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CENTRE FOR ABORIGINAL
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RESEARCH SCHOOL OF SOCIAL SCIENCES
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# Measures of Indigenous Wellbeing and Their Determinants Across the Lifecourse

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*Measures of wellbeing for Indigenous children*

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## Introduction and overview

The aim of this lecture series is to summarise the evidence on Indigenous wellbeing produced from an analysis of the 2008 National Aboriginal and Torres Strait Islander Social Survey (NATSISS). A secondary aim is to examine the variation in measures of wellbeing across the lifecourse. In previous papers we have examined the determinants of subjective wellbeing (including happiness, sadness and life satisfaction), self-assessed health, education participation, community wellbeing, social capital and capabilities. A major limitation of this analysis, however, has been an exclusive focus on the wellbeing of adults.

**NATSISS:** National Aboriginal and Torres Strait Islander Social Survey

One of the reasons for this focus on adults as opposed to children is the difficulty in collecting subjective wellbeing data from children. All of the major social, health and other surveys conducted by the Australian Bureau of Statistics (ABS) and other agencies with information on Indigenous children obtain that information from the child's carer. This clearly makes sense for most data items as it is unrealistic to expect a child in their early teens, let alone one aged under 10 to be able to give accurate information on the income of their household, the type of dwelling in which they live or even whether they have a particular condition. However, it does mean that the child's own voice and subjective feelings are absent from these data collections.

**ABS:** Australian Bureau of Statistics

Despite this lack of subjective quantitative information on Indigenous children, there is a range of detailed information on Indigenous children in the most recent (2008) NATSISS. There are a number of new questions on the NATSISS, many of which are specific to the lives of Indigenous children. For example, carers of Indigenous children in the sample are asked whether or not that child spends time with an Indigenous elder on a week-to-week basis, as well as whether or not that child was taught about Indigenous culture at school. They were also asked whether that child was bullied or treated unfairly because they are Indigenous.

Such questions fall well within the ABS (2001) definition of wellbeing as 'a state of health or sufficiency in all aspects of life'. These questions and others in the 2008 NATSISS illuminate a broad range of factors associated with Indigenous child wellbeing which are likely to be key determinants of wellbeing later in life.

There is substantial evidence to suggest that development in early life shapes the subsequent course of a person's life. Advantage and disadvantage across the life course tend to cluster cross-sectionally (with advantage or disadvantage in one sphere of life likely to be mirrored in other spheres). They also tend to accumulate longitudinally (with advantage or disadvantage in one phase of the life course likely to be reflected in previous and subsequent phases of life) (Marmott & Wilkinson 1999: 65). Supporting healthy development in childhood is therefore

critical in overcoming the worst effects of disadvantage (Shepherd & Zubrick 2011: 2).

Previous analysis points to the lasting effects of childhood experiences or the 'longitudinal accumulation' of advantage or disadvantage. One of the consistent findings from the analysis in this lecture series, for example, is that the contemporaneous characteristics of Indigenous adults explain only a small share of the variation in subjective wellbeing. In particular, the Pseudo R-Squared statistics from the analysis of happiness and sadness amongst Indigenous adults in Biddle (2011b: 11) were 0.0820 and 0.0742, a very small percentage of the overall variation in the model. In Biddle (2011d) it was shown that those Indigenous adults who were discriminated against (as adults) had lower levels of subjective emotional wellbeing than those who were not. Given this, it is quite possible that their experience of bullying and unfair treatment as a child may also be affecting their wellbeing as an adult. Furthermore, cultural participation as an adult was found to have a positive association with wellbeing. Learning an Indigenous language as a child, spending time with an Indigenous elder and learning about Indigenous culture at school are all likely to support such cultural participation later in life.

The only way in which we could test explicitly for these lifecourse associations is with longitudinal data. A survey that collected information on Indigenous children and then tracked these children through time would provide invaluable information on the role of child outcomes in supporting Indigenous wellbeing. In the absence of such data, and in part as a motivation for its collection, it is important to understand the distribution and determinants of a range of Indigenous child wellbeing indicators. Such an analysis is the focus of this current paper.

The analysis presented in this paper focuses on three aspects of Indigenous child wellbeing as outlined below.

- **Child health outcomes and health behaviour**—This includes whether or not there were aspects of the child's health that led to concerns about the child's learning; whether or not they had one of a specific set of health conditions; the child's diet; and the child's level of exercise.

- **Education and learning outcomes**—This includes education and learning that occurs at school, as well as that which takes place with the child's carer. In addition, we consider barriers to child education and learning (being bullied and treated unfairly) as well as things which may support it (having access to the internet within the home).

- **Language and cultural maintenance**—Four aspects of language and cultural maintenance are considered: learning an Indigenous language; participating in cultural events, ceremonies or organisations; learning about Indigenous culture at school; and spending time with an Indigenous elder.

We begin the analysis of each of these aspects of child wellbeing with a set of descriptive statistics. This descriptive analysis will focus on differences in the particular outcomes by age, sex and remoteness. With regards to the latter, Walter (2008: 1) argues that geographical place is central to the conditions and milieus in which those lives are lived. While the remote and non-remote categories are a relatively crude measure, it is an important distinction and one which drives much of Indigenous policy in Australia. This descriptive analysis will lead on to more detailed multivariate analysis which will, in addition to these demographic and geographic characteristics, test for associations in measures of child wellbeing by characteristics of the child's carer and their dwelling. The final section of the paper will provide a brief summary and discussion of the main results from the analysis.

## Child health outcomes and health behaviour in the 2008 NATSISS

Socioeconomic status alone does not explain relatively poor health outcomes amongst Indigenous adults. Booth and Carroll (2005: 26) examined the impact of socioeconomic variables—such as income and employment status—on Indigenous health, and concluded that these variables explain between one-third and one-half of the gap between the self-assessed health status of Indigenous and non-Indigenous Australians. Analysis in the third paper from this series (Biddle 2011c) focused on the differences between Indigenous and non-Indigenous Australians in health outcomes. Building on analysis in Booth and Carroll (2008) and Biddle (2006), the analysis showed that Indigenous adults were significantly and substantially more likely to rate their health as being fair or poor than non-Indigenous Australians—25.6 per cent of the sample compared to 18.0 per cent respectively. While this difference decreased somewhat when a range of socioeconomic and demographic characteristics were controlled for, it was only after the presence of long-term conditions and health risk factors were controlled for that the difference disappeared entirely.

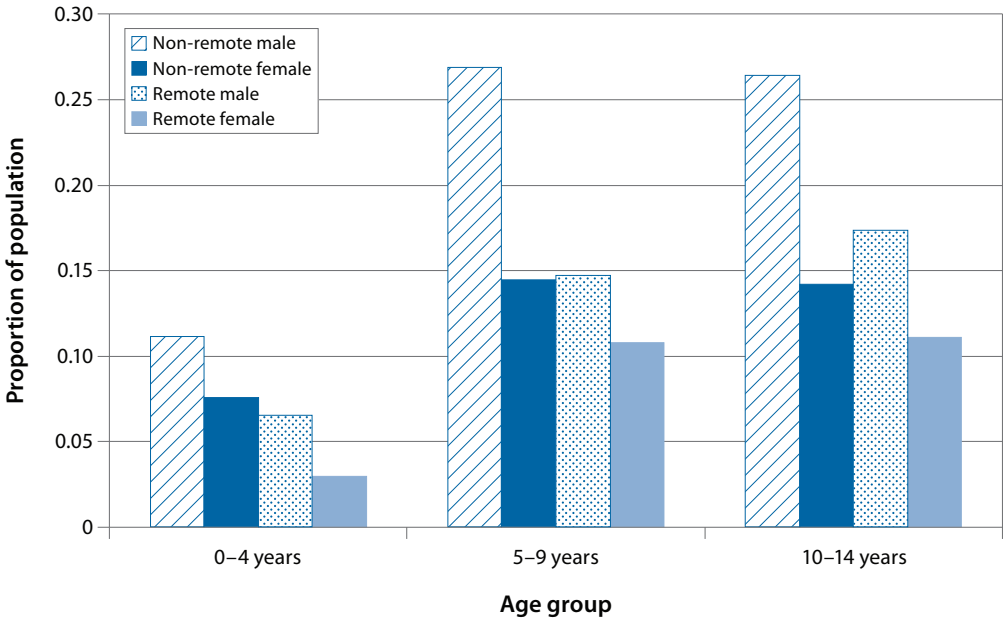
A potential reason for there still being differences in Indigenous and non-Indigenous health once socioeconomic characteristics are controlled for are the long-term implications of childhood socioeconomic disadvantage (Poulton et al. 2002). Adult health can be seen as a marker of one's previous social position, with past social experiences becoming inscribed in the physiology or pathology of the body through cumulative advantage or disadvantage (Marmott & Wilkinson 1999: 64). However, in addition to socioeconomic background, child health outcomes may have an

additional and independent association (Blackwell, Hayward & Crimmins 2001). As demonstrated in Case, Fertig and Paxson, 'Controlling for parental income, education and social class, children who experience poor health have significantly lower educational attainment, poorer health, and lower social status as adults' (2005: 365).

## Health concerns

The broadest measure of child health in the 2008 NATSISS is whether the child's carer felt that there were aspects of the child's health that have led to concerns about their child's learning. While this confuses concerns about health with views on the relative importance of education, it does have the benefit of going beyond specific conditions which may be prone to health-service usage biases. Across the relevant NATSISS sample, carers of 15.1 per cent of Indigenous children had such a concern. Fig. 1 demonstrates that this percentage rose across the three age groups, was generally higher for males than females, and was higher in non-remote than remote Australia.

**Fig. 1. Proportion of Indigenous children for whom aspects of health have led to concern about learning, 2008; by age, sex and remoteness**




**Source:** 2008 NATSISS.

The differences by gender in Fig. 1 are mirrored in the analysis of adult health (Biddle 2011c) and also in age-specific mortality rates (Biddle & Yap 2010). Indigenous males tend to have worse health outcomes than females, and this difference appears to start off quite early in the lifecourse. What is a little surprising, however, are the large differences by remoteness. It may be that the carers of children in non-remote areas are more aware of the health conditions that their children have (due to a greater availability of health services), or put a greater emphasis on their child's learning. It should be noted that analysis in Biddle (2011c) also found that adults in remote areas had better self-assessed health than those in non-remote areas and that this was reflected to a certain extent in the epidemiological literature (Rowley et al. 2008). Whatever the explanation, results in the 2008 NATSISS demonstrate that poor health outcomes are at least as big a concern for the carers of Indigenous children in non-remote areas as they are for those in remote areas.

