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# New Zealand Journal of Psychology

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*NZ Psychological Society Inc.  
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Wellington 6146, New Zealand  
Ph (04) 473 4884  
Email: office@psychology.org.nz*

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# The Modern Racism toward Māori Scale

Nicole Satherley and Chris G. Sibley  
University of Auckland, New Zealand

We propose a culturally-specific ten-item short-form self-report measure of modern racism toward Māori (the indigenous peoples of New Zealand) that consists of five key sub-components: negative affect, anxiety, denial of historical reparation, symbolic exclusion, and denial of contemporary injustice. Our measure draws upon past qualitative and quantitative research on racism toward Māori and is tested in a New Zealand national probability sample ( $N=18,236$ ). Results of a hierarchical confirmatory factor analysis provided good support for this model. We also document the demographic factors associated with the higher-order latent estimate of modern racism, as well as each sub-factor individually. Education was the demographic variable most strongly associated with modern racism toward Māori in New Zealand. Our theoretical model and self-report scale assessing modern racism toward Māori aims to provide a standard way of measuring racist attitudes toward Māori. It also captures a range of attitudes toward Māori seen in the every-day language of New Zealanders.

Keywords: modern racism, New Zealand, Māori, scale development, psychometrics

A reader reviewing the research literature on racism in New Zealand for the first time could be forgiven for being confused as to how to appropriately measure people's racist attitudes toward Māori (the indigenous peoples of New Zealand). Māori form roughly 15% of the population (Statistics New Zealand, 2013), and experience inequality in a number of domains including poorer health outcomes, lower household income, poorer subjective wellbeing, and higher rates of incarceration (Ministry of Social Development, 2010; Department of Corrections, 2016; Sibley, Harré, Hoverd & Houkamau, 2011). Experiences of discrimination continue to be widely reported by Māori, and are associated with lower wellbeing (Houkamau, Stronge, & Sibley, 2017), while lower home-ownership rates among those with a self-perceived Māori appearance point to the presence of institutional racism (Houkamau & Sibley, 2015). There are many different self-report 'Likert-style' measures or proxies measuring racist attitudes toward Māori that have been employed in questionnaires over the years. These measures, including many of our own, are often developed ad hoc for a particular study, with only preliminary if any validation, and tend to be closely based on measures developed overseas to assess attitudes toward other ethnic groups (e.g., Duckitt, 2001; Duckitt & Sibley, 2007; Duckitt & Parra, 2004; Sibley & Liu, 2007, 2010; Sibley, Robertson & Wilson, 2006).

The many different measures commonly used to assess racism toward Māori share a theoretical framework insofar as they are typically designed to measure attitudes that fit Allport's (1954, p. 9) general definition of racism as 'an antipathy based upon a faulty and inflexible generalization. It may be directed toward [an ethnic] group as a whole, or toward an individual because he [sic] is a member of that group.' However, outside of this, the various measures used to measure individual differences in racism toward Māori in New Zealand are non-systematic and contain varying levels of overlap in their item content and focus. These idiosyncrasies in the measurement of racism toward Māori in questionnaire research make it difficult to compare and contrast results across studies, to track change in the level of racism over time by comparing sample means, and so forth. The ability

to reliably measure and track levels of racism in this way is important for understanding how racism is expressed, which aspects may be more or less pervasive than others, and thus what interventions can be put in place to help reduce racist attitudes.

What is needed is the development of a systematic theoretical model and associated self-report questionnaire scale assessing modern racism toward Māori. Such a scale should capture the overall extent to which one may express affect and attitudes that are to the detriment of the wellbeing and equality of Māori in modern-day New Zealand. It should also reflect the content of expressions of racism toward Māori in everyday language and the media captured within qualitative research (e.g. Barnes et al., 2012; McCreanor, 1993; Nairn & McCreanor, 1990, 1991; Nairn, Pega, McCreanor, Rankine, & Barnes, 2006; Sibley, Liu, & Kirkwood, 2006; Wetherell & Potter, 1992) as well as in quantitative research. In our view, quantitative measures of racism toward Māori have under-capitalized on qualitative research to date. As a result, what we know about the qualitative expression of racism in New Zealand has not translated to its' reliable questionnaire measurement for use in quantitative research.

As such, the present research draws upon extant qualitative and quantitative literature to propose a ten-item self-report scale assessing *Modern Racism toward Māori*. We first provide a brief review of quantitative measures of modern racism in the United States, which are similar to, but have important contextual differences to measuring racism in New Zealand. We then review existing literature that identifies the different ways in which racism toward Māori is expressed in modern day New Zealand society (and thus the different markers of modern racism in New Zealand), before proposing a scale consisting of five sub-factors of modern racism: negative affect, anxiety, symbolic exclusion, denial of historical reparation, and denial of contemporary injustice. We aim to advance quantitative research in this area by presenting results from a confirmatory hierarchical factor analysis testing our model using data from the New Zealand Attitudes and Values Study. This is a large-scale national probability study conducted in New Zealand. We also examine the demographic

factors associated with the modern racism scale as a whole in addition to the five sub-factors separately.

*Measuring modern racism: examples in the United States*

One issue with measuring prejudice or racism in any context is the ever-changing nature of the way in which it is expressed. The changing face of race relations between white Americans and African Americans in the United States has been met with corresponding changes in the ways in which racism has been measured and defined (Dovidio, Gaertner, & Pearson, 2017). Prior to the civil rights movements, racism and discrimination toward African Americans were expressed in extremely overt forms, notably through slavery, segregation, and views of African Americans as biologically inferior; now referred to as old-fashioned racism (Sears 1988; Sears & Henry, 2005). Following the civil rights movements, although white Americans widely condemned these forms of discrimination, many resisted further efforts to reduce inequalities. Symbolic racism (Kinder & Sears, 1981; see also the closely related Modern racism measure; McConahay, 1986) stemmed from these observations, providing an explanation for the post-civil rights attitudes expressed by many white Americans (Sears, 1988). Indeed, symbolic racism was developed as a culturally specific measure of racism toward African Americans, sensitive to the particular historical changes in race relations within the United States.

Symbolic racism encapsulates a combination of negative affect toward African Americans, in addition to holding values which are deemed inconsistent with the values of African Americans (such as valuing individualism; Sears, 1988). Symbolic racism manifests through four measurable beliefs, including the denial of continued discrimination toward African Americans, attributing their disadvantaged status to their own lack of effort, and resentment toward demands for equality, and further advantages offered to African Americans (Tarman & Sears, 2005). Notably, the measure has been shown to be distinct from measures such as old-fashioned racism and political conservatism (Tarman & Sears, 2005). Related theories have also since spawned that describe slightly different manifestations of racism. Aversive racism, for example, reflects a comparatively subtle form of racism in which white Americans hold genuine egalitarian values and want to view and present themselves as non-prejudice, but nevertheless hold underlying negative affect toward African Americans, likely due to socialization. This negative affect makes interaction with African Americans, when not avoidable, unpleasant and anxiety inducing (Dovidio, Gaertner, & Pearson, 2017; Gaertner & Dovidio, 2005).

Indeed, in light of the changes in the conceptualisation and measurement of racism and other general forms of prejudice, Sibley and Barlow (2017) offered a definition of prejudice more nuanced than Allport’s (1954) that describes ‘those ideologies, attitudes, and beliefs that help maintain and legitimize group-based hierarchy and exploitation’ (p. 4). However, although efforts have been made to create scales which capture these changes in racist attitudes in other contexts (such as in the United States), a corresponding scale assessing attitudes toward Māori has yet to be formally

validated. This lack of an established scale is likely a driving factor in the idiosyncratic measures used to date. Simply rewording measures developed to assess racism overseas raises concerns because it assumes that the content and structure of racist attitudes toward Māori in New Zealand is comparable to that directed toward African Americans in the United States. There are good reasons to expect that this is not the case, as the socio-historical context and history of intergroup relations differs dramatically for these two groups (see Sibley & Osborne, 2016).

To illustrate our point, Table 1 displays some of these scales as they would appear if a direct adaptation was made to measure racism towards Māori in New Zealand. At face value, many of the items assessing different forms of racism in the United States are comprehensible when re-worded for use in examining attitudes toward Māori (and there are likely many aspects of modern racism that translate across cultures). Yet, not all of the items assess issues that are relevant to a New Zealand context, Māori specific measure. One such item that reflects this is “Generations of slavery and discrimination have created conditions that make it difficult for blacks to work their way out of the lower class” (Henry & Sears, 2002). Indeed, whereas slavery was a large and damaging aspect of American history, it has little direct relevance to the New Zealand context.

Table 1. Sample scales adapted to measure racism toward Māori.

Reworded Modern Racism toward African Americans Scale (McConahay, 1986)	Reworded Symbolic Racism 2000 Scale (Henry & Sears, 2002)	Attitudes toward Māori Scale (Duckitt, 2001)
Over the past few years, the government and news media have shown more respect to Māori than they deserve	It’s really a matter of some people not trying hard enough; if Māori would only try harder they could be just as well off as New Zealand Europeans.	The main reason why the Māori standard of living is so low are the injustices done to them not only in the past but in the present as well.
It is easy to understand the anger of Māori in New Zealand.	Irish, Italian, Jewish, and many other minorities overcame prejudice and worked their way up. Māori should do the same.	Too many Māori are abusing the welfare system in this country.
Discrimination against Māori is no longer a problem in New Zealand.	Some say that Māori leaders have been trying to push too fast. Others feel they haven’t pushed fast enough. What do you think?	Much more needs to be done to redress the wrongs that have been done to Māori in this country.
Over the past few years, Māori have gotten more economically than they deserve.	How much of the racial tension that exists in the New Zealand today do you think that Māori are responsible for creating?	It’s disgusting the way Māori are being treated in this country.
Māori are getting too demanding in their push for equal rights.	How much discrimination against Māori do you feel there is in New Zealand today, limiting their chances to get ahead?	Too much is being done for Māori in New Zealand today.
Māori should not push themselves where they are not wanted.	Generations of discrimination have created conditions that make it difficult for Māori to work their way out of the lower class	Māori in New Zealand have a privileged position today that is unfair to other ethnic groups here.
	Over the past few years, Māori have gotten less than they deserve	Māori parents don’t seem to want to discipline their youngsters properly.
	Over the past few years, Māori have gotten more economically than they deserve.	Māori are still being very unfairly treated in this country.

*Qualitative research on ‘race talk’ in New Zealand*

A key aspect in the development of any such quantitative measure of racism is that it should be based in the qualitative research identifying different themes or discourses of racism within the particular social context. This is important because it allows researchers to develop and identify factors more likely to be aligned with the natural language and themes which people use to do ‘race talk’ within the context of interest, rather than writing items that merely ‘put the researchers words in the participants’ mouths’ so to speak. Fortunately, there is a rich and vibrant tradition of qualitative research on race talk in New Zealand to draw on in the development of a self-report Likert-type measure of *Modern Racism*

toward Māori (e.g. Barclay & Liu, 2003; Barnes et al., 2012; McCreanor, 1993; Nairn & McCreanor, 1990, 1991; Nairn, Pega, McCreanor, Rankine, & Barnes, 2006; Sibley, Liu, & Kirkwood, 2006; Wetherell & Potter, 1992; see Tuffin, 2008, for review). We capitalize on this foundation when developing our scale.

