	.59 ***		.61 ***	.57 ***		.60		.35	
<i>pr</i>	.18 ***	.17 ***		.17 ***	.08 ***		.15		.02	
<i>r - pr</i>	.43 ***	.43 ***	.00	.44 ***	.49 ***	-.06 **	.45	75%	.33	94%

Note. PWI = Personal Wellbeing Index; GLS = General Life Satisfaction.

The values for *r* and *pr* were converted to Fisher's Z to test the significance of the reduction in correlation after controlling for HPMood. The values for "*r - pr*" were converted to Fisher's Z to test the significance of the "Difference in reduction".

\**p* < .05. \*\**p* < .01. \*\*\**p* < .001.

All of the inter-correlations reduced significantly after controlling for HPMood. The effect sizes, which were mostly in the moderate to high range initially (*r* > .50), reduced to mostly trivial levels (*r* < .20) using Ferguson's (2009) guidelines. For ARC22, the difference in reductions between the PWI and GLS were not significant. This contradicts the proposition that GLS would have a higher content of HPMood than the PWI. For ARC25, the results

were as expected with the reductions in GLS larger than for the PWI. On average, the PWI and GLS correlations with self-esteem, primary control, and optimism reduced by more than 75% after controlling for HPMood.

### Discussion

This study reinforces the theory of SWB homeostasis by partially replicating and extending the findings of Lai and Cummins (2013), to show that self-report measures of subjective wellbeing (SWB) include a high content of Homeostatically Protected Mood (HPMood). As hypothesised, there was a reduction in the unique contribution of the cognitive buffers (self-esteem, primary control, and optimism) to the variance in both General Life Satisfaction (GLS) and the Personal Wellbeing Index (PWI), after controlling for HPMood. However, the extent of the reductions was the most interesting part of the results. The simple self-esteem and optimism correlations with GLS and the PWI initially averaged above  $r = .60$  and primary control averaged  $r = .47$ . After controlling for HPMood these correlations reduced by more than 75%. Indeed, the average shared variance dropped to around 3% for self-esteem, 2% for optimism and 0% for primary control. Similarly, while the buffers initially accounted for around a combined 13% of the variance in both GLS and the PWI, after controlling for HPMood this dropped to a negligible combined contribution of about 1%.

These results support the findings of Lai and Cummins (2013), where GLS and PWI correlations with the cognitive buffers all reduced substantially after controlling for HPMood. These results also indicate that nearly all of the unique variance between the buffers, and both GLS and the PWI, was accounted for by HPMood. This suggests, that in normal populations, the system of cognitive buffers provides virtually no explanatory power to levels of SWB, beyond that already contributed by HPMood. This contrasts against suggestions by some researchers who, based on correlational evidence, claim that self-esteem, primary control, and optimism are direct predictors of SWB (e.g. Carver, Scheier, & Segerstrom, 2010; Heckhausen, Wrosch, & Schulz, 2010; Karatas & Tagay, 2012).

It was separately hypothesised that, after controlling for HPMood, the reductions in the unique contributions by the buffers would be lower when predicting the PWI than GLS. This was based on the expectation that the higher target specificity of the PWI would

generate more cognitive judgement responses compared to the more abstract GLS (Blore et al., 2011). Thus, the PWI would have a relatively lower HPMood content than GLS. Unexpectedly, there was no difference between the reductions. However, there was limited scope for a difference given the unique contributions for each of the buffers, for both measures, fell to around zero. But then, with an expected shared common cognitive component between the buffers and the PWI, the unique variances before controlling for HPMood were also expected to be higher for the PWI compared to GLS. This was also not evident in the results.

These findings are inconsistent with Lai and Cummins (2013) where, after controlling for HPMood, larger reductions occurred in correlations between the buffers and GLS, than for the buffers and the PWI. In the current study, replicating this analysis produced significantly larger reductions for GLS than the PWI in one survey only. The difference between this study and Lai and Cummins may be linked to the different nature of the samples. While the current study used samples from a normal adult population, Lai and Cummins included only employed respondents. Employment provides a source of money and achievement, which are both useful resources for defending homeostasis (Cummins, 2016). By only including employed people, the Lai and Cummins study may have had a higher than normal proportion of well-resourced respondents, and a relatively lower proportion of respondents operating under conditions of homeostatic defeat.

The current study however, had a higher than normal proportion of respondents at SWB levels indicative of homeostatic defeat (Cummins & Wooden, 2014); more than 5% of PWI scores were 50 percentage points or below compared to the typical 4% (Capic et al., 2015). For people operating in homeostatic defeat HPMood is no longer accessible, and as control shifts to the homeostatic challenging agent SWB becomes less predictable (Richardson, Fuller-Tyszkiewicz, Tomyn, & Cummins, 2015). As such, the unexpected results in the current study may have been influenced by a higher than normal proportion of individuals operating in homeostatic defeat, with responses based on salient foreground emotions rather than HPMood. Given the inconsistent results, further evidence is required to identify whether HPMood informs judgements of GLS more heavily than judgements of the PWI, for a normal population.

