



MINISTRY OF EDUCATION

*Te Tāhuhu o te Mātauranga*

# Social and economic indicators of education

This report forms part of a series called Beyond tertiary study. Other topics covered by the series include how graduates' earnings change over time, labour market outcomes, education and economic growth, and qualifications and income.

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# Social and economic indicators of education

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# 1 SUMMARY

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## KEY POINTS

This report presents new information from the 2008 New Zealand General Social Survey on how different levels of education are associated with a range of social and economic indicators. It finds that for New Zealanders aged 25 to 64:

Education was positively associated with:

- Higher income (strongly) and rates of employment (moderately)
- Higher economic standard of living (moderately)
- How healthy you think you are, and not being a smoker (both strongly)
- Higher tolerance of immigrants, different values, ways of living, and ethnic diversity (moderately to strongly)
- Volunteering (moderately)
- Whether you voted (moderately for NZ-born only)
- Whether you lived in a household that recycles (moderately)
- Overall satisfaction with life (weakly to moderately)
- Less feelings of depression (weakly)

Education did not in the main appear to be associated with:

- Overall mental health
  - Job satisfaction
  - National identity (for NZ-born adults, but weakly negative for non-NZ-born)
  - Feelings of isolation (for NZ-born, weakly negative for non-NZ-born)
  - Whether you'd seen family or friends in the last 4 weeks (for NZ-born, but strongly negative for non-NZ-born)
  - Whether you lived in a household that did things to save energy or water
  - Being a victim of crime or in a traffic accident.
- 
- Many of the wider benefits associated with having a tertiary qualification remained after adjusting for the effects of income, age, gender, and whether people born in NZ or not.
  - Low-level (level 1 to 3) post-secondary qualifications are likely to convey some benefits relative to not having a qualification, but fewer benefits than upper-secondary qualifications.
  - There were some economic and social benefits for those with year 11 school qualifications who stay on to complete year 12 or 13 school qualifications.
  - Adults without qualifications face significant disadvantage across many non-economic indicators, as well as across indicators such as employment and income.

## Background and Purpose

The report makes use of new information from the first New Zealand General Social Survey (NZGSS) to look at how different levels of education are associated with a range of different economic and social indicators. The NZGSS was conducted for the first time between April 2008 and March 2009 and surveyed over 8,700 New Zealanders aged 15 and over. The results in this report are based on some 6,400 adults, representing the population of nearly 2.4 million New Zealanders aged between 25 and 64.

While it is accepted that people without a secondary education qualification are disadvantaged economically, this report looks at the impact a lack of secondary qualifications has on other aspects of life. It also explores what differences there might be between those who leave with just one-year upper secondary qualifications, and those who have higher-level school qualifications. This report also provides further information on the question of the benefits or otherwise of low-level post-secondary qualifications. Finally, for those with higher-level tertiary qualifications the report explores the extent to which personal and social benefits remain after you adjust for higher employment and earnings.

This report adds to a growing information base on the social and personal benefits of education. While the direct contribution of education to these benefits is not established, this growing information base provides suggestive evidence of significant non-financial benefits associated with further education. Apart from improved intrinsic social benefits associated with higher levels of education, there may be indirect financial benefits, both private and public, such as those implied by the relationship between education and not smoking. Increasing the evidence base on the intrinsic and financial benefits of education, over and above employment and income, will assist individuals and societies in their education investment decisions.

The report is descriptive in nature, and does not, in general, explore underlying factors, causal directions or the existing literature in depth. Instead, it aims to tap into the rich new information collected in New Zealand's first General Social Survey to provide a picture of how education is associated with 30 selected social and economic indicators. In particular, it focuses on social indicators for which there has been little information in the past. Mechanisms and causal directions between education and these outcomes are matters for further research. While education may be a factor leading to improved outcomes in some areas, in other areas it may be the poorer outcome that is acting as a barrier to further education.

Care is needed, therefore, when making inferences from these results. While this report shows a common pattern of positive increases with education, sample errors in some cases were such that we can not draw conclusive inferences about whether the differences observed do in fact represent 'real' differences in the population. It is also important to consider that for many indicators, factors other than education may well explain more of the observed difference. Age, gender, income and immigrant status are a few that are discussed in this report.

## **Education levels**

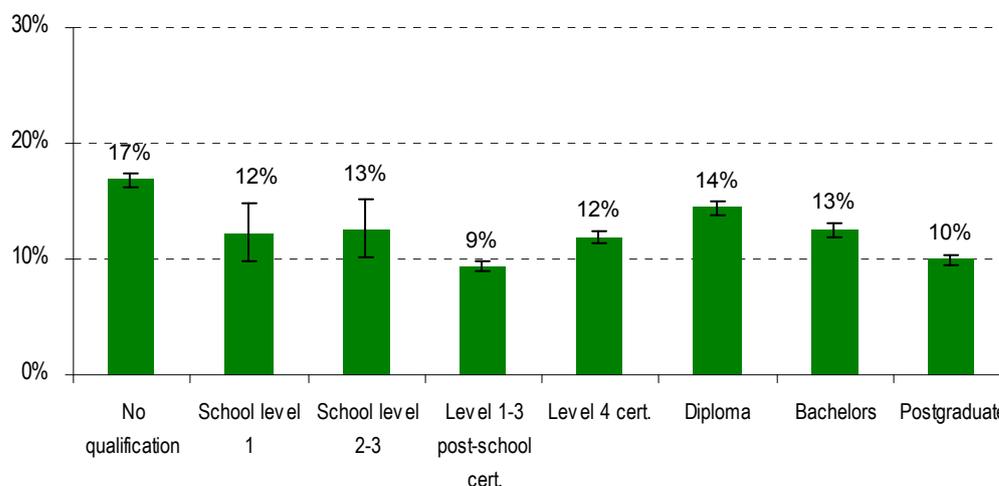
Indicators are examined across eight levels of highest qualification attainment. Figure 1 shows the distribution of 25 to 64 year-olds in the NZGSS by these education levels.

Of the 30 indicators examined, most followed a similar pattern of association with these education levels. Those with no qualifications had significantly lower results. Those with level 1 to 3 post-school certificates also had lower results, which were often worse than those with school-level qualifications. Those with level 2 or 3 (ie year 12 or 13) equivalent school qualifications as their highest level of education often had better outcomes than those with qualifications from just one year of upper secondary. Those with level 4 certificates had mixed results. Among the older people with level 4 certificates especially, the results often sat between those for adults with level 1 school qualifications and those for adults with higher level upper secondary qualifications. Indicator results for those with diplomas were usually better than the results for those with just school qualifications. These differences were often more significantly higher for those with bachelors degrees, and higher again for those with postgraduate qualifications.

However, the size of the effects varied considerably. Not all differences were significant, either statistically or materially, and some indicators followed this pattern only partially or not at all.

Results were sometimes moderated by other factors such as age, income and whether you were born in New Zealand or not.

**Figure 1: Percentage of 25 to 64-year-olds in the NZGSS by highest level of education attainment**



Error bars show 95% confidence intervals.

### Adults with no qualifications

The most material differences were for those with no qualifications. This group made up 17% of 25 to 64 year-olds (from 10% of 25 to 39 year-olds to 27% of 55 to 64-year-olds). While it is accepted that people without a secondary education qualification are disadvantaged economically, the NZGSS data provides some new estimates of the scale of disadvantage, and for some lesser-known outcome areas.

For example, compared to those with even just a level 1-equivalent school qualification, those with no qualifications were 23% less likely to rate their health as very good or excellent. They were 19% less likely to be employed in 2008, and the median household income for this group was 17% lower. They were 25% less likely to have a good or very good economic standard of living (as measured by the Economic Living Standard Index, or ELSI), and nearly 30% less likely to rate their standard of living as high. They were 16% less likely to volunteer and 12% more likely to smoke. However, they were only 3% less likely to vote than those with one year upper secondary qualifications.

They were 16% less likely to agree that it was good for NZ to have immigrants from different cultures, and 10% less likely to agree that it was good for NZ to be made up of different ethnic groups.

In other cases, having no qualifications did not appear to be associated with adverse outcomes – for example, mental health, job satisfaction and national identity. In a few cases, there was a hint that having no qualifications may have even been associated with a possible advantage. This included the likelihood of not being a victim of crime in the last 12 months, or having done things to save energy or water.

### School-level qualifications

There was strong evidence to support the benefits of staying on an extra year at school.

For 10 of the 30 indicators in this report, those with a level 1 or equivalent upper secondary qualification had moderately to significantly lower results than those whose highest

qualification came from two or more years of upper secondary. People with a level 1 school qualification were 12% more likely to smoke than those with a higher-level school qualification and they rated their health 10% worse. Personal income was 14% lower, household income was 10% lower and they were 12% less likely to rate their standard of living highly. They were 19% less likely to volunteer and 6% less likely to have voted. Differences in age, gender, income and immigrant status did not completely account for these effects.

However, in many other areas, there was no significant difference; including employment rate, economic standard of living, overall life satisfaction, social contact, mental health, national identity and environmental practices.

Around 12% of all 25 to 64-year-olds had a level 1 or equivalent upper secondary qualification as their highest education. New Zealanders are more likely to return to year 12 or 13 than they were in the past. For example, 14% of 25 to 39-year-olds have level 2 or 3 school qualifications compared with 10% of 55 to 64-year-olds. Even though it is more common now to return to year 12, New Zealand still has a much higher proportion of people who leave after one year of upper secondary than other OECD countries (OECD, 2009, Table A2.1).

### **Low-level post-secondary education**

About 9% of adults aged 25 to 64 had a post-secondary certificate at level 1 to 3 as their highest qualification. While level 1 to 3 post-school certificates are at the same educational level as school level 1 to 3 qualifications, results for the majority of social and economic indicators for this group were worse than the results for those with any level of upper secondary qualification. However, results for this group were better than those of the group with no qualifications.

Compared with those with level 2 or 3 school qualifications, the group with a level 1 to 3 post-secondary certificate as their highest qualification were 4% less likely to be employed, their median personal income was 15% lower and their median household income was 12% lower. Their standard of living was around 13% lower. They were 13% less likely to rate their health highly, 8% more likely to smoke, 6% more likely to have feelings of isolation, and 9% less tolerant of immigrants. Mental health, ethnic diversity, and likelihood of having a partner were also lower, but these differences were not statistically significant.

However, there was no difference in likelihood of voting or volunteering between the two groups. There was also no difference in levels of national identity, social contact, or having been a victim of crime or in a traffic accident in the last 12 months.

Those who undertake level 1 to 3 post-secondary study are often those who did not engage at school, and who left with no school qualifications. The type of study often acts as an alternative pathway back into education and better employment, and has an important role in providing a bridge into higher tertiary qualifications. There are, therefore, likely to be factors characteristic of this group, other than education, that are influencing their poorer results relative to the school group. The positive results relative to the group with no qualifications, however, suggest there are benefits from this type of education, even if the person doesn't use the level 1 to 3 qualification as a means of progressing to higher-level education.

### **Tertiary certificates and diplomas**

About 12% of adults aged 25 to 64 in the NZGSS had a level 4 certificate as their highest level of qualification, while a further 14% had a diploma. Level 4 represents a basic vocational or trade education at a level beyond school, generally recognised by a certificate gained after one year's study. Diplomas represent a more advanced vocational qualification usually requiring at least two years' study.

While the level 4 group had an even distribution of ages, the diploma group had a slightly higher proportion of older adults than other levels of qualification. The level 4 certificate group, however, was distinctly more male than other groups. Around 76% of this group were male, compared with 41% for the diploma group, and between 40% and 50% for other levels. Not only was this group over-represented by men, but the results for women with level 4 certificates were often significantly worse than those of men with level 4 certificates. Results for this group were significantly moderated by these gender differences. In part, the gender imbalance reflects the fact that many trade qualifications are at level 4, and men are overrepresented in trades.

Outcomes for those with level 4 tertiary certificates were better than for those with level 1 to 3 post-secondary certificates but were otherwise mixed, generally sitting in between the results for those with level 1 school qualifications and those with higher level upper secondary qualifications. Many of those with level 4 qualifications have left school after just one year of upper secondary or less. In a similar way to those with level 1 to 3 post-secondary qualifications, this selection effect is important to consider when making inferences about the benefits of level 4 study.

There is also a difference on some indicators between older and younger people who held level 4 certificates. Outcomes tended to be better for younger people, reflecting differences in how the qualifications system has evolved.

Men with level 4 certificates were employed at a similar rate to men with level 1 or higher school qualifications. However, women with level 4 certificates were employed at a similar rate to women with level 1 to 3 certificates, about 7% lower than that of women with school qualifications. Personal incomes for men and women with a level 4 certificate were slightly above those with level 1 school qualifications, but slightly below those with higher level school qualifications.

Comparison of the standard of living indicators between men with level 4 certificates and men with either level 1 or level 2-3 school qualifications was mixed. However, results for women with level 4 certificates consistently showed significantly lower standard of living ratings than those of women with any level of upper secondary qualification.

The health status of men with level 4 certificates sat between those of men with level 1 and level 2-3 school qualifications, while the health status of women with level 4 certificates generally sat below that of women with school qualifications. A similar pattern was observed for rates of smoking, and rates of volunteering. Social tolerance indicator results for men with level 4 certificates were lower than those of men with any level of upper secondary qualification. Social tolerance indicator results for women with level 4 certificates generally sat between those of women with level 1 and women with level 2-3 school qualifications. No significant differences were observed for the indicators on mental health, national identity, social contact and environmental practices, and overall life satisfaction.

Results for the group with diplomas were generally better than those of the school groups and below those of the bachelors group. They were 7% more likely to be employed than those with school qualifications, and median personal incomes were 9% higher. Their economic standard of living was 9% higher (as measured by ELSI) and 12% higher in terms of their own self-rated responses. They were 7% less likely to smoke, although on other measures of physical and mental health status there was less difference from the schools group. They were 10% more likely to volunteer and 5% more likely to vote.

However, there was no difference between the diploma group and the schools groups on the indicators measuring social tolerance, national identity, social contact, environmental practices and overall life satisfaction.

## **Bachelors and postgraduate qualifications**

Those with a bachelors degree or higher qualification made up 23% of 25 to 64-year-olds. Of these, 10% had a postgraduate level qualification. This group was more likely to be younger (44% of this group were aged 25 to 39), but there was no gender difference at either bachelors or postgraduate level. Significantly over-represented in this group were overseas-born adults. Some 40% of bachelors and 46% of postgraduate-educated adults in NZ were born overseas, compared with 26% overall. This moderated the results for several indicators.

In the main, adults with degree and postgraduate qualifications had better outcomes. Compared to those with level 2 or 3 upper secondary qualifications, those with bachelors degrees had 29% higher personal income and 22% higher household income. They were 7% more likely to be employed in 2008. They were 17% more likely to have a good or very good standard of living (as measured by ELSI), and they were 19% more likely to rate their standard of living highly. They were 18% more likely to volunteer and 6% less likely to feel depressed.

They were 7% more likely to rate their health as very good or excellent and 9% less likely to smoke. They were 15% more tolerant of immigrants and 5% more tolerant of ethnic diversity. They were 10% more likely to recycle.