Although the current study aims to create a measure of modern racism toward Māori that is distinct from overseas measures, parallels can be drawn between the manifestations of prejudice in both contexts. Much like contemporary or modern racism in the United States, qualitative research in New Zealand reveals the relatively subtle form that expressions of racism toward Māori has taken on in contemporary New Zealand society (Tuffin, 2008). Particularly important is how much of this discourse is anchored in the historical context of New Zealand, regarding historical injustices incurred by Māori such as the loss of land and sovereignty, as well as the honouring of the Treaty of Waitangi. Many views are also framed by present day NZ European values of equal treatment and individualism, which support arguments that all members of New Zealand as a nation should be treated equally, as well as general notions of racelessness (Tuffin, 2008). Wetherell and Potter (1992), for example, identified patterns of discourse emphasizing the equal treatment of individuals, and that, although past injustices occurred, these cannot be changed or amended, particularly by a current nation of people who did not take part in these events.

Similar ideas are also reflected in work uncovering a 'standard story' of race talk regarding Māori (Nairn & McCreanor, 1991; McCreanor, 1993; see also Kirkwood, Liu, & Weatherell, 2005; Sibley & Liu, 2004). Here, key themes include the maintenance of New Zealand's status as a fair and democratic society, and therefore the need to treat all New Zealanders equally. A consequence of these views is that policies, rights, and resources for Māori may be viewed as discriminatory toward other New Zealanders (Barnes et al., 2012; Sibley, Liu, & Kirkwood, 2006). Relatedly, another key discursive pattern shown across numerous analyses is the reframing of prejudice toward Māori; this discourse identifies specific groups of Māori 'stirrers' (those vocally concerned about past injustices) as being the cause of disharmonious race relations in New Zealand. This then serves to either justify negative responses by NZ Europeans, or infer that prejudice is occurring from Māori toward other New Zealanders (see e.g. McCreanor, 1997; Nairn & McCreanor, 1990; Potter & Wetherell, 1998; Wetherell, 2003). Indeed, qualitative literature on race talk provides important themes to consider when developing a quantitative measure of modern racism toward Māori, notably through emphasising the ideological nature of prejudice more so than outright hostility.

#### *A quantitative measure of modern racism toward Māori*

While general negative affect is undoubtedly one indication of modern racism toward Māori, there are likely to be many different dimensions of attitudes that characterise racism in the present day. Additional dimensions should capture unique attitudes and ideologies fostered through the unique history of intergroup relations in New Zealand, as has been noted in the qualitative literature reviewed above. We

propose that modern racism toward Māori in New Zealand can be conceptualized as a higher-order or generalized measure that is made up from five specific sub-dimensions (or sub-factors) reflecting more specific attitudes and emotional reactions toward Māori. These five sub-factors generally reflect key domains or patterns of discourse observed in the qualitative literature on 'race talk' in New Zealand, as well as existing attitudinal and ideological measures in quantitative literature.

Beyond a measure of negative affect, two contributing dimensions that we propose should reflect aspects of a more general syndrome of Modern Racism toward Māori are the ideologies of historical negation and symbolic exclusion. Past research with the dark duo model of post-colonial ideology (see Sibley, 2010; Sibley & Osborne, 2016) proposes that these ideologies stem from undeniable historical injustices toward Māori, as well as the undeniable nationality of Māori. Thus, historical negation (referred to hereafter as the denial of historical reparation) represents the tendency to acknowledge past injustices but view them as irrelevant to the current day, and particularly to people who did not participate in such injustices themselves (beliefs that were also notable in racial discourse in qualitative research, e.g. Wetherell & Potter, 1992). Symbolic exclusion by contrast posits Māori culture as a relic of the past, and not representative of the national identity of New Zealanders in the present day, which serves to justify their unequal status (Sibley, 2010). This is similar to qualitative research on discourse that posits Māori culture as inferior to that of NZ Europeans, and therefore not relevant in contemporary New Zealand society (see Barnes et al., 2012).

Symbolic exclusion and the denial of historical reparation have been shown to predict important outcomes including low support for collective action for Māori (Osborne, Yogeewaran, & Sibley, 2017) political party preference (Greaves, Osborne, Sengupta, Milojev, & Sibley, 2014), and opposition to resource specific policy, and are closely related to more general measures of prejudice (Satherley & Sibley, 2018). In other words, historical negation and symbolic exclusions are ideologies that can significantly inhibit the wellbeing of Māori, and should thus be important indicators of modern racism.

We also argue that modern racism toward Māori should be characterised by the belief that discrimination toward Māori is no longer an issue in contemporary New Zealand society. This is not dissimilar to the beliefs that historical injustices are a 'thing of the past' as reflected through the denial of historical reparation, and has also been found as a contemporary form of racism in discursive analyses in general (see Augoustinos & Every, 2007). Within qualitative New Zealand literature specifically, the notions that actions by Māori seeking amendment for past injustices are the cause of poor intergroup relations (and in some cases as being discriminatory toward other New Zealanders), and that policies (surrounding scholarships and parliamentary representation, for example) and privileges for Māori are unfair, are prevalent (e.g. Barnes et al., 2012; Nairn & McCreanor, 1991; McCreanor, 1993; Potter & Wetherell, 1998; Sibley, Liu, & Kirkwood, 2006; Wetherell, 2003). More broadly, these discourses seem to suggest that racism toward Māori in contemporary New Zealand society involves a component of denial about discrimination and

inequality faced by Māori.

Finally, we argue that feelings of anxiety about Māori are important to consider when developing a measure of modern racism. Interestingly, feelings of anxiety do not seem prevalent in the qualitative literature reviewed above, but have seen relatively extensive consideration in quantitative research. Theory and research on intergroup anxiety suggests that multiple antecedent factors, such as a history of conflict between groups, or holding prejudiced attitudes, lead to feelings of anxiety when interacting with outgroups due to fear of negative consequences (for example, being perceived as prejudiced; see Stephan, 2014, for a full review). As noted, feelings of anxiety are a cornerstone of aversive racism, as they are thought to arise in white Americans whose egalitarian views are in conflict with their negative affect when interacting with African Americans (Gaertner & Dovidio, 2005).

When considering these aspects of anxiety it may be unsurprising that it is not readily apparent in qualitative literature. For example, it seems unlikely that individuals who feel anxious about holding prejudiced views would take part in research interviews on topics that cause them anxiety, or write about those topics openly in public submissions. Such feelings may be more apparent in people's accounts of every-day interactions with Māori. Nevertheless, quantitative research has shown an association between anxiety and negative views toward Māori in New Zealand. Indeed, Barlow, Sibley, and Hornsey (2012) have found a direct positive association between feelings of anxiety and negative affect toward Māori people in a white New Zealander sample; a relationship which was also shown to partially mediate a positive association between anticipation of race-based rejection and negative affect. We therefore consider it important to include intergroup anxiety as a facet of modern racism toward Māori.

### *Demographic differences in Modern Racism*

In addition to developing a reliable and theoretically grounded measure of modern racism toward Māori, we also aim to provide information about the demographic factors which may be associated with higher or lower levels of racism. Documenting the demographic factors associated with racism provides important information that should be of use in applied work aiming to decrease racism toward Māori in society (for example, through the development of campaigns directly targeted at those demographic groups and sections of society that tend to be most racist).

A key demographic factor shown to have a robust negative association with ethnic prejudice in past research (see Wagner & Zick, 1995) is education. Cross-national research suggests this association may be due to socialization effects, whereby participating in the education system provides exposure to democratic values that lead to tolerance and acceptance, rather than resulting from increased threat and competition among those less educated, who have less power and resources (Hello, Scheepers, & Gijsberts, 2002). With this in mind, we expected that increased education would be associated with lower levels of modern racism toward Māori in our analysis.

We also expected gender and ethnic group differences

in modern racism toward Māori. Gender differences in the expression of prejudice have been commonly observed in past research. In particular, research shows men are generally higher in Social Dominance Orientation (the preference for hierarchy, group-based dominance, and power associated with general prejudice) than women (Sidanius, Pratto, & Bobo, 1994), and are commonly reported as being higher in measures of ethnic prejudice than women across numerous studies (see e.g. Hello, Scheepers, & Gijsberts, 2002; Shaver, Troughton, Sibley, & Bulbulia, 2016). We therefore expected men to be higher in modern racism toward Māori. With regards to ethnicity, in-group effects should be evident with Māori being lower in modern racism than NZ Europeans and Asian peoples (however past research indicates that Pacific peoples view Māori highly positively; see Sibley & Ward, 2013).

### *Overview of the present study*

In this study we present a hierarchical Confirmatory Factor Analysis testing a model of modern racism toward Māori in New Zealand. In particular, we propose that modern racism toward Māori can be identified through five sub-factors: negative affect toward Māori, anxiety toward Māori, the denial of historical reparation, symbolic exclusion, and the denial of contemporary injustice. We therefore hypothesised that each of the five sub-factors would be estimated through their respective manifest items, and that, in turn, each of these latent sub-factors estimated would then load on to a single latent measure of modern racism toward Māori. To determine demographic factors associated with modern racism, we then conduct a regression using demographic variables to predict latent modern racism, as well as each of the five sub-factors individually. While we include a full range of demographic variables, we predicted that, in particular, those with more education, women, and Māori would have lower levels of modern racism. Our analyses use data from the New Zealand Attitudes and Values Study; a large, nationally-representative survey of New Zealand adults.

## **Methodology**

### *Sampling Procedure*

Data were drawn from Time 5 (2013) of the New Zealand Attitudes and Values Study, a national probability sample of New Zealand adults drawn from the New Zealand electoral roll. This contains the details of all registered voters aged 18 and over. The Time 5 NZAVS contained responses from 18,264 participants. The sample retained 3,934 participants from the initial Time 1 (2009) NZAVS of 6,518 participants (a retention rate of 60.4% over four years). The sample retained 9,844 participants from the full Time 4 (2011) sample (a retention rate of 80.8% from the previous year).

### *Participants*

Participants were 18,236 people who completed the relevant items in the NZAVS Time 5 NZAVS questionnaire during the October 2013–October 2014 period. The largest known sample bias in the NZAVS is that women were more likely to respond than men (11,443 women, 6,790 men, 3

missing). In terms of ethnicity, 15,604 (85.6%) identified as European, 2,328 (12.8%) identified as Māori, 625 (3.4%) identified as being of Pacific ancestry, and 814 (4.5%) identified with an Asian ethnic group. Ethnic group counts were not mutually exclusive, as people could identify with more than one ethnic group.

Participants had a median household income of NZ\$90,000 ( $M = 103,927$ ;  $SD = 84,009$ ; 2,452 missing cases) and a mean age of 47.66 years ( $SD = 14.05$ , range 18-94; 18 missing cases). The mean decile-ranked deprivation of participants' immediate neighbourhood (meshblock) was 4.81 ( $SD = 2.79$ ; range 1-10, missing = 194; Atkinson, Salmond & Crampton, 2014). Education was scored using a 0-10 ordinal ranking, with 0 being no education and 10 being a PhD or equivalent qualification ( $M = 4.93$ ,  $SD = 2.82$ , missing = 504; New Zealand Qualifications Authority, 2012). Participants' socio-economic status was indexed using the New Zealand Socio-economic index, based on occupational status ( $M = 52.59$ ,  $SD = 15.65$ , range 10-90, missing = 192; Milne, Byun & Lee, 2013).