Finally, as hypothesised all included variables had mean scores within the homeostatic set-point-range of 70-90 percentage points (Cummins et al., 2014). This was consistent with the proposition that the self-report measures would include a high proportion of HPMood. However, HPMood did not appear to influence secondary control, which had a mean score well below the homeostatic set-point-range. In contrast to the questions for the other measures, the secondary control items were expressed in negative terms (Appendix F). With response formats known to contaminate affective correlations (Davern & Cummins, 2006), this negative framing might have increased the target specificity of these questions for the included samples (Tversky & Kahneman, 1981). As such, secondary control may have comprised more cognitive judgement responses, limiting its relationship with HPMood.

### **Implications**

Overall, these results extend homeostasis theory by demonstrating that self-report measures of SWB include a high content of HPMood in normal populations. Furthermore, it now seems likely that the cognitive buffers of self-esteem, primary control, and optimism have little direct impact on SWB other than that already provided by HPMood. This provides further support for the theory that the constant presence of HPMood makes it a primary and reliable source of information for informing responses to self-report measures of SWB (Cummins, 2011). This demands a change in focus for much of the SWB literature. While it has been long accepted that mood can contribute to the prediction of self-report measures of SWB (e.g. Diener, Sandvik, Pavot, & Gallagher, 1991), the dominant cognitive-affective model still typically only considers affect in relation to powerful events and emotions (e.g. Diener et al., 2004; Durayappah, 2011). Failing to consider the background affect of HPMood, that dominates judgements of SWB when no other more salient information is available, will produce confounded results.

Interventions that then rely on flawed correlational evidence are likely to be misguided. This is evident in direct attempts to increase SWB levels of normal populations. Under homeostasis theory, homeostatic forces work to maintain SWB values around a fixed set-point (Cummins, 2010). As such, SWB intervention gains for individuals operating in homeostatic control are likely to be short-lived, as homeostatic forces work to drive SWB back towards set-point. This raises doubts about the probable success of the positive psychology programs (e.g. Seligman, 2002) that are increasingly appearing in general

community-based populations. As an alternative, interventions for normal populations are likely to be more effective when aimed at developing the ability of individuals to successfully defend against challenges to homeostasis (Cummins & Wooden, 2014).

This study also highlights the importance of identifying participants at SWB levels indicative of homeostatic defeat. Controlling for the impact of HPMood is only appropriate for respondents who are operating within homeostatic control. When homeostasis is defeated, control shifts to the challenging agent, so HPMood no longer reliably informs responses (Cummins & Wooden, 2014). In normal populations this should have a limited impact. However, researchers should consider removing cases with SWB scores of 50 points or below, particularly when they comprise more than 4% of the relevant samples, or there is the risk that results will be confounded.

### **Limitations**

A limitation is that the results may not generalise beyond the specific samples used. As well as having a relatively high proportion of respondents scoring 50 points or below for the PWI, the surveys were also relatively old so may not be representative of the current Australian population. The results also may not generalise beyond the specific measures of SWB tested. To address these issues, future studies could recruit new random samples representative of the general adult population. Studies could also test other measures, or alternate versions of the measures used in this study, to examine whether the results generalise more broadly.

### **Conclusion**

The results of this study extend the theory of SWB homeostasis by supporting the proposition that HPMood is a primary source of shared variance in SWB. Two different samples have provided consistent evidence that the relationships between self-report measures of SWB and the cognitive buffers reduce after controlling for HPMood in normal adult populations. Unexpectedly, the results did not support the hypothesis that GLS would contain a higher content of HPMood than the PWI. While this specific finding needs to be replicated, the inconsistency may have been linked to a high proportion of participants with low SWB scores impacting the result. Overall, the extent of the reductions in the direct influence of the cognitive buffers on SWB, after controlling for HPMood, indicate that the

buffers included a high content of HPMood. This highlights the need for future SWB research to control for the effects of HPMood. A failure to do so may lead to misinterpreted results, and ultimately, misdirected interventions.

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## Appendix A: Survey Letter



19 August 2013

Dear Friend of the Australian Centre on Quality of Life

Some time ago now, you were kind enough to complete a telephone interview on quality of life in Australia. At that time you also indicated that we could contact you with a view to continuing your involvement in this project. That is the purpose of this letter.

Together with our partner Australian Unity, we are tracking the wellbeing of Australians. This project has been ongoing for 12 years. If you would like to read our full reports they are available at the following web address  
<http://www.deakin.edu.au/research/acqol/auwbi/index.php>

Our most recent Executive Summary from Report 24.0, conducted in October 2012, is included in the package for your information.

So, we are hoping to prevail on your kindness once again. Our latest questionnaire is being sent in the hope that you will find the time to complete and return it in the envelope provided. Your opinions are very important to our annual monitoring of the Australian population.

I wish we could offer you some form of tangible reward for your continuing involvement, but we are struggling to financially support the project at a very basic level. Consequently, we have to call once again on your good will, and hope that you will be able to find the time to remain as an active voluntary contributor to this remarkable project, which is the only one of its type in the world.

Please feel free to contact me with any queries concerning this project on (03) 9244 6845 or [robert.cummins@deakin.edu.au](mailto:robert.cummins@deakin.edu.au).