For a few indicators, there appeared to be no difference, or the difference was small and not statistically significant when compared to those with upper secondary qualifications. Degree-educated adults had the same overall life satisfaction, mental health score, and likelihood to vote as those with upper secondary education as their highest qualification. Their satisfaction with their standard of living was the same, despite their higher household income.

For most indicators, a postgraduate education improved results further. While not all the increases were statistically significant when compared with the bachelors results, they were all generally higher. The employment rate for those with postgraduate qualifications was 3% higher than that of bachelors and 8% higher than the schools group. Their median household income was 18% higher than that of the bachelors group, and 44% higher than that of the schools group. They were significantly more likely to have a good or very good standard of living. All of the tolerance indicators increased significantly. They were 6% more likely to volunteer than the bachelors group. They were the only group to show a statistically significant higher level of satisfaction with their life compared with other levels.

Three indicators were particularly affected by the higher representation of overseas-born people among degree-educated adults. When NZ and overseas-born were included together there was a moderately strong negative relationship with education for the indicators on national identity (how strongly you feel you belong to NZ) and social contact (whether you had seen family or friends in the last four weeks). When analysed separately, this association disappeared for NZ-born. Similarly, there was a moderately strong association between education and voting for NZ-born, which reduced significantly when overseas-born were included.

## **Conclusion**

These results from the NZGSS support previous research on the benefits of education on employment, income and living standards, and self assessed health status. They also suggest that views on tolerance are moderately to strongly associated with education. They suggest no, or only weak, links between education and mental health, and a slightly stronger link to less feelings of depression. They show that higher-educated people are more likely to volunteer, to vote, and to recycle, but only slightly more likely to be satisfied with their lives. The results also show, however, that education does not appear to make much difference to national identity, social contacts, and how satisfied you are with your job.

## 2 INTRODUCTION

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### **Purpose**

The aim of this report is to present new information from the first New Zealand General Social Survey (NZGSS) on the relationship between education and a range of social and economic indicators.

The results in this report are based on some 6,400 adults in this survey representing the population of nearly 2.4 million New Zealanders aged between 25 and 64. This report explores 30 social and economic outcomes as they relate to one's highest level of educational attainment.

The analysis is descriptive in nature, and does not, in general, explore underlying factors, causal directions or the existing literature in depth. Instead, it aims to tap into the rich new information collected in New Zealand's first General Social Survey to provide a broad picture of how education is associated with a range of social and economic indicators.

While it is accepted that people without a secondary education qualification are disadvantaged economically, this report looks at the impact a lack of secondary qualifications has on other aspects of life. It also explores what differences there might be between those who leave with just one-year upper secondary qualifications, and those who have higher-level school qualifications. Much of the Government's recent strategic focus in tertiary education has been on getting more people studying at level 4 and above. This has included reviews of the relevance and funding of level 1 to 3 post-secondary provision. This report provides further information to support the benefits or otherwise of level 1 to 3 qualifications. There are significant known financial benefits for those gaining bachelors or postgraduate qualifications. To what extent does this extend to other non-financial areas, and to what extent do these benefits remain after you adjust for higher employment and earnings?

### **Background**

There is an established literature showing the benefits of education on employment and earnings. However, less knowledge exists on the non-financial or social benefits of education. While policy interest has traditionally focused on these financial and economic outcomes, interest in the contribution education makes to improved social outcomes is growing.

This interest is growing as new international survey collections are expanding the pool of data now available. An indicator on social outcomes of education was included for the first time in 2009 in the annual OECD indicators publication, *Education at a Glance* (OECD, 2009). This compared the gains in health status, interpersonal trust and political engagement across education levels for OECD countries. The European Social Survey was first introduced in 2002 and, now into its fifth round, covers over 30 countries ([www.europeansocialsurvey.org](http://www.europeansocialsurvey.org)). The International Social Survey Programme ([www.issp.org](http://www.issp.org)) and World Values Survey ([www.worldvaluessurvey.org](http://www.worldvaluessurvey.org)) also provide internationally established collections of social data, where indicators can be related to a range of background information, such as education, and viewed in a domestic or international context.

An earlier Treasury report (Johnston, 2004) undertook a review of the wider benefits of education. This report reviewed the evidence that greater education causes better outcomes in life, over and above the effects of having a higher-paying job. The report says: "Research suggests that increased education, as measured by the time people spend in formal education or the qualifications they attain, may cause a reduction in cigarette smoking, anxiety disorders, anti-social disorders, suicide, crime, teenage pregnancies, unemployment and reliance on

welfare benefits, at least when these outcomes are measured in young adulthood. Education may also have an effect on people's health. The wider benefits of education are difficult to quantify, however, and the degree of uncertainty around them is considerable. Policy-makers would be unwise to rely too heavily on the existence of wider benefits when making decisions about public investment in education."

The Ministry of Education has recently used NZGSS data to examine the benefits of sub-degree study for 25 to 39 year-old adults (Earle, 2010). This report showed, among other things, that level 1 to 3 post-school certificates were associated with lower employment and income than school qualifications, but were better than having no qualifications at all, while the social outcomes for people with level 1 to 3 certificates were similar to those of people with no qualifications. Women with diplomas were likely to have better health, higher overall life satisfaction, and were more likely to volunteer and to read to their preschool children than women with no qualifications. These effects were less evident for men. The report goes on to say: "There is evidence that education can have an effect on social outcomes over and above, or independent of, its effect on improving employment and income."

An earlier Ministry of Education report also collated evidence around outcomes of the New Zealand tertiary education system (Smart, 2006). The report included information on employment and income, economic growth, health, living standards and crime. It concluded that: "Overall, the overwhelming weight of evidence points to there being significant and positive outcomes from the tertiary education system."

While the results from these studies, and this report, provide additional support for the benefits of education, beyond employment and earnings, care is needed when making inferences from these results and deciding the extent to which they can inform policy. The direct contribution of education to these benefits is by no means established. It is not clear what degree of causal link exists between education and improved social outcomes, and how much is mediated through factors such as employment and income, age, gender, income and immigrant status.

While education may be a factor leading to improved outcomes in some areas, in other areas it may be the poorer outcome that is acting as a barrier to further education. For example, while higher levels of education are associated with better health, it is less clear how much education plays a role in this, either directly or indirectly or, in fact, how much better health aids improved education. In some cases, sample errors prevent conclusive inferences being drawn about differences.

But regardless of the contribution or otherwise of education to these improved outcomes, the increasing evidence base on these wider social and personal outcomes does provide at least suggestive evidence for policy makers, students and parents looking to shape education investment decisions. Apart from the intrinsic social benefits that may be sought, there may also be indirect financial benefits accrued, over and above a better-paying job. For example, the public and private health cost savings associated with reduced smoking, or reduced incidence of depression. Prospective students' decisions are often based on financial considerations, and even where there may be non-financial expectations (such as better health and more leisure time), these are also often expected to be largely realised via increased earnings.

### **The New Zealand General Social Survey**

This report uses data from the New Zealand General Social Survey (NZGSS). This survey was run by Statistics New Zealand for the first time over the period April 2008 to March 2009. It surveyed over 8,700 people, collecting answers to around 140 social- and economic-related questions, along with more than 50 background demographic questions about the person and the household. The survey provides a valuable new resource for examining the relationship between

education and a range of social and economic outcomes never before collected together in such a way.

This report is limited to those adults aged 25 to 64. This covers just over 6,400 survey respondents, representing an estimated population of nearly 2.4 million adults. Excluding under 25-year-olds recognises that many of this group are still undertaking education, and often the benefits of any education they have attained haven't yet been fully realised. Adults aged 65 and over are also excluded, as it is difficult to realistically compare outcomes for this group where leaving school early – often without qualifications – was the norm, and for whom age is likely to be more of a factor in many of these indicators (eg health and labour market outcomes).

The first release of NZGSS data was in October 2009 (Statistics New Zealand, 2009). This release included some information by education, showing positive associations between education and income, health, voluntary work and household recycling, and a slightly higher level of satisfaction with life.

This release said "...The NZGSS is an important monitoring tool for areas that receive considerable government funding. Increasingly, government seeks to act in a coordinated way across agencies and this survey contributes to that goal. In particular, the survey enables a view of those with multiple good and/or bad outcomes."

### **The indicators**

This report includes 30 of the questions available from the NZGSS. These questions have been grouped under 18 indicator headings in this report. For the purposes of this report, these questions were selected under a framework of five broad areas: economic (employment, income, economic standard of living), social (marital status, social contact, tolerance, voting, volunteering, national identity), health and safety, environmental practices, and overall life satisfaction. There are many other questions that could have been included, and it is recognised that this report does not cover the rich spectrum of topics available from the NZGSS. For example, the report does not look at housing or leisure, or a range of questions on knowledge and skills. However, it is hoped that the selected indicators do provide useful coverage of many of the social and economic indicators that may be of interest.

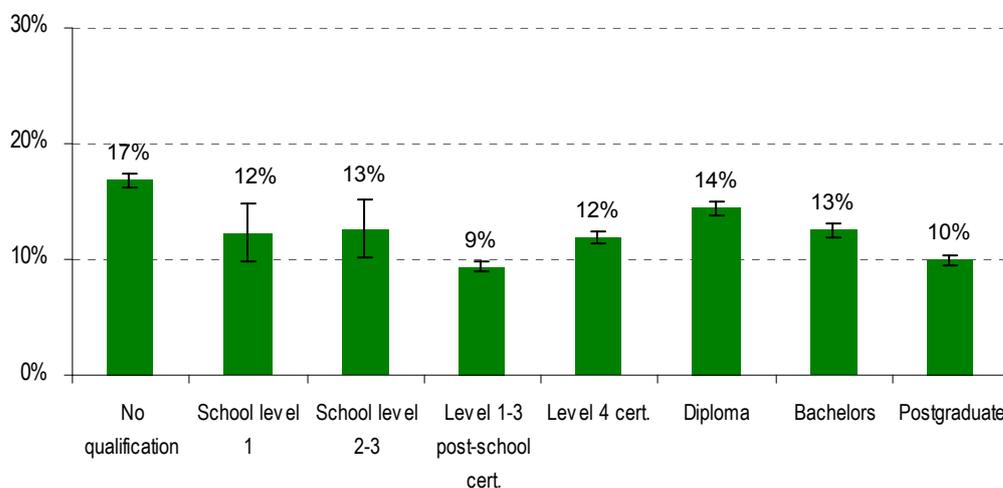
### **Education levels**

This report explores the relationship between 30 social and economic indicators across eight types or levels of education. Each level relates to a person's highest level of educational attainment. The highest level has been derived from two separate questions in NZGSS on highest school qualification and highest post-school qualification. Aggregating different types and levels of qualification needs to balance the risks of loss of information when different groups are combined, with the need to have a large enough sample size, and to be able to present a simple descriptive story. In line with these considerations, and the standards used for other Ministry of Education analyses, the following groupings were chosen:

1. No qualification
2. Level 1 upper secondary qualification (eg NCEA 1, school certificate)
3. Level 2 to 3 upper secondary qualification (eg NCEA 2-3, University Entrance)
4. Level 1 to 3 post-school certificate
5. Level 4 certificate
6. Diploma
7. Bachelors
8. Postgraduate

The levels refer to levels in the New Zealand Register of Quality Assured Qualifications – which range from 1 (generally equivalent to year 11) to 10 doctorate (see <http://www.kiwiqual.govt.nz/about/levels/index.html>). Figure 2 shows the distribution of adults in the NZGSS across these highest education attainment levels.

**Figure 2: Percentage of 25 to 64-year-olds in the NZGSS by highest level of education attainment**



Error bars show 95% confidence intervals.

The extent to which staying an extra year or two in upper secondary makes a difference is explored explicitly in this report via the level 1 and level 2-3 upper-secondary level split. Generally, at least two years of upper secondary education is required to gain access to higher levels of education. Compared with other OECD countries, New Zealand has a much higher proportion of people who leave after one year of upper secondary (OECD, 2009, Table A2.1).

Around 25% of adults aged 25 to 64 had an upper secondary school qualification as their highest qualification. This comprised around 12% with a level 1 equivalent school qualification and 13% with a level 2-3 equivalent school qualification. These two groups included around 4% of adults who had an overseas-based school qualification as their highest level of attainment. Results for the group with overseas school qualifications as their highest attainment were noticeably poorer than for those with NZ school qualifications. The inclusion of overseas-based school qualifications with the NZ school results often reduced indicator results by around 2 or 3 percentage points. This is likely to reflect factors other than educational ones, but this is not explored in this report.

It is not possible from the NZGSS to distinguish how many of the overseas school group have a school qualification equivalent to level 1 and how many have a school qualification equivalent to level 2 or 3. However, we still wish to include this group in such a way so as to retain the opportunity to explore differences between level 1 and level 2 or 3 school qualifications, and to ensure that school and tertiary results are provided on a comparable basis.

To enable this, we treated the overseas school group in the following way. We first assumed that all overseas school qualifications were equivalent to level 2 or 3 school qualifications. We then assumed that none were equivalent to level 2 or 3 school qualification. We took these two scenarios as a reasonable approximation of the worst and best case scenarios for the true split of the overseas school group between the two school levels. We then used the mid point of these extremes as our estimate for this report. The difference between this midpoint and the best or worst case results was added to the existing sample confidence intervals to provide an extended estimate of the uncertainty around the true value for these two education levels.

While level 1 to 3 post-school certificates are at the same educational level as school level 1 to 3 qualifications, the outcomes for this group are quite different. This is shown, for example, in Earle (2010), and is reflected again in this report. While level 1 to 3 certificates can have a vocational focus (especially at level 3), they also often have a foundation education focus (especially at levels 1 and 2) – with content related to literacy, numeracy or generic life skills. While outcomes for this group were better than for those with no qualifications, they were often worse than those for whom level 1 to 3 school qualifications are the highest level of attainment.

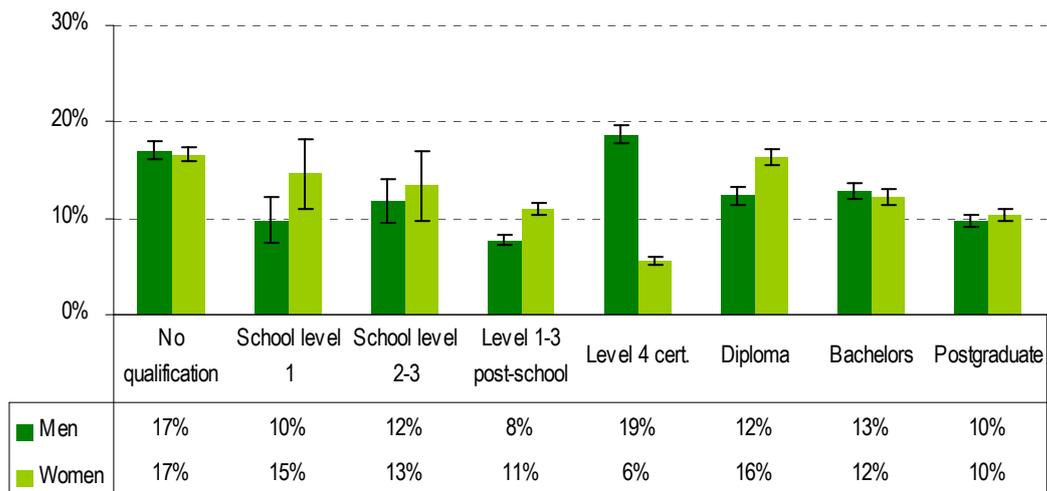
However, this may reflect a selection effect, rather than an education effect. Those who undertake level 1 to 3 post-secondary study are mostly those who did poorly at school – that is they have no school qualifications. There may well be factors other than education that are leading to these poorer outcomes. We don't really know what the outcomes would have been if this group had not obtained their certificate. Similarly, those that undertook level 1 to 3 post-secondary study and then successfully moved on to higher-level study are not included in this group. Results may then, in fact, reflect a kind of double-selection effect as described, for example, in Earle (2010).