With regard to other demographic factors, 12,129 (66.5%) lived in urban regions and 5,941 in rural regions (166 missing), 13,570 (74.4%) were employed and 4,213 were not employed (453 missing), 12,968 (71.1%) were in a serious romantic relationship and 4,933 were not (335 missing), 13,071 (71.7%) were parents and 4,730 were not (435 missing), 6,877 (37.7%) were religious and 10,599 were not (760 missing).

**Questionnaire Measures**

The sub-factors used to estimate latent modern racism were estimated through their respective manifest items. A copy of the 10-item modern racism toward Māori scale is included in the Appendix.

To estimate general negative affect, we used two items assessing feelings of warmth and feelings of anger toward Māori. Participants were asked to "Please rate your feelings of warmth toward the following groups using the "feeling thermometer scale" for each group" and rated their feeling of warmth toward Māori on a scale from 1 (*least warm*) to 7 (*most warm*). Similarly, participants were asked to "Now please rate

your feelings of anger toward these same groups on the scale below" and similarly rated their feelings of anger toward Māori on a scale from 1 (*feel no anger*) to 7 (*feel anger*). In order to achieve consistent directionality in these two items, ratings of warmth were reverse coded for the analysis, such that higher ratings indicated lower feelings of warmth ( $r = .381$ ,  $p < .001$ ).

Feelings of anxiety toward Māori were estimated through two items: "I feel anxious about interacting with Māori people" and "Māori people would be likely to reject me on the basis of my race" ( $r = .414$ ,  $p < .001$ ), each rated on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

Symbolic exclusion was estimated through the items: "I reckon Māori culture should stay where it belongs—with Māori. It doesn't concern other NZers." and "I think that Māori culture helps to define New Zealand in positive ways." (reverse coded,  $r = .618$ ,  $p < .001$ ), each rated on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*). These items were taken from the measure of Symbolic Projection versus Exclusion developed to assess post-colonial ideology (see Sibley & Osborne, 2016).

The denial of historical reparation was estimated through the items: "We should not have to pay for the mistakes of our ancestors." and "People who weren't around in previous centuries should not feel accountable for the actions of their ancestors." ( $r = .712$ ,  $p < .001$ ) each rated on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*). These items were taken from the measure of Historical Recognition versus Negation developed to assess post-colonial ideology (see Sibley & Osborne, 2016).

Finally, denial of contemporary injustice was estimated through the items: "Discrimination against Māori is no longer a problem in New Zealand." and "Māori have too much political power and influence in decisions affecting NZ." ( $r = .417$ ,  $p < .001$ ), each rated on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

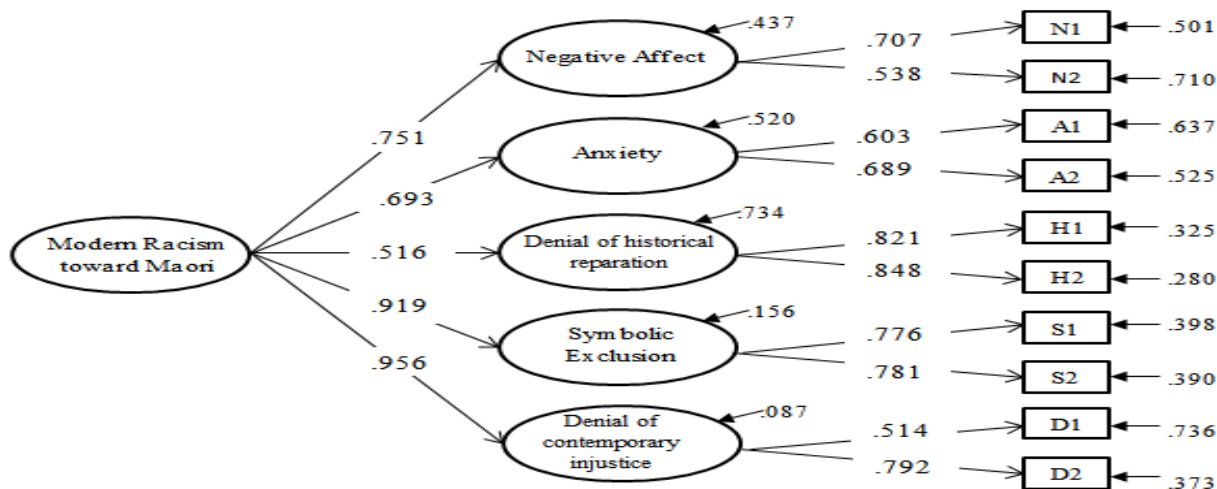


Figure 1. Hierarchical Confirmatory Factor Analysis for Modern Racism toward Māori with standardized parameters.



Results

Hierarchical Confirmatory Factor Analysis

Figure 1 displays the hierarchical CFA conducted, including standardized factor loadings. The model was estimated using Full Information Maximum Likelihood. Data were also weighted based on standard NZAVS sample weights for gender, ethnicity, and region. The fit indices obtained for the model were as follows:  $\chi^2_{(30)} = 1337.264, p < .001, RMSEA = .049, SRMR = .042$ . The RMSEA and SRMR values in particular are well below Hu and Bentler's (1999) suggested cut off values (.08 and .06 respectively) suggesting the model is an adequate fit. As shown in Figure 1, each of the five latent variables at the first level of analysis were related to their respective manifest items, with standardized loadings ranging from .514 to .848. At the second level, standardized factors loadings on latent modern racism toward Māori ranged from .516 to .956. The Cronbach's alpha for the mean scale was .822.

We also compared the fit of the proposed model to a one factor model in which all items loaded onto a single, global measure of modern racism, rather than acknowledging any possible sub-factors. This model fit considerably poorer than the proposed model across all indices ( $\chi^2_{(35)} = 7031.344, p < .001, RMSEA = .105, SRMR = .082$ ).

Regression analysis predicting Modern Racism toward Māori

We conducted a regression model to assess for demographic predictors of modern racism, with predictors including: ethnicity (Māori, Pacific peoples, and Asian peoples, as compared to NZ Europeans), gender (0 women, 1 men), age, education, socioeconomic status, deprivation, birthplace (0 born in NZ, 1 born elsewhere), religious (0 no, 1 yes), parental status (0 no, 1 yes), partner (0 no partner, 1 partner), employment (0 no, 1 yes), and residence (0 urban, 1 rural). Missing data for exogenous (demographic) variables were estimated using Rubin's (1987) procedure for multiple imputation procedure with parameter estimates averaged over 10,000 datasets (thinned using every 200<sup>th</sup> iteration).

Standardised results of the regression are presented in Table 2. In-group effects were evident, such that Māori were significantly lower in modern racism compared to NZ Europeans ( $\beta = -.258, se = .008, p < .001$ ). Men were also shown to be higher in modern racism compared to women ( $\beta = .142, se = .008, p < .001$ ), while there was a significant negative association between education and modern racism ( $\beta = -.246, se = .010, p < .001$ ). As shown in Table 2, socioeconomic status, birthplace, employment, and residence were also significantly negatively associated with modern racism ( $ps < .001$ ), although the sizes of these effects were much smaller.

Table 2. Regression with standardized coefficients predicting latent Modern Racism toward Māori

	$\beta$	se	t
Māori	-.258	.008	-33.93**
Pacific	-.054	.008	-6.88**
Asian	.079	.008	9.55**
Gender	.142	.008	18.08**
Age	.028	.009	2.99*
Education	-.246	.010	-24.92**
SES	-.097	.010	-9.95**
Deprivation	-.015	.008	-1.78
Born in NZ	-.050	.008	-5.94**
Religious	-.003	.008	-0.37
Parent	-.010	.009	-1.03
Partner	.010	.009	1.18
Employed	-.043	.008	-5.22**
Urban	-.034	.008	-4.30**

Note: \*  $p < .05$  \*\*  $p < .001$ . Estimated using Maximum Likelihood with Robust standard errors. Fit indices: Loglikelihood = -306550.53, AIC = 613199.06, BIC = 613581.802.  $R^2 = .196, N = 18,236$

Table 3 displays the same regression model predicting each latent sub-factor separately. Although the pattern of results tends to be similar across the sub-factors, some differences are evident. For example, age is significantly negatively associated with affect-based modern racism factors (negative affect and anxiety) but positively associated with symbolic exclusion and the denial of contemporary injustice, while unrelated to the denial of historical reparation. The effect of education is notably smaller for the affect based sub-factors compared to the remaining factors.

Table 3. Demographic regression models with standardized coefficients predicting each latent sub-factor of modern racism.

	Negative affect			Anxiety			Denial of historical reparation			Symbolic exclusion			Denial of contemporary injustice		
	$\beta$	se	t	$\beta$	se	t	$\beta$	se	t	$\beta$	se	t	$\beta$	se	t
Māori	-.167	.016	-10.37**	-.213	.010	-22.41**	-.133	.009	-15.05**	-.210	.008	-27.85**	-.259	.009	-27.30**
Pacific	-.041	.007	-5.93**	-.052	.010	-5.00**	-.015	.008	-1.81	-.036	.009	-4.17**	-.064	.010	-6.67**
Asian	.043	.008	5.63**	.054	.011	5.08**	-.021	.009	-2.45	.079	.009	8.63**	.098	.010	9.63**
Gender	.063	.008	8.04**	.074	.010	7.27**	.036	.008	4.43**	.140	.009	16.20**	.169	.010	17.64**
Age	-.051	.007	-6.81**	-.089	.012	-7.32**	.028	.009	3.01*	.059	.010	5.87**	.051	.011	4.57**
Education	-.038	.010	-3.78**	-.084	.012	-6.98**	-.224	.010	-21.52**	-.237	.011	-22.39**	-.265	.012	-22.30**
SES	-.022	.008	-2.90*	-.068	.012	-5.63**	-.088	.010	-8.58**	-.104	.010	-10.00**	-.071	.012	-6.04**
Deprivation	-.015	.006	-2.53	-.003	.010	-0.26	.014	.009	1.59	.009	.009	1.04	-.052	.010	-5.28**
Born in NZ	-.036	.006	-6.05**	-.033	.011	-3.07*	-.074	.009	-8.58**	-.044	.009	-4.82**	-.048	.010	-4.72**
Religious	-.040	.007	-6.06**	-.009	.010	-0.93	-.001	.008	-0.07	-.010	.008	-1.21	.032	.010	3.32*
Parent	-.012	.007	-1.79	.001	.011	0.10	-.002	.010	-0.20	-.010	.010	-0.99	-.001	.011	-0.09
Partner	-.007	.006	-1.16	-.017	.011	-1.61	.016	.009	1.77	-.004	.009	-0.46	.038	.010	3.68**
Employed	-.010	.006	-1.57	-.046	.011	-4.18*	-.039	.008	-4.68**	-.045	.009	-5.02**	-.021	.010	-2.16
Urban	.006	.006	1.07	-.021	.010	-2.19	-.042	.008	-5.13**	-.024	.008	-2.86*	-.041	.010	-4.30**

Note: \*  $p < .01$ , \*\*  $p < .001$ . Estimated using Maximum Likelihood with Robust standard errors. Fit indices: Negative Affect: Loglikelihood = -61765.28, AIC = 123570.56, BIC = 123726.00.  $R^2 = .047, N = 17,539$ . Anxiety: Loglikelihood = -63125.45, AIC = 126290.90, BIC = 126446.49.  $R^2 = .079, N = 17,670$ . Denial of historical reparation: Loglikelihood = -62290.94, AIC = 124621.88, BIC = 124777.40.  $R^2 = .109, N = 17,606$ . Symbolic exclusion: Loglikelihood = -61802.02, AIC = 123644.04, BIC = 123799.64.  $R^2 = .177, N = 17,677$ . Denial of contemporary injustice: Loglikelihood = -65623.85, AIC = 131287.70, BIC = 131443.29.  $R^2 = .219, N = 17,666$

## Discussion

Culturally specific and contemporary measures of racism and prejudice have been devised over the years in many nations. Despite ongoing disparities in the wellbeing and equality of Māori, a comparative, culturally specific measure of racism toward Māori in New Zealand has been lacking. In this study we proposed a culturally specific model of modern racism toward Māori that captures the various ways in which prejudice toward Māori manifests in New Zealand society, and tested it in a large nationally representative sample of New Zealanders. A hierarchical confirmatory factor analysis showed the model was a good fit to the data. The model proposes that modern racism toward Māori can be identified through five sub-factors: negative affect, anxiety, denial of historical reparation, symbolic exclusion, and denial of contemporary injustice.