Kind regards

A handwritten signature in black ink, appearing to read 'R. Cummins', written in a cursive style.

Robert A. Cummins  
Professor of Psychology.

## Appendix B: Plain Language Statement

**DEAKIN UNIVERSITY HUMAN RESEARCH ETHICS COMMITTEE****PLAIN LANGUAGE STATEMENT FOR PEOPLE RECRUITED FROM THE TELEPHONE SURVEY**

Dear Friend of the Australian Unity Wellbeing Project

Some months ago you participated in the Australian Unity Wellbeing project that is conducted by telephone in conjunction with Deakin University. At that time, you indicated that you would be willing to be involved in future surveys of this kind. Thank you. We are writing to you now because we are conducting a longitudinal study of the wellbeing of Australians, to identify the beliefs that maintain wellbeing. We now invite you to be part of this study.

The research team involved is Professor Bob Cummins, Dr Melissa Weinberg, Linda Hartley-Clark and Camilla Franklin, from Deakin University. Australian Unity is a partner in the project. Linda will use part of this project for the purposes of her PhD thesis, and Camilla will use part of this project for the purposes of her Honours thesis.

In the hope you will agree to be involved, we enclose a questionnaire package. One questionnaire asks for some basic demographic details, and the other some questions about yourself such as:

- How satisfied are you with life as a whole?
- How satisfied are you with your health?

Other questions will ask your level of agreement with various statements, on topics such as:

- How you feel about yourself and your feelings in general.
- What kind of person you are.
- How you feel about events in your life.

In total, the questionnaire should take you about 25 minutes to complete. Also enclosed is a reply paid envelope to return the completed questionnaire to Deakin University, and when you return the questionnaire we will assume you are doing so willingly. Your questionnaire will be given a code and your answers will be entered into a database for collation. The research team will not be able to identify you or your personal responses. The database will be securely stored electronically at Deakin University for ten years and used only for academic research purposes.

You are quite free to participate or not to any extent, or withdraw at any time from the study. However, as we will not be able to identify your responses if you withdraw after mailing your questionnaire, such responses will be used in the overall analysis.

If for any reason you feel distressed by anything asked in the survey, we suggest that you contact Lifeline on 13 1114

For further details of the study, please contact Professor Bob Cummins on 03 92446845 or Linda Hartley-Clark on 03 92517439.

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If you have any complaints about any aspect of the project, the way it is being conducted or any questions about your rights as a research participant, then you may contact: The Manager, Research Integrity, Deakin University, 221 Burwood Highway, Burwood, Victoria 3125, Telephone: 9251 7129, [research-ethics@deakin.edu.au](mailto:research-ethics@deakin.edu.au)

[Please quote project number 2006-266](#)

Appendix C: ARC22 Questionnaire

### SECTION I WHY I THINK ABOUT MY PAST

When I think about my past, it is...

	Never									Very frequently		
		0	1	2	3	4	5	6	7	8	9	10
63 Because it helps me contrast the ways I have changed with the ways I have stayed the same		0	1	2	3	4	5	6	7	8	9	10
64 To help me plan for the future		0	1	2	3	4	5	6	7	8	9	10
65 To see how my past fits in with my journey through life		0	1	2	3	4	5	6	7	8	9	10
66 To help resolve some current difficulty		0	1	2	3	4	5	6	7	8	9	10
67 To remind me that I have skills to cope with present problems		0	1	2	3	4	5	6	7	8	9	10
68 Because it gives me a sense of self-identity		0	1	2	3	4	5	6	7	8	9	10
69 To see how my strengths can help me solve a current problem		0	1	2	3	4	5	6	7	8	9	10
70 As a means of self-exploration and growth		0	1	2	3	4	5	6	7	8	9	10
71 Because remembering my past, helps me define who I am now		0	1	2	3	4	5	6	7	8	9	10
72 To put current problems in perspective		0	1	2	3	4	5	6	7	8	9	10
73 To avoid repeating past mistakes at some later date		0	1	2	3	4	5	6	7	8	9	10
74 To try to understand myself better		0	1	2	3	4	5	6	7	8	9	10

### SECTION J MEANING IN YOUR LIFE

Please take a moment to think about what makes your life important to you and indicate how true each of the following statements are for you.

	Absolutely untrue									Absolutely true		
		0	1	2	3	4	5	6	7	8	9	10
75 I understand my life's meaning		0	1	2	3	4	5	6	7	8	9	10
76 I am looking for something that makes my life meaningful		0	1	2	3	4	5	6	7	8	9	10
77 I am always looking to find my life's purpose		0	1	2	3	4	5	6	7	8	9	10
78 My life has a clear sense of purpose		0	1	2	3	4	5	6	7	8	9	10
79 I have a good sense of what makes my life meaningful		0	1	2	3	4	5	6	7	8	9	10
80 I have discovered a satisfying life purpose		0	1	2	3	4	5	6	7	8	9	10
81 I am always searching for something that makes my life significant		0	1	2	3	4	5	6	7	8	9	10
82 I am seeking a purpose or mission for my life		0	1	2	3	4	5	6	7	8	9	10
83 my life has no clear purpose		0	1	2	3	4	5	6	7	8	9	10
84 I am searching for meaning in my life		0	1	2	3	4	5	6	7	8	9	10

### SECTION K EVENTS IN YOUR LIFE

85 Thinking back on your life, what is the highest level of happiness you have ever experienced?

	No happiness									Complete happiness		
		0	1	2	3	4	5	6	7	8	9	10
85 Thinking back on your life, what is the highest level of happiness you have ever experienced?		0	1	2	3	4	5	6	7	8	9	10

86 Has anything **happened to you recently** causing you to feel happier or sadder than normal? Please tick as appropriate

Yes, happier     No – You have now completed the questionnaire.     Yes, sadder

Yes, both happier and sadder – You have now completed the questionnaire.