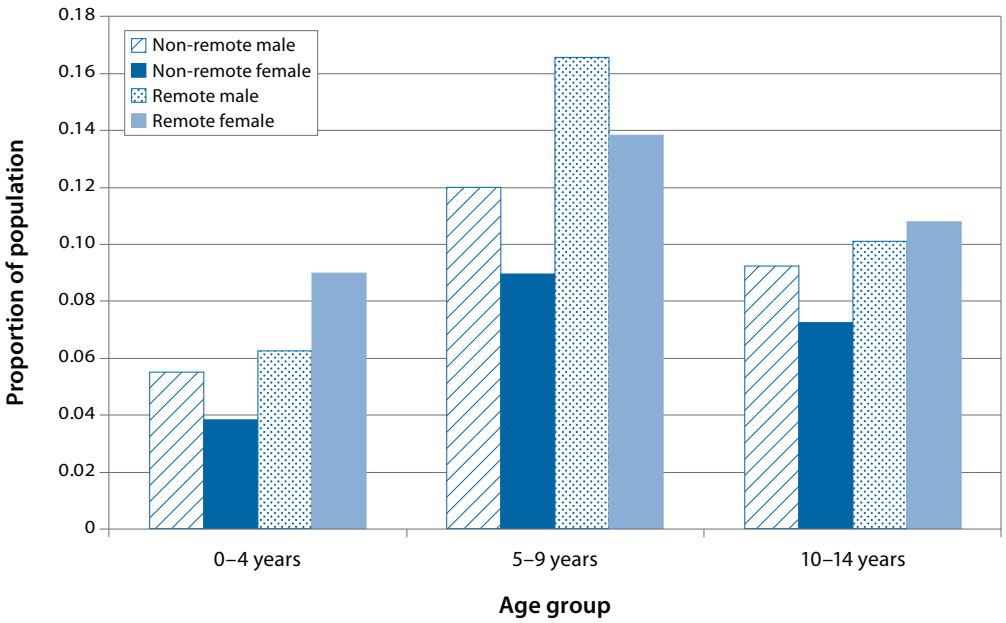
## Health conditions

In addition to this broad measure of child health, carers in the NATSISS were also asked whether the child had eye or sight problems; ear or hearing problems; or teeth and gum problems. With regards to the first of these, there was a very small prevalence of eye or sight problems amongst Indigenous children in the NATSISS (7.8%). This is slightly higher amongst females than males and is also higher in non-remote than remote areas. However, when asked what type of problem it was, the majority of children with such problems were either short-sighted or long-sighted, with only 1.3 per cent of children having an 'other' eye or sight problem. While most children would probably rather not have to wear glasses or contact lenses to correct for long or short-sightedness, these conditions are common amongst all children and relatively treatable.

Around 8.9 per cent of children had problems with their ears or hearing, with Fig. 2 showing that males in remote areas, particularly in the 5–9 year age group, were most likely to report problems. Hearing problems can have detrimental effects on child development, and amongst Indigenous children are often the result of recurring ear infections. Chronic ear infections and subsequent hearing loss are generally agreed to impair learning, speech and language development, and educational achievement (Steering Committee for the Review of Government Service Provision (SCRGSP) 2005: 5.2) . The National Aboriginal Community Controlled Health Organisation's *Ear Trial and School Attendance Project* (2003) found that school attendance rates were much lower for Indigenous children with chronic ear infections when compared with other children (SCRGSP 2005: 5.2).

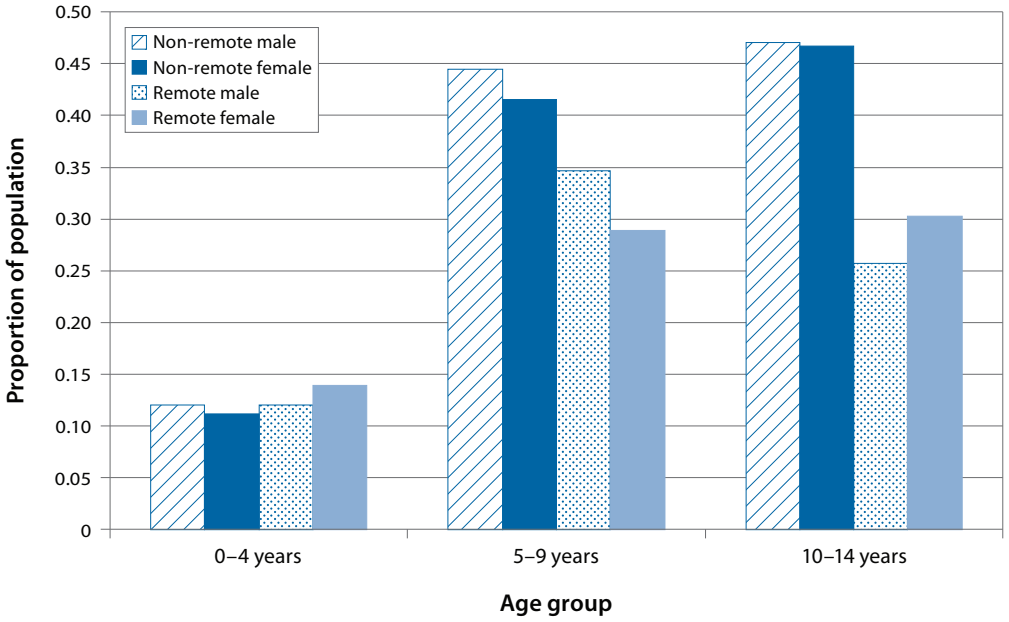
**SCRGSP:**
Steering Committee for the Review of Government Service Provision

## Fig. 2. Proportion of Indigenous children aged 1–14 years with ear or hearing problems, 2008; by age, sex and remoteness




**Source:** 2008 NATSISS.

## Fig. 3. Proportion of Indigenous children aged 1–14 years with teeth or gum problems, 2008; by age, sex and remoteness



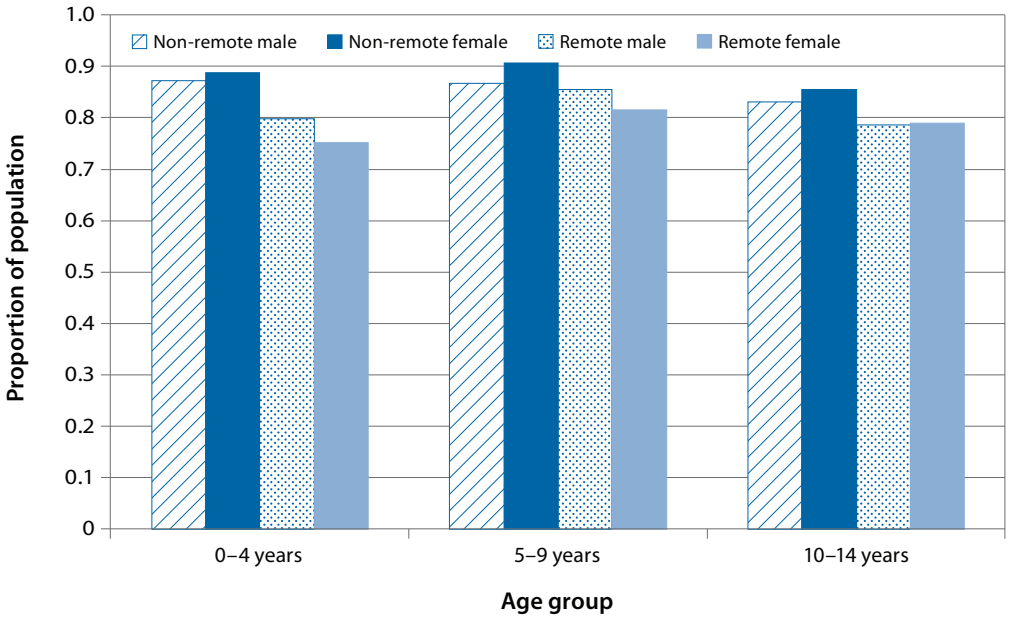

**Source:** 2008 NATSISS.

Compared to eye or ear problems, a much greater proportion of children in the NATSISS sample (around 31%) had teeth or gum problems. Children over five in non-remote areas, particularly males, were more likely to report teeth or gum issues. The change from a traditional diet to a western diet, high in sugar and carbohydrates, has been linked to the deterioration of oral health among Aboriginal people, particularly children and adolescents (Stuart-Fox 1999: 59). Slight variations in diet by remoteness may be driving this difference. The Longitudinal Study of Indigenous Children (FaHCSIA 2009), for example, found that children in remote areas consumed far fewer snacks (including chips, biscuits and lollies) than children living in cities (37% compared to 62%). It may also reflect under-reporting in remote areas due to a lack of health services.

Whatever the cause, oral health is important for early childhood development and growth. Indigenous children suffer from much higher rates of decayed or missing teeth than non-Indigenous children (SCRGSP 2009: 7.44). Tooth decay can cause pain when eating, speech and language impediments, exacerbate chronic disease, and generate negative psycho-social effects such as embarrassment and social isolation (SCRGSP 2009: 7.44).

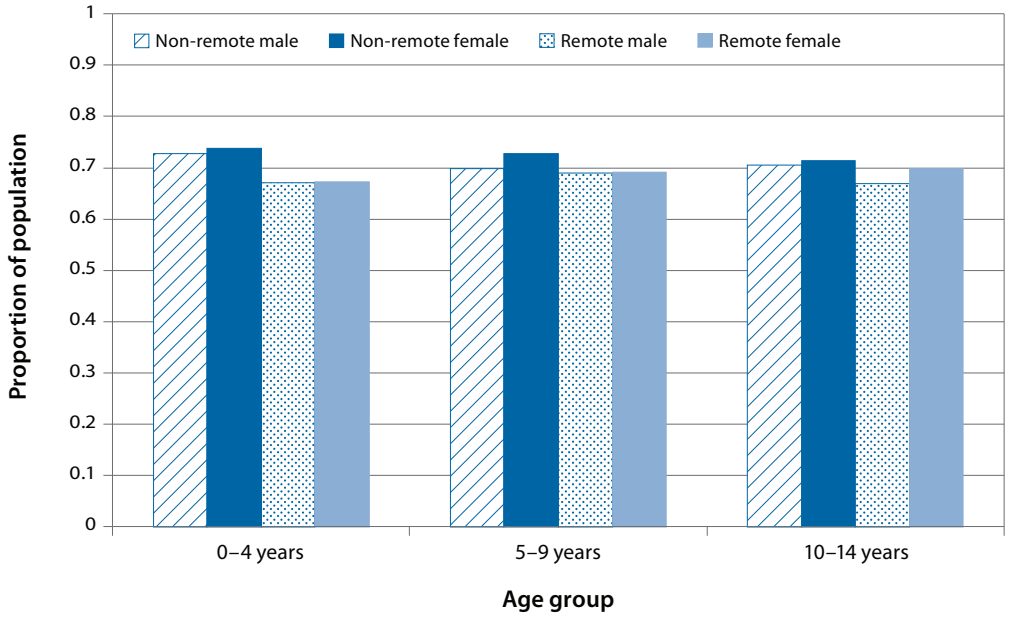
In addition to health outcomes, carers of children in the NATSISS sample were also asked about health behaviour and health risk factors. In the remainder of this section, we look at two aspects of this—diet and exercise. More than half of the NATSISS sample eats fruit everyday (57.5%), with a slightly smaller percentage eating vegetables every day (51.0%). A further 13.1 per cent and 19.3 per cent miss out on fruit or vegetables respectively only one or two days a week. Taken together, 57.0 per cent of Indigenous children in the NATSISS sample eat both fruit and vegetables five days or more per week. Figures 4 and 5 show that, based on this criterion at least, those in non-remote Australia have slightly healthier diets than those in remote Australia—perhaps reflecting the higher costs of fresh produce in many remote areas. However, this may be counterbalanced to a certain extent by a greater availability of fresh protein from hunting and fishing (Biddle 2011d).