We also examined demographic factors associated with modern racism. We found that, unsurprisingly, in-group effects were evident, with Māori expressing considerably lower levels of modern racism than NZ Europeans. Gender and education effects were also notable in size, with men and those with less education expressing greater levels of modern racism. Particularly noteworthy from this analysis is that education has the strongest effect on levels of modern racism across the large set of demographic variables considered. Looking at models for each of the sub-factors separately, the effect was largest for more ideologically driven aspects of racism that may foster the most resistance toward policies that promote equality (those being the denial of historical reparation, symbolic exclusion, and the denial of contemporary injustice). This is encouraging, given education is relatively changeable within individuals. If education decreases prejudice through exposure to values promoting the tolerance of other groups (see Hello, Scheepers, & Gijsberts, 2002), then it seems that increasing the salience of these values in society may help reduce prejudice, namely through decreased resistance toward equality enhancing efforts.

Central to our measure of modern racism toward Māori is that it encapsulates a range of different sub-factors of prejudice in a hierarchical structure. In many ways these sub-factors are consistent with the qualitative literature on modern-day racial discourse within New Zealand, reflecting the same general themes. The denial of historical reparation was supported as a sub-factor of modern racism within our analysis, which parallels qualitative work uncovering themes surrounding the acceptance of, yet disregard for the modern relevance of past injustices incurred by Māori (Wetherell & Potter, 1992). The notion that Māori culture is inferior to NZ European culture, as well as notions of racelessness and equal treatment in New Zealand were also evident in qualitative work (Barnes et al., 2012; Tuffin, 2008), which loosely parallels the symbolic exclusion sub-factor identified in our model. In other words, modern racism seems to entail resistance toward viewing Māori culture as important to the national character of New Zealand.

Our analysis also suggests that feelings of anxiety toward Māori may be reflective of modern racism toward Māori in New Zealand. This is consistent with past quantitative research (e.g. Barlow, Sibley, & Hornsey, 2012) which has

shown associations between feelings of anxiety and negative attitudes toward Māori. As noted however, feelings of anxiety, to the best of our knowledge, are not prevalent in qualitative research. This may be an example of where both quantitative and qualitative literature can each inform the other on particular topics (i.e., racism toward Māori). In this instance, it may be that notions of anxiety are only likely to emerge from accounts of every-day interactions with Māori people, rather than through, for example, public submissions on policies or events that have occurred in society, that do not involve direct interpersonal experiences.

These parallels with qualitative literature create an important distinction between our measure of modern racism toward Māori, and measures that have been adapted from overseas scales (see Table 1). Whereas the adapted scales tend to reflect a series of statements that consider discrimination and inequality in general terms, the model presented here combines both affective and ideological measures assessing racism toward Māori with regard to a unique socio-historical context. For example, a prominent part of New Zealand history is the injustices (such as loss of land and sovereignty) experienced by Māori following the signing of the Treaty of Waitangi (in contrast with its intention). The item "We should not have to pay for the mistakes of our ancestors" captures context-specific ideology surrounding Treaty settlement efforts and claims that take place periodically in the present day in an effort to redress those injustices. Although the item itself does not directly reference the Treaty or New Zealand context, its meaning within the New Zealand context is clear. This level of subtlety is desirable in scales assessing various attitudes, and the effectiveness is highlighted through the high factor loadings of the model.

In saying that, we by no means present our measure of modern racism toward Māori as a perfect scale, and there may very well be other dimensions associated with modern racism not captured by the current model. Another potential limitation is that the scale consists of only 10 items (or two per latent sub-factor) which could have led to less valid measures of each construct. While scales with more items are generally preferred in terms of overall performance, short form scales can be desirable when measuring various constructs because they take less time to complete for participants and take up less room within broader surveys. Indeed, many short form scales have been developed over the years which tend to perform adequately when compared to larger scales (for example 10-item five-factor personality scales; see e.g. Ehrhart et al., 2009). Because the present study found a good overall model fit with high factor loadings, we see no reason to be concerned about decreased validity.

### *Future directions*

The measure of modern racism toward Māori established in this study should provide useful and important insights into attitudes toward Māori in future research. Experiences of discrimination have been widely reported (for example, through the Human Rights Commission's Tui Tui Tuia reports, or Statistics New Zealand's General Social Survey), but there has been less focus on tracking the root of these experiences over time (i.e., racist attitudes). While tracking experiences of

discrimination is important for determining whether things are improving, tracking racist attitudes directly has further benefits. In addition to examining whether modern racism toward Māori has been increasing or decreasing over time in New Zealand (and in response to a changing social context), it may also be useful to examine which specific facets of modern racism may be changing and perhaps fuelling changes or stagnation in modern racism as a whole. For example, it is possible that negative affect may decrease over time, whereas denial of contemporary injustice increases over time. Being able to identify more problematic or pervasive aspects of modern racism should aide the development of specific and effective interventions or campaigns to reduce racism, and in ways not possible by tracking experiences of racism alone.

Similarly, one way forward in future research would be to examine patterns in the ways in which people endorse each sub-factor of modern racism toward Māori to a greater or lesser extent, through Latent Profile Analysis. Greaves, Houkamau, and Sibley (2015) for example used Latent Profile Analysis to uncover different “Māori Identity Signatures” held by Māori, reflecting the different ways in which different groups of Māori construct their identity, such that each of the six groups they identified had a unique pattern of endorsement across seven aspects of Māori identity. Applying this technique to our model of modern racism toward Māori, we may also find unique patterns of endorsement of the various sub-factors of racism. For example, it may be that a group in society denies contemporary injustices toward Māori, but scores low on all other facets of modern racism, while another group may score highly on negative affect and feelings of anxiety, but low on the more ideological facets of modern racism. Thus, this approach recognises that New Zealanders may not simply be either high or low in modern racism toward Māori, but may endorse different facets to varying extents.

### Conclusion

We present a new measure of modern racism toward Māori. Our model suggests that modern racism toward Māori can be operationalized as a higher-order order, generalized attitude made up of five more specific aspects of attitudes and emotional reactions to Māori. These are: negative affect, anxiety, symbolic exclusion, denial of historical reparation, and denial of contemporary injustice. Although attitudes toward Māori have been measured in the past using scales adapted from other contexts, this is the first quantitative measure developed to assess the culturally specific affective and ideological components of racism toward Māori, informed through prior qualitative and quantitative literature. In this way, we hope the measure of modern racism toward Māori outlined here will provide an important and useful perspective on attitudes toward Māori in future years.

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**Corresponding Author**

Nicole Satherley  
 The School of Psychology,  
 The University of Auckland,  
 Private Bag 92019,  
 Auckland 1142,  
 New Zealand  
 Email: nsat639@aucklanduni.ac.nz

Appendix: The Modern Racism toward Māori Scale

Instructions: The following are statements of opinion. There are no right or wrong answers. Please indicate how strongly you personally disagree or agree with each statement							
	Strongly Disagree			Strongly Agree			
	↓						↓
1. I feel anxious about interacting with Māori people.	1	2	3	4	5	6	7
2. I reckon Māori culture should stay where it belongs—with Māori. It doesn't concern other NZers.	1	2	3	4	5	6	7
3. I think that Māori culture helps to define New Zealand in positive ways.	1	2	3	4	5	6	7
4. Discrimination against Māori is no longer a problem in New Zealand.	1	2	3	4	5	6	7
5. Māori people would be likely to reject me on the basis of my race.	1	2	3	4	5	6	7
6. We should not have to pay for the mistakes of our ancestors.	1	2	3	4	5	6	7
7. Māori have too much political power and influence in decisions affecting NZ.	1	2	3	4	5	6	7
8. People who weren't around in previous centuries should not feel accountable for the actions of their ancestors.	1	2	3	4	5	6	7
9. Please rate your feelings of WARMTH toward Māori using the "feeling thermometer" scale below.							
Feel LEAST warm						Feel MOST warm	
1	2	3	4	5	6	7	
10. Now please rate your feelings of ANGER toward Māori using the scale below.							
Feel no anger						Feel anger	
1	2	3	4	5	6	7	

**Scoring Key.** Reverse score items 6 and 9. Negative affect: 9, 10. Anxiety: 1, 5. Denial of historical reparation: 6, 8. Denial of contemporary injustice: 5, 7. Symbolic exclusion: 2, 3.

# Tū Māori Mai: Māori Cultural Embeddedness Improves Adaptive Coping and Wellbeing for Māori Adolescents

Ririwai Fox, Tia Neha and Paul E. Jose  
Victoria University of Wellington, New Zealand

This longitudinal study investigated how being culturally embedded can improve adaptive coping strategies and wellbeing for Māori youth. We asked approximately four hundred Māori youth about: attitudes towards, and competency in, te reo Māori; connectedness to whānau and friends; and awareness of cross-cultural similarities and differences. They were also asked about their use of adaptive coping strategies and overall sense of wellbeing. Findings revealed bi-directional relationships over time between embeddedness and adaptive coping, and between adaptive coping and wellbeing. The predicted longitudinal mediation was empirically supported, namely cultural embeddedness at T1 predicted residualised adaptive coping at T2, which, in turn, predicted residualised wellbeing at T3. The only other significant longitudinal mediation was the same variables in the reverse direction. The positive implications of improving Māori cultural embeddedness are discussed.

Keywords: Māori, cultural embeddedness, adolescence, wellbeing, coping, ethnic identity

## Identity of Māori People

Māori are the indigenous people of *Āotearoa* (New Zealand). However, prior to the arrival of *Pākehā* (non-Māori settlers), there were no labels for the collection of indigenous peoples in *Āotearoa* (Atkinson, 1892; Walker, 2004). Instead, Māori were, and are still, gathered within *iwi* (tribal), *hapū* (sub-tribal) and *whānau* (familial) groups. Each *iwi* has their own protocols, each *hapū* their own traditions and each *whānau* their own history. Although these separate groups can differentially shape a person's worldview, they exist together in an interconnected set of embedded systems (Doherty, 2012), such that an extensive amount of shared understanding exists among Māori people. For example, Harrington and Liu (2002) found that Māori students are oriented strongly towards the collective group. Māori would therefore be considered collectivistic (Hofstede, 1980), with a greater emphasis on group identity over individualism. However, the depth of shared knowledge and understanding will vary between group members (Durie, 2001; Houkamau & Sibley, 2015; Stevenson, 2004), particularly since Māori now live in a colonised society.