(If Yes) On a scale from 0 to 10, how strongly is what happened affecting **how you feel now**?

	Very weakly									Very strongly		
		0	1	2	3	4	5	6	7	8	9	10
87 Which areas of your life have been strongly influenced by this event? Please tick <b>all areas</b> that have been affected.		0	1	2	3	4	5	6	7	8	9	10
<input type="radio"/> Standard of living <input type="radio"/> Relationships <input type="radio"/> Achieving in life <input type="radio"/> Connection to your community												
<input type="radio"/> Health <input type="radio"/> Personal safety <input type="radio"/> Future security <input type="radio"/> Spirituality or religion												

88 Now please tick the **one single** life area that has been **most strongly affected**.

Standard of living     Relationships     Achieving in life     Connection to your community

Health     Personal safety     Future security     Spirituality or religion

Thank you for your time and participation in this survey

## Australian Unity Wellbeing Index

Thank you for your involvement in this survey. This is a confidential questionnaire so please ensure that you do not write your name, or any other comments that will make you identifiable. By completing the questionnaire you are consenting to take part in this research as explained in the Plain Language Statement enclosed. The intention of this project is to investigate different aspects of life satisfaction in Australia.

Please read each question and response option carefully before answering the questions and make sure that you have provided an answer for every question.

### SECTION A PERSONAL WELLBEING

Thinking about your own life and personal circumstances, please **circle** the number that best represents how satisfied you feel with your life.

	No satisfaction at all									Completely satisfied		
		0	1	2	3	4	5	6	7	8	9	10
1 your life as a whole?		0	1	2	3	4	5	6	7	8	9	10
2 your standard of living?		0	1	2	3	4	5	6	7	8	9	10
3 your health?		0	1	2	3	4	5	6	7	8	9	10
4 what you are currently achieving in life?		0	1	2	3	4	5	6	7	8	9	10
5 your personal relationships?		0	1	2	3	4	5	6	7	8	9	10
6 how safe you feel?		0	1	2	3	4	5	6	7	8	9	10
7 feeling part of your community?		0	1	2	3	4	5	6	7	8	9	10
8 your future security?		0	1	2	3	4	5	6	7	8	9	10
9 your time use?		0	1	2	3	4	5	6	7	8	9	10
10 yourself?		0	1	2	3	4	5	6	7	8	9	10
11 your spirituality or religion?		0	1	2	3	4	5	6	7	8	9	10
or (If you have no spiritual or religious beliefs)		na										

### SECTION B LIFE IN AUSTRALIA

	No satisfaction at all									Completely satisfied		
		0	1	2	3	4	5	6	7	8	9	10
10 life in Australia?		0	1	2	3	4	5	6	7	8	9	10
11 the economic situation in Australia?		0	1	2	3	4	5	6	7	8	9	10
12 the state of the natural environment in Australia?		0	1	2	3	4	5	6	7	8	9	10
13 the social conditions in Australia?		0	1	2	3	4	5	6	7	8	9	10
14 government in Australia?		0	1	2	3	4	5	6	7	8	9	10
15 business in Australia?		0	1	2	3	4	5	6	7	8	9	10
16 national security in Australia?		0	1	2	3	4	5	6	7	8	9	10

ARC22

**SECTION C HOW YOU GENERALLY FEEL**

Please indicate how each of the following describes your feelings when you think about your life in general.

	Not at all	Extremely
17 Thinking about <b>my life in general</b> I feel <i>active</i> .	0 1 2 3 4 5 6 7 8 9 10	
18 Thinking about <b>my life in general</b> I feel <i>contented</i> .	0 1 2 3 4 5 6 7 8 9 10	
19 Thinking about <b>my life in general</b> I feel <i>alert</i> .	0 1 2 3 4 5 6 7 8 9 10	
20 Thinking about <b>my life in general</b> I feel <i>happy</i> .	0 1 2 3 4 5 6 7 8 9 10	

**SECTION D OVER THE PAST WEEK**

How much did these statements apply to you over the PAST WEEK?

	Not at all	Extremely
20 I couldn't seem to experience any positive feeling at all.	0 1 2 3 4 5 6 7 8 9 10	
21 I found it difficult to work up the initiative to do things.	0 1 2 3 4 5 6 7 8 9 10	
22 I felt that I had nothing to look forward to.	0 1 2 3 4 5 6 7 8 9 10	
23 I felt down-hearted and blue.	0 1 2 3 4 5 6 7 8 9 10	
24 I was unable to become enthusiastic about anything.	0 1 2 3 4 5 6 7 8 9 10	
25 I felt I wasn't worth much as a person.	0 1 2 3 4 5 6 7 8 9 10	
26 I felt that life was meaningless.	0 1 2 3 4 5 6 7 8 9 10	

**SECTION E COPING WITH LIFE**

How much do you agree that when something bad happens...