While the majority of those with level 1 to 3 post-school qualifications had no school qualifications, there were some who did have school qualifications at level 1 to 3 as well. When we analysed outcomes for this group, results were often more in line with the post-school group than the school group. That is, their results were often lower than the school groups but higher than the no qualifications group. For this reason, those with both school and post-school qualifications at level 1 to 3 were included in the post-school level 1 to 3 group for this study.

About 136,000, or 6%, of the adults aged 25 to 64 reported 'other' post-school qualifications. An examination of the profile of, and outcomes for, these adults showed a similarity with the post-school level 1 to 3 certificate group. The NZGSS question provides tick box categories for National Certificates only, so this may have led respondents with non-national level 1 to 3 certificates to use the 'other' category. So for this report, a decision was made to incorporate all those reporting 'other post-school qualifications' into the level 1 to 3 group. While this may be incorrect for some of these 'other' qualifications, some analysis of the resulting outcomes for the combined 'level 1 to 3 post-school/ other' group suggests a more predictable fit.

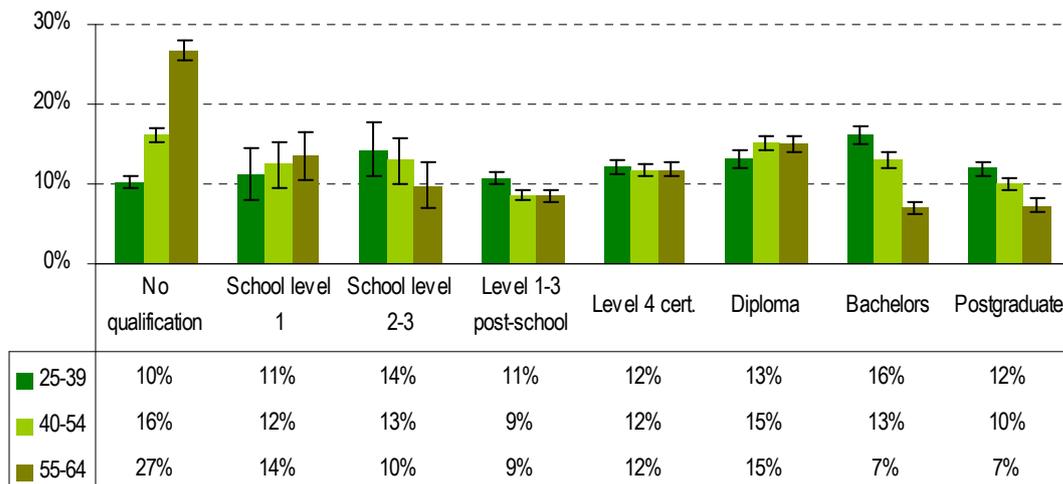
Figures 3 to 5 show the education attainment distribution of 25 to 64 year olds by sex, age and immigrant status. While men were more common in the vocational group, women were slightly more common in the level 1 to 3 post-school certificate group. At other levels there was not much difference. Younger adults were noticeably more likely to be higher-qualified than older adults, reflecting a shift in educational expectations over the years. Overseas-born adults were more likely to hold degrees than New Zealand-born, reflecting immigration policy. This was significant enough to distort some indicator results, in particular those relating to tolerance and contact with family and friends.

**Figure 3: Percentage of 25 to 64-year-olds in NZGSS by education level and sex**



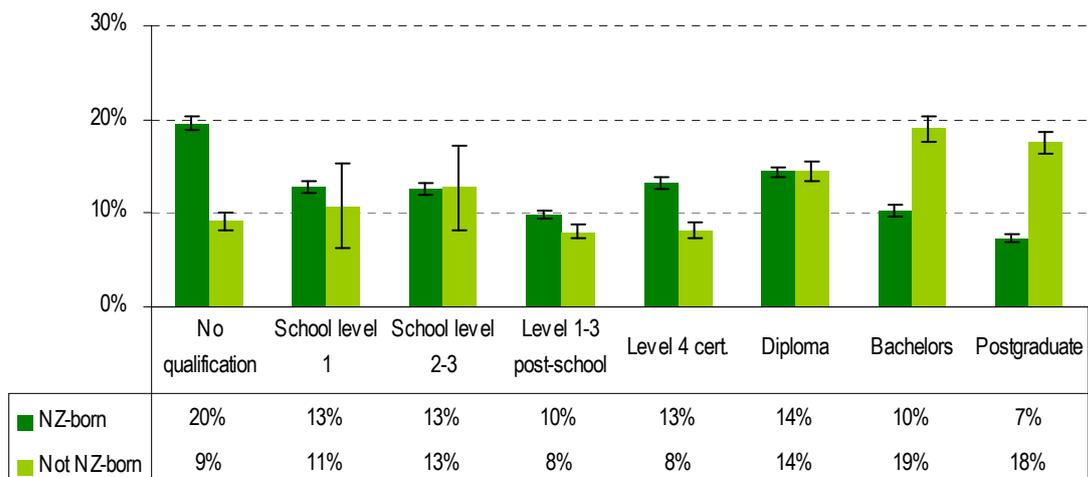
Figures are row percentages. Each row adds to 100%. Error bars show 95% confidence intervals.

**Figure 4: Percentage of 25 to 64-year-olds in NZGSS by education level and age group**



Figures are row percentage. Each row adds to 100%. Error bars show 95% confidence intervals.

**Figure 5: Percentage of 25 to 64-year-olds in NZGSS by education level and whether NZ-born or not**



Figures are row percentages. Each row adds to 100%. Error bars show 95% confidence intervals.

## 3 RESULTS

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### How to read the indicators

This section looks at how education varies with responses to 30 questions from the NZGSS. These questions have been grouped under 18 indicators for the purposes of this report.

Many of the questions selected for this report are asked in the NZGSS using a five-point Likert scale. For example:

How do you feel about your life as a whole right now?

1. very satisfied
2. satisfied
3. no feeling either way
4. dissatisfied
5. very dissatisfied

For these questions, outcomes for those adults answering in the two most positive categories are presented in this report. Where a question in the NZGSS is a yes/ no question, then the relevant positive response is taken. Where the question is based on numeric values, such as income or the SF-12 health assessment index scores used for health status, the median value is used to compare outcomes across education levels.

Aggregating categories reduces sample error, but it can mask underlying differences. For example, the fact that education varies positively with the top two responses of a particular question does not necessarily mean that it varies negatively with the bottom two categories. Similarly, the fact that education varies positively with the top two categories does not necessarily mean that it varies in the same way when just the top category is used. This is the case in this report for the indicators "tolerance to different values" and "tolerance to different ways of living". Care is needed when generalising results from these indicators to general social themes.

Each result (percentage of adults aged 25 to 64 reporting a positive outcome for a particular education level) is presented with error bars showing the 95% confidence interval. Based on random sampling error alone, we can be 95% confident that the true population value for the percentage of adults reporting this particular positive outcome for this education level be within this range.

Similarly for numeric type indicators, the error bars represent the 95% confidence interval for the true population value of the median. One limitation of using medians on their own is that they often fail to portray the nature of spread, particularly if distributions are skewed such as with income.

Often, we want to infer whether differences (say between two levels of education) are "significant" or not. It may well be that the outcome for one level is higher than the outcome for another purely by chance, due to the random nature of the sample used. When 95% error bars do not overlap, one may infer that the differences are statistically significant. But when they do overlap, the differences may or may not still be statistically significant.

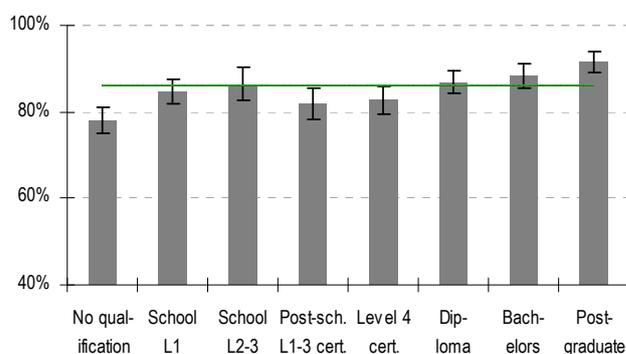
Even when one result is truly higher than another, it may be that the difference is not materially significant in a practical sense. Differences may be statistically significant but not materially

significant, or vice versa. Research reports often indicate whether results are statistically significant, but often material significance is left to readers to infer.

To assist the reader in interpreting whether the differences here are significant, tables are included alongside graphs with actual values and statistical significance markers shown. The result for each level is compared with that of the group with two-plus years of upper secondary, and also with the result of the preceding (lower) level in the table.

Many of the indicators follow a similar 'typical' pattern of association with education, as shown in the figure below for overall life satisfaction. Those with no qualifications often have significantly lower results. Those with level 1 to 3 post-school certificates also have lower results, which are often worse than for those with school qualifications. Outcomes for those with level 4 tertiary certificates are mixed. While they are better than the results for those with no qualifications or level 1-3 post-school qualifications, they generally sat between the results for level 1 school qualifications and level 2-3 school qualifications. Level 4 results were highly moderated by gender differences. Indicator results for those with diplomas were usually better than the results for those with just school qualifications. These results usually increased further at both bachelors and postgraduate levels.

**Figure 6: Typical pattern of variation of indicators across education levels (overall life satisfaction)**



While this pattern is similar across many of the indicators, the size of the effects varies considerably. Not all differences are significant, either statistically or materially, and some indicators follow this pattern only partially or not at all. Results are sometimes moderated by other factors such as age, income and whether you were born in New Zealand or not. While there are exceptions, differences of scale, and varying degrees of statistical significance amongst differences, the majority of the indicators follow this broad pattern.

The results for those with year 12 or 13 equivalent qualifications have been chosen as a benchmark against which those with lower- or higher-level education can be compared. This is represented with a line on the graphs used in this report. This is a visual benchmark only. Statistically significant differences from this result are shown separately in tables below these graphs.

### 3.1 Overall life satisfaction

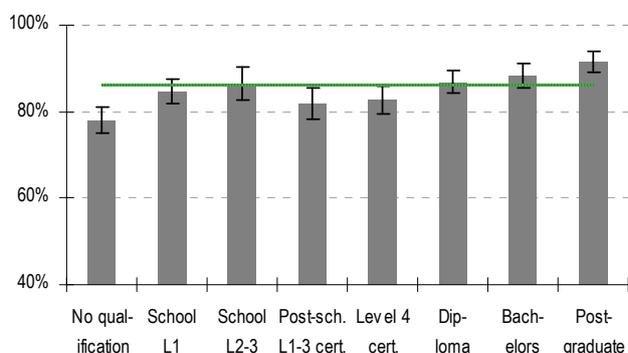
*How do you feel about your life as a whole right now?*

85% of New Zealanders aged 25 to 64 in the NZGSS said satisfied or very satisfied.

Overall life satisfaction was partially associated with education. Those with no qualifications were less likely to feel satisfied (78%). Adults with level 1-4 post-school certificates (83%) had lower rates than those with school qualifications (86%), but the differences were not statistically significant. Overall life satisfaction increased for adults with diplomas or higher, but only the differences for those with postgraduate qualifications were statistically significant.

Gender did not appear to moderate the relationship between overall life satisfaction and education, but age did. Older adults (55 to 64) were generally more satisfied with life regardless of their level of education.

**Figure 7: Percentage of 25 to 64-year-olds who felt satisfied or very satisfied with their life – by education level**



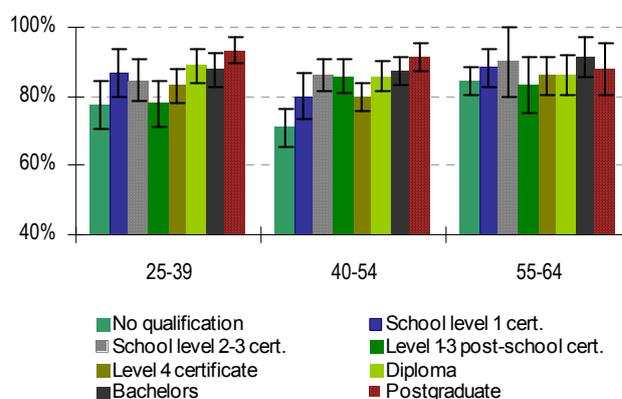
Education level	Estimate	Is this significantly different* from:	
		Level 2-3 School	Preceding level
No qualification	78%	Yes	
School level 1	85%		Yes
School level 2-3	86%		
Post-school level 1-3 cert.	82%		
Level 4 cert.	83%		
Diploma	87%		Yes
Bachelors	88%		
Postgraduate	91%	Yes	

\* 95% chance the true proportions are different.

Most individuals and societies are principally engaged in activities aimed at increasing quality of, and satisfaction with, life. Overall life satisfaction or happiness can reflect one's satisfaction with a range of factors, which may or may not include one's level of education. Education itself may or may not directly contribute to increased feelings of happiness or satisfaction, but many would generally accept that it might play a role through its influence on other factors that affect life satisfaction, such as better health, employment and higher income.

Results from the NZGSS showed that the relationship between education and life satisfaction followed the typical pattern discussed at the beginning of section 3, and summarised above. Gender was not a significant influence on life satisfaction. While the association was the same for younger and middle-aged adults, older adults had higher levels of satisfaction with little difference across education levels. The difference between those with no qualifications and those with some qualifications remained significant after adjusting for household income, and whether you were born overseas or not.

**Figure 8: Percentage of 25 to 64-year-olds who felt satisfied or very satisfied with their life – by education level and age group**



## 3.2 Employment and job satisfaction

### *Whether employed or not; and for those employed, how they felt about their job*

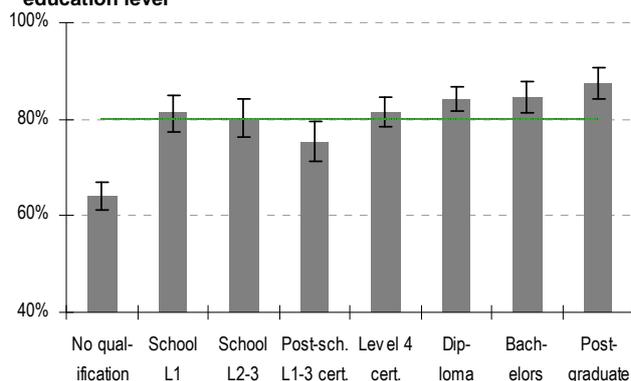
Being in employment was moderately associated with level of education. There were significant differences for the highest and lowest educated, but the differences were less for those with school qualifications and post-secondary certificates. These results correspond to the period from April 2008 to March 2009. The start of this period reflected a time of higher employment, in particular for those with school-level and vocational qualifications.