Today, *te ao Māori* (the Māori world) is enveloped by non-Māori concepts, making it difficult to maintain traditional Māori *tikanga* (Māori customs; Mead, 2016). This situation is a consequence of the assimilatory attitude of the Crown and the New Zealand government. In 1840, representatives of the British Crown drafted a treaty between the Crown and Māori, who were represented by a large gathering of Māori chiefs (Orange, 1990). In English, this treaty states that Māori would cede sovereignty to the Crown in exchange for protection. The treaty, however, was hastily translated into Māori and the translated version stipulates that Māori were only ceding governance to the Crown, allowing Māori to maintain their lands and possessions. Had they been provided with the correct translation, it is highly unlikely that the this treaty (called the Treaty of Waitangi) would have been signed

(Walker, 2004).

Within 20 years of the signing of the treaty, Māori had become outnumbered by *Pākehā* (non-Māori). Treaty promises were ignored and Māori land was unjustly confiscated through government legislation (Walker, 2004). The displacement of whānau from their home lands was a near-lethal blow to Māori identity, as connection to the land is of vital cultural importance (Durie, 2001). Furthermore, *te reo Māori* (the Māori language) was banned in schools and Māori cultural perspectives were excluded from school curricula (Durie, 1998). Rev. Māori Marsden described this process as "Cultural Genocide" (Marsden & Royal, 2003, p. 88). With the suppression of Māori language and culture, the intergenerational transmission of cultural beliefs and practices became increasingly difficult (Marsden & Royal, 2003; Mead, 2016). Over time, some Māori came to believe and internalise *Pākehā* perceptions of what it means to be Māori (Haenga-Collins & Gibbs, 2015; Webber, 2012).

This issue is particularly salient for *rangatahi* Māori (Māori youth) today. Adolescence is an important time for identity development (Erikson, 1968) and Māori youth may struggle to form a cohesive identity, with at least two competing ways of understanding the world (Māori and *Pākehā*). Furthermore, being Māori is most often portrayed negatively (i.e. by the media; Gregory et al., 2011) and so, without a secure base of understanding, these young people may internalise negative perceptions or avoid their Māori identity altogether (Houkamau, 2010). This problem can be exacerbated if the individual has only a basic understanding of te reo Māori. The Māori language is a window to the culture, it is complex and metaphoric, reflecting the nature of a Māori worldview (Doherty, 2012). Competency in speaking and understanding te reo Māori is an important measure of cultural fluency (Stevenson, 2004).

As a collectivistic culture, Māori see the world as

inherently interconnected (Harmsworth & Awatere, 2013; Marsden & Royal, 2003) and interpersonal connections are particularly crucial. *Whānau* (immediate and extended family) are the foundation of all relationships in the Māori world and healthy whānau connections are a key indicator of Māori health (Durie, 1998). Thematic analyses and other qualitative methods support this philosophy, identifying healthy whānau connections as important for rangatahi Māori in their personal development and wellbeing (Boulton & Gifford, 2014; Kara et al., 2011; Waiti & Kingi, 2014). Empirical research in this area is scarce, however, one study found that whānau connectedness buffered Māori adolescents against the developmentally normative decline in wellbeing over the period of early/mid adolescence (Stuart & Jose, 2014). Collectively, these findings suggest that whānau connectedness could help to overcome identity confusion by building an understanding of what it truly means to be Māori; although more research is required in this area.

Peer relationships are also important during adolescence, especially for Māori. Having Māori peers who share in the struggle of developing a bicultural identity can be empowering. Both peer and school connectedness have been found to increase confidence in the youth of New Zealand, including Māori adolescents (Ja & Jose, 2017). One of the challenges of adolescence is being bullied (Thomas et al., 2016), but for Māori, there is an additional problem of discrimination. Webber, McKinley, and Hattie (2013) surveyed 113 Māori students and found that 62% of participants had experienced racism, which, for some, subsequently impacted their Māori identity. However, young Māori, who experience discrimination, may be able to gain strength through an awareness of negative cultural perceptions, if these perceptions are not internalised. In their measure of Māori identity, Houkamau and Sibley (2015) identify group member evaluation as an important dimension of Māori identity. Essentially, this dimension measures the degree to which a Māori person can identify and overcome those stereotypes, with more positive evaluations reflecting a stronger Māori identity.

### *Cultural Embeddedness*

While many cross-cultural researchers utilise ethnic self-identification to compare cultural differences (i.e. Betancourt & Lopez, 1993; Williams & Husk, 2013); we sought to measure the degree and intensity of cultural identification for the single cultural group of Māori rangatahi to see whether variability would predict different outcomes. Comprehensive measures of Māori cultural identity (Houkamau & Sibley, 2015; Stevenson, 2004) include, but are not limited to, items measuring: competency in, and appreciation of, te reo Māori; whānau connectedness; peer connectedness; and cultural awareness. We have collated items on these dimensions into a single variable, termed here as 'Māori cultural embeddedness', and we believe that this variable is an important foundational construct upon which Māori identity can be built. Proponents of kaupapa Māori (i.e. Durie, 2001; Marsden & Royal, 2003; Mead, 2016; Walker, 2004) would suggest that Māori are likely to benefit from being embedded within their culture. This benefit is likely to be particularly true for rangatahi Māori, who are still developing their self-concept (Erikson, 1968; Ja & Jose,

2017; Stuart & Jose, 2014). Thus, while identity may be fluid during these important years of development, we propose that Māori cultural embeddedness will remain relatively stable and confer benefits to psychological wellbeing.

We define Māori cultural embeddedness as: the foundation of Māori cultural identity, achieved through engagement with the core features of Māori culture, namely: fluency in, and appreciation of, te reo Māori, connection with Māori whānau and friends, and awareness of similarities and differences between Māori and other cultures. The items in the measure developed in the present work, by design, had a stronger focus on concrete behaviours and a weaker emphasis on cognitive and emotional appraisal (see Appendix A). The advantage of focusing on concrete behaviours is that these items should be relatively stable over the period of adolescence; whereas cognitive and emotional appraisal of identity can be more volatile over that same period (Crocetti, Scrignarò, Sica & Magrin, 2012). Furthermore, Fenton (2010) suggests that a measurement of ethnically aligned action; rather than membership alone, would capture the fluidity of ethnic identity. Thus, our measure of Māori cultural embeddedness seeks to measure ethnically aligned actions and attitudes, in order to capture the degree and intensity of cultural identification. As we have sought to explain thus far, the central actions and attitudes of Māori cultural identity include (but are not limited to): competency in, and an appreciation of, te reo Māori; whānau and peer connectedness; and an awareness of cultural similarities and differences (Durie, 2001; Houkamau & Sibley, 2015; Marsden & Royal, 2003; Stevenson, 2004; Walker, 2004). Our measure of Māori cultural embeddedness was intended to identify and quantify these central attitudes and behaviours for rangatahi Māori.

### *Wellbeing*

Wellbeing is a construct that is defined variously within the positive psychology literature. Some researchers are inclined to use Bradburn's (1969) definition of happiness, namely a preponderance of positive over negative affect. Others define wellbeing as life satisfaction or self-esteem (e.g. Diener, Suh, Lucas, & Smith, 1999). In our study, following wellbeing theorists, we have operationalised wellbeing using the dimensions of confidence, aspiration/purpose in life and positive relations with others, which are especially relevant for adolescents (Jose, Ryan, & Pryor, 2012). Confidence is considered to be one of five key indicators of wellbeing for developing youth (Lerner, Fisher, & Weinberg, 2000; Roth & Brooks-Gunn, 2003), while purpose in life and positive relations with others are two important variables from the well-validated Ryff Wellbeing Scale (Akin, 2008; Kállay & Rus, 2014; Ryff & Keyes, 1995). In the present study we sought to determine whether Māori cultural embeddedness would promote wellbeing, defined in this way, over time.

### *Adaptive Coping Strategies*

We propose that one possible mechanism by which cultural embeddedness might foster wellbeing is through the adoption of adaptive coping strategies. Coping strategies can be defined as efforts taken, in response to challenging situations, in order

to prevent or reduce distress, loss, harm, or threat (Carver & Connor-Smith, 2010; Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986). Some coping strategies are more effective than others at reducing distress. Maladaptive or negative coping strategies, such as avoiding difficult situations and ruminating on negative experiences, have been shown to decrease psychological wellbeing (e.g. Frydenberg & Lewis, 2009; Jose et al., 1998; Michl, McLaughlin, Shepherd, & Nolen-Hoeksema, 2013). Adaptive coping strategies, on the other hand, are solution-focused responses to challenges, such as problem solving, resilience and the utilisation of social support. These strategies, although constrained by contextual factors, have been shown to generally improve psychological wellbeing (Chua, Milfont, & Jose, 2015; Frydenberg & Lewis, 2009; Jose et al., 2012; Jose & Schurer, 2010). In the present study, we operationalised adaptive coping using the dimensions of resilience, social support and problem solving. A primary goal of the present study was to determine how the use of adaptive coping strategies would influence the association between cultural embeddedness and wellbeing over time.

### *Study Description and Justification*

Houkamau and Sibley (2011); (see also; Muriwai, Houkamau, & Sibley, 2015) have proposed a research agenda aimed at identifying the mechanisms through which Māori cultural efficacy, or the ability to effectively engage with Māori culture, improves wellbeing. The purpose of this study is to support their research agenda, with a specific focus on adolescents; exploring adaptive coping as a possible mechanism. To do this, we sought to develop a measure that would capture the key features of cultural efficacy during adolescence. We then examined how our new measure, which we termed Māori cultural embeddedness, was related to, and predictive of, adaptive coping strategies and wellbeing. Importantly, our study utilised longitudinal data in a subject variable design, which allowed us to draw conclusions about how these variables predict each other over time. Our hypotheses regarding the nature of these longitudinal interrelationships are as follows:

### *Hypotheses*

1. *Positive zero-order correlations among cultural embeddedness, adaptive coping and wellbeing:*

Māori cultural embeddedness, adaptive coping and wellbeing are all conceptualised as measures of adaptive functioning (Jose et al., 1998; Neill & Dias, 2001; Rosenberg, 1965; Ryff & Keyes, 1995), so we expected them to be positively intercorrelated.

2. *Stability of Māori cultural embeddedness:*

Since we proposed Māori cultural embeddedness to be a relatively stable construct over time, we expected to find strong to moderate positive test-retest correlations for this variable between one-year time points.

3. *Relationships between cultural embeddedness, adaptive coping and wellbeing:*

Adaptive coping and wellbeing are well-known positive correlates (see Zeidner, Matthews, & Shemesh, 2016), but we also expected to identify a temporal relationship,

whereby using adaptive coping strategies would predict improved wellbeing over time.

Since the components of Māori cultural embeddedness are important in the development of a secure identity (Houkamau & Sibley, 2015; Muriwai et al., 2015; Stevenson, B. 2004), and because a secure personal and cultural identity is important for the wellbeing of an individual (Sharma & Sharma, 2010), we expected Māori cultural embeddedness to predict an improvement in wellbeing for our participants over time.

Finally, with increased whānau and peer support, greater cultural awareness and fluency in te reo Māori, we expected culturally embedded participants to have increased availability to, and therefore greater utilisation of, adaptive coping strategies over time.

4. *Indirect relationships from embeddedness to wellbeing through adaptive coping:*

To contribute to the research agenda set by Houkamau and Sibley (2011), we proposed adaptive coping would function as a mechanism through which cultural efficacy (measured through embeddedness) would predict improved wellbeing. In addition to the hypothesised direct effect, we expected Māori cultural embeddedness to indirectly predict improvements in wellbeing through improvements in adaptive coping strategies.