	Do not agree at all	Agree completely
27 I work hard to overcome it.	0 1 2 3 4 5 6 7 8 9 10	
28 I ignore it by thinking about other things.	0 1 2 3 4 5 6 7 8 9 10	
29 I look for different ways to achieve the goal.	0 1 2 3 4 5 6 7 8 9 10	
30 I put lots of time into overcoming it.	0 1 2 3 4 5 6 7 8 9 10	
31 I relax and don't think about it.	0 1 2 3 4 5 6 7 8 9 10	
32 I work out what caused it.	0 1 2 3 4 5 6 7 8 9 10	
33 I realise I didn't need to control it anyway.	0 1 2 3 4 5 6 7 8 9 10	
34 I tell myself it doesn't matter.	0 1 2 3 4 5 6 7 8 9 10	
35 I learn the skills to overcome it.	0 1 2 3 4 5 6 7 8 9 10	
36 I don't feel disappointed because I knew it might happen.	0 1 2 3 4 5 6 7 8 9 10	
37 I make an effort to make good things happen.	0 1 2 3 4 5 6 7 8 9 10	
38 I keep away from people in general.	0 1 2 3 4 5 6 7 8 9 10	

**SECTION F MORE ABOUT YOURSELF**

How much do you agree with the following statements?

	Do not agree at all	Agree completely
39 On the whole, I am satisfied with myself.	0 1 2 3 4 5 6 7 8 9 10	
40 I feel that I have a number of good qualities.	0 1 2 3 4 5 6 7 8 9 10	
41 I am able to do things as well as most other people.	0 1 2 3 4 5 6 7 8 9 10	
42 I feel that I'm a person of worth, at least on an equal plane with others.	0 1 2 3 4 5 6 7 8 9 10	
43 I take a positive attitude toward myself.	0 1 2 3 4 5 6 7 8 9 10	
44 I will be able to achieve most of the goals that I have set for myself.	0 1 2 3 4 5 6 7 8 9 10	
45 When facing difficult tasks, I am certain that I will accomplish them.	0 1 2 3 4 5 6 7 8 9 10	
46 In general, I think that I can obtain outcomes that are important to me.	0 1 2 3 4 5 6 7 8 9 10	
47 I believe I can succeed at most any endeavour to which I set my mind.	0 1 2 3 4 5 6 7 8 9 10	
48 I will be able to successfully overcome many challenges.	0 1 2 3 4 5 6 7 8 9 10	
49 I am confident that I can perform effectively on many different tasks.	0 1 2 3 4 5 6 7 8 9 10	
50 Compared to other people, I can do most tasks very well.	0 1 2 3 4 5 6 7 8 9 10	
51 Even when things are tough, I can perform quite well.	0 1 2 3 4 5 6 7 8 9 10	

**SECTION G WHAT YOU EXPECT TO HAPPEN**

How much do you agree with the following statements?

	Do not agree at all	Agree completely
52 In uncertain times, I usually expect the best.	0 1 2 3 4 5 6 7 8 9 10	
53 I'm always optimistic about my future.	0 1 2 3 4 5 6 7 8 9 10	
54 Overall, I expect more good things to happen to me than bad.	0 1 2 3 4 5 6 7 8 9 10	

**SECTION H THE KIND OF PERSON YOU ARE**

How much do you agree with the following statements?

	Do not agree at all	Agree completely
55 I see myself as <i>outgoing</i>	0 1 2 3 4 5 6 7 8 9 10	
56 I see myself as <i>enthusiastic</i>	0 1 2 3 4 5 6 7 8 9 10	
57 I see myself as <i>anxious</i>	0 1 2 3 4 5 6 7 8 9 10	
58 I see myself as <i>easily upset</i>	0 1 2 3 4 5 6 7 8 9 10	
59 I see myself as <i>reserved</i>	0 1 2 3 4 5 6 7 8 9 10	
60 I see myself as <i>quiet</i>	0 1 2 3 4 5 6 7 8 9 10	
61 I see myself as <i>calm</i>	0 1 2 3 4 5 6 7 8 9 10	
62 I see myself as <i>emotionally stable</i>	0 1 2 3 4 5 6 7 8 9 10	

Appendix D: ARC25 Questionnaire

### SECTION K EVENTS IN YOUR LIFE

78 Thinking back on your life, what is the highest level of happiness you have ever experienced?

No happiness Complete happiness

0 1 2 3 4 5 6 7 8 9 10

79 Has anything **happened to you recently** causing you to feel happier or sadder than normal? Please tick as appropriate

Yes, happier     Yes, sadder     No—Please move on to Section L.

Yes, both happier and sadder—Please move on to Section L.

(If Yes) On a scale from 0 to 10, how strongly is what happened affecting **how you feel now**?