Those with no qualifications were noticeably less likely to be employed than any other group (64%). Those with diplomas, bachelors and postgraduate qualifications were more likely to be employed than those with upper-secondary qualifications (84%-87% compared with 79%). Those with level 1 to 3 post-secondary certificates had lower employment rates than those with school qualifications, but the differences were not statistically significant. Men with level 1-4 certificates were employed at a similar rate to men with level 1 or higher school qualifications, but the rate of employment of women with level 1-4 certificates was about 7% lower.

Level of education was more closely associated with employment for women than it was for men.

Over all levels, 80% of those with a job said they were satisfied or very satisfied with their job. Apart from lower job satisfaction amongst those with post-school level 1 to 3 certificates, job satisfaction was not associated with education.

**Figure 9: Percentage of 25 to 64-year-olds who were employed – by education level**



Education level	Estimate	Is this significantly different* from:	
		Level 2-3 School	Preceding level
No qualification	64%	Yes	
School level 1	80%		Yes
School level 2-3	79%		
Post-school level 1-3 cert.	75%		
Level 4 cert.	81%		Yes
Diploma	84%	Yes	
Bachelors	85%	Yes	
Postgraduate	87%	Yes	

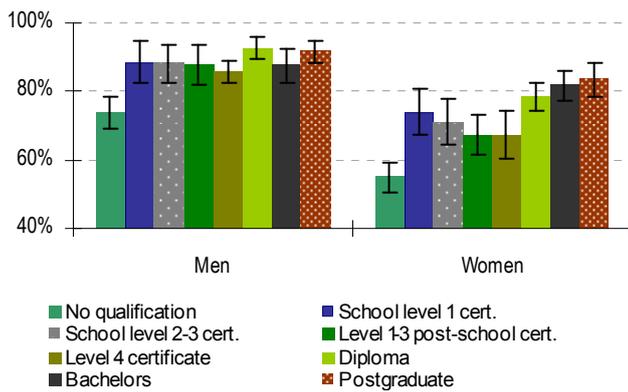
\* 95% chance the true proportions are different.

The promise of getting a good job has long been one of the principal motivations for many people seeking a better education for themselves or their children. A suitable qualification remains a pre-requisite for many jobs, in particular for younger adults. There is an established body of literature in support of this relationship.

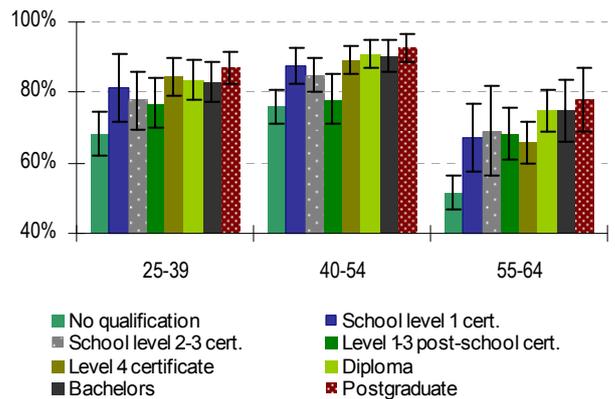
The NZGSS results support a moderate association between employment and level of education as summarised above. These results correspond to the period from April 2008 to March 2009. The start of this period reflected a time of higher employment, in particular for those with school-level and vocational qualifications. However, the effects of the global recession on employment had started to the effect by the end of this period. New Zealand in 2008 had one of the highest employment rates in the OECD (OECD, 2009; Table A6.1a). In particular, in New Zealand, there was a shortage of those with particular vocational or skills training, which is likely to have reduced gaps between those with level 4 to 7 certificates and diplomas and higher levels. The survey also showed no difference between those with one-year upper secondary qualifications, and those with higher-level school qualifications, a relationship which holds after adjustments for age or gender.

The relationship between employment status and education was moderated by gender, in particular for the level 4 certificate group. Not only were men more likely to be employed in 2008, but their employment appeared to be less associated with their education. Although men with no qualifications still remained less likely to be employed, there was a stronger pattern of association between education and employment for women. However, while the differences were larger, many of these differences were not statistically significant. Men with level 1-4 certificates were employed at a similar rate to men with school qualifications. However, the rate of employment of women with level 1-4 certificates was about 7% lower than for women with any level of school qualification.

**Figure 10: Percentage of 25 to 64-year-olds who were employed – by education level and gender**



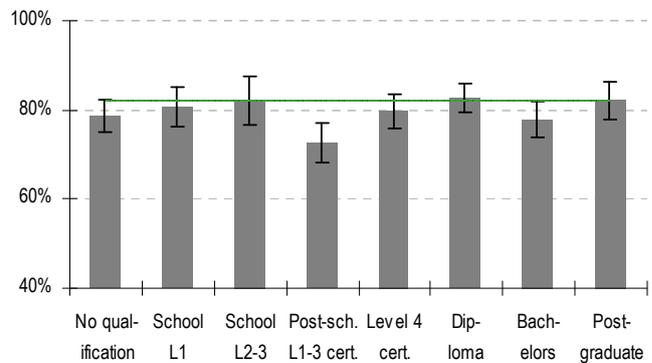
**Figure 11: Percentage of 25 to 64-year-olds who were employed – by education level and age group**



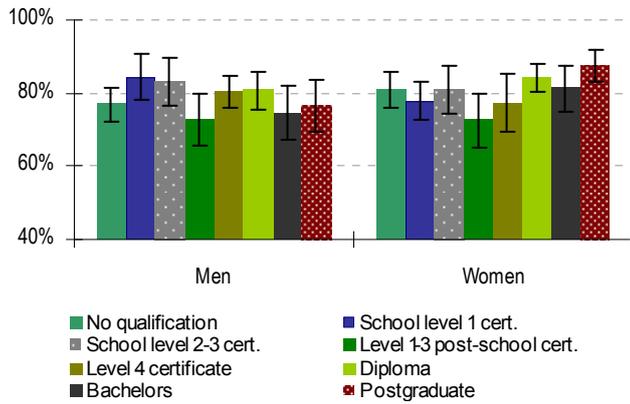
While employment may be related to education, there did not appear to be an association between job satisfaction and education. Those with level 1 to 3 post-school certificates were less satisfied with their job, but across other levels of education, including those with no qualifications, any differences were not materially or statistically significant.

There was a suggestion that higher-qualified men may be less satisfied with their job than equivalently qualified women, but again differences were not statistically significant. As with life satisfaction, older working adults were generally more satisfied with their job than younger working adults, regardless of how educated they were.

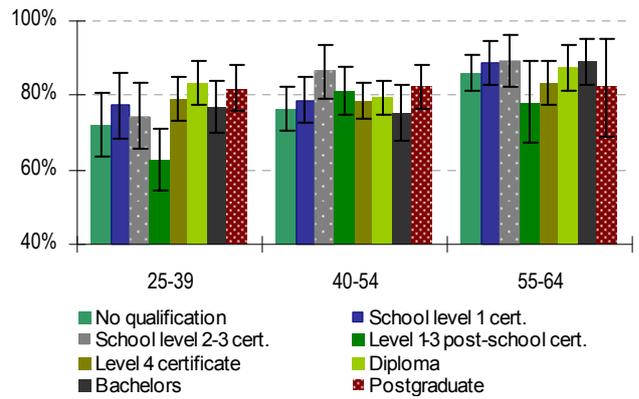
**Figure 12: Percentage of employed 25 to 64-year-olds who felt satisfied or very satisfied with their job – by education level**



**Figure 13: Percentage of employed 25 to 64-year-olds who felt satisfied or very satisfied with their job – by education level and gender**



**Figure 14: Percentage of employed 25 to 64-year-olds who felt satisfied or very satisfied with their job – by education level and age group**



### 3.3 Income

#### *Personal and household income in last 12 months before tax from all sources*

The median personal income in 2008 for New Zealanders aged 25 to 64 from the NZGSS was \$36,000, and the median household income was \$69,000.

Income was very strongly associated with education. Compared to those with level 2-3 upper secondary qualifications, the median household income of those with no qualifications was 27% less, and the median personal income was 39% less.

The median personal income for those with a level 1 school qualification was 14% less than that of the level 2-3 school group, and the median household income was about 10% less.

Those with level 1 to 3 post-school certificates as their highest qualification had similar incomes to the level 1 school group, with median personal incomes about 15% less than the level 2-3 school group, and median household incomes about 12% less.

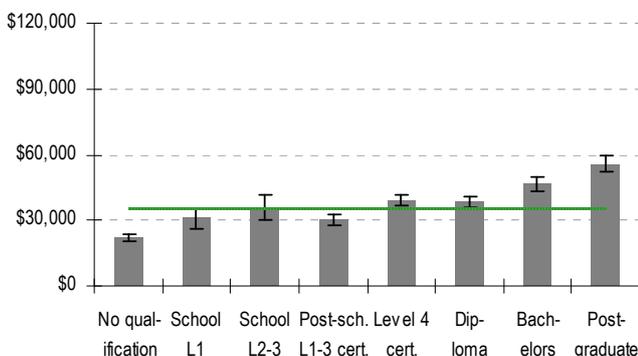
Both men and women with a level 4 certificate had median personal incomes that sat slightly above those with level 1 school qualifications, but slightly below those with higher level school qualifications. The median income of those with diplomas was around 6% higher than for those with school qualifications. These differences were larger for 25 to 39 year-olds with level 4 to 7 tertiary qualifications, who had a median income between 12% and 17% higher than those with level 2-3 school qualifications.

There was a marked benefit for degree or higher qualified adults. Those with bachelors and postgraduate qualifications had respectively, 30% and 55% higher median personal incomes, and 20% and 40% higher median household incomes.

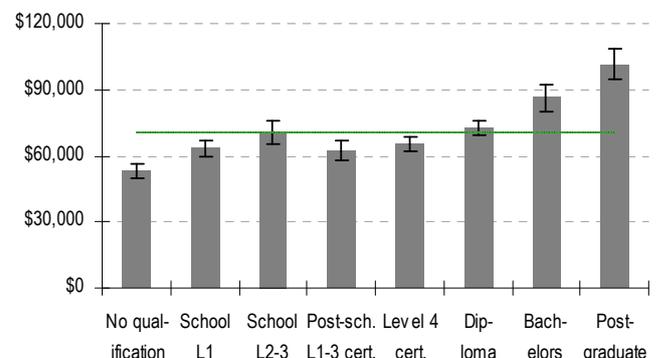
Apart from the differences for older adults with level 4 certificates and those with diplomas, the pattern of relationship between income and other education levels was the same across age groups. This pattern of relationship was also the same for both men and women, and for NZ- and overseas-born.

One of the primary motivations for education is the expectation of a better job and higher income. The results for both personal and household income, as summarised above, support the existing evidence and conventional wisdom on this. Both personal and combined household income are analysed in this indicator. While personal income should more directly reflect the benefits of education, household income also provides a useful indicator of access to income, in particular for those not in the labour force. The median household income across all education levels was 1.9 times the median personal income.

**Figure 15: Median annual personal income for 25 to 64-year-olds – by education level**



**Figure 16: Median annual household income for 25 to 64-year-olds – by education level**



Education level	Estimate	Is this significantly different* from:	
		Level 2-3 School	Preceding level
No qualification	\$21,800	Yes	
School level 1	\$30,800	Yes	Yes
School level 2-3	\$36,000		Yes
Post-school level 1-3 cert.	\$30,500	Yes	Yes
Level 4 cert.	\$39,100		Yes
Diploma	\$38,300		
Bachelors	\$46,500	Yes	Yes
Postgraduate	\$55,800	Yes	Yes

\* 95% chance the true median incomes are different.

Education level	Estimate	Is this significantly different* from:	
		Level 2-3 School	Preceding level
No qualification	\$52,900	Yes	
School level 1	\$63,600	Yes	Yes
School level 2-3	\$70,700		Yes
Post-school level 1-3 cert.	\$62,400	Yes	Yes
Level 4 cert.	\$65,300	Yes	
Diploma	\$72,800		Yes
Bachelors	\$86,400	Yes	Yes
Postgraduate	\$101,500	Yes	Yes

\* 95% chance the true median incomes are different.

This indicator showed the strongest association with level of education of all the indicators selected for this report. These results are likely to have been influenced by the employment rates remained high for most groups at the time of this survey (April 2009-March 2009). The disproportionate impact of the global recession on employment for less qualified adults is likely to further increase differences.<sup>1</sup>

Figure 17: Median annual personal income for 25 to 64-year-olds – by education level and gender

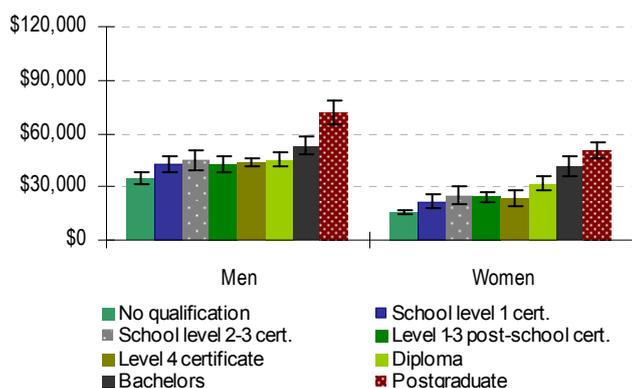
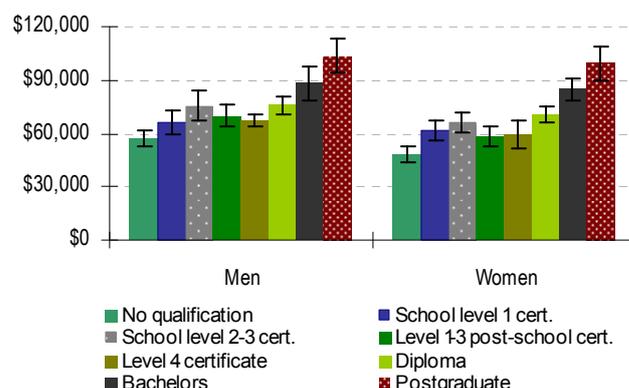


Figure 18: Median annual household income for 25 to 64-year-olds – by education level and gender



Personal income gender differences were significantly higher than household income gender differences. Gender differences in income reduced with higher levels of education. Bachelors-educated men had around 26% higher personal income, and 4% higher household income than similarly educated women. The median personal income for men with no qualifications was 120% higher than that of women with no qualifications, while the median household income was 18% higher.

The incomes presented here are median annual totals, and are not adjusted for differences in labour market participation rates, the types of occupation, or differences in hours worked. They also do not take account of the fact that households with income from a single parent, rather than from two parents, are more likely to be headed by women.

But regardless of these gender differences, the same significant pattern of relationship between income and education existed for both men and women.