5. *Exploratory Analyses:*

Over the three time points and across the three variables, six indirect relationships are possible, all of which were examined. We posed a prediction for one of these indirect relationships (H4), but for the others we had no specific hypotheses regarding which of these indirect pathways would be significant. However, we were particularly interested in the reverse direction of Hypothesis 4 enunciated above, namely wellbeing to adaptive coping to cultural embeddedness.

## **Method**

### *Design*

This study utilised a subject variable longitudinal design measuring Māori cultural embeddedness, adaptive coping, and wellbeing at three time points, beginning in 2006, with each measurement separated by one year.

### *Participants*

We utilised a subset of participants from the Youth Connectedness Project (YCP; see Jose et al., 2012) who were recruited from 78 schools around New Zealand using a stratified random sampling approach. This project set out to measure how youth in New Zealand are connected to families, peers, schools and communities.

Our sample consisted of 403 participants, 177 males (43.90%) and 226 females (56.10%) aged 9 to 15 years (median age = 12 years) at the first time point (T1), who reported Māori as their ethnicity at all three time points. Participants were able to self-identify with as many different ethnic groups as desired. Our sample therefore consisted of individuals who, at least, identified as Māori at all three time points, but who may have also identified with other ethnic groups. Because



our research focus was on Māori cultural identity, we did not analyse mono-, bi- or multi-cultural identification.

Ethical approval was granted by the Victoria University Ethics Committee and all schools, school principals, parents and participants (if 16 years or older) provided consent before data were collected.

Individuals who identified as Māori at T1 and subsequently dropped out of the study were analysed using a MANOVA, to see if they were significantly different from those who did not drop out on the variables of Māori cultural embeddedness, adaptive coping and wellbeing. The analysis revealed that attrited participants were, in fact, significantly different from continuing participants (Pillai's Trace:  $F(3, 660) = .052, p < .001$ ), but the effect size was small (partial  $\eta^2 = .052$ ). Specifically, attrited participants scored significantly higher on cultural embeddedness ( $t(374.21) = 5.94, p < .001$ ), however the mean difference was small ( $\Delta M = 0.36$ ), and no differences were noted for the other two variables.

Materials

**Adaptive coping.** This construct was measured using a 10-item scale, combining four resilience items with three items measuring social support and three problem solving items. Participants were asked to consider their actions or responses during stressful situations and were asked to respond on a five-point Likert scale from 1 (*Never/almost never*) to 5 (*Always/almost always*). Resilience items ( $\alpha = .70$ ) were adapted from an existing resilience scale (Neill & Dias, 2001), and an example item reads: "I keep busy and interested in things". Both social support ( $\alpha = .64$ ) and problem solving ( $\alpha = .72$ ) were adapted from an existing coping scale (Jose et al., 1998). An item measuring social support reads: "I talk to others about how I am feeling" and an example item for problem solving reads: "I try to change the situation to fix the problem". In the present study, overall adaptive coping yielded good internal reliability at T1 ( $\alpha = .84$ ), T2 ( $\alpha = .80$ ) and T3 ( $\alpha = .84$ ). Conceptually this construct included three different adaptive coping approaches that collectively operationalise an adaptive coping style (Jose et al., 1998).

**Wellbeing.** We measured wellbeing using 11 items capturing the dimensions of aspiration/purpose in life ( $\alpha = .74$ ), positive relations with others ( $\alpha = .70$ ) and confidence ( $\alpha = .79$ ). Most of these items were adapted from the Ryff Wellbeing Scale (Ryff & Keyes, 1995), although several confidence items were adapted from the Rosenberg Self-Esteem Scale (Rosenberg, 1965). Aspiration/purpose in life was measured using four items, and an example item reads: "I am serious about working hard now so I can have a good future". Positive relations with others had three items, for instance: "I find it easy to get on with people". Lastly, confidence was measured using four items, including: "I feel confident and positive about myself". Participants were asked how much they agree with these statements on a five-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Wellbeing yielded good internal reliability at each time point (T1:  $\alpha = .87$ ; T2:  $\alpha = .89$ ; T3:  $\alpha = .89$ ).

**Māori Cultural Embeddedness.** This variable was generated for the current study. We first examined 16 potential items (shown in Appendix A) using Exploratory Factor Analyses

(EFA), one for each time point. The items were theoretically grouped on the following dimensions: three items measuring whānau connectedness, four items measuring connectedness to Māori peers, five items measuring cultural awareness, and four items measuring attitudes towards, and competency in, te reo Māori (which included two ordinal items asking how well participants could speak and understand te reo Māori). These two ordinal items had six possible responses, however all other items were presented with a five-point Likert scale. In order to equalise the metric across all items, scale responses that signified a value of six were recoded to the value of five.

The factors were rotated using the oblique (promax) method, since we expected any resulting factors to be correlated. We also utilised a parallel analysis (Horn, 1965), which helps to determine the number of factors to be extracted by the EFA, comparing eigenvalues that would be generated using random data with eigenvalues obtained from the present analysis. An online program was utilised to perform the analysis (Patil, Singh, Mishra, & Donovan, 2007) and the generated eigenvalues are presented alongside the observed eigenvalues in Table 1. The observed eigenvalues from each time point were compared to the computer-generated parallel eigenvalues and the number of factors to be extracted is indicated by the number of observed eigenvalues which are greater than their corresponding parallel eigenvalues. By this method, as shown in Table 1, a four-factor solution was indicated at T1, but a three-factor solution was indicated at T2 and T3. However, examination of factors outside of the first factor indicated the presence of double-loading items and poor internal reliability of small and difficult-to-interpret clusters of items.

Table 1. Actual and Estimated Eigenvalues from Factor Analyses at each Time Point

Factors	Eigenvalues T1	Eigenvalues T2	Eigenvalues T3	95% Estimated Parallel Values
1	6.43	6.50	6.76	1.36
2	1.52	1.75	1.65	1.28
3	1.41	1.40	1.40	1.22
4	1.11	1.19	1.24	1.17
5	0.94	0.88	0.83	1.12
6	0.79	0.72	0.68	1.09
7	0.62	0.59	0.56	1.05
8	0.57	0.50	0.51	1.01
9	0.48	0.44	0.44	0.98
10	0.42	0.39	0.37	0.94

Note: T represents time point.

Another way to determine the number of factors to be extracted involves the examination of a scree plot of obtained eigenvalues. Figure 1 presents the obtained eigenvalues at each time point along with the parallel values generated earlier. Upon inspection of the scree plot, we noted large discrepancies between the eigenvalues of the first factor with those of the second and subsequent factors, and consequently we would argue that a single factor solution should be utilised. The high internal reliability between all items in this factor ( $\alpha = .90$  at all three time points) provides further evidence for a single factor solution.

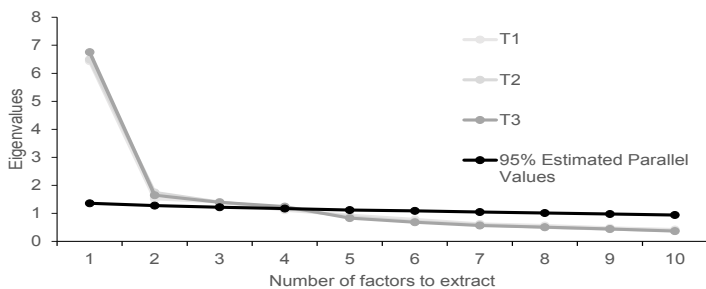


Figure 1. Scree plot of observed eigenvalues (y-axis) at each time point alongside parallel values (shown in the legend) estimated at the 95<sup>th</sup> percentile, suggesting the number of factors (x-axis) to be extracted.

**Procedure**

Informed parental consent and participant assent was obtained before survey administration at T1. Participants completed the survey in small groups within their school using laptop computers, which were separated physically to ensure privacy and facilitate honest responses. Online survey completion was adopted in some schools at T2 and T3. A teacher and a research assistant were present throughout the data gathering process to explain the procedure and clarify the meaning of questions if necessary. The entire survey was constituted by approximately 350 questions, with some variation in the total number of item responses due to branching and skipping. The completion time for each survey varied from 0.5 to 1.0 hour.

**Data Analytic Plan**

Analysing the data proceeded in the following steps. First the data were checked for patterns of missingness, with a goal in mind to impute missing values if necessary. The means and standard deviations were then calculated for each variable at each time point, as well as the zero-order correlations between them. Next, a latent variable path model was constructed and analysed through the following steps: 1) confirmatory factor analyses were carried out to examine the latent factor structure of all three variables by examining their model fit indices at each time point, 2) longitudinal invariance analyses were employed to examine whether the factorial structure of all variables maintained invariance over time, 3) the longitudinal path model was then constructed, including stability and cross-lag associations among all three variables, and the validity of this path model was measured, 4) the direct and indirect pathways among all three variables over time were analysed, to determine if there were any significant relationships, and finally 5) we tested whether the significant indirect pathways were moderated by age or gender.

**Results**

**Data Cleaning and Coding**

A missing values analysis was run for all variables across all three time points to determine whether there was any systematic missingness in the dataset. The analysis revealed 2.4% of the data was missing in the entire dataset. In addition, Little’s MCAR test revealed that missingness was not distributed randomly ( $\chi^2(9280) = 10057.35, p < .001$ ). Thus, some systematic missingness was present in the data.

However, in order to maximise statistical power, an expectancy maximisation imputation (EM; Dempster, Laird, & Rubin, 1977) with 50 iterations was performed, creating a full dataset with complete data.

The distribution of data was examined to see if there was any extreme skewness or kurtosis. Only one of twelve variables fell outside the recommended range of  $\pm 1.96$  (Field & Wilcox, 2017). Specifically, wellbeing at T2 was slightly leptokurtic (2.09). No significant skewness was found at the latent variable level. Since the majority of variables were normally distributed, no transformations were enacted.

**Descriptive Statistics**

As shown in Table 2, the means across all variables at all time points fell above the midpoint, with wellbeing scores being the highest. These scores indicated moderate levels of cultural embeddedness and adaptive coping as well as high levels of wellbeing among participants. Furthermore, all variables were significantly and positively intercorrelated, both concurrently and across data waves. The significant and positive intercorrelations support our first hypothesis. Also, the correlations between contiguous temporal measurements of Māori cultural embeddedness were particularly strong ( $r < .60$ ), which suggests that this construct is reasonably stable over time, supporting hypothesis 2.

Table 2. Correlations and Descriptive Statistics for Key Variables

	1	2	3	4	5	6	7	8	9
1. Cultural Embeddedness T1	-	.69**	.63**	.22**	.15**	.13**	.27**	.25**	.21**
2. Cultural Embeddedness T2		-	.65**	.14**	.20**	.16**	.14**	.36**	.24**
3. Cultural Embeddedness T3			-	.17**	.13*	.24**	.20**	.28**	.30**
4. Wellbeing T1				-	.53**	.44**	.51**	.36**	.31**
5. Wellbeing T2					-	.53**	.37**	.57**	.40**
6. Wellbeing T3						-	.35**	.46**	.61**
7. Adaptive Coping T1							-	.44**	.38**
8. Adaptive Coping T2								-	.53**
9. Adaptive Coping T3									-
M	3.28	3.30	3.32	4.11	4.04	4.03	3.27	3.18	3.29
SD	0.69	0.67	0.68	0.54	0.57	0.57	0.69	0.74	0.72

Note: Time points are represented by T. \* $p < .05$ , \*\* $p < .01$ .