## Fig. 4. Proportion of Indigenous children aged 1–14 years who usually eat fruit 5 days a week or more, 2008; by age, sex and remoteness




**Source:** 2008 NATSISS.

## Fig. 5. Proportion of Indigenous children aged 1–14 years who usually eat vegetables 5 days or more per week, 2008; by age, sex and remoteness

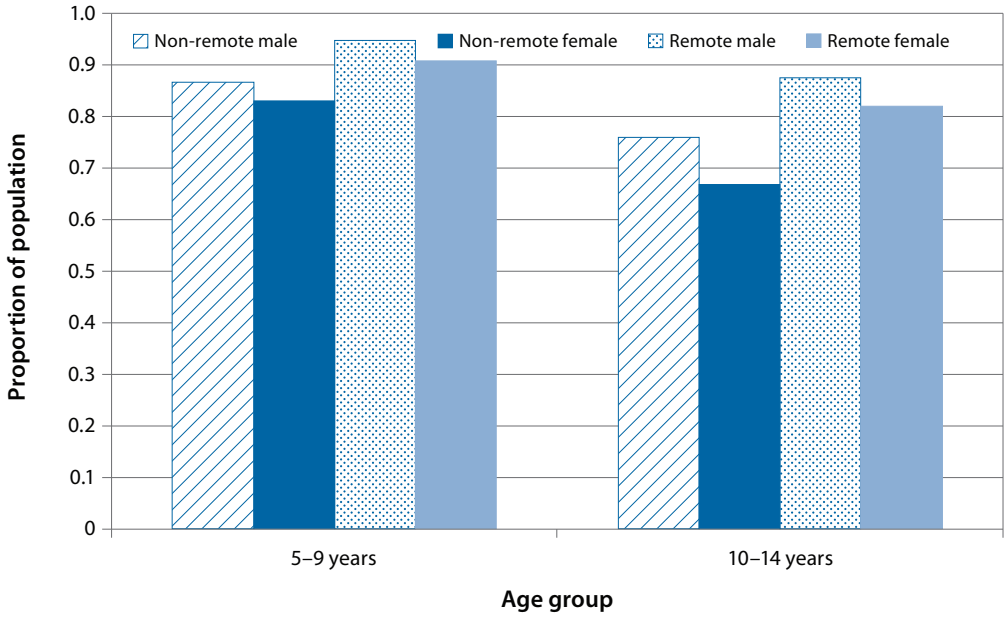



**Source:** 2008 NATSISS.

## Exercise

While those in remote areas were less likely to eat fresh fruit and vegetables on a regular basis than those in non-remote areas, data in the NATSISS would suggest that they are more likely to engage in physical exercise then their non-remote peers. Across the NATSISS sample, 82.5 per cent of children aged 4–14 years were physically active for at least 60 minutes for five or more days in the previous week. However, this rises to 90.0 per cent in remote areas compared to 78.8 per cent in non-remote areas. As documented in Fig. 6, there is a decrease in physical activity between the ages of 5–9 and 10–14, with males in all age groups and both geographical areas more likely to have met this criterion than females.

**Fig. 6. Percentage of Indigenous children aged 5–14 years who were physically active for at least 60 minutes 5 or more days per week, 2008; by age, sex and remoteness**




**Source:** 2008 NATSISS.

## Factors associated with Indigenous child health outcomes and health behaviour

Analysis in the previous section reveals variation in four aspects of Indigenous child health by age, gender and remoteness. Interestingly, these differences were not consistent across variables. For example, those in remote Australia were less likely to eat fresh fruit and vegetables five or more days per week than those in non-remote Australia. However, they were somewhat more likely to have been physically active for at least 60 minutes for five or more days in the same time period.

This suggests that there may be inherent differences between the childhood experience of those in remote and non-remote areas. Walter (2008: 1) argues that geographical place is central to the conditions and milieus in which those lives are lived. While the remote and non-remote categories are a relatively crude measure, it is an important distinction and one which drives much of Indigenous policy in Australia.

Many of the differences in health outcomes and health behaviour between those in remote and non-remote Australia, however, may be driven by other observed characteristics. For example, income levels are substantially higher in non-remote in comparison to those in remote Australia (Biddle 2009). One might ask, therefore, whether income is driving some of the observed differences in the previous section. That is, does a child in remote Australia who has the same income (and other characteristics) as a child in non-remote Australia still have observed differences in health outcomes and health behaviour?

Whether or not these differences still hold after controlling for observed characteristics has important policy implications. If the differences disappear, then one would be more likely to focus on those other observable characteristics when targeting government policy. However, if the differences remain or even widen, then this is prima facie evidence that there is something about the areas themselves which are driving the difference.

In order to test for the association between the health variables and observed characteristics, we undertook a series of econometrics regressions. The analysis in this and later sections focuses on positive aspects of health, with the four dependent variables in the analysis the probability of:

- The carer not identifying an aspect of the child's health that led to concerns about learning (labelled 'No health concern');

## Table 1. Factors associated with Indigenous child health outcomes and health behaviour

| Explanatory variables | No health concern | No conditions | Diet | Exercise |
|---|---|---|---|---|
| Female | 0.076*** | 0.020 | 0.035** | –0.058*** |
| Aged 0–4 | 0.091*** | 0.308*** | 0.004 | 0.057*** |
| Aged 10–14 | 0.000 | 0.015 | –0.041** | –0.113*** |
| Child stayed somewhere else overnight due to family crisis in previous 12 months | –0.158*** | –0.137*** | –0.061* | –0.056** |
| Lives in remote Australia | 0.048*** | 0.069*** | 0.030 | 0.046*** |
| Changed usual residence in the previous 5 years | –0.028* | –0.060*** | –0.021 | –0.025* |
| Lives in a single parent family | –0.032* | 0.011 | –0.016 | –0.051*** |
| Lives in a household with at least one non-Indigenous usual resident | –0.050** | 0.009 | 0.020 | –0.063*** |
| Carer is a grandparent | 0.017 | 0.051 | 0.132*** | 0.026 |
| Carer is neither parent or grandparent | –0.138*** | 0.068 | 0.048 | 0.052** |
| Carer aged 15–24 years | 0.035 | 0.040 | –0.039 | 0.017 |
| Carer aged 25–34 years | 0.003 | 0.003 | 0.043** | –0.008 |
| Carer aged 35+ | –0.026 | –0.011 | 0.014 | 0.034 |
| Carer is male | 0.047*** | 0.065*** | 0.008 | 0.013 |
| Carer is non-Indigenous | –0.063*** | –0.088*** | 0.032 | –0.002 |
| Carer speaks an Indigenous language | 0.002 | –0.001 | –0.039 | –0.085*** |
| Carer does not have a post-school qualification | 0.019 | 0.042** | –0.026 | 0.000 |
| Carer has completed Year 10 or 11 | 0.005 | 0.015 | –0.107*** | 0.026* |
| Carer has completed Year 9 or less | 0.013 | 0.008 | –0.111*** | 0.008 |
| Dwelling rented from private landlord | 0.007 | 0.009 | –0.004 | 0.028* |
| Dwelling rented from State/Territory authority | –0.010 | 0.019 | –0.037 | 0.026 |
| Dwelling rented from community organisation | –0.019 | –0.009 | –0.018 | 0.056*** |
| Lives in an 'other' tenure type | 0.085 | –0.148* | –0.085 | 0.047 |
| Additional child under 15 in household | 0.013** | 0.011 | 0.018** | 0.013** |
| Additional adult in the household | 0.007 | –0.002 | 0.004 | –0.003 |
| Dwelling does not meet the occupancy standard | 0.012 | 0.020 | –0.047** | 0.005 |
| Dwelling has major structural problems | –0.063*** | –0.060*** | 0.012 | 0.015 |
| Dwelling has facilities that are not working | –0.050** | –0.010 | 0.004 | 0.005 |
| Equivalised income of the household in the 1st decile | –0.018 | –0.010 | –0.018 | 0.041*** |
| Equivalised income of the household in the 2nd or 3rd decile | –0.027 | –0.014 | –0.020 | 0.010 |
| Equivalised income of the household in the 7th–10th decile | 0.008 | 0.011 | 0.062** | –0.020 |
| Predicted probability of the base case | 0.833 | 0.476 | 0.657 | 0.872 |
| Pseudo R-squared | 0.0902 | 0.0847 | 0.0268 | 0.0877 |
| Sample size | 3,987 | 3,969 | 3,973 | 2,052 |

**Source:** Customised calculations using the 2008 NATSISS.

**Note:** 'No health concern' refers to the carer not identifying an aspect of the child's health that led to concerns about learning; 'No conditions' refers to the child not having eye or sight problems, ear or hearing problems or teeth or gum problems; 'Diet' refers to the carer reporting that the child eats fruit and vegetables 5 or more days in the previous week; and 'Exercise' refers to the carer reporting that the child was physically active for at least 60 minutes 5 or more days in the previous week.

The base case individual for all estimations is: male; aged 5–9; did not stay overnight due to family crisis in previous 12 months; lives in non-remote Australia; did not change usual residence in the previous 5 years; lives in a couple family; has a carer aged 35–54 years who is a parent, female, Indigenous, does not speak an Indigenous language, has a post-school qualification and has completed Year 12; lives in an owner-occupied dwelling that meets the occupancy standard and does not have any structural problems or facilities missing; and lives in a household whose equivalised income is in the 4th-6th decile.

Marginal effects for which the coefficient is statistically significant at the 1% level of significance are labelled ***; those statistically significant at the 5% level of significance only are labelled **, whereas those statistically significant at the 10% level of significance only are labelled *.

- The child not having eye or sight problems (excluding long or short-sightedness), ear or hearing problems, or teeth or gum problems ('No conditions');
- The child eating fruit and vegetables five or more days in the previous week ('Diet'); and
- The child being physically active for at least 60 minutes five or more days in the previous week ('Exercise').

Positive aspects of child wellbeing have been selected throughout the analysis for consistency across variables and coherence with the notion of healthy child development, which involves positive exposures and behaviours that support development.

In addition to age, sex and remoteness, a range of independent variables were included in the regressions. This included whether or not the child stayed somewhere overnight due to a family crisis in the previous 12 months (as an indication of familial stress), mobility and characteristics of the child's family, carer and dwelling. Results are presented as marginal effects, or the difference in the predicted probability of the event occurring after changing that particular characteristic only. These marginal effects are based on comparisons with a child with a set of base case characteristics (given underneath Table 1). The way in which statistical significance is reported is also given underneath the table, with a greater number of asterisks identifying variables for which we can be more confident that the differences from the base case are not due to the particular sample.

Even after controlling for a range of other characteristics, demographic characteristics still appear to matter in explaining child health outcomes and health behaviour. Carers of Indigenous females are significantly more likely to report that they do not have a health concern about their child. They are also more likely to report that the child regularly ate fresh fruit and vegetables. However, they were less likely to report that the child undertook regular exercise. Age was also significant in a number of the regressions, with young children tending to have better health outcomes than older children. Furthermore, those in remote areas tended to have better reported outcomes than those in non-remote areas (apart from diet, where there was no significant difference).

Those children who experienced family crises in the previous 12 months were less likely to be reported by their carer to have good health outcomes or positive health behaviour. So too were those who changed usual residence in the previous five years. Both sets of results are an indication that family stress and household mobility can have negative impacts on child health.

Living in a single-parent family was associated with a lower probability of having undertaken regular physical exercise. Keeping in mind that income is being controlled for, this finding may be an indication of single parents having less time to provide the types of opportunities to engage in physical activity that couple families who share the parenting load are able to.

There are some differences in health outcomes by the characteristics of the carer. However, because it is the carer who is filling out the survey on behalf of the child, one must always keep in mind that these variables are particularly likely to pick up reporting biases. There were some differences in outcomes by the relationship of the carer to the child, with children whose main carer was their grandparent reported to be more likely to have a relatively healthy diet. The age of the carer, on the other hand, did not appear to have a large association. Children whose main carer was male were more likely to be reported to not have any health concerns or specific conditions. However, this may be driven by a greater reluctance of men in general to see health professionals (Bertakis et al. 2000) and hence be aware of the conditions that are there.