Very weakly Very strongly

0 1 2 3 4 5 6 7 8 9 10

80 Which areas of your life have been strongly influenced by this event? Please tick **all areas** that have been affected.

Standard of living     Relationships     Achieving in life     Connection to your community

Health     Personal safety     Future security     Spirituality or religion

81 Now please tick the **one single** life area that has been **most strongly affected**.

Standard of living     Relationships     Achieving in life     Connection to your community

Health     Personal safety     Future security     Spirituality or religion

  

### SECTION L RECOVERY

Turning now to how easily you recover after some challenging event

82 How quickly do you normally recover when something goes wrong?

Not quickly at all Very quickly

0 1 2 3 4 5 6 7 8 9 10

How much do you agree with the following statements?

Do not agree at all Agree Completely

83 I easily manage the changes in my life

84 I know I can deal with difficult situations

85 Under pressure I stay focussed and think clearly

86 I willingly take on challenges

87 I can deal easily with unpleasant feelings

88 When something goes wrong I keep trying to make it right

89 When something bad happens I can see a positive side

  

### SECTION M POLITICS

Turning now to Australian Politics

90 How interested are you in the outcome of the Federal Election?

Not interested at all Extremely interested

0 1 2 3 4 5 6 7 8 9 10

91 How do you intend to vote, or did you vote in the current Federal Election? Please tick one

Labor     Liberal     National

Green     Other     Undecided or informal

Thank you for your time and participation in this survey

## Australian Unity Wellbeing Index

Thank you for your involvement in this survey. This is a confidential questionnaire so please ensure that you do not write your name, or any other comments that will make you identifiable. By completing the questionnaire you are consenting to take part in this research as explained in the Plain Language Statement enclosed. The intention of this project is to investigate different aspects of life satisfaction in Australia.

Please read each question and response option carefully before answering the questions and make sure that you have provided an answer for every question.

  

### SECTION A PERSONAL WELLBEING

Thinking about your own life and personal circumstances, please **circle** the number that best represents how satisfied you feel with your life.

How satisfied are you with...

	Not satisfied at all	Completely satisfied
1 your life as a whole?	0 1 2 3 4 5 6 7 8 9 10	0 1 2 3 4 5 6 7 8 9 10
2 your standard of living?	0 1 2 3 4 5 6 7 8 9 10	0 1 2 3 4 5 6 7 8 9 10
3 your health?	0 1 2 3 4 5 6 7 8 9 10	0 1 2 3 4 5 6 7 8 9 10
4 what you are currently achieving in life?	0 1 2 3 4 5 6 7 8 9 10	0 1 2 3 4 5 6 7 8 9 10
5 your personal relationships?	0 1 2 3 4 5 6 7 8 9 10	0 1 2 3 4 5 6 7 8 9 10
6 how safe you feel?	0 1 2 3 4 5 6 7 8 9 10	0 1 2 3 4 5 6 7 8 9 10
7 feeling part of your community?	0 1 2 3 4 5 6 7 8 9 10	0 1 2 3 4 5 6 7 8 9 10
8 your future security?	0 1 2 3 4 5 6 7 8 9 10	0 1 2 3 4 5 6 7 8 9 10

  

### SECTION B LIFE IN AUSTRALIA

How satisfied are you with...

	Not satisfied at all	Completely satisfied
9 life in Australia?	0 1 2 3 4 5 6 7 8 9 10	0 1 2 3 4 5 6 7 8 9 10
10 the economic situation in Australia?	0 1 2 3 4 5 6 7 8 9 10	0 1 2 3 4 5 6 7 8 9 10
11 the state of the natural environment in Australia?	0 1 2 3 4 5 6 7 8 9 10	0 1 2 3 4 5 6 7 8 9 10
12 the social conditions in Australia?	0 1 2 3 4 5 6 7 8 9 10	0 1 2 3 4 5 6 7 8 9 10
13 government in Australia?	0 1 2 3 4 5 6 7 8 9 10	0 1 2 3 4 5 6 7 8 9 10
14 business in Australia?	0 1 2 3 4 5 6 7 8 9 10	0 1 2 3 4 5 6 7 8 9 10
15 national security in Australia?	0 1 2 3 4 5 6 7 8 9 10	0 1 2 3 4 5 6 7 8 9 10

  

### SECTION C HOW YOU GENERALLY FEEL

Please indicate how each of the following describes your feelings when you think about your life in general.

	Not at all	Extremely
16 Thinking about <b>my life in general</b> I feel <i>active</i> .	0 1 2 3 4 5 6 7 8 9 10	0 1 2 3 4 5 6 7 8 9 10
17 Thinking about <b>my life in general</b> I feel <i>contented</i> .	0 1 2 3 4 5 6 7 8 9 10	0 1 2 3 4 5 6 7 8 9 10
18 Thinking about <b>my life in general</b> I feel <i>energised</i> .	0 1 2 3 4 5 6 7 8 9 10	0 1 2 3 4 5 6 7 8 9 10
19 Thinking about <b>my life in general</b> I feel <i>alert</i> .	0 1 2 3 4 5 6 7 8 9 10	0 1 2 3 4 5 6 7 8 9 10
20 Thinking about <b>my life in general</b> I feel <i>happy</i> .	0 1 2 3 4 5 6 7 8 9 10	0 1 2 3 4 5 6 7 8 9 10
21 Thinking about <b>my life in general</b> I feel <i>excited</i> .	0 1 2 3 4 5 6 7 8 9 10	0 1 2 3 4 5 6 7 8 9 10

ARC25



**SECTION D OVER THE PAST WEEK**

How much did these statements apply to you over the PAST WEEK?