**Path Model Construction**

A latent variable path model was constructed in the AMOS Structural Equation Modelling program (Arbuckle, 2014). As recommended by Little, Cunningham, Shahar, and Widaman (2002), each latent construct was represented by three parcels of systematically assigned items from the measure. For each variable, the first item, then subsequently every fourth item, were collated and averaged, creating the first parcel of the construct. Parcels two and three were created through a similar process, but beginning at items two and three respectively. Autocorrelated error was allowed to be estimated for all parcels over time.

Confirmatory factor analyses (CFA) were conducted in order to evaluate internal reliability by calculating the concurrent model fit indices at each time point. The model fit was excellent at all time points: T1 ( $\chi^2/df = 1.44, CFI = .995, sRMR = .030, RMSEA = .033$ ), T2 ( $\chi^2/df = 1.65, CFI = .994, sRMR = .031, RMSEA = .040$ ) and T3 ( $\chi^2/df = 2.01, CFI = .990, sRMR = .030, RMSEA = .050$ )

**Invariance Testing**

We performed a series of measurement invariance tests on the factorial structure of all three variables in the model, to evaluate whether the variables maintained structural equivalence on the levels of factor loading (configural), item loading (metric) and item intercepts (scalar) over time. By examining the longitudinal invariance of the path model's factorial structure between time points, the invariance of all three variables were tested at once. These analyses involved longitudinal comparisons which assessed configural, metric and scalar invariance for all variables between T1-T2, T2-T3, and T1-T3. For each time comparison, the level of interest was constrained to be equivalent at both time points and the model fit was examined to assess whether these constraints significantly altered the fit of the model. The analyses were performed in a step-wise manner: configural invariance was required in order to test for metric invariance, and metric invariance was required to test for scalar invariance. At each of these levels, longitudinal measurement invariance is accepted if two of the following three criteria are demonstrated:  $\Delta\chi^2$  non-significant at  $p < .05$ ;  $\Delta CFI < .01$ ; and  $\Delta RMSEA < .015$  (Cheung & Rensvold, 2002; Vandenberg & Lance, 2000). The invariance tests were computed and the results are reported in Table 3. Two of the three criteria were met at all three levels across all time comparisons ( $\Delta\chi^2$  criteria was the exception, as it was not met at the configural and scalar levels), thus, time invariance was identified for the variables in the model, allowing for longitudinal associations to be examined.

Table 3. Stepwise Longitudinal Structural Invariance Test for all Variables in the Path Model

	T1 – T2			T2-T3			T1-T3		
	$\Delta RMSEA$	$\Delta CFI$	$\Delta\chi^2$	$\Delta RMSEA$	$\Delta CFI$	$\Delta\chi^2$	$\Delta RMSEA$	$\Delta CFI$	$\Delta\chi^2$
<b>Configural</b>	-.002	.002	.038*	-.002	.002	.017*	.003	-.001	.913
<b>Metric</b>	.003	-.001	-	.003	-.001	-	.001	.001	.258
<b>Scalar</b>	-.002	.002	-	> .001	.001	-	-.002	.002	.010*

Note: \*Invariance test did not meet criteria. Untested measurements are designated with a hyphen.

In order to try to simplify the model, we also tested whether cross-lags were invariant over time. To perform this test, we constrained the cross lags between T1-T2 to be equivalent with the corresponding cross lags from T2-T3 (Byrne, 2010). Using a chi-square significance test (Soper, 2017), we found that these constraints did not significantly alter the model fit ( $\Delta\chi^2(6) = 4.66, p = .590$ ). Therefore, the final model included time equality constraints for all cross-lag estimates.

**Path Model Findings**

With the time equality constraints mentioned earlier, the fully saturated path model yielded mostly good model fit indices, although the CFI was low ( $\chi^2/df = 1.85, CFI = .773, sRMR = .062, RMSEA = .046$ ). The stability coefficients for all variables over time were all statistically significant ( $p < .001$ ). Of the three variables, wellbeing manifested the least stability over time (T1-T2:  $\beta = .48$ ; T2-T3;  $\beta = .40$ ), suggesting that participants' wellbeing levels were somewhat changeable. Adaptive coping strategies were more stable, yielding stability coefficients of moderate strength from T1-T2 ( $\beta = .67$ ) and from T2-T3 ( $\beta = .62$ ). Finally, the stability of Māori cultural

embeddedness was consistently strong (T1-T2:  $\beta = .77$ ; T2-T3:  $\beta = .72$ ), providing additional support for hypothesis 2.

The significant standardised cross-lag regression weights are presented in Figure 2; non-significant paths and stability coefficients have been omitted for the sake of readability. We found that adaptive coping predicted increases in wellbeing between T1-T2 ( $\beta = .30, p < .001$ ) and again between T2-T3 ( $\beta = .46, p < .001$ ). Interestingly, this relationship was bi-directional, as wellbeing predicted increases in adaptive coping between T1-T2 ( $\beta = .26, p < .001$ ) and T2-T3 as well ( $\beta = .28, p < .001$ ). We also found that Māori cultural embeddedness predicted improvements in adaptive coping between T1-T2 ( $\beta = .09, p = .002$ ) and T2-T3 ( $\beta = .08, p = .002$ ), with the reverse being significant too: adaptive coping predicted cultural embeddedness between T1-T2 ( $\beta = .10, p = .002$ ) and T2-T3 ( $\beta = .12, p = .002$ ). Although the associations were in the expected direction, Māori cultural embeddedness did not significantly and directly predict wellbeing ( $p = .112$ ), nor did wellbeing directly predict embeddedness ( $p = .069$ ), and these latter findings failed to support hypothesis 3.

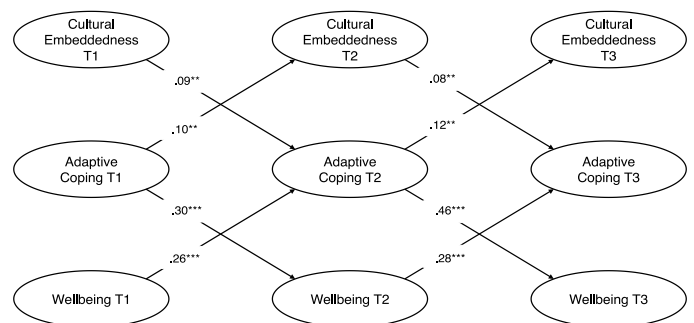


Figure 2. Standardised regression weights for the predictive relationships between Māori cultural embeddedness, adaptive coping and wellbeing over time. Note: the model was completely saturated, but nonsignificant paths, stability coefficients and covariances are omitted for the sake of readability. \*\* $p < .01$ , \*\*\* $p < .001$ .

**Mediation Analysis**

We also tested the six possible indirect relationships in the path model. The analysis stipulated 5,000 bootstrapped iterations of all six indirect effects in the model, and statistical significance of the effects were determined by bias corrected 95% confidence intervals. Two indirect relationships were of particular interest given our hypotheses:

a) Firstly, since Māori cultural embeddedness predicted improvements in adaptive coping one year later, which, in turn, predicted improvements in wellbeing the following year, a significant indirect relationship between embeddedness and wellbeing through adaptive coping was likely. The mediation analysis supported this predicted path, showing a significant indirect relationship between cultural embeddedness at T1 and wellbeing at T3, mediated by adaptive coping at T2 (*indirect effect* = .025, *SE* = .011, 95% *CI* = [.007, .050]). This significant indirect effect was in support of hypothesis 4. These findings also provide partial support for part of hypothesis 3: that Māori cultural embeddedness would predict improvements in wellbeing. Hypothesis 3 is only partially supported because, while Māori cultural embeddedness predicted improvements in wellbeing, it did so indirectly through adaptive coping.

b) We also sought to determine whether an indirect effect would be found in the reverse direction. Since wellbeing predicted improvements in adaptive coping one year later, which subsequently predicted improvements in embeddedness the following year, an indirect relationship between wellbeing and embeddedness was also likely to be significant. This indirect effect was found to be significant with wellbeing at T1 indirectly predicting improvements in cultural embeddedness at T3, mediated by adaptive coping at T2 (*indirect effect* = .040, *SE* = .021, 95% *CI* = [.008, .093]).

c) In exploratory analyses, the remaining four mediated relationships were found to be nonsignificant.

#### *Moderation of the Indirect Effects by Age and Gender*

We examined the two significant indirect effects (described in the above paragraph), to determine whether these effects were significantly moderated by age or gender. In order to test possible gender moderations, the AMOS path model was run separately for males and females, first constraining all paths of the model, then allowing for the indirect pathway of interest to be unconstrained. The chi-square values of the constrained path models were compared to the chi-square values of the unconstrained models, to determine whether the observed indirect effects were significantly different in strength for males and females. A similar process was followed to test whether each indirect effect was moderated by age. Participants were divided at the median age (12 years), comparing participants under 12 years at T1 ( $N = 180$ ) to the older participants, who were 12 years and older at the same time point ( $N = 223$ ).

Gender was not found to significantly moderate the indirect effects of the first mediation (cultural embeddedness to adaptive coping to wellbeing;  $\Delta\chi^2(2) = 2.80, p = .247$ ) or the second mediation (wellbeing to adaptive coping to cultural embeddedness;  $\Delta\chi^2(2) = 1.59, p = .452$ ), suggesting that males and females navigated these relationships very similarly.

Age was found to significantly moderate the indirect effect of the first mediation ( $\Delta\chi^2(2) = 13.20, p = .001$ ). This difference was caused by the findings that cultural embeddedness was not found to predict adaptive coping ( $p = .392$ ), nor did adaptive coping predict wellbeing ( $p = .185$ ) in the older group, whereas both relationships were statistically significant for the younger participants. In contrast, age was not found to significantly moderate the second mediation ( $\Delta\chi^2(2) = 5.59, p = .061$ ), which suggests that wellbeing predicted embeddedness through adaptive coping similarly for both older and younger participants. These results suggest that the indirect effect from cultural embeddedness to adaptive coping to wellbeing was significant only for younger participants; this dynamic seemed to fade away with age ( $\Delta\chi^2(2) = 13.20, p = .001$ ). This difference was caused by the findings that cultural embeddedness was not found to predict adaptive coping ( $p = .392$ ), nor did adaptive coping predict wellbeing ( $p = .185$ ) in the older group, whereas both relationships were statistically significant for the younger participants. In contrast, age was not found to significantly moderate the second mediation ( $\Delta\chi^2(2) = 5.59, p = .061$ ), which suggests that wellbeing predicted embeddedness through adaptive coping similarly for both older and younger participants. These results suggest that the indirect effect from cultural embeddedness to adaptive coping to wellbeing was

significant only for younger participants; this dynamic seemed to fade away with age.

## Discussion

### *Overview and Interpretation of Findings*

The chief purpose of this study was to support the research agenda set out by Houkamau and Sibley (2011), imploring the search for possible mechanisms through which Māori cultural efficacy, the ability to effectively navigate within Māori culture, improves the wellbeing of Māori people. Using the core features of Māori cultural identity, we developed a measure of efficacy that can be used with adolescents, which we called Māori cultural embeddedness. We then measured the degree to which variances in the embeddedness of rangatahi Māori predicted changes in adaptive coping and wellbeing over time.