One of the more interesting findings from Table 1 is that non-Indigenous carers were less likely to report that they had no health concerns about the child and less likely to not report any of the specific conditions. There is likely to be a complex relationship between reporting bias and Indigenous status of the parent. However, when combined with the finding that having any non-Indigenous children in the household was associated with a lower probability of the child undertaking regular exercise, the results at the very least show that one should not assume that Indigenous children who live with non-Indigenous carers or adults will necessarily have better health outcomes.

One of more heavily researched aspects of child health is the potential positive association with parental education. There are potential direct effects of parental education through the ability of the parent to obtain health-related information and act upon it. There are also likely to be indirect effects through higher earnings. However, the observed correlation may also be spurious, in that adults who have higher levels of education may have achieved this education because of their own superior health outcomes (which is then passed on to their children). Indeed, careful studies that attempt to identify a causal relationship tend to find weak direct effects (Lindeboom, Llena-Nozal & van der Klaauw 2009). The only large association between parental education and child health outcomes found in Table 1 was with the child's reported diet. Those carers who had not completed Year 12 were significantly and substantially more likely to report that their child ate fruit and vegetables five or more days per week.

After controlling for overcrowding (which had a negative association with diet only), having an additional adult in the household was associated with better health outcomes for the child. As discussed in Biddle (2011a), Indigenous Australians have a preference for relatively large households. The results presented in Table 1 show that this may be having health benefits for the children, perhaps because more adults mean a greater number of people providing care and support for the child. Similar to the results presented in Biddle (2011a) for adults, having a home with major structural problems was associated with worse child health. Taken together, these two results imply that, in terms of childhood wellbeing, it is not the number of people in Indigenous household that is of concern (there may well be benefits) but rather the condition and quality of the housing stock that Indigenous children have access to.

The final set of variables included in the analysis is equivalised household income.[1] There is surprisingly little association between child health outcomes and household income. On the one hand, those children who live in households with relatively high (equivalised) income are more likely to be reported to eat fruit and vegetables on a regular basis. However, those children with the highest probability of undertaking regular physical exercise were those in the lowest income decile.

## Education and learning outcomes in the 2008 NATSISS

Based on previous analysis in this lecture series, education is likely to have economic benefits and social returns for Indigenous Australians. The fourth paper in this series (Biddle & Cameron 2011), for example, looked at the relationship between the educational attainment of Indigenous Australians and a range of wellbeing measures. In terms of economic wellbeing, the results showed that Indigenous Australians with relatively high levels of education were more likely to be employed, had higher incomes if they were employed, and were more likely to be able to raise $2,000 in the event of an emergency.

The analysis also highlighted a number of potentially high social returns to education. Those Indigenous Australians who had completed Year 10 or above were significantly more likely to report relatively frequent periods of happiness and less likely to report intense feelings of sadness. Furthermore, Indigenous Australians with high levels of education (including post-school qualifications) were more likely to report that they participated in Indigenous cultural events, ceremonies and organisations than those who left school early and/or did not undertake post-school

1. Equivalising income takes into account the fact that an additional person in the household costs less than the first because of the potential to share resources. NATSISS data uses the OECD equivalence scale which assumes an additional adult costs 0.5 times as much and an additional child costs 0.3 times as much as the first adult.

qualifications. Finally, for Indigenous females in particular, there was a strong association between mainstream education and a self-reported ability to have a say within the community on important issues.

Clearly, education has a strong association with a range of outcomes for Indigenous Australians. Reducing disparities in education participation and attainment between Indigenous and non-Indigenous Australians will go a long way towards reducing the gap in socioeconomic outcomes between the two populations and, perhaps more importantly, would probably lead to significant improvements in Indigenous wellbeing. However, Biddle and Cameron (2011) also found that the main determinant of differences in education attainment between Indigenous and non-Indigenous Australians was measured and self-assessed ability at the age of 15. The main implication of this finding was that early childhood experiences were the main cause of disparities in Indigenous and non-Indigenous education outcomes.

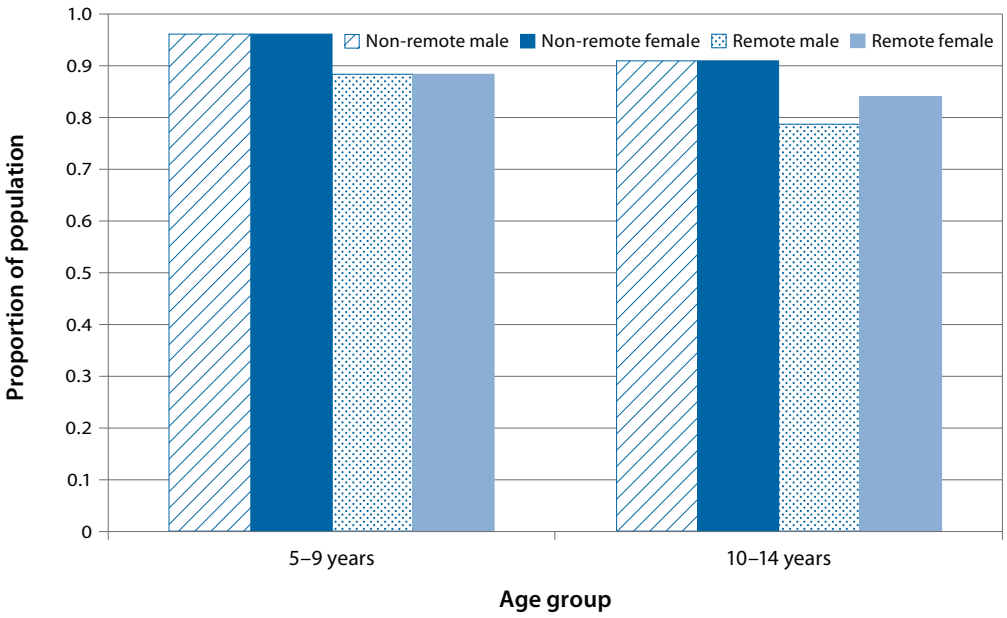
Unfortunately, the NATSISS does not have any retrospective information on early childhood education experience. One must assume that the ABS felt that such questions would be prone to recall bias, especially for those carers of older children in the sample who did not have caring responsibility when the child was younger. There is also no information in the 2008 NATSISS on school outcomes. On the one hand, this is understandable—it would be quite difficult to identify a consistent measure of school outcomes that is applicable to a wide age range and that reflects Indigenous aspirations. However, given the wide range of other subjective questions on the NATSISS, it might be worth considering asking the carer how they felt the child was doing at school. By allowing the carer to make the judgement about what 'doing well' entails, this would also take the focus away from test scores which only capture one aspect of the education experience.

### School attendance

One aspect of schooling that is captured in the NATSISS is school attendance. The Western Australian Aboriginal Child Health Survey has shown a direct relationship between the number of days absent from school and academic performance (Zubrick et al. 2006). According to results from the NATSISS, 67.4 per cent of students in non-remote areas did not miss any days of school in the previous week. This was actually lower than the rate of attendance in remote areas, where 75.5 per cent of students did not miss any days.

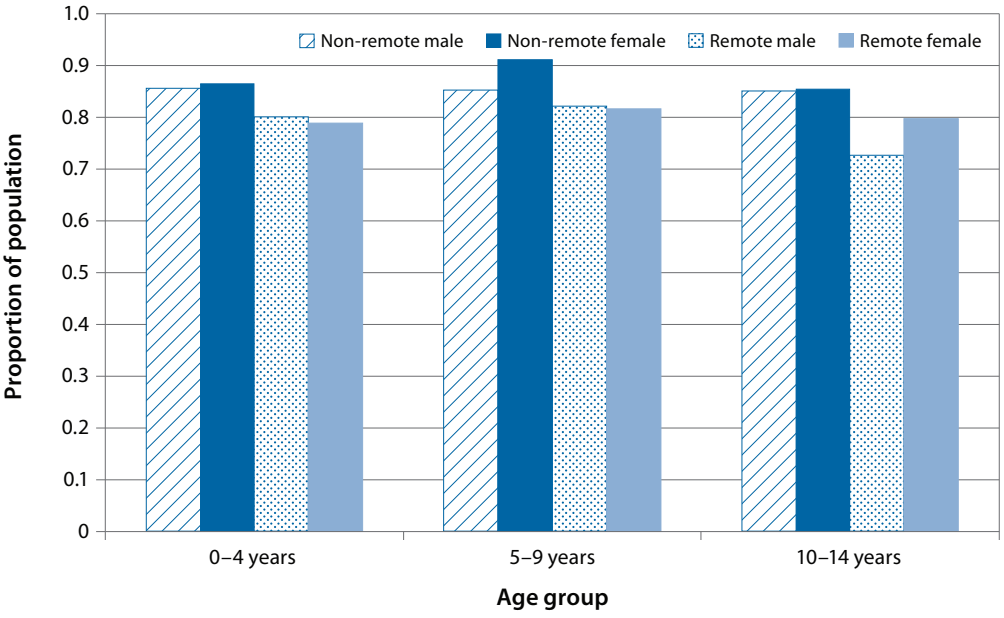
Reasons for children missing school are varied. The three specific reasons available in the NATSISS are: that the child had an illness or injury; that the school was not available or not open; and cultural commitments or sorry business. Whatever the reason, missing school is likely to have a disruptive effect on the child's progress.

## Fig. 7. Percentage of Indigenous children aged 5–14 years who did not miss school in the previous week, 2008; by age, sex and remoteness




**Source:** 2008 NATSISS.

## Fig. 8. Percentage of Indigenous children aged 2–14 years who spent more than an hour doing informal learning activities with carer last week, 2008; by age, sex and remoteness




**Source:** 2008 NATSISS.

A broad distinction can be made between children missing school with and without their parent's permission. The former is more likely to reflect health or family issues and the latter is likely to capture deviant behaviour on behalf of the child. Interestingly, this distinction has important ramifications for rates of attendance between children in non-remote and remote Australia. While overall rates of attendance are higher in non-remote settings, when looking at children who missed school without permission, attendance rates are higher in remote areas. This finding is inconsistent with research which suggests Indigenous children in remote areas have, on average, much lower rates of school attendance than Indigenous children in urban areas (SCRGSP 2009: 6.3).

## Informal learning

Although formal schooling is an important component of the education of Indigenous children, this is not the only way in which learning can take place. According to Coffield:

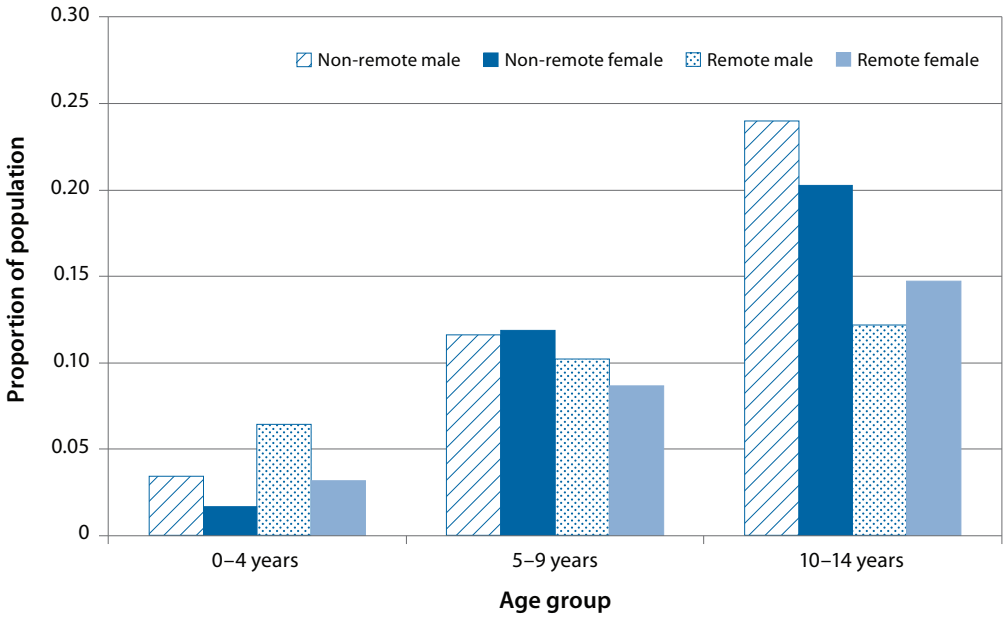
> ... if all learning were to be represented by an iceberg, then the section above the surface of the water would be sufficient to cover formal learning, but the submerged two thirds of the structure would be needed convey the much greater importance of informal learning (2000: 1).