	Not at all										Extremely	
	0	1	2	3	4	5	6	7	8	9	10	
22	I couldn't seem to experience any positive feeling at all.											
23	I found it difficult to work up the initiative to do things.											
24	I felt that I had nothing to look forward to.											
25	I felt down-hearted and blue.											
26	I was unable to become enthusiastic about anything.											
27	I felt I wasn't worth much as a person.											
28	I felt that life was meaningless.											

**SECTION E COPING WITH LIFE**

How much do you agree that when something bad happens...

	Do not agree at all										Agree completely	
	0	1	2	3	4	5	6	7	8	9	10	
29	I work hard to overcome it.											
30	I ignore it by thinking about other things.											
31	I look for different ways to achieve the goal.											
32	I put lots of time into overcoming it.											
33	I relax and don't think about it.											
34	I work out what caused it.											
35	I realise I didn't need to control it anyway.											
36	I tell myself it doesn't matter.											
37	I learn the skills to overcome it.											
38	I don't feel disappointed because I knew it might happen.											
39	I make an effort to make good things happen.											
40	I share my feelings with a supportive person.											

**SECTION F MORE ABOUT YOURSELF**

How much do you agree with the following statements?

	Do not agree at all										Agree completely	
	0	1	2	3	4	5	6	7	8	9	10	
41	On the whole, I am satisfied with myself.											
42	I feel that I have a number of good qualities.											
43	I am able to do things as well as most other people.											
44	I feel that I'm a person of worth, at least on an equal plane with others.											
45	I take a positive attitude toward myself.											

**SECTION G WHAT YOU EXPECT TO HAPPEN**

How much do you agree with the following statements?

	Do not agree at all										Agree completely	
	0	1	2	3	4	5	6	7	8	9	10	
46	In uncertain times, I usually expect the best.											
47	I'm always optimistic about my future.											
48	Overall, I expect more good things to happen to me than bad.											

**SECTION H THE KIND OF PERSON YOU ARE**

How much do you agree with the following statements?

	Do not agree at all										Agree completely	
	0	1	2	3	4	5	6	7	8	9	10	
49	I see myself as <i>outgoing</i>											
50	I see myself as <i>enthusiastic</i>											
51	I see myself as <i>anxious</i>											
52	I see myself as <i>easily upset</i>											
53	I see myself as <i>reserved</i>											
54	I see myself as <i>quiet</i>											
55	I see myself as <i>calm</i>											
56	I see myself as <i>emotionally stable</i>											

**SECTION I YOUR HEALTH**

How much did these statements apply to you over the PAST WEEK?

	Not at all										Extremely	
	0	1	2	3	4	5	6	7	8	9	10	
57	I found it hard to wind down											
58	I tended to over-react to situations											
59	I felt that I was using a lot of nervous energy											
60	I found myself getting agitated											
61	I found it difficult to relax											
62	I was intolerant of anything that kept me from getting on with what I was doing											
63	I felt that I was rather touchy											

**SECTION J NEIGHBOURHOOD WELLBEING**

Turning now to life in Your Neighbourhood (the area where you live) How satisfied are you with....

	Not at all Satisfied										Completely Satisfied	
	0	1	2	3	4	5	6	7	8	9	10	
64	Life in your neighbourhood as a whole?											
65	The level of trust between your neighbours?											
66	The level of social activity with your neighbours?											
67	The goals and values of your neighbours?											
68	The state of the physical environment in your neighbourhood?											
69	The availability of public resources in your neighbourhood?											
70	The level of sharing and borrowing between neighbours?											
How satisfied are you...												
71	that people support each other in your neighborhood?											
72	that your neighbourhood feels like home?											
73	with the levels of noise?											
74	with the amount of open space?											
75	with public transport?											
76	with the leisure facilities?											
77	with the safety of your neighbourhood?											

Appendix E: Demographic Form

Dear Friend of the Australian Centre on Quality of Life

Below you will find some questions that refer to your life circumstances. We know you have completed a similar set in the past, and we have these data on file, but would appreciate confirmation of your current situation.