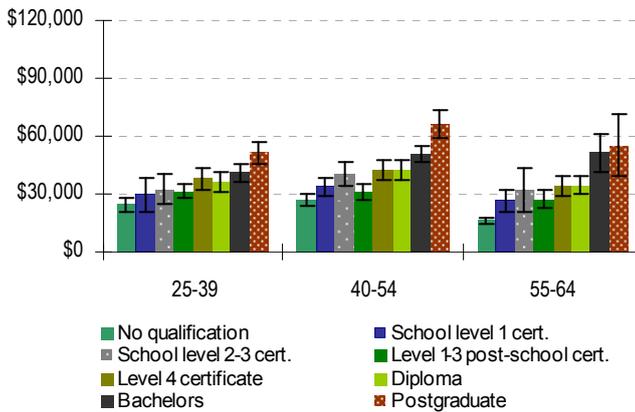
As expected, middle-aged adults had higher income than younger adults, and older adults had lower median incomes than those in middle age. This had the biggest impact on the vocationally-oriented level 4 certificates and diplomas group and the level 1 school group, both of which have a higher proportion of older adults. When we look at younger people only, those

<sup>1</sup> It should be noted that the NZGSS results reflect the highest qualification of the person interviewed, who may or may not be the person in the household with the highest qualification.

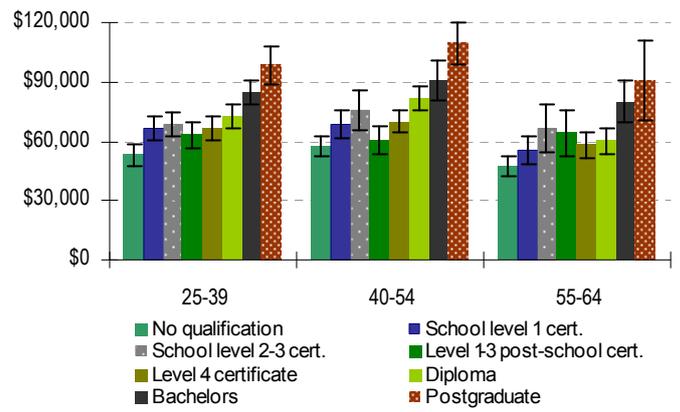
with level 4 certificates or with diplomas were not significantly different in income from those with a level 2-3 school qualification. But among older respondents, those with non-degree tertiary qualifications had lower income than who completed secondary school. This is likely to reflect differences between the expectations for education in the last twenty years, against those in the 1960s and 1970s, when expectations of tertiary participation were lower. But regardless of age, income largely exhibits the same pattern of association with education (figures 19 and 20).

Similarly, New Zealand-born adults had higher income than equivalently-educated overseas-born adults, but the same pattern of relationship between education and income remained for both groups (figures 21 and 22).

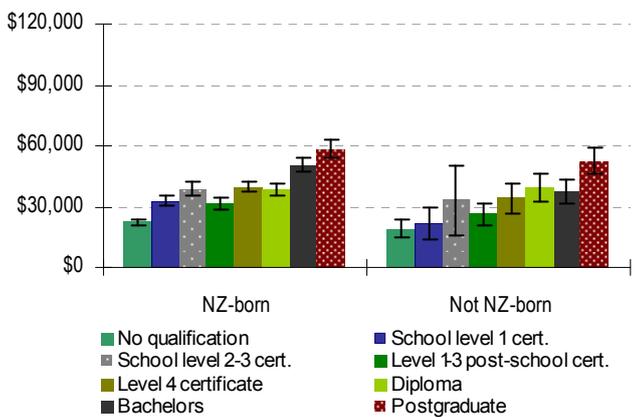
**Figure 19: Median annual personal income for 25 to 64-year-olds – by education level and age group**



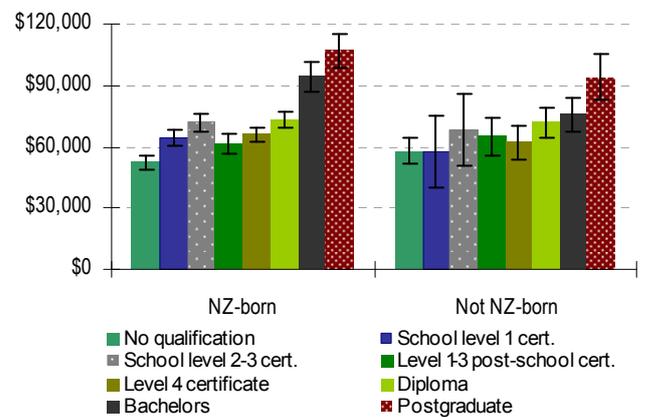
**Figure 20: Median annual household income for 25 to 64-year-olds – by education level and age group**



**Figure 21: Median annual personal income for 25 to 64-year-olds – by education level and whether NZ-born**



**Figure 22: Median annual household income for 25 to 64-year-olds – by education level and whether NZ-born**



### 3.4 Standard of living

*Economic living standard as measured using the Economic Living Standard Index (ELSI) and the New Zealand Deprivation Index (NZDEP 2006)<sup>2</sup>*

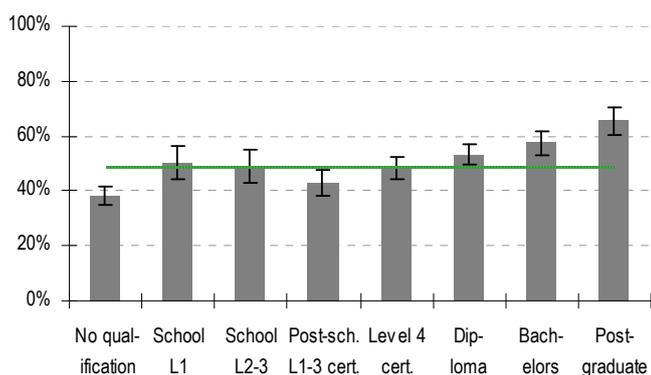
Economic living standard was moderately to strongly associated with education.

Those with no qualifications were significantly worse off in terms of both ELSI and NZDEP compared to those with qualifications. Those with level 1 to 3 post-school certificates were also worse off. There were no conclusive differences in standard of living between men with level 4 certificates and men with school qualifications, but women with level 4 certificates showed significantly lower ratings than those of women with any level of upper secondary qualification. Standard of living results were higher for those with a diploma, but these differences were not statistically significant. The likelihood of having a good standard of living was significantly higher for bachelors and higher again for postgraduate educated.

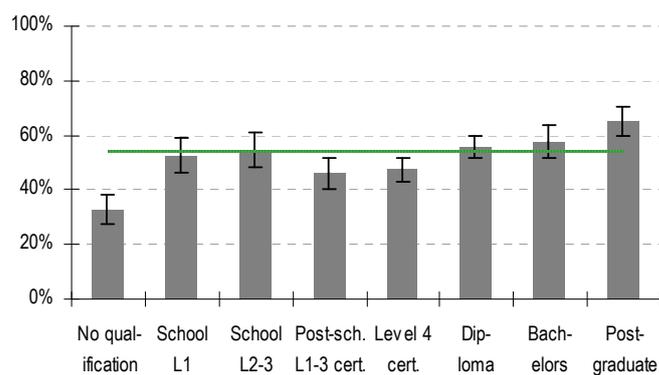
This pattern of relationship between education and living standard was the same for men and women. Differences in living standard by level of education reduced with age. However those with no qualifications continued to have lower living standards at any age, and those with postgraduate education had higher.

How one rated their own standard of living was significantly more associated with their education than how satisfied one was with their standard of living.

**Figure 23: Percentage of 25 to 64-year-olds who have a good or very good standard of living (ELSI >= 25) – by education level**



**Figure 24: Percentage of 25 to 64-year-olds who live in a less-deprived area (NZDEP <= 4) – by education level**



Both ELSI and NZDEP are measures of economic living standard. Both measures are derived from a range of self-reported socio-economic variables, and are strongly influenced by income. The NZGSS data includes data on all the variables used to derive ELSI and NZDEP as well as the derived ELSI and NZDEP values.

While ELSI is based on the individual, NZDEP reflects a measure of deprivation for those in the neighbourhood of the respondent. NZDEP uses the percentage of 18-64 year olds with no qualifications as one of its measures, hence there is a degree of self-correlation in these results.

	ELSI	Significantly different* from Level 2-3 School	NZDEP	Significantly different* from Level 2-3 School
No qualification	38%	Yes	33%	Yes
School level 1	51%		53%	
School level 2-3	49%		54%	
Post-school level 1-3 cert.	43%		46%	Yes
Level 4 cert.	48%		47%	Yes
Diploma	53%		56%	
Bachelors	57%	Yes	58%	
Postgraduate	66%	Yes	65%	Yes

\* 95% chance the true proportions are different.

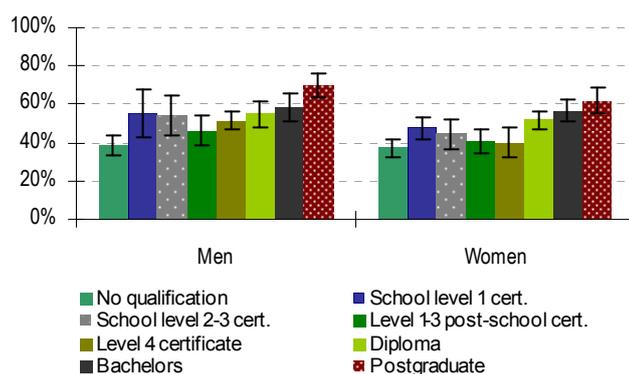
<sup>2</sup> See References section to find out more about ELSI and NZDEP.

ELSI is a score from 1 to 31, while the NZDEP score is the decile-based scale, with most deprived at 10 and least deprived at 1. ELSI is often grouped into seven categories. The percentage of adults in the top two of these categories ('good' and 'very good') has been chosen for the purposes of this report. These categories corresponded to adults with an ELSI score of 25 or more, and comprised 50% of the NZGSS population of 25 to 64 year olds. Similarly, 50% of 25 to 64 year-olds in the NZGSS lived in areas with an NZDEP score of 1 to 4. The percentage of adults living in these less-deprived areas was chosen as the second indicator for the purposes of measuring how education is associated with economic standard of living.

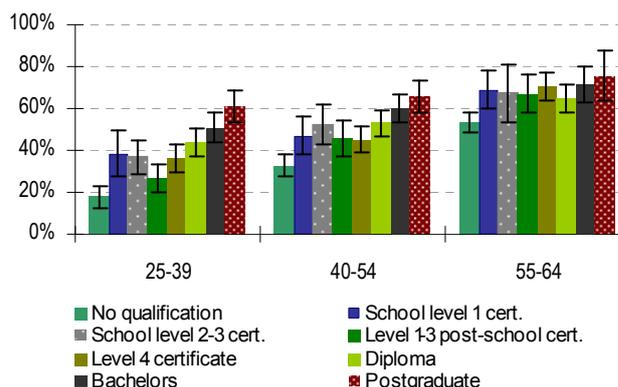
Despite their different construction and the fact that ELSI relates to the individual and NZDEP relates to all the individuals in a neighbourhood, both showed noticeably similar relationships with education. They both followed the typical partial positive relationship between economic living standard and education discussed earlier in this report, and summarised in the box on the previous page.

Income is a component of both ELSI and NZDEP and so these results, in part, reflect the strong association between education and income discussed previously. To adjust for this, we undertook a regression analysis that controlled for education level and household income. While the influence of education on ELSI and NZDEP was reduced after adjusting for income, it still remained – and was statistically significant for those with no qualifications and level 1 to 3 post-school qualifications.

**Figure 25: Percentage of 25 to 64-year-olds who have a good or very good standard of living (ELSI >= 25) – by education level and gender**



**Figure 26: Percentage of 25 to 64-year-olds who have a good or very good standard of living (ELSI >= 25) – by education level and age group**

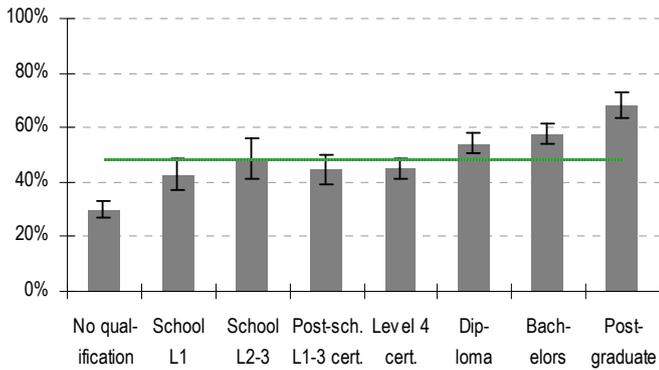


Results were higher for men than women, although differences were generally not statistically significant. Results for the level 4 certificate group were similar to the schools group when the results for men and women were combined (figure 23). However, when viewed separately, both men and women with level 4 certificates had a lower standard of living than adults with school qualifications (figure 25). This reflects the moderating effect of a higher proportion of men with level 4 certificates, with their higher standard of living compared to women. Apart from level 4 certificates, men and women had the same pattern of relationship between living standard and their education.

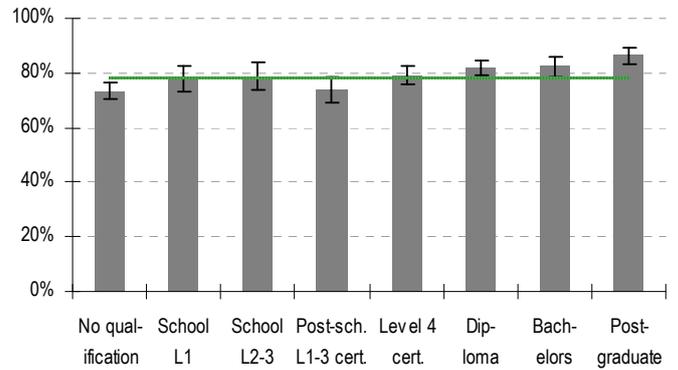
Age reduced the effects of education. Put another way, education mattered more for younger adults, and less for older adults. This partially reflects the effects of greater work experience in the older population, the fact that job opportunities in the past often required fewer qualifications, and that in the past, there was a lower expectation that people moved into tertiary education when they finished school.

As part of the questions used to construct ELSI, the NZGSS includes questions on self-assessed rating of living standard, and satisfaction with living standard. How one rated their standard of living was significantly more associated with their education than how satisfied one was with their standard of living. Although satisfaction with one's living standard did not vary as much across education levels, both measures still showed the same pattern as that shown using the ELSI and NZDEP measures above.

**Figure 27: Percentage of 25 to 64-year-olds who rated their standard of living as high or fairly high – by education level**



**Figure 28: Percentage of 25 to 64-year-olds who were satisfied or very satisfied with their current standard of living – by education level**



Regardless of whether ELSI or NZDEP is used, or self-assessed ratings, or satisfaction with one's living standard, the pattern was similar. Those with no qualifications or level 1 to 3 post-school qualifications, and women with level 4 certificates, had significantly lower living standards. There were no statistically significant differences between those with level 1 and those with higher level school qualifications, men with level 4 certificates, or those with diplomas. Living standards increased significantly for higher levels of tertiary education.