Furthermore, informal learning is of particular importance for Indigenous children who attend school less than non-Indigenous children and whose cultural knowledge is not necessarily represented in formal institutions.

Informal learning can take on many forms and include learning from one's peers, one's siblings and the wider community. Of key importance though, especially at a young age, is learning from one's carer. The 2008 NATSISS shows that 84 per cent of children aged 2–14 years in the sample spent one hour or more doing informal learning activities with their carer in the previous week.[2] As shown in Fig. 8, children in non-remote areas, particularly females, were more likely to spend time with their carer doing informal learning activities.

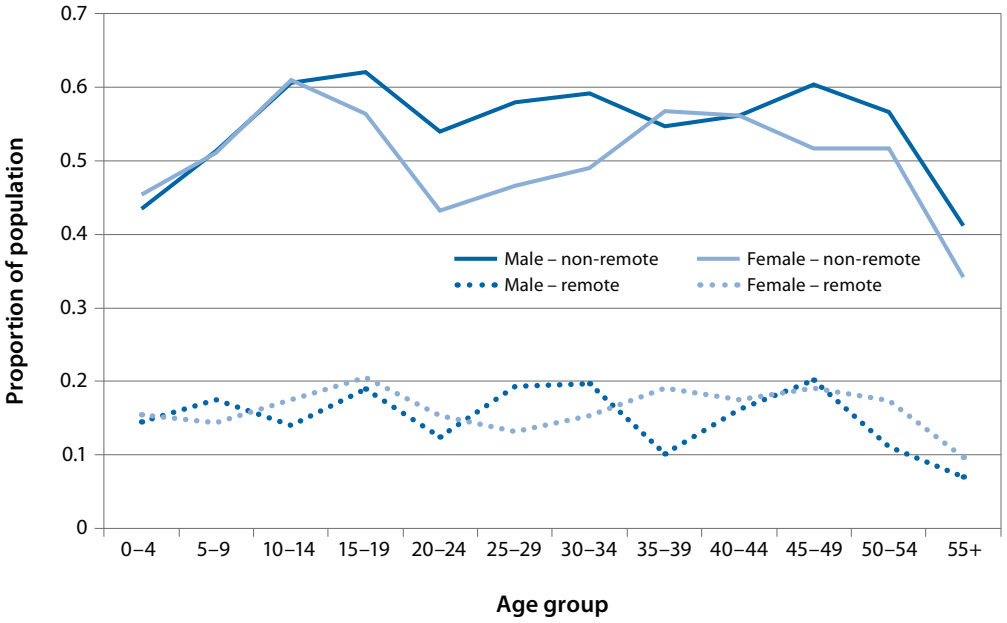
2. The types of informal activities included in the NATSISS are quite broad and include: 'Read from a book'; 'Told child a story'; 'Listened to child read'; 'Assisted with homework or other educational activities'; 'Spent time with child using a computer'; 'Watched TV, video or DVD'; 'Assisted with drawing, writing or other creative activities'; 'Played music, songs, dance or other musical activities'; 'Played a game or did sport together indoors or outdoors'; and 'Took part in or attended playgroup'.

## Fig. 9. Percentage of Indigenous students who were bullied or treated unfairly due to Indigenous status in previous 12 months, 2008; by age, sex and remoteness




**Source:** 2008 NATSISS.

## Fig. 10. Percentage of Indigenous Australians who used the internet in the previous 12 months, 2008; by age, sex and remoteness




**Source:** 2008 NATSISS.

### Bullying and unfair treatment

One reason why Indigenous children may be more likely to drop out of school early is the treatment they receive from peers and teachers due to their Indigenous status. According to the 2008 NATSISS, 14 per cent of Indigenous students had been bullied or treated unfairly at school because they were Indigenous. As shown in Fig. 9, the incidence of bullying increased with age. Amongst the older age groups, the bullying was higher among children in non-remote settings. It would appear that, in non-remote areas where the vast majority of students are non-Indigenous, children are more likely to experience bullying and be singled out as 'different' based on their Indigenous status.

### Internet

One way to overcome the distances between many Indigenous Australians and schools and other learning opportunities is through the internet. According to the NATSISS, 67.6 per cent of the sample aged 5–14 years had used the internet in the last 12 months. Of those children in the sample who did use the internet: 84.4 per cent used it at school; 56.0 per cent used it at home; 21.0 per cent used it at a neighbour's, friend's or relative's house; and 9.8 per cent used it at a public library. While access to the internet has the potential to reduce the impact of distance for remote Indigenous children, as of 2008 usage was still much higher amongst those in non-remote than remote Australia. This is demonstrated in Fig. 10, which not only shows differences between those in remote and non-remote Australia but also that, despite some fluctuation, usage of the internet stays reasonably consistent across the remainder of the lifecourse (at least up until the 55+ age group).

## Factors associated with education and learning outcomes

Building on the descriptive analysis of Indigenous child education and learning outcomes in the previous section, we now utilise a regression-style approach to explore the factors associated with Indigenous education and learning outcomes. The analysis presented in Table 2 focuses on four new dependent variables representing the probability of:

- the child not missing any school in the previous week (labelled 'No school missed');
- the child spending an hour or more per day in the previous week doing informal learning activities with the carer ('Carer learning');
- the child not having been bullied or treated unfairly at school ('Not bullied'); and

## Table 2. Factors associated with Indigenous education and learning outcomes

| Explanatory variables | No school missed | Carer learning | Not bullied | Internet |
|---|---|---|---|---|
| Female | 0.022 | 0.009 | 0.012 | –0.006 |
| Aged 0–4 | –0.017 | –0.015 | 0.003 | –0.036** |
| Aged 10–14 | –0.001 | –0.029*** | –0.059* | 0.021 |
| Child stayed somewhere else overnight due to family crisis in previous 12 months | –0.011 | –0.026 | –0.107*** | –0.031 |
| Lives in remote Australia | 0.062** | –0.021* | 0.064*** | –0.176*** |
| Changed usual residence in the previous 5 years | –0.023 | 0.031*** | –0.056*** | –0.053*** |
| Lives in a single parent family | 0.011 | –0.006 | 0.007 | 0.009 |
| Lives in a household with at least one non-Indigenous usual resident | 0.042 | 0.011 | 0.061** | 0.081*** |
| Carer is a grandparent | 0.061 | –0.027 | 0.034 | –0.042 |
| Carer is neither parent or grandparent | –0.016 | –0.021 | 0.012 | 0.017 |
| Carer aged 15–24 years | –0.088* | 0.023* | 0.080 | –0.105*** |
| Carer aged 25–34 years | –0.031 | –0.003 | 0.013 | –0.039*** |
| Carer aged 35+ | –0.091 | –0.036 | 0.001 | –0.071* |
| Carer is male | 0.055** | 0.018 | 0.058** | 0.010 |
| Carer is non-Indigenous | –0.071** | –0.002 | –0.025 | 0.002 |
| Carer speaks an Indigenous language | 0.127*** | –0.015 | 0.042 | –0.179*** |
| Carer does not have a post-school qualification | –0.003 | –0.023** | 0.005 | –0.058*** |
| Carer has completed Year 10 or 11 | –0.039 | –0.020* | 0.054*** | –0.105*** |
| Carer has completed Year 9 or less | –0.018 | –0.022* | 0.059** | –0.135*** |
| Dwelling rented from private landlord | –0.010 | –0.016 | –0.076*** | –0.026* |
| Dwelling rented from State/Territory authority | –0.029 | 0.004 | –0.106*** | –0.125*** |
| Dwelling rented from community organisation | –0.022 | 0.010 | –0.076* | –0.218*** |
| Lives in an 'other' tenure type | 0.072 | –0.018 | –0.054 | 0.093*** |
| Additional child under 15 in household | 0.008 | –0.005 | 0.025*** | 0.021*** |
| Additional adult in the household | –0.010 | 0.003 | 0.004 | 0.030*** |
| Dwelling does not meet the occupancy standard | –0.047* | –0.025** | –0.002 | –0.103*** |
| Dwelling has major structural problems | –0.035* | 0.014* | –0.044** | –0.017 |
| Dwelling has facilities that are not working | –0.006 | 0.001 | –0.056** | –0.085*** |
| Equivalised income of the household in the 1st decile | 0.039 | –0.030** | –0.019 | –0.199*** |
| Equivalised income of the household in the 2nd or 3rd decile | 0.013 | –0.018 | –0.016 | –0.131*** |
| Equivalised income of the household in the 7th–10th decile | 0.059 | 0.018 | –0.030 | 0.092*** |
| Attending primary school | 0.061** | | 0.044** | |
| Attending infants school | 0.047 | | 0.079** | |
| Attending preschool | 0.213*** | | 0.167*** | |
| Attending an 'other' school | –0.064 | | | |
| Predicted probability of the base case | 0.660 | 0.913 | 0.798 | 0.849 |
| Pseudo R-squared | 0.0330 | 0.0379 | 0.0887 | 0.3061 |
| Sample size | 2,976 | 4,256 | 2,856 | 4,272 |

**Source:** Customised calculations using the 2008 NATSISS.

**Note:** 'No school missed' refers to the child not missing any school in the previous week; 'Carer learning' refers to the child spending an hour or more per day in the previous week doing informal learning activities with the carer; 'Not bullied' refers to the child not having been bullied or treated unfairly at school; and 'Internet' refers to there being a computer in the child's household connected to the internet.

The base case individual for all estimations is: male; aged 5–9; did not stay overnight due to family crisis in previous 12 months; lives in non-remote Australia; did not change usual residence in previous 5 years; lives in a couple family; has a carer aged 35–54 years who is a parent, female, Indigenous, does not speak an Indigenous language, has a post-school qualification and has completed Year 12; lives in an owner-occupied dwelling that meets the occupancy standard and does not have any structural problems or facilities missing; and lives in a household whose equivalised income is in the 4th–6th decile. For the 'No school missed' and 'Not bullied' estimations, the base case is further defined as a student attending high school.

Marginal effects for which the coefficient is statistically significant at the 1% level of significance are labelled ***; those statistically significant at the 5% level of significance only are labelled **, whereas those statistically significant at the 10% level of significance only are labelled *.

- there being a computer in the child's household connected to the internet ('Internet').

The analysis focuses on whether or not children missed school (with or without permission), as absence for any reason is likely to be disruptive for learning. Furthermore, the internet variable used varies slightly from the previous section. While the focus in the previous section is on internet usage (which is influenced in part by choice), the focus in this analysis is on access to the internet at home. Although descriptive analysis revealed a high proportion of children access the internet at school, not being able to access the internet within the home may make it more difficult for some children to undertake the informal learning (and communication) that such technologies allow. Of course, not having access to the internet in the home may be a conscious choice made by parents and carers due to the perceived negative outcomes. However justifiable though, there are still likely to be trade-offs with this choice.