1 Your Gender  Male  Female

2 Your age  3 Your postcode

4 Please indicate from the list who lives with you. (tick whichever boxes apply)

No one, you live by yourself  One or more children  Your partner

One or both of your parents  One or more adults who are neither your partner nor your parent

5 Is there a person living with you who is elderly or disabled and requires your care?

Yes (go to item 5a)  No (go to item 6)

5a Please indicate from the list who is being cared for:

Spouse  Parent  Partner  Other  Child

6 How many children (aged less than 18 years) live with you?

0  1  2  3  4  5  6 or more

7 Which of the following categories apply to you at the present time?

Married  De facto or living together  Divorced

Widowed  Separated but not divorced  Never married

8 Which of the following categories best applies to you at the present time? Are you in...

Full-time paid employment  Full-time home or family care  Full-time retired

Full-time study  Semi-retired  Unemployed

Full-time volunteer

9 Please indicate whether any of the following part-time categories applies to you at the present time. Are you...?

In part-time paid employment  A part-time volunteer  In part-time study

In casual employment

10 What is your household's total annual income before tax?

Less than \$15,000  \$61,000 to \$100,000  \$251,000 to \$500,000

\$15,000 to \$30,000  \$101,000 to \$150,000  More than \$500,000

\$31,000 to \$60,000  \$151,000 to \$250,000

11 Please indicate your height and weight.

cm  kg

or

feet  inches  stone  pounds

12 Please circle the number that corresponds with the size of town or city in which you live

A farm property  1

A small town (under 1000 people)  2

A town (up to 20,000)  3

A middle sized city (up to 100,000)  4

A city (up to 500,000)  5

A metropolitan area (over 500,000)  6

13 Today's date is  14 I completed the questionnaire at  am/pm

Appendix F: Measurement Scales

**Personal Wellbeing Index**

Thinking about your own life and personal circumstances, please circle the number that best represents how satisfied you feel with your life. How satisfied are you with...

	Not satisfied at all										Completely satisfied
1. your standard of living?	0	1	2	3	4	5	6	7	8	9	10
2. your health?	0	1	2	3	4	5	6	7	8	9	10
3. what you are currently achieving in life?	0	1	2	3	4	5	6	7	8	9	10
4. your personal relationships?	0	1	2	3	4	5	6	7	8	9	10
5. how safe you feel?	0	1	2	3	4	5	6	7	8	9	10
6. feeling part of your community?	0	1	2	3	4	5	6	7	8	9	10
7. your future security?	0	1	2	3	4	5	6	7	8	9	10

**General Life Satisfaction**

Thinking about your own life and personal circumstances, please circle the number that best represents how satisfied you feel with your life. How satisfied are you with...

	Not satisfied at all										Completely satisfied
1. Your life as a whole?	0	1	2	3	4	5	6	7	8	9	10

**Homeostatically Protected Mood**

Please indicate how each of the following describes your feelings when you think about your life in general.

	Not at all										Extremely
1. Thinking about <b>my life in general</b> I feel <i>contented</i> .	0	1	2	3	4	5	6	7	8	9	10
2. Thinking about <b>my life in general</b> I feel <i>alert</i> .	0	1	2	3	4	5	6	7	8	9	10
3. Thinking about <b>my life in general</b> I feel <i>happy</i> .	0	1	2	3	4	5	6	7	8	9	10

**Self-Esteem**

How much do you agree with the following statements?	Do not agree at all									Agree completely	
	0	1	2	3	4	5	6	7	8	9	10
1. On the whole I am satisfied with myself.	0	1	2	3	4	5	6	7	8	9	10
2. I feel that I have a number of good qualities.	0	1	2	3	4	5	6	7	8	9	10
3. I am able to do things as well as most other people.	0	1	2	3	4	5	6	7	8	9	10
4. I feel that I'm a person of worth, at least on an equal plane with others.	0	1	2	3	4	5	6	7	8	9	10
5. I take a positive attitude toward myself.	0	1	2	3	4	5	6	7	8	9	10

**Perceived Control**

**Primary Control.**

How much do you agree that when something bad happens...	Do not agree at all									Agree completely	
	0	1	2	3	4	5	6	7	8	9	10
1. I work hard to overcome it.	0	1	2	3	4	5	6	7	8	9	10
2. I look for different ways to achieve the goal.	0	1	2	3	4	5	6	7	8	9	10
3. I put lots of time into overcoming it.	0	1	2	3	4	5	6	7	8	9	10
4. I work out what caused it.	0	1	2	3	4	5	6	7	8	9	10
5. I learn the skills to overcome it.	0	1	2	3	4	5	6	7	8	9	10
6. I make an effort to make good things happen	0	1	2	3	4	5	6	7	8	9	10

Deleted question:

ARC22. I keep away from people in general.

ARC25. I share my feelings with a supportive person.

**Secondary Control.**

How much do you agree that when something bad happens...

1. I ignore it by thinking about other things.
2. I relax and don't think about it.
3. I realise I didn't need to control it anyway.
4. I tell myself it doesn't matter.
5. I don't feel disappointed because I knew it might happen.

Do not agree at all											Agree completely
0	1	2	3	4	5	6	7	8	9	10	
0	1	2	3	4	5	6	7	8	9	10	
0	1	2	3	4	5	6	7	8	9	10	
0	1	2	3	4	5	6	7	8	9	10	
0	1	2	3	4	5	6	7	8	9	10	

**Optimism**

How much do you agree with the following statements?

1. In uncertain times, I usually expect the best.
2. I'm always optimistic about my future.
3. Overall, I expect more good things to happen to me than bad.

Do not agree at all											Agree completely
0	1	2	3	4	5	6	7	8	9	10	
0	1	2	3	4	5	6	7	8	9	10	
0	1	2	3	4	5	6	7	8	9	10	