### 3.5 Having a partner

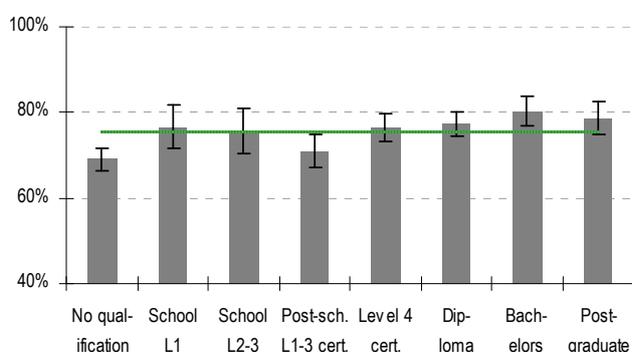
#### Marital status

75% of New Zealanders aged 25 to 64 in the NZGSS were in a partnered relationship.

Being partnered appeared to be partially associated with education. Compared to those with school qualifications (76%-77%), those with no qualifications or level 1 to 3 post-secondary certificates were less likely to be partnered (69% and 71%). Those with bachelors degrees (80%) or postgraduate qualifications (79%) were more likely to be partnered. There was no significant difference in being partnered between adults with school and level 4 to 7 tertiary certificates and diplomas (77%).

There was some suggestion that gender and age moderated the relationship between education and being partnered. For men and younger adults the relationship with education was more pronounced. However, apart from those with no qualifications, who were less likely to be partnered regardless of gender or age, there were no other differences that were statistically significant.

**Figure 29: Percentage of 25 to 64-year-olds who were in a partnered relationship – by education level**



Education level	Estimate	Is this significantly different* from:	
		Level 2-3 School	Preceding level
No qualification	69%	Yes	
School level 1	77%		Yes
School level 2-3	76%		
Post-school level 1-3 cert.	71%		
Level 4 cert.	76%		Yes
Diploma	77%		
Bachelors	80%		
Postgraduate	79%		

\* 95% chance the true proportions are different.

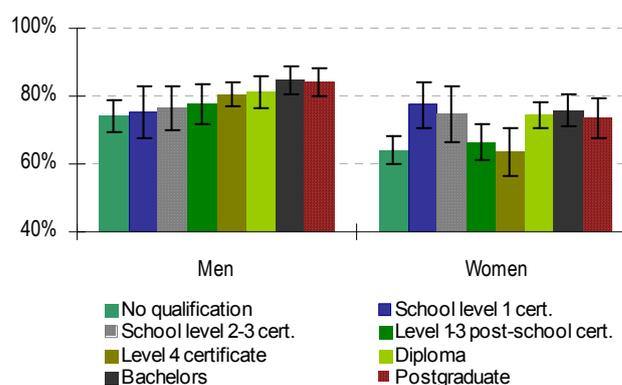
Being partnered represents one measure of social cohesion in society. Although benefits are by no means universal, partnership formation is generally considered a positive indicator for individuals and societies, in terms, at least, of its role in the development of families and future generations.

Being partnered followed the typical partial relationship with education. However, unlike other indicators, results for bachelor-educated were often above postgraduate. While the differences were not significant, they did persist across gender and age groups. When results were adjusted for differences in household income however, only those with no qualifications showed statistically significant differences.

Education was more related to being partnered for men than it was for women. This, in part, reflects higher mortality amongst men. Differences were particularly marked for the level 1 to 4 post-secondary certificate group.

For the younger 25 to 34 age group, there was no significant difference between men and women. Although age did not moderate the pattern of relationship with education, the scale of the differences was larger for younger adults, and much smaller and not statistically significant for older adults.

**Figure 30: Percentage of 25 to 64-year-olds who were in a partnered relationship – by education level and gender**



### 3.6 Social connection

*In the last four weeks, how often have you seen any family or relatives who don't live with you?  
How often have you felt isolated from others in the last four weeks?*

84% of New Zealanders aged 25 to 64 answered yes, at least once, to the first question.  
83% reported not feeling isolated or feeling isolated only a little.

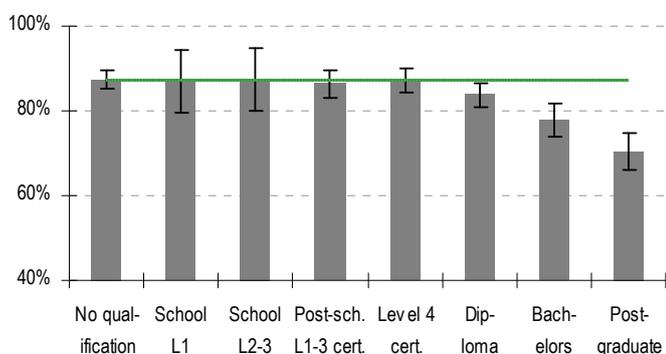
Education was not significantly related to social contact with family and relatives for New Zealand-born adults, but was significantly associated with reduced social contact for overseas-born with higher-level qualifications. Overseas-born adults with higher qualifications are younger, and more recently-arrived than those overseas-born with lower qualifications.

This, coupled with the fact that overseas-born make up a large proportion of degree-educated adults, results in a significant negative association between education and social contact for the combined NZ-adult population.

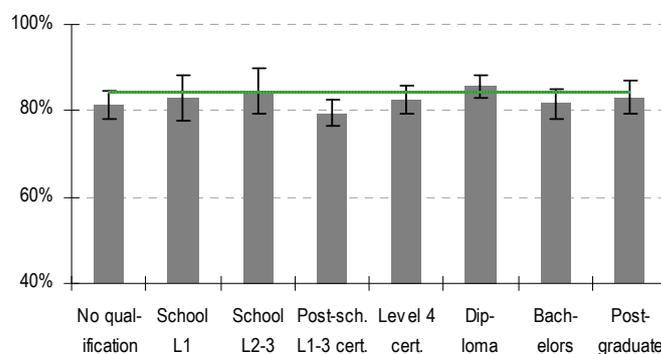
The relationship between social contact and education was not moderated by gender, but was different for older age groups, where social contact was higher and differences were smaller and more even across education levels.

Although overseas-born adults were a little more likely to have feelings of isolation than New Zealand-born adults, there was no difference across education levels for New Zealand-born or immigrants. Women and younger adults were slightly more likely to feel isolated, although few differences were statistically significant, and regardless of age or gender there were no clear differences by level of education.

**Figure 31: Percentage of 25 to 64-year-olds who had seen family or relatives in the last 4 weeks – by education level**



**Figure 32: Percentage of 25 to 64-year-olds who had not felt isolated at least some of the time in the last four weeks – by education level**



Social contact with family and friends represents one measure of social cohesion. High social cohesion or capital is important not just for its intrinsic benefits, but also in terms of its role in fostering improved productivity and efficiency through higher levels of trust, support and co-operation.

As discussed in the summary above, this indicator was significantly moderated by whether you were born in New Zealand or not. Figure 33 shows the relationship separately for each group. While those New Zealand-born

	Social contact	Significantly different* from Level 2-3 School	Don't feel isolated	Significantly different* from Level 2-3 School
No qualification	87%		81%	
School level 1	87%		83%	
School level 2-3	87%		85%	
Post-school level 1-3 cert.	86%		80%	Yes
Level 4 cert.	87%		83%	
Diploma	84%		86%	
Bachelors	78%	Yes	82%	
Postgraduate	70%	Yes	83%	

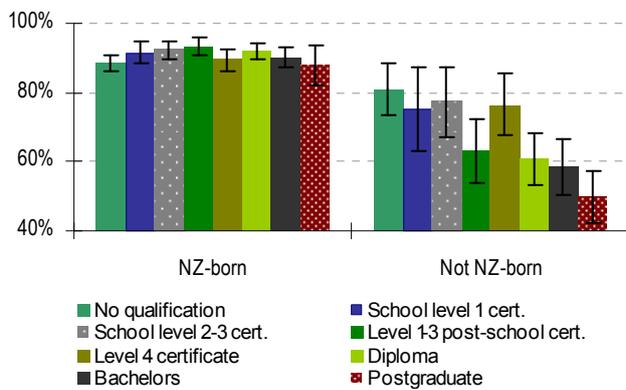
\* 95% chance the true proportion is different.

adults with no qualifications and those with postgraduate qualifications were slightly less likely to have had contact, the difference was small and only the no qualifications result was statistically significant. Otherwise, there was no relationship remaining for New Zealand-born.

Not only was social contact with family and friends lower for overseas-born, it decreased with higher levels of education. This appeared to be largely explained by both the younger age of higher-educated immigrants and the fact that they were on average more recently arrived than overseas-born with lower qualifications. Because recent immigration policy uses age and qualifications as criteria for entry, the proportion of NZ adults who were born overseas is much higher for degree level and above than for other levels, especially for young to middle aged adults.

The results may also more generally reflect a higher likelihood of degree-educated adults moving away from where they grew up or studied to live and work elsewhere. These results also do not take into account the extent to which internet usage as a means of social contact differs amongst groups – especially for those who live away from their families.

**Figure 33: Percentage of 25 to 64-year-olds who had seen family or relatives in the last 4 weeks – by education level and whether NZ-born**



Education level	NZ-born	Not NZ-born
No qualification	88% *	81%
School level 1	92%	75%
School level 2-3	92%	77%
Post-school level 1-3 cert.	93%	63% *
Level 4 cert.	89%	77%
Diploma	92%	61% *
Bachelors	90%	58% *
Postgraduate	88%	50% *

\* 95% chance the true proportion is different from those with level 2-3 School certificates.

While women reported higher levels of contact than men, they also reported slightly higher levels of isolation. However, none of these gender differences were statistically significant, and the pattern of association between social contact, isolation and education was the same for men as it was for women. Neither did age alter this pattern between social contact and education, although the scale of difference between levels was larger for younger adults, and smaller for older adults, who generally reported higher levels of contact across all levels of education.

## 3.7 Volunteering

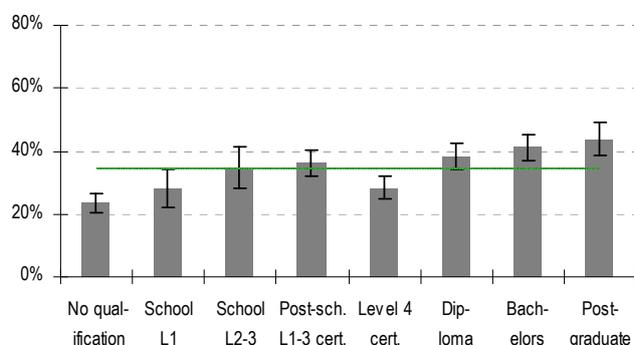
*In the last four weeks, did you do any voluntary work for a group or organisation?*

34% of New Zealanders aged 25 to 64 in the NZGSS said yes.

Volunteering increased moderately with education. Those with no qualifications, one-year upper secondary qualifications, or level 4 qualifications were least likely to have volunteered (24%, 29% and 28%), while those with degree or postgraduate qualifications were most likely (41% and 44%).

This relationship still held when adjusted for employment, income, age, gender, and how much free time people had, or whether people thought they had enough money or not. The association was stronger for New Zealand-born adults, although was still present for overseas-born.

**Figure 34: Percentage of 25 to 64-year-olds who did voluntary work – by education level**



Education level	Estimate	Is this significantly different* from:	
		Level 2-3 School	Preceding level
No qualification	24%	Yes	
School level 1	28%		
School level 2-3	35%		
Post-school level 1-3 cert.	36%		
Level 4 cert.	28%	Yes	Yes
Diploma	38%		Yes
Bachelors	41%		
Postgraduate	44%	Yes	

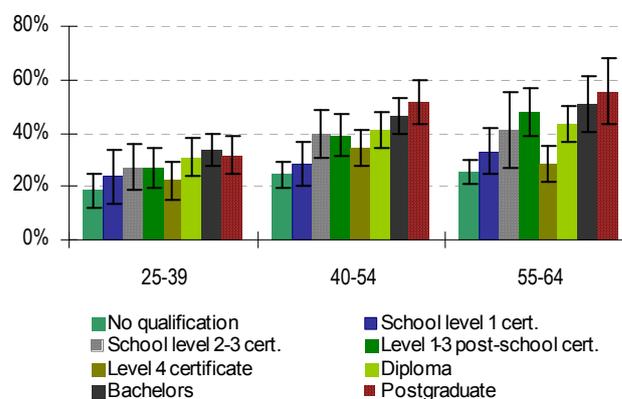
\* 95% chance the true proportions are different.

Voluntary work provides a significant contribution economically as well as socially to society, and many individuals are motivated to do voluntary work for the non-tangible benefits it provides (social contact and friendship, feelings of altruism etc). Many individuals and community organisations rely significantly on the work of volunteers.

There was a moderately strong relationship between education and voluntary work, as summarised above. While adults with no qualifications were least likely to have done voluntary work, there was also a (statistically) significant difference between those with one-year upper secondary qualifications and those with higher-level upper secondary qualifications.

These differences remained significant after adjusting for employment rate and income differences. Older adults were more likely to do voluntary work than younger adults, but the same pattern of positive association with education existed across all age groups, as it did for both men and women. This relationship also held when adjusted for differences across levels in how much free time people had, or whether people thought they had enough money or not. The association was stronger for New Zealand-born adults, although it was still present for overseas-born.

**Figure 35: Percentage of 25 to 64 year olds who did voluntary work – by education level and age group**



### 3.8 Voting

#### *Did you vote in the last general election?*

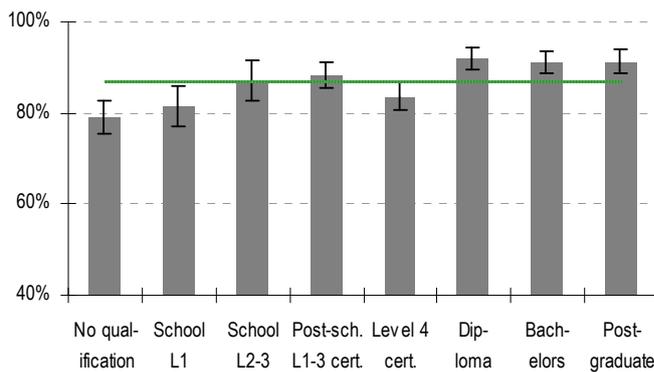
86% of New Zealanders aged 25 to 64 in the NZGSS who were eligible to vote<sup>3</sup> said yes, including 88% for New Zealand-born and 81% for overseas-born.

Voting was moderately associated with education for New Zealand-born adults. With the exception of lower rates for those with level 4 certificates, voting increased with education for NZ-born. The relationship between voting and education was much weaker for non-NZ-born.

When NZ and non-NZ-born adults are combined, those with no qualifications (79%) or one-year upper secondary qualifications (82%) were still less likely to vote. However, the lower voting amongst overseas-born acted to reduce differences across other levels of education.

This relationship was not largely moderated by gender, although there were suggestions that women with lower qualifications were more likely to vote than men with similar qualifications. Neither was the overall pattern moderated by age, despite older adults being significantly more likely to vote.