Looking at the first row of Table 2, there is no statistical difference between Indigenous boys and girls for any of the four aspects of education and learning analysed. The differences by gender in education outcomes for adults (documented in Yap & Biddle 2009) does not appear to be driven by the four variables from the 2008 NATSISS analysed in the table.

Analysis presented in Table 2 also confirms that those in remote areas were significantly and substantially more likely to have not missed school in the previous week compared to those in non-remote Australia. This contrasts with the analysis of administrative data which has shown that Indigenous children in remote areas have, on average, higher rates of school absenteeism than Indigenous children in urban areas and other Australian children (SCRGSP 2007: 6.9). However, analysis of NATSISS data shows that it is important to make distinctions between missing school with and without permission when making such judgements.

Those Indigenous children who changed usual residence in the previous five years were more likely to have spent time with their carer engaging in informal learning activities than those who had not moved. This may reflect the lack of other social networks for those that moved. However, those who changed usual residence were less likely to have not been bullied and less likely to have access to the internet in their home. Given the way the bullying and unfair treatment variable is defined—that is, across the school career rather than over a specific time period—the first of these results may be an indication of families moving to avoid situations where bullying has occurred. However, it may also be an indication of students with relatively high levels of mobility being less able to develop the types of social networks at school that would reduce the probability of bullying or unfair treatment occurring in the first place.

The relationship between the child and the carer did not have a significant association with any of the education and learning variables. However, the age of the carer did. Those whose carers who were aged 15–24 years were less likely to have not missed school in the previous week than those whose parent was aged 35–54 years. However, they were slightly more likely to have spent time with their child engaging in informal learning activities. Perhaps the biggest difference by age though is access to the internet within the home. Those carers who were under 35 years were less likely to report that there was internet available in the home than those who were aged 35–54 years. However, those carers who were aged 55 years and over also had a lower probability of having internet access at home than the base case. Thus, the relationship between the age of one's parents and education and learning outcomes is not always linear.

A low level of carer education was associated with a lower probability of engaging in informal learning activities with the child. It was also associated with a significant (and quite substantial) difference in internet access within the home. Keeping in mind that household income is controlled for in the model, these two results would appear to demonstrate a direct association with the education outcomes of Indigenous adults and non-school learning activities.

We began the previous section with a discussion of the potentially large benefits of education for Indigenous adults. Included in this were higher status within the community and a higher level of participation in Indigenous cultural events, ceremonies and organisations. Results presented in Table 2, however, illustrate that children with carers with low educational attainment (not having completed Year 12) were less likely to have been bullied or treated unfairly at school because they were Indigenous. This builds on the finding in Biddle (2011d) that Indigenous adults with relatively high levels of education were more likely to report that they were discriminated against. Results in Biddle (2011d) show that, perhaps because those with relatively high levels of education are much more likely to be engaged in the mainstream economy, one of the costs of education is a greater potential for discrimination. This suggests that there are potential intergenerational costs of education.

Living in a dwelling that was rented from a State/Territory housing authority or a community organisation was associated with a lower probability of having access to the internet. This may demonstrate the relative lack of control over one's dwelling that comes from living in such housing tenure types. Compared to this, having additional adults and children in the dwelling was associated with a higher probability of having access to the internet. There are often high fixed costs related to connecting a house to the internet. It would appear that having relatively large households enables some Indigenous Australians to spread these fixed costs over a

greater number of users. However, the final set of results for the internet variable shows that income still matters. Those children who live in households with relatively low levels of (equivalised) household income are much less likely to have access to the internet. It would appear that, at least in 2008 when the survey was carried out, there were still financial constraints for a number of Indigenous households in terms of accessing the internet.

## Language and cultural maintenance in the 2008 NATSISS

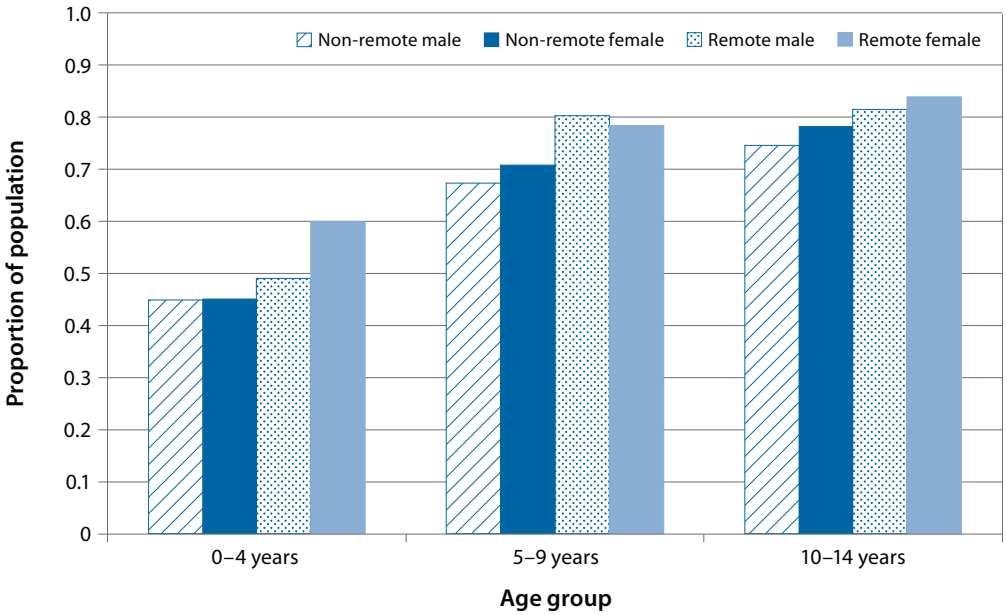
In a previous paper in this series (Biddle 2011d), the following definition of sustainability was given—'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (Brundtland 1987). While this notion of sustainability is usually applied to environmental issues, it could equally be applied to the sustainability of Indigenous language and culture. Children play an integral role in maintaining Indigenous language and culture into the future, just as language and culture play an integral role in supporting children through their development into the future.

Culture is generally seen as a positive force for child wellbeing, grounding them within a sense of community and providing a rich source of relationships, understandings and capacities for positive development (Robinson et al. 2008: xix).

Culture, Halloran (2004: 9) argues, provides meaning and value to life which protects people from basic anxieties and related effects and contributes to psychological stability. Similarly, cultural continuity has been identified as a protective factor for wellbeing. Dockery (2010: 330) argues continuity of traditional Indigenous culture provides a degree of protection against underlying causal factors including the loss of control, loss of meaning, feelings of helplessness, accumulated effects of past treatment and the alienation that arises from the loss of one's own culture and attempts to comply with a new and bewildering dominant culture.

In support of this, Chandler and Lalonde (1998) found cultural continuity to be a protective factor amongst First Nations communities in British Columbia. They demonstrated that suicidal behaviour among young people was dramatically lower in communities which had taken active steps to preserve and rehabilitate their own cultures, languages and traditional practices (Chandler & Lalonde 1998: 211). This highlights the importance of maintaining cultural beliefs and traditional practices that assist people, especially young people, to maintain their sense of personal continuity and cultural identity (Zubrick et al. 2010: 86).

**Fig. 11. Percentage of Indigenous students who were being taught Indigenous culture at school, 2008; by age, sex and remoteness**




**Source:** 2008 NATSISS.

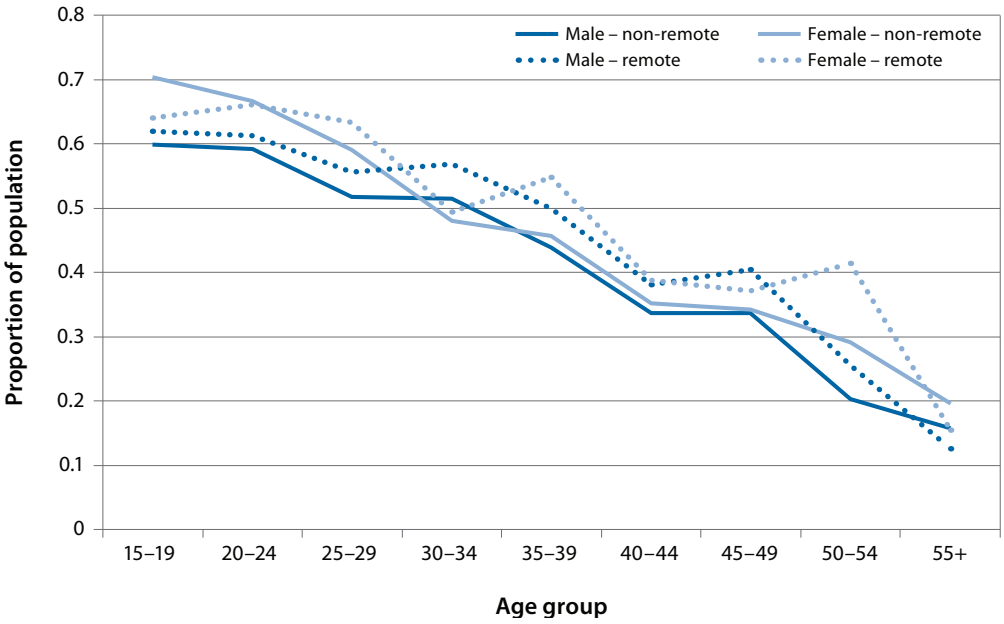
## Indigenous cultural education

Research in Australia indicates that Indigenous students demonstrate improved learning outcomes when the school environment reinforces their home culture (DEET 2005: 2). Education that reinforces the home culture plays an important role in supporting student self-identity, personal development, leadership capacity and learning processes (DEET 2005: 2). Qualitative research has shown that schooling which undermines traditional knowledge and authority is a source of individual and community stress which may lead to poor health outcomes (Bell, Boughton & Bartlett 2007: 43).

The 2008 NATSISS demonstrates a high level of involvement in cultural education, with 73.1 per cent of Indigenous students in the sample being taught Indigenous culture at school. This percentage is slightly higher in remote Australia (78.3%) than in non-remote Australia (70.6%). Fig. 11 also shows that the percentage of students who were taught about Indigenous culture at school rose as students progressed through the school system.

It is not only children in predominantly Indigenous areas who are involved in Indigenous cultural education. There are examples of children being taught Indigenous culture at school across a range of settings. Narrabundah Primary School

**Fig. 12. Percentage of Indigenous adults who were taught Indigenous culture at school or as part of further studies, 2008; by age, sex and remoteness**




**Source:** 2008 NATSISS.

in the south of Canberra, for example, has a Koori Classroom where students of all ages learn about Indigenous culture. The Koori Classroom is the centre of the school's Indigenous resources and has come to be used for regular classes every morning. Indigenous leaders are invited to take weekly workshops and Indigenous parents run activities such as painting, dancing and cooking (DEEWR 2011b).

The Cape York Aboriginal Academy in Queensland also contains an element of Indigenous cultural education in the school program. Morning lessons involve intense literacy and numeracy and in the afternoon children can choose from a variety of cultural activities (Koch 2009). The program has been rolled out in Aurukun, Hope Vale, Mossman Gorge and Coen with some improvements reported in school attendance and educational outcomes (Cape York Partnerships 2009).

While there are numerous examples of Indigenous cultural education in schools today, retrospective questions on the NATSISS reveal that contemporary rates of Indigenous cultural education represent a historical high.

Fig. 12 illustrates that the proportion of Indigenous Australians in the NATSISS who were taught Indigenous culture in school declines quite dramatically across the age distribution. Starting at around 60 to 70 per cent for those currently aged 15–19 years, less than half of the NATSISS sample aged 35–39 years who currently live in

non-remote areas reported that they were taught about Indigenous culture whilst at school. By the 55 plus age group, less than one in five Indigenous Australians reported that they were taught Indigenous culture at school.