Māori cultural embeddedness was found to manifest high internal reliability and, between temporal measurements, the zero-order correlations and the stability coefficients were strong. These findings are in support of hypothesis 2 and of our proposition that Māori cultural embeddedness measures the core and stable features of Māori cultural identity (Houkamau & Sibley, 2015). As such, cultural embeddedness could be an alternative measure of cultural efficacy, or the ability to participate effectively within Māori culture, which has been found to buffer psychological distress (Muriwai et al., 2015) and improve satisfaction with certain aspects of personal life (Houkamau & Sibley, 2011).

The path model findings were mostly in support of hypothesis 3. Namely, Māori cultural embeddedness was predictive of improvements in adaptive coping and adaptive coping was predictive of improvements in wellbeing over time. The exception to hypothesis 3 was that cultural embeddedness did not predict direct improvements in wellbeing over time. However, in line with hypothesis 4, analysis of the indirect pathways revealed that cultural embeddedness did, in fact, indirectly predict improvements in wellbeing through improved adaptive coping strategies. This finding is important, as it provides evidence for the theory that a strong cultural identity improves the wellbeing of Māori people (Durie, 2001; Marsden & Royal, 2003). Consistent with Houkamau and Sibley (2011), who posit that Māori cultural efficacy improves wellbeing through other mechanisms, we found that cultural embeddedness did not directly improve wellbeing, as measured in the present case. Instead, we found evidence for the role of adaptive coping strategies in mediating the association between cultural efficacy and wellbeing.

We were also interested in the possibility of bi-directional relationships between Māori cultural embeddedness, adaptive coping and wellbeing. The path model cross-lags revealed bi-directional relationships between cultural embeddedness and adaptive coping, and between adaptive coping and wellbeing. In other words, not only were levels of cultural embeddedness predictive of adaptive coping over time, but levels of adaptive coping were also predictive of cultural embeddedness, and similarly between adaptive coping and wellbeing. Furthermore, the significant indirect effect mentioned above was also observed in the opposite

direction: wellbeing at T1 predicted improvements in adaptive coping at T2, thereby strengthening cultural embeddedness at T3. Although these bi-directional relationships were not hypothesised, they are encouraging as they suggest what we have termed a 'cycle of cultural protection': whereby Māori cultural embeddedness improves adaptive coping strategies, thus leading to improved wellbeing, which subsequently returns to strengthen embeddedness through adaptive coping. These results are consistent with kaupapa Māori philosophy (i.e. Durie, 1998; 2001; Mead, 2016; Pere, 1991; Smith, 2012), which suggests that embeddedness within Māori culture is beneficial for Māori; and these benefits go on to reinforce and deepen Māori cultural embeddedness.

### *Applications and Future Directions*

Two major applications can be drawn from our findings. Firstly, encouraging rangatahi Māori to become more engaged and embedded within their culture can help to build resilience and wellbeing through the development of adaptive coping strategies. It is imperative that whānau, hapū and iwi encourage rangatahi Māori to engage with their Māori identity, in order to establish a secure foundation from which adaptive coping strategies can be learnt, thereby improving wellbeing (Durie, 2001; Walker, 2004). This engagement includes learning *te reo Māori me ōna tikanga* (Māori language and customs), fostering connections with Māori whānau and friends, and developing greater awareness of cultural similarities and differences (Houkamau & Sibley, 2011; Muriwai, Houkamau, & Sibley, 2015).

The second application of our findings is that categorical ethnic self-identification can be a relatively crude indicator of ethnic/cultural identity (Williams & Husk, 2013), compared to measures such as Māori cultural embeddedness, which try to capture degree and intensity of cultural identification (Fenton, 2010). There is a danger of making false inferences about the influence of culture on an individual based on cultural self-/identification only (Betancourt & Lopez, 1993; Smith, 2012; Winker, 2004). This point is further illustrated by our findings, since the degree of cultural embeddedness predicted outcomes differentially for our sample. Thus, future research in the area of cultural identity should be aware of the dimensional nature of culture/ethnicity in research design and interpretation.

### *Limitations of the Present Research*

Several limitations of this study constrain its generalisability. Firstly, some variables may have been restricted by a ceiling effect. Wellbeing scores were particularly high, with scores greater than four, on a five-point scale, at each time point. These high levels of wellbeing could have influenced our results by limiting the variability (i.e., variance) of this construct. In fact, the significant indirect pathway from cultural embeddedness to wellbeing through adaptive coping, was found not to be statistically significant for older adolescents, suggesting that older adolescents, who may have spent more time in the cycle of cultural protection, may have reached a level of wellbeing where improvement was not statistically feasible. In the future, this limitation could be overcome by measuring wellbeing on a different scale, in which participants would be less inclined to provide uniformly high ratings.

A second limitation might be that only participants who identified as Māori at all three time points were included in the study. This selection choice could have led to a sampling bias, since participants who may have been unsure of their cultural identity were excluded. On a five-point scale, the mean level of cultural embeddedness was consistently above three, so including these uncertain participants could have provided a wider range of embeddedness scores. Similarly, we did not analyse differences between individuals who identified as solely Māori from those who identified as bi-cultural. Māori are very likely to have some Pākehā ancestry, but those Māori with high levels of cultural embeddedness may decide to solely identify as Māori (Houkamau & Sibley, 2014; Ward, 2006). Levels of cultural embeddedness may have therefore been meaningfully different between those who solely identify as Māori compared with those who identify as bi-cultural.

Finally, our measure of Māori cultural embeddedness could have been better informed and supported by qualitative data obtained from interviews or focus groups. The factor analysis and path model findings are promising, but the underlying assumption, that Māori cultural embeddedness is a valid measure of Māori identity, requires further empirical work. This goal can be achieved by conducting a qualitative review of embeddedness items with our research participants and with Māori leaders, and tying the cultural embeddedness measure to real world behavioural indicators of Māori identity (i.e. involvement with marae)

### **Conclusions**

Māori cultural embeddedness was found to be positively associated with adaptive coping and wellbeing, providing evidence for the adaptive nature of this variable. Furthermore, cultural embeddedness was found to predict adaptive coping strategies, and adaptive coping strategies were found to predict wellbeing. Cultural embeddedness was thus indirectly related to improvements in wellbeing through adaptive coping, attesting to the strength and resilience of Māori rangatahi who are embedded within their culture (e.g. Durie, 2001). These positive findings are likely a consequence of Māori cultural embeddedness being a measure of the core and stable features of Māori cultural identity (e.g. Houkamau & Sibley, 2015). The significant direct pathways noted above were also observed in the reverse direction: wellbeing was found to predict adaptive coping, and adaptive coping predicted cultural embeddedness. Furthermore, wellbeing was indirectly related to cultural embeddedness through adaptive coping.

These bi-directional relationships suggest a cycle of cultural protection, whereby Māori cultural embeddedness improves wellbeing, which subsequently returns to strengthen embeddedness. Importantly, adaptive coping proved to be a central maintaining factor in the cycle of cultural protection and a key mediator between cultural efficacy and wellbeing. These findings suggest that being embedded within the Māori culture can expose rangatahi Māori to positive experiences, growing resilience and social support networks, which help to grow problem solving abilities and improve wellbeing. In conclusion, the findings suggest that being *more* Māori, or more embedded within Māori culture, helps to cultivate

adaptive coping for rangatahi Māori, thereby improving wellbeing.

## Acknowledgments

We would like to thank Professor Colleen Ward for proposing the term “cultural embeddedness” to describe the construct we introduce in this article. We believe this is an excellent term which appropriately describes our construct.

### Glossary of Terms

Āotearoa:	New Zealand
hapū:	sub-tribe
iwi:	tribal group
Pākehā:	non-Māori people
rangatahi:	adolescents
tangata whenua:	people of the land
te reo:	the Māori language

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### Corresponding Author

Ririwai Fox  
 School of Psychology  
 Victoria University of Wellington  
 New Zealand  
 Email: Ririwai.fox@vuw.ac.nz

## Appendix A: Items for Māori cultural embeddedness

### Whānau Connectedness

From 1 (Never/almost never) to 5 (always/almost always)

Please tell us how often:

- You hear stories about your elders/ancestors
- A relative tells you about how your whānau/family are related
- Your whānau/family do things for your community/iwi

From 1 (Strongly disagree) to 5 (Strongly agree)

How much do you agree with the following:

### Māori Peer Connectedness

- Being Māori is normal amongst my mates
- A lot of my mates are Māori
- I speak a Maori type of English when I am with my Māori mates
- Me and my close mates use Māori words a lot when we talk to each other

### Maori Cultural Awareness

- I have noticed differences in the way my culture does things compared to other cultures in New Zealand
- I have noticed similarities in the way my culture does things compared to other cultures in New Zealand
- I like hearing Māori language in the media (on TV, Radio, Music)
- I dislike seeing negative things about Māori in the media (on TV, Radio, Music)
- I like seeing Māori things in the media (On TV, Radio, Music)

### Importance of Te Reo

- It is important that I know how to speak and understand Māori
- I would like to learn how to speak and understand Māori better

### Categorical Reo Items

How well can you speak te reo Māori?

1. Cannot speak te reo Māori.
2. Can speak a few words and/or short sentences in te reo Māori
3. Can speak a few basic sentences in te reo Māori using different words for short periods.
4. Can speak te reo Māori using different words and sentences in many situations.
- 5a. Can confidently speak te reo Māori for long periods in many situations.
- 5b. Can confidently speak fluent te reo Māori in any situation

How well can you understand te reo Māori?

1. Cannot understand te reo Māori.
2. Can understand a few words and/or short greetings in te reo Māori
3. Can understand a few basic sentences in te reo Māori and understand different words for short periods.
4. Can understand te reo Māori used in different words and sentences in many situations.
- 5a. Can understand te reo Māori for long periods in many situations.
- 5b. Can confidently understand fluent te reo Māori being spoken in any situation.





## The New Zealand Psychological Society

*Te Rōpū Mātai Hinengaro o Aotearoa*

### Expressions of Interest

Editor – New Zealand Journal of Psychology

After eight years as Editor of the New Zealand Journal of Psychology Dr John Fitzgerald will be stepping down to take on other responsibilities within the New Zealand Psychological Society. We are seeking a new Editor-in-Chief who will be able to take over the role mid-2018. Dr Fitzgerald will be available to provide technical training and support so that a gradual and smooth transition can occur.

The position requires the Editor to work closely with authors, reviewers and the National Office to produce three issues of the Journal each year. The transition to solely digital publication and the use of the Scholastica journal production portal has greatly streamlined the submission and reviewing process, and further development are anticipated regarding digital production and promotion. For these reasons the Editor needs to be comfortable working in a digital environment. While the Editor, along with a small editorial board, set the general strategic direction of the Journal, much of the editorial role involves the application of general reviewing processes and detailed work associated with individual submissions. While this may sound taxing the role is immensely rewarding, and is an important role in helping to shape the local psychology landscape.

If you are interested in taking on this challenge, please express interest by writing to Society's National Executive care of our Executive Director (Dr Pam Hyde, [executivedirector@psychology.org.nz](mailto:executivedirector@psychology.org.nz)). You should provide a statement about what interests you in the role, what skills and experience you have which make you a 'good fit', and make some comment about how you see the Journal developing in the future. If you would like to discuss the position before applying please feel free to contact Dr Fitzgerald directly ([j.m.fitzgerald1@massey.ac.nz](mailto:j.m.fitzgerald1@massey.ac.nz)) Expressions of Interest must be received at the National Office by 30<sup>th</sup> April 2018.