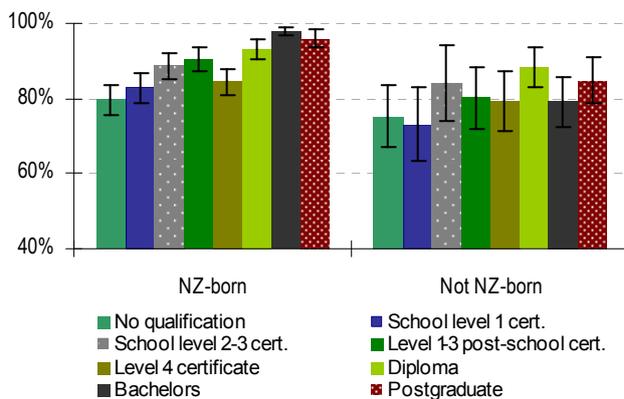
**Figure 36: Percentage of eligible 25 to 64-year-olds who voted in the last general election – by education level**



Education level	Estimate	Is this significantly different* from:	
		Level 2-3 School	Preceding level
No qualification	79%	Yes	
School level 1	82%	Yes	
School level 2-3	87%		Yes
Post-school level 1-3 cert.	88%		
Level 4 cert.	84%		Yes
Diploma	92%	Yes	Yes
Bachelors	91%		
Postgraduate	91%		

\* 95% chance the true proportions are different.

**Figure 37: Percentage of eligible 25 to 64-year-olds who voted in the last general election – by education level and whether NZ-born**



Education level	NZ-born	Not NZ-born
No qualification	80% *	75%
School level 1	83% *	73%
School level 2-3	89%	84%
Post-school level 1-3 cert.	91%	80%
Level 4 cert.	84%	79%
Diploma	93% *	88%
Bachelors	98% *	79%
Postgraduate	96% *	85%

\* 95% chance the true proportion is different from those with level 2-3 School certificates.

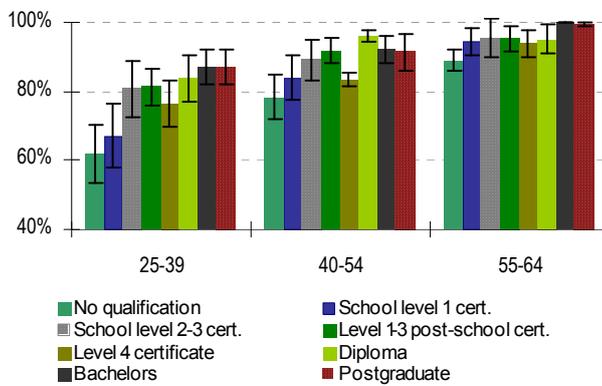
<sup>3</sup> This indicator excludes those overseas-born adults who were overseas, or who had not been in New Zealand long enough, at the time of the last election.

Democracies function on the principle of one person one vote. When sections of society do not exercise their right to vote, there is a chance that incoming governments do not fully reflect the majority views of the people, or that these people do not get full representation for their issues.

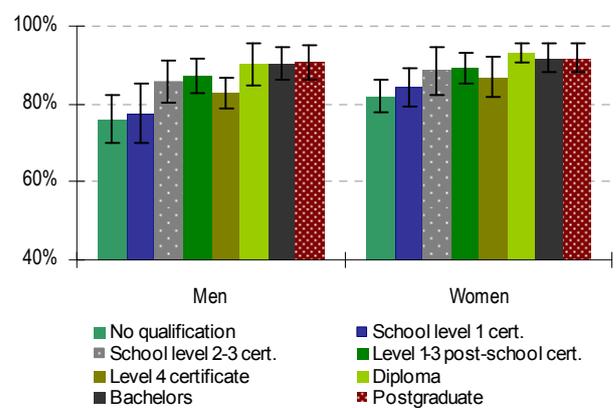
While NZ-born status was an important factor in voting behaviour, as summarised above, an even larger influence was age. Across all education levels, older adults were between 20% and 40% more likely to vote than younger adults, and differences between education levels were smaller. However, for NZ-born adults at least, the same moderately positive relationship still remained regardless of age.

This relationship was not largely moderated by gender, although there were suggestions that women with lower qualifications were more likely to vote than men. The relationship between education and voting still held when adjusted for income differences. The lower result for level 4 certificates was found for both men and women.

**Figure 38: Percentage of eligible 25 to 64 year olds who voted in the last general election – by education level and age group**



**Figure 39: Percentage of eligible 25 to 64 year olds who voted in the last general election – by education level and gender**



### 3.9 National identity

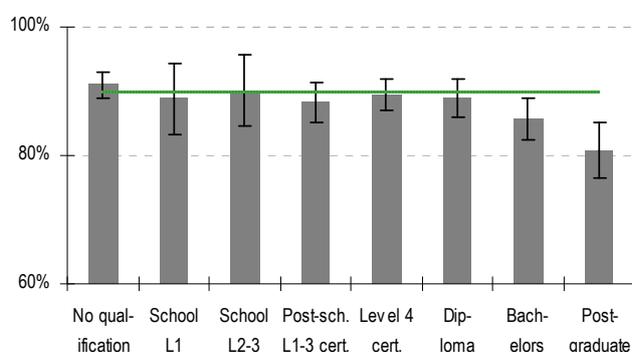
*Do you feel that you belong to New Zealand?*

88% of New Zealanders aged 25 to 64 in the NZGSS said yes, strongly or very strongly.

National belonging was not associated with education for New Zealand-born adults. Overseas-born adults were significantly less likely to feel they belonged strongly, with a weak inverse relationship for higher educated overseas-born adults. Because the proportion of overseas-born adults with tertiary qualifications is higher than that of New Zealand-born, the combined effect acts to make it appear that national belonging is strongly and negatively associated with education (figure 39).

Although women and older adults were more likely to report stronger feelings of belonging, gender and age did not moderate the association between national belonging and education.

**Figure 40: Percentage of 25 to 64-year-olds who felt they belonged strongly or very strongly to New Zealand – by education level**



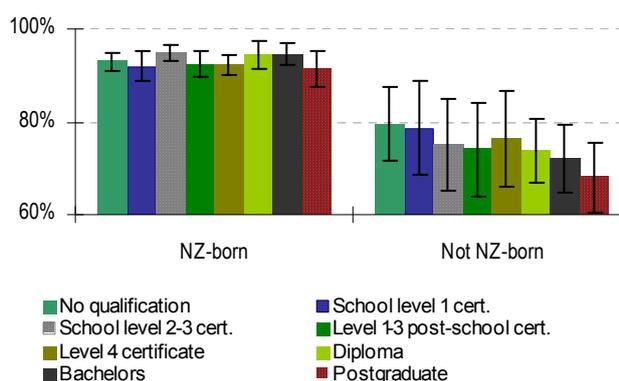
Education level	Estimate	Is this significantly different* from:	
		Level 2-3 School	Preceding level
No qualification	91%		
School level 1	89%		
School level 2-3	90%		
Post-school level 1-3 cert.	88%		
Level 4 cert.	89%		
Diploma	89%		
Bachelors	86%	Yes	
Postgraduate	81%	Yes	

\* 95% chance the true proportions are different.

A high level of national identity or belonging amongst individuals can provide a community or society with a common point of reference that aids social cohesion. It brings people together. The need to feel part of something and share common interest is a fundamental human need. To this extent, a high level of belonging represents a positive social indication.

Education appears to follow an inverse pattern of association with national or cultural belonging. The more educated you are, the less likely you are to feel you belong. However, the relationship is nearly entirely explained by whether you were born in New Zealand or not. A higher proportion of tertiary qualified adults were born overseas. When adjusted for New Zealand-born status the relationship between national belonging and education disappears for New Zealand-born, and remains weakly negative for overseas-born. This relationship is not moderated by gender, or for young and middle-aged adults. But there was a suggestion that older adults had higher levels of belonging, regardless of education.

**Figure 41: Percentage of 25 to 64 year olds who felt they belong strongly or very strongly to New Zealand for NZ-born and non-NZ-born**



### 3.10 Tolerance of ethnic diversity

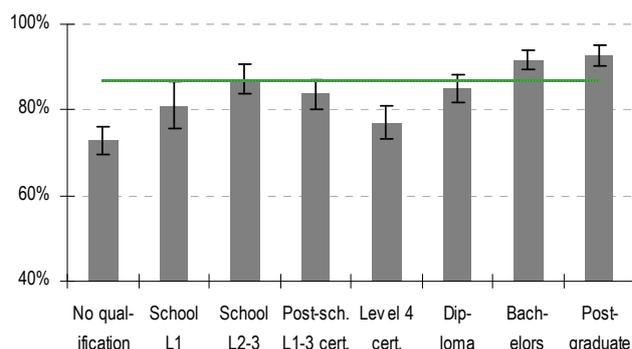
*Is it good for NZ to be made up of different ethnic groups?*

83% of New Zealanders aged 25 to 64 in the NZGSS agreed strongly or very strongly.

Tolerance of ethnic diversity was moderately to strongly associated with education. The likelihood of agreeing strongly or very strongly was highest for those with bachelors or postgraduate qualifications. Those with no qualifications, level 1 school qualifications or level 1 to 4 tertiary certificates were less likely to agree.

Differences were more pronounced for NZ-born. Overseas-born adults were more likely to agree, and differences across levels were smaller. Men were slightly less likely to agree than women, as were older adults. However, the differences between men and women and between age groups were not statistically significant, and neither variable moderated the overall relationship with education. Education remained a significant influence once adjusted for household income. There was a suggestion that higher-educated Māori were less likely to agree than equivalently-educated Europeans.

**Figure 42: Percentage of 25 to 64-year-olds who felt strongly or very strongly that it was good for NZ to be made up of different ethnic groups – by education level**



Education level	Estimate	Is this significantly different* from:	
		Level 2-3 School	Preceding level
No qualification	73%	Yes	
School level 1	81%	Yes	Yes
School level 2-3	87%		Yes
Post-school level 1-3 cert.	84%		
Level 4 cert.	77%	Yes	Yes
Diploma	85%		Yes
Bachelors	92%	Yes	Yes
Postgraduate	93%	Yes	

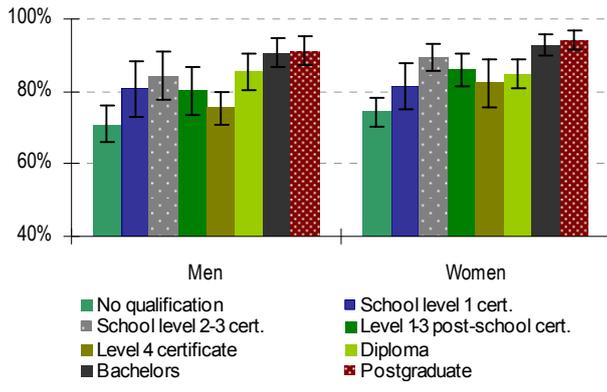
\* 95% chance the true proportions are different.

New Zealand is becoming increasingly diverse in terms of its ethnic makeup. Having a tolerant society that feels comfortable with this diversity is therefore important. The extent to which education can play a role in this is explored in this indicator.

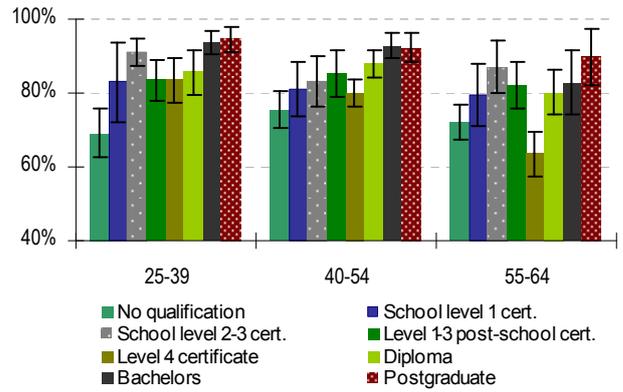
NZGSS data indicated that education was associated with tolerance of ethnic diversity, as summarised above. This association generally followed the typical pattern found throughout this report, although there were some interesting differences. One was that those with level 4 tertiary certificates were much less likely to agree that it was good for NZ to be made up of different ethnic groups. This in part may be due to the older, more male make-up of this group. Men and older adults in general were less likely to agree. Although the mean estimates for tolerance were lower for older adults, only the differences between older and younger adults for level 4 certificates and bachelors degrees were statistically significant.

Men were slightly less likely to agree than women, (81% compared to 84%). However, the differences between men and women across levels were not statistically significant and the pattern of association with education was the same.

**Figure 43: Percentage of 25 to 64-year-olds who felt strongly or very strongly that it was good for NZ to be made up of different ethnic groups – by education level and gender**

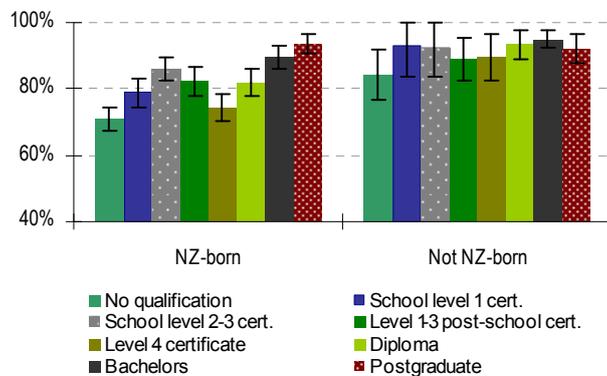


**Figure 44: Percentage of 25 to 64-year-olds who felt strongly or very strongly that it was good for NZ to be made up of different ethnic groups – by education level and age group**

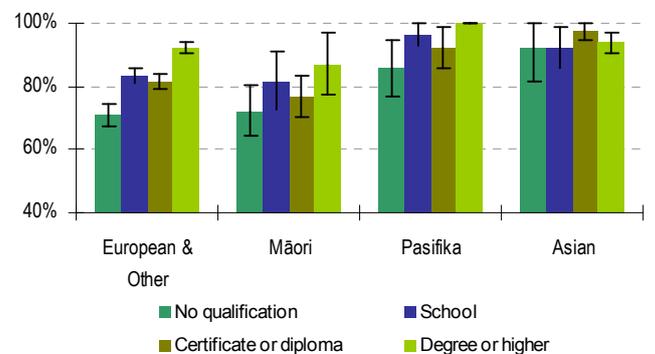


Differences were more pronounced for NZ-born. Overseas-born adults had significantly higher levels of tolerance than NZ-born, and differences across levels were smaller. This was partially mirrored in results by ethnic group, where Pasifika and Asian adults had higher levels, although very small sample sizes preclude any conclusions being made. There was a suggestion that higher-educated Māori were less likely to agree than equivalently-educated Europeans, but differences were also not statistically significant. Education remained a significant influence once adjusted for household income.

**Figure 45: Percentage of 25 to 64-year-olds who felt strongly or very strongly that it was good for NZ to be made up of different ethnic groups – by education level and whether born in New Zealand or not**



**Figure 46: Percentage of 25 to 64-year-olds who felt strongly or very strongly that it was good for NZ to be made up of different ethnic groups – by education level and ethnic group**



### 3.11 Tolerance of immigrants

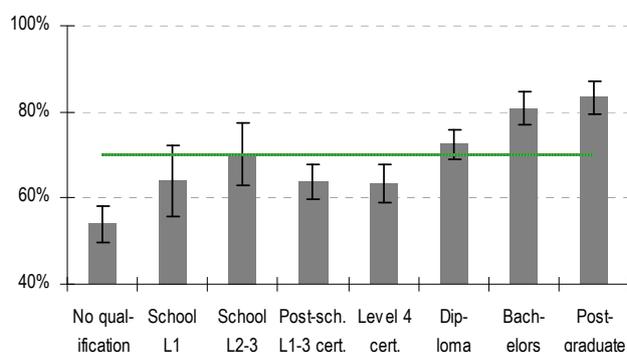
*Is it good for NZ to have immigrants who are from many different cultures?*

68% of New Zealanders aged 25 to 64 in the NZGSS agreed strongly or very strongly.

Agreement was positively associated with higher levels of education. This association was strong for NZ-born. It was weaker but still present for overseas-born adults. Compared to those with level 2-3 school qualifications (68%), those with no qualifications, level 1 school, or a level 1 to 4 post-school certificate were less likely to agree (54%, 64% and 64%). Those with bachelors or postgraduate qualifications were significantly more likely to agree (81% and 83%).

There was no significant difference between men and women, and both followed the same pattern of association with education. Younger, higher educated adults were more likely to agree, but once adjusted for whether NZ-born or not, this difference disappeared.

**Figure 47: Percentage of 25 to 64-year-olds who agreed strongly or very strongly that it was good to have immigrants who are from many different cultures – by education level**

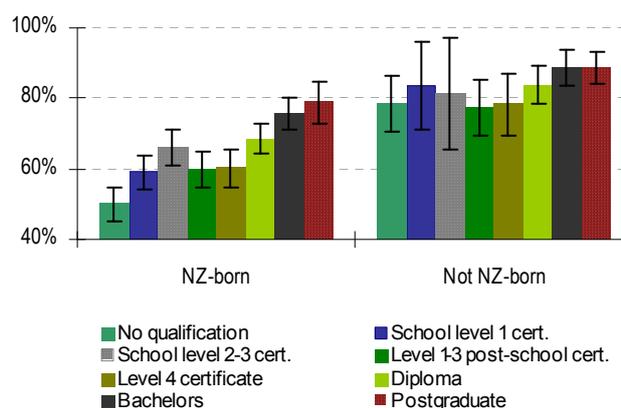


Education level	Estimate	Is this significantly different* from:	
		Level 2-3 School	Preceding level
No qualification	54%	Yes	
School level 1	64%		Yes
School level 2-3	70%		
Post-school level 1-3 cert.	64%	Yes	Yes
Level 4 cert.	63%	Yes	
Diploma	73%		Yes
Bachelors	81%	Yes	Yes
Postgraduate	83%	Yes	

\* 95% chance the true proportions are different.

Like views on ethnic diversity, peoples' views on whether it is good to have immigrants of different cultures have an important influence on social cohesion in New Zealand. The proportion of New Zealanders born overseas is increasing. At the time of the 2006 Census, overseas-born people made up 23% of the country's population compared with 19% in 2001 and 17% in 1996. (Ministry of Social Development, 2009).

**Figure 48: Percentage of 25 to 64 year olds who agreed strongly or very strongly that it was good to have immigrants who are from many different cultures – by education level and whether born in New Zealand or not**



The association between views on immigrants and education followed the typical pattern, as summarised above.

Like the indicator on ethnic diversity, the views towards immigrants of adults with level 1-4 tertiary certificates were less supportive than those of adults with level 2-3 school qualifications, while the results for the diploma group were similar. Unsurprisingly, overseas-born adults were more likely to have positive views on immigration. The over-representation of degree-educated amongst the overseas-born group acted to accentuate the difference between degree-educated and non-degree educated when combined with NZ-born.

### 3.12 Tolerance of different values and ways of living

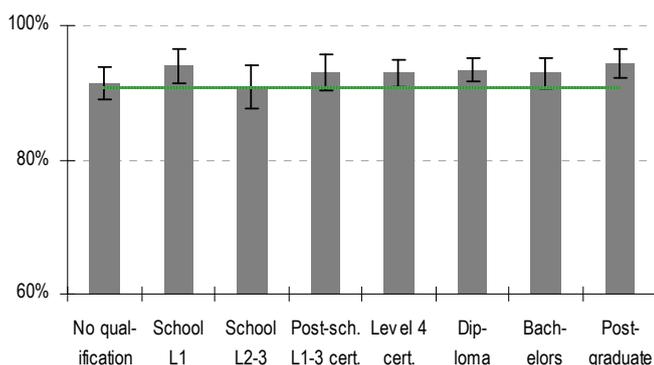
*Is it good that people in NZ can have different values? Is it good that people in NZ can have different ways of living?*

93% of New Zealanders aged 25 to 64 in the NZGSS agreed strongly or very strongly with the first question on values. Of these, 35% felt very strongly that it was a good thing. 91% agreed strongly or very strongly with the second question. Of these, 29% agreed very strongly.

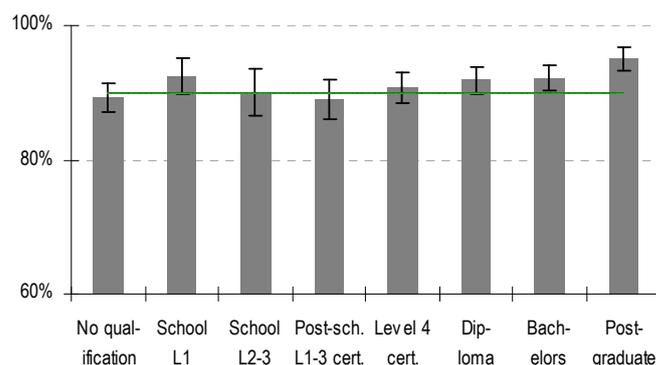
Education was positively associated with both these indicators. But unlike other indicators, this positive association was only present for those who agreed 'very strongly' (figures 51 and 52). When those who agreed 'strongly' were considered together with those who agreed 'very strongly', there was no apparent association between these indicators and education (figures 49 and 50). These were the only indicators from those selected for this report where the relationship of these first two positive responses had a different relationship.

Being born in New Zealand or overseas did not change the pattern of association, and neither did gender or age group. While younger adults were more likely to agree it was a good thing, age did not appear to moderate this relationship with education.

**Figure 49: Percentage of 25 to 64-year-olds who agreed strongly or very strongly that it was good that people in NZ have different values – by education level**



**Figure 50: Percentage of 25 to 64-year-olds who agreed strongly or very strongly that it was good that people in NZ have different ways of living – by education level**



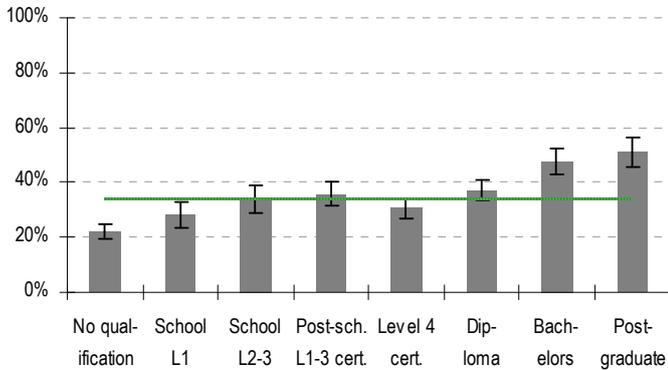
As with other indicators in this report, the above graphs show the relationship of education with the top two positive responses for people’s views on diversity of values and ways of living. In this case, it includes those who agreed strongly or very strongly. Nine in ten New Zealanders felt strongly or very strongly that it was good to have different values and different ways of living, and this proportion did not vary significantly with education. The only statistically significant difference was for postgraduate-educated adults in the question on ways of living (95% agreed strongly or very strongly).

In all other indicators in this report, the relationship with education was generally the same regardless of whether the most positive category was taken or the two most positive categories were taken. However, for these indicators, a strongly positive association with education emerged when just the most positive category was taken – ie those who agreed very strongly.

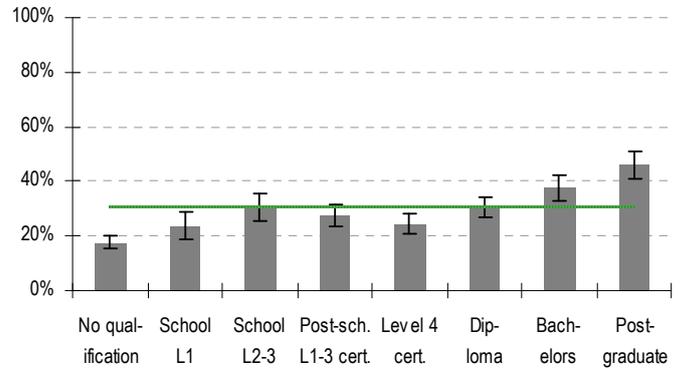
Those with bachelors degrees were 22% more likely to agree very strongly with the ways of living question than those with level 2-3 school qualifications, while those with postgraduate education were 51% more likely. Those with no qualifications or level 1 school qualifications were significantly less likely to agree very strongly (around 50% and 75% respectively). So while there were high levels of general acceptance of the benefits of diversity of values and

ways of living, those with stronger support were significantly more likely to have higher levels of education.

**Figure 51: Percentage of 25 to 64-year-olds who agreed very strongly that it was good that people in NZ have different values – by education level**



**Figure 52: Percentage of 25 to 64-year-olds who agreed very strongly that it was good that people in NZ have different ways of living – by education level**



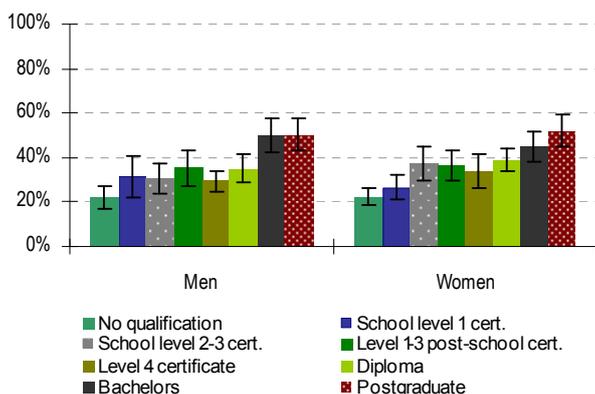
There were significant differences between those with the highest and lowest levels of education, and less differences between those in the middle. Unlike other indicators, results for those with level 1-3 post-school certificates were more positive. Those with one-year upper secondary qualifications or level 4 certificates were less likely to agree very strongly than those with level 2-3 school qualifications. Those with diplomas reported similar levels to those with level 2-3 school qualifications.

Education level	Values	Significantly different* from Level 2-3 School	Ways of living	Significantly different* from Level 2-3 School
No qualification	22%	Yes	18%	Yes
School level 1	28%		24%	Yes
School level 2-3	34%		31%	
Post-school level 1-3 cert.	36%		27%	
Level 4 cert.	31%		24%	Yes
Diploma	37%		30%	
Bachelors	48%	Yes	37%	Yes
Postgraduate	51%	Yes	46%	Yes

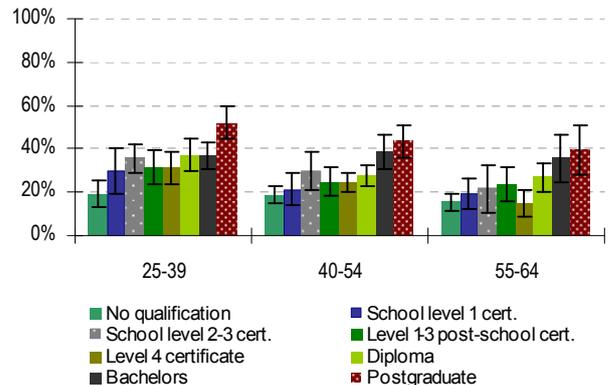
\* 95% chance the true proportions are different.

Being born in New Zealand or overseas did not change this pattern of association, but it did noticeably increase the scale of difference between levels for New Zealand-born. While overseas-born had the same pattern, there was less difference across levels. There were no significant differences between men and women, and the pattern of association with education was the same for both. Younger adults were more likely to agree, and the pattern of association with education was the same for all age groups. Education also remained a statistically significant influence once adjusted for household income.

**Figure 53: Percentage of 25 to 64-year-olds who agreed very strongly that it was good that people in NZ have different values – by education level and gender**



**Figure 54: Percentage of 25 to 64-year-olds who agreed very strongly that it was good that people in NZ have different ways of living – by education level and age group**



### 3.13 Health status

*In general, would you say your health is excellent, very good, good, fair or poor?*

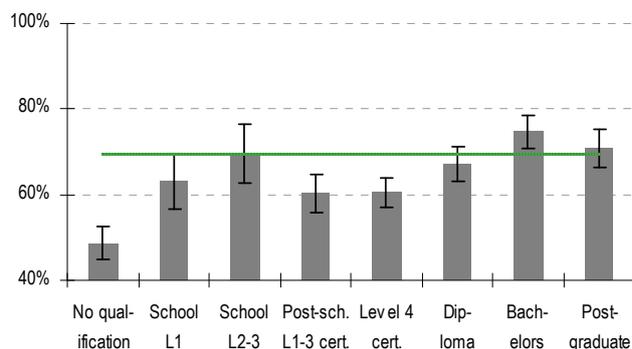
64% of New Zealanders aged 25 to 64 in the NZGSS said very good or excellent.

Education was strongly associated with health status. Compared to those with level 2-3 school qualifications (70%), those with no qualifications or level 1 to 4 post-school certificates were significantly less likely to report very good or excellent health (49% and 60%). Those with one-year upper secondary qualifications were also less likely to report very good health (63%). Those with bachelors degrees reported higher levels than those with diplomas, but there were no statistically significant differences between those having level 2 or 3 upper secondary qualifications and those with a tertiary diploma or higher.

Adults aged 55 to 64 with a diploma or higher reported lower health status than younger adults with the same level of education, but differences between older and younger adults for lower levels were generally not significant.

The only statistically significant difference between men and women was at diploma level, where men were 14% less likely to report good health status. The influence of education followed the same pattern regardless of gender or age group. Education was still a significant influence once adjusted for household income, and whether born in New Zealand or not.

**Figure 55: Percentage of 25 to 64-year-olds who rated their health as very good or excellent – by education level**



Education level	Estimate	Is this significantly different* from:	
		Level 2-3 School	Preceding level
No qualification	49%	Yes	
School level 1	63%		Yes
School level 2-3	70%		
Post-school level 1-3 cert.	60%	Yes	Yes
Level 4 cert.	60%	Yes	
Diploma	67%		Yes
Bachelors	75%		Yes
Postgraduate	71%		

\* 95% chance the true proportions are different.

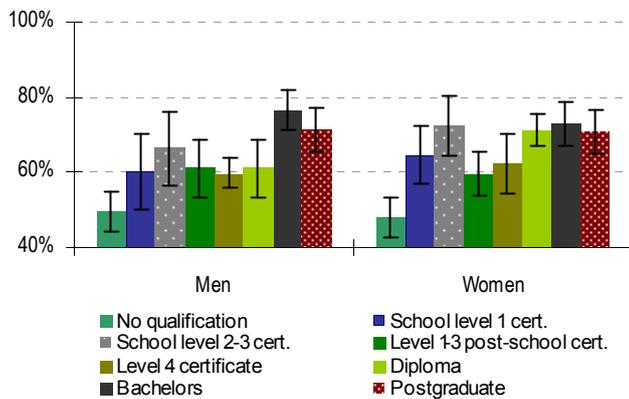
Health is a key social indicator. Healthy individuals and societies are more productive, with less time lost to illness, and less resources spent on health treatment. Health, like