### Indigenous language

Related to the transmission of Indigenous cultural knowledge, language is seen as a crucial factor in group identity and intergenerational continuity. It is widely recognised in Australian Aboriginal communities that language plays a critical role in the process of children's identity formation and their socialisation in a more general sense (Disbray & Wigglesworth 2008: 167). From this perspective, learning an Indigenous language may contribute to a child's identity and sense of belonging and provide an important link to their cultural heritage.

Feelings of empowerment as Indigenous children realise that words and phrases they have grown up with are legitimate and valued forms of knowledge may be a motivating factor behind children learning an Indigenous language (NSW Government 2010). Motivation may also stem from language as a source of identity and cultural knowledge. As Jeanie Bell, an Indigenous linguist from Hervey Bay explains:

> Once kids get to upper primary school they start asking questions about themselves and shaping their own identity, developing their own brand of culture and language. Many kids are very confused and unsure… they have a big blank in their cultural memory… they don't know who their mob is… their parents or grandparents may not have told them. There is a lot of healing of links and connections which have to be repaired and language ties all that together… it's a spiritual link (Aboriginal and Torres Strait Islander Commission (ATSIC) 2004: 36).

**ATSIC:** Aboriginal and Torres Strait Islander Commission

The mainstream literature demonstrates the importance of language acquisition to child development and wellbeing. Studies have shown that children use language to improve memory, guide perception, build number concepts, solve problems, discover social categories, and gain access to cultural values (Ball & Lewis 2004: 1). In mainstream research, language proficiency in childhood is the best predictor of future cognition (Ball & Lewis 2004: 1). Good speech and language functioning is also associated with physical health and wellbeing (Zubrick et al. 2010: 77).

There is little research, however, which reports on Indigenous Australian children's language acquisition. Disbray and Wigglesworth (2008) conducted a longitudinal study of language acquisition in Australian Aboriginal children in three communities: Tennant Creek, Kalkaringi and Yakanarra. This study forms part of

the larger Aboriginal Child Language Acquisition Project, completed in 2007, which examines the nature of the language addressed to children and children's language acquisition. The project focuses more on the shifting nature of Indigenous languages in Australia, however, than associated outcomes for the child.

There is evidence to suggest that Indigenous language is central to how children gain access to cultural knowledge and learn to participate and grow within their cultures (Ball & Lewis 2005: 8). In a Canadian study of First Nation children's language development, it was found that children need to know their heritage language to understand their identity and culture more deeply and for a positive self-esteem (Ball & Lewis 2005: 6). In support of the Canadian evidence, Aretha Briggs, who teaches Yorta Yorta at Warawa College says:

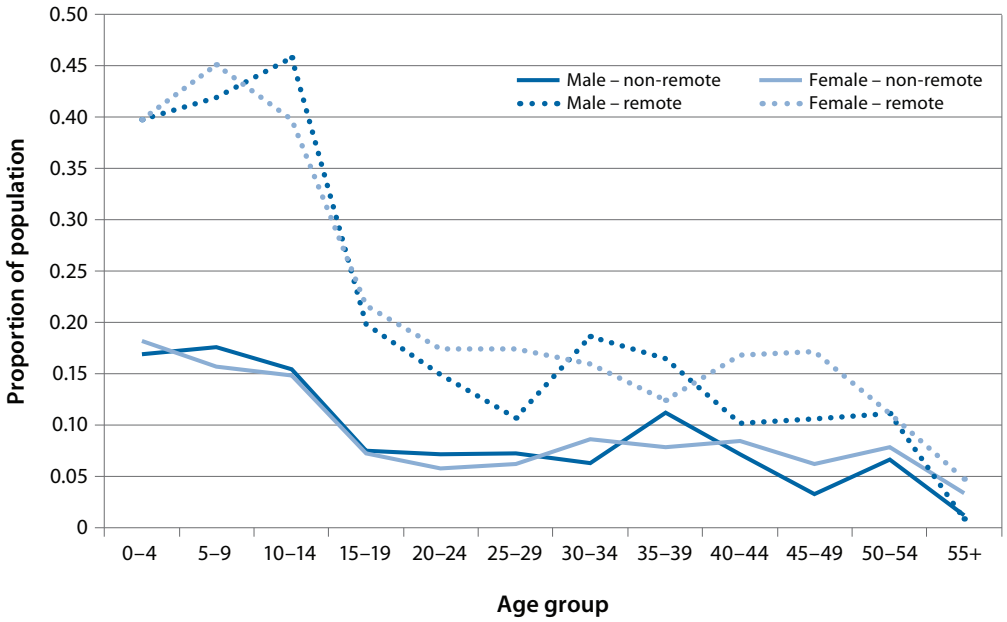
> I have been teaching language for over 20 years now. I have seen different ones [children] enter the classroom with shame and confusion about their Aboriginal identity. But they leave the classroom with their heads held high and with an understanding of what their elders have been through. The language has proved to be a healing medicine for these children and many of them have gone on to higher education studies (ATSIC 2004: 33).

In the National Indigenous Languages Survey it was found knowledge and use of Indigenous language generally declines with age from older to younger generations (Department of Communications, Information Technology and the Arts (DCITA) 2005). If there is no uptake of language by the younger generation, the language will be lost (DCITA 2005: 68). The 2008 NATSISS shows a similar pattern, with older age groups more likely to speak or understand an Indigenous language than younger age groups. For example, 19 and 20 per cent of children 3–14 years respectively spoke or understood an Indigenous language compared with 26 and 28 per cent of Indigenous people over 55 years. Given the importance of language to Indigenous culture and identity, this generates substantial concern. As, Neeyum, a Wik elder from Aurukun explains: "We have elders in the community who are crying because today's young people… they can't speak the language" (ATSIC 2004: 33). The proportion of Indigenous people learning an Indigenous language declined with age, from 23 per cent of those in the 3–14 year old bracket to 3 per cent of people 55 and over.

**DCITA:**
Department of Communications, Information Technology and the Arts

According to the 2008 NATSISS, 18 per cent of children 15 years and under spoke an Indigenous language, 19 per cent understood an Indigenous language and 22 per cent were learning an Indigenous language. There was little variation by gender, but children living in remote areas were substantially more likely to speak, understand and be learning an Indigenous language. In non-remote areas for example, 5 and 6 per cent of children respectively spoke and understood an Indigenous language compared with 43 and 45 per cent in remote areas. Similarly, 16 per cent of

**Fig. 13. Percentage of Indigenous Australians aged 3 years and over (whose main language is not an Indigenous language) who were learning an Indigenous language, 2008; by age, sex and remoteness**



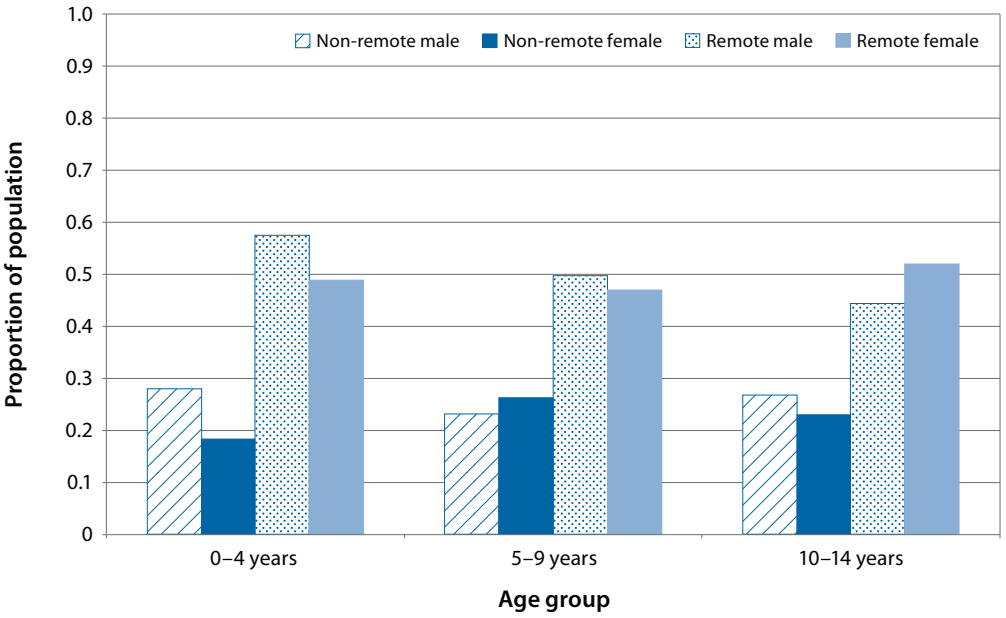

**Source:** 2008 NATSISS.

children in non-remote areas were learning an Indigenous language compared with 42 per cent in remote areas. Fig. 13 demonstrates that while existing rates of children learning an Indigenous language are lower than some would like, they represent a high point across all age distributions.

Although most States and Territories support some Indigenous language teaching in schools, it is largely up to individual schools whether they offer language programs. Language programs also vary greatly between schools, ranging from being a defining feature of all school activity to a one-off event each year (ATSIC 2004: 33). The Woolum Bellum School in the Latrobe Valley, Victoria is using a CD-ROM teaching resource for Ganai language as part of the school program for every class. The CD-ROM is based on the Bataluk Trail (a significant cultural trail in the area) and uses primarily oral and visual information, so it is accessible to all ages. Principal, Karen Cain, has observed children's confidence in using language grow and reports some students are showing increased self-esteem (DEEWR 2011a).

Children can also learn Indigenous languages in a family or community environment. For example, in the Aboriginal community of Coen in far north Queensland, for example, the 'Computer Culture Project' was developed in response to elders' concerns around children keeping their language strong. The community decided to train eight young people—one from each of the clan groups from the

**Fig. 14. Proportion of Indigenous children aged 3–14 years who spend one day a week or more with an Indigenous elder or leader, 2008; by age, sex and remoteness**




**Source:** 2008 NATSISS.

Coen sub-region—to use digital technology to preserve family histories and language (ATSIC 2004: 37).

## Spending time with Indigenous elders

Another way in which language and culture is passed down across generations is through children spending time with elders. At the community level, elders play an extremely important role as educators and role models (Walker 1993). Elders are highly respected keepers of knowledge—they know their people's stories, history, culture and language. This knowledge is passed on to younger generations though traditional language, traditional lore, understandings of totems, kinship ties, performance of dances, songs, stories, myths, legends, rituals, ceremonies and daily activities (Whap 2001: 22). Motivation for children spending time with elders is likely to be associated with their role as care providers, educators and highly respected community members, and may involve the transmission of traditional knowledge.

Spending time with Indigenous elders may also reflect intergenerational relationships of care, involving a social obligation to care for young people at a particular time in their development. Fietz (2008: 52) provides an example of this at Docker River. At Docker River, older female kin (particularly maternal grandmothers) occupy an

important position of care for adolescent girls. They are expected to be concerned for the health and wellbeing of their younger kinswoman, to support her emotional and spiritual development, and to facilitate the transmission of the knowledge she will need to become an adult (Fietz 2008: 52). The *tjamu*, 'grandfathers', also have special relationships of responsibility to care for young men. They are required to provide the necessary social resources and make the requisite ritual arrangements to ensure a complete transition into adult male life (Fietz 2008: 55).

The 2008 NATSISS reveals 33 per cent of children between 3–14 years spent a day a week or more with an Indigenous elder or leader. While there was little variation by gender, children in remote areas were more likely to spend time with an Indigenous elder: 49 per cent spent one day or more each week with an elder compared with only 25 per cent of children in non-remote areas. This is demonstrated in Fig. 14.

## Factors associated with Indigenous language and cultural maintenance

In the final set of analysis presented in this paper, we look at the factors associated with four aspects of Indigenous language and cultural maintenance. These are the probability of the child:

- currently learning an Indigenous language ('Learning language');
- participating in Indigenous cultural events, ceremonies or organisations in the previous 12 months ('Culture participation');
- being taught Indigenous culture at school ('Culture at school'); and
- spending at least a day a week with an Indigenous elder or leader ('Indigenous elder').

There were no statistically significant differences by sex for any of the four language and cultural maintenance variables. There were, however, large differences by age in terms of cultural participation and, even more so, learning about Indigenous culture at school. Those in remote areas have significantly higher probabilities for three out of the four dependent variables analysed in Table 3. It is heartening to note, however, that there were no differences by remoteness in terms of learning about Indigenous culture at school once other characteristics were controlled for.

Those children who live in a single-parent family were significantly less likely to participate in Indigenous cultural events, ceremonies and organisations. Such cultural participation clearly takes time, something which is in short supply for single parents.

## Table 3. Factors associated with Indigenous language and cultural maintenance

| Explanatory variables | Learning language | Culture participation | Culture at school | Indigenous elder |
|---|---|---|---|---|
| Female | –0.001 | 0.002 | 0.016 | –0.005 |
| Aged 0–4 | 0.009 | –0.173*** | –0.258*** | 0.022 |
| Aged 10–14 | –0.017 | 0.063*** | 0.082*** | –0.001 |
| Child stayed somewhere else overnight due to family crisis in previous 12 months | 0.041 | 0.057** | 0.097** | 0.064* |
| Lives in remote Australia | 0.167*** | 0.085*** | 0.007 | 0.091*** |
| Changed usual residence in the previous 5 years | 0.041*** | 0.008 | –0.021 | 0.015 |
| Lives in a single parent family | 0.006 | –0.050*** | –0.006 | –0.002 |
| Lives in a household with at least one non-Indigenous usual resident | –0.068*** | –0.166*** | –0.006 | –0.168*** |
| Carer is a grandparent | 0.002 | –0.049 | –0.037 | 0.004 |
| Carer is neither parent or grandparent | 0.036 | 0.033 | –0.017 | –0.069* |
| Carer aged 15–24 years | –0.044 | –0.084*** | –0.020 | –0.042 |
| Carer aged 25–34 years | 0.007 | –0.004 | 0.002 | –0.018 |
| Carer aged 35+ | –0.009 | 0.036 | 0.033 | 0.029 |
| Carer is male | 0.030 | –0.045** | –0.025 | –0.026 |
| Carer is non-Indigenous | 0.004 | 0.044** | 0.052* | 0.035 |
| Carer speaks an Indigenous language | 0.201*** | –0.038 | 0.186*** | 0.061* |
| Carer does not have a post-school qualification | –0.032** | –0.048*** | –0.027 | –0.014 |
| Carer has completed Year 10 or 11 | 0.010 | –0.043** | 0.027 | 0.011 |
| Carer has completed Year 9 or less | 0.002 | –0.055*** | 0.017 | –0.038 |
| Dwelling rented from private landlord | –0.029 | 0.001 | –0.021 | 0.041 |
| Dwelling rented from State/Territory authority | 0.030 | 0.029* | 0.068** | 0.057** |
| Dwelling rented from community organisation | 0.048* | 0.038* | 0.087** | 0.139*** |
| Lives in an 'other' tenure type | –0.023 | –0.071 | 0.075 | 0.147* |
| Additional child under 15 in household | 0.001 | 0.009 | –0.005 | 0.002 |
| Additional adult in the household | 0.007 | 0.015* | 0.001 | 0.032*** |
| Dwelling does not meet the occupancy standard | 0.012 | –0.016 | –0.021 | 0.006 |
| Dwelling has major structural problems | 0.041*** | 0.034*** | 0.013 | 0.026 |
| Dwelling has facilities that are not working | 0.021 | –0.054*** | 0.011 | 0.027 |
| Equivalised income of the household in the 1st decile | 0.008 | –0.060*** | –0.032 | –0.057** |
| Equivalised income of the household in the 2nd or 3rd decile | 0.009 | –0.020 | –0.010 | –0.072*** |
| Equivalised income of the household in the 7th–10th decile | 0.018 | 0.012 | 0.085** | –0.041 |
| Predicted probability of the base case | 0.154 | 0.826 | 0.677 | 0.340 |
| Pseudo R-squared | 0.0941 | 0.1020 | 0.0606 | 0.0840 |
| Sample size | 3,051 | 3,375 | 2,705 | 3,375 |

**Source:** Customised calculations using the 2008 NATSISS.

**Note:** 'Learning language' refers to the child currently learning an Indigenous language; 'Culture participation' refers to the child participating in Indigenous cultural events, ceremonies or organisations in the previous 12 months; 'Culture at school' refers to the child being taught Indigenous culture at school; and 'Indigenous elder' refers to the child spending at least a day a week with an Indigenous elder or leader.
The base case individual for all estimations is: male; aged 5–9; did not stay overnight due to family crisis in previous 12 months; lives in non-remote Australia; did not change usual residence in previous 5 years; lives in a couple family; has a carer aged 35–54 years who is a parent, female, Indigenous, does not speak an Indigenous language, has a post-school qualification and has completed Year 12; lives in an owner-occupied dwelling that meets the occupancy standard and does not have any structural problems or facilities missing; and lives in a household whose equivalised income is in the 4th–6th decile.

A number of the carer characteristics included in the 2008 NATSISS were also significantly associated with the language and cultural maintenance variables. Young carers were significantly less likely to report that their child participated in Indigenous cultural activities. The analysis presented in Biddle (2011b) did not find any significant difference by age amongst adults in terms of cultural participation. It would appear, however, that there are differences in cultural participation for children depending on the age of one's carer. The gender of one's carer also appears to affect cultural participation. In previous analysis presented in Biddle (2011b), adult males were found to be less likely to participate in Indigenous cultural events, ceremonies and organisations. Results presented in Table 3 illustrate that these lower rates of adult participation are mirrored in children's participation. One of the more surprising findings from Table 3 is that children of carers who are non-Indigenous are more likely to participate in Indigenous cultural activities and are also more likely to be taught Indigenous culture at school. It would clearly be more difficult for a non-Indigenous carer to pass on as much about Indigenous culture to their children as an Indigenous carer could. The results presented in Table 3 may provide some evidence that these carers compensate for this to a certain extent through school and other cultural activities.

We discussed earlier the potential social returns to education, with Indigenous adults with relatively high levels of education being significantly (and in many cases quite substantially) more likely to participate in Indigenous cultural events, ceremonies and organisations. Results presented in Biddle (2011b) also showed that adults with post-school qualifications are more likely to speak, understand or be learning an Indigenous language. The results presented in Table 3 show that these higher levels of participation and language maintenance are also present for the children of carers with relatively high levels of education.

It is difficult to interpret the housing tenure variables, as it is quite likely that children who live in families with greater cultural continuity are more likely to live in publically rented dwellings, rather than the causality running in the opposite direct. However, it is interesting to note that having controlled for tenure type and other housing variables, those children who live in households with a greater number of adults are more likely to have participated in Indigenous cultural activities and more likely to spend a day or more per week with an Indigenous elder. There appear to be a number of positive benefits for children from having additional adults in the household.

The final set of results presented in Table 3 demonstrate a significant income gradient for some of the cultural maintenance variables. Those children who lived in households with (equivalised) incomes in the first decile were less likely to have participated in Indigenous cultural events, ceremonies and organisations and also less likely to have spent time with Indigenous elders. There was also a negative association for the latter variable for those in the second and third decile. Finally, those who lived in households with incomes in the highest four deciles were significantly more likely to have been taught Indigenous culture at school. Relatively high household incomes appear to support Indigenous cultural maintenance amongst children.

## Summary and conclusions

Given the long-lasting effects of childhood on wellbeing across the lifecourse it is important to understand the distribution and determinants of a range of Indigenous child wellbeing indicators. Analysis of the 2008 NATSISS highlights the diversity of demographic, socioeconomic and cultural factors associated with Indigenous child wellbeing. Focusing on three broad dimensions of child wellbeing (health, education and learning, and language and cultural maintenance) the findings reveal child outcomes vary substantially across age, remoteness (and to a lesser extent gender), and are associated with characteristics of the child's carer and the dwelling in which they live.

Combining the dimensions of health, education and learning, language and cultural maintenance to present an overall picture of Indigenous child wellbeing not only reveals several prominent findings but highlights the complex relationship between demographic, carer and household characteristics and child wellbeing. A summary of findings is presented below.

### Demography and geography

While younger children (0–4 years) had better health outcomes and health behaviours, older children (10–14 years) had higher levels of cultural participation, were more likely to experience bullying and less likely to engage in informal learning activities with their carer. Living in remote Australia was associated with better child health and was positively associated with language and cultural maintenance. Children in remote settings were more likely to attend school and less likely to be bullied. On the other hand though, they were less likely to have internet access within the home. The sex of the child had little association with measures of wellbeing, apart from female children having slightly better diets and fewer health concerns.

### Carer characteristics

Having a non-Indigenous carer was associated with greater cultural participation and involvement in Indigenous cultural education, but was negatively associated with child health. Children with male carers were less likely to have health concerns or specific conditions, experience bullying or participate culturally. The education of one's carer was also an important explanatory variable. Those children whose carer had a lower level of education were less likely to regularly eat fruit and vegetables, were less likely to spend time with their carer engaged in informal learning activities, were less likely to have access to the internet in the household and were less likely to have participated in Indigenous cultural events, ceremonies and organisations. It appears that Indigenous education carries important intergenerational effects in terms of health, education and cultural maintenance. This is counterbalanced to a certain extent by the finding that those children whose carer had a relatively high level of education were reported to be more likely to have been bullied or treated unfairly.

### Household characteristics

Poor quality housing (including dwellings with major structural problems or facilities that don't work) was associated with poor child health, education and learning outcomes. Family stress was significantly associated with poor child health outcomes. Interestingly, there was little association between child health outcomes and household income. There was a significant income gradient, however, for language and cultural maintenance variables. Mobility was associated with poorer health outcomes, an increased likelihood of bullying and a decreased probability of having internet access within the home. However, children who were more mobile were more likely to engage in informal learning activities with their carer and be learning an Indigenous language. Living in a household with at least one non-Indigenous usual resident was negatively associated with child health, language and cultural maintenance. However, it increased the probability of having internet access within the home and decreased the probability of experiencing bullying. Finally, having an additional adult in the household was positive associated with child wellbeing—these children were more likely to exercise regularly, have the internet at home, spend time with an Indigenous elder and participate culturally. Furthermore, having an additional child in the household decreased the probability of having health concerns or experiencing bullying, and increased the probability of having access to the internet at home.

Despite complexities, Indigenous child wellbeing deserves considerable attention from policymakers. Childhood experiences and exposures are likely to be key determinants of wellbeing later in life. Nurturing children in their early years is therefore vital to overcoming the worst effects of disadvantage. A 'human development through early child development' policy approach is promoted by international agencies such as UNICEF and the World Bank (Shepherd & Zubrick 2011). In the Australian context, policies are increasingly aimed at the child's future capacity to participate in the market economy with reduced cost to the productive state (Robinson et al. 2008: xix). In light of this, the challenge for policymakers is to recognise the factors which influence Indigenous child development, tailor universal provisions such as health and education to suit the needs of Indigenous children, and provide additional support for those factors that are unique to Indigenous child development such as language and cultural maintenance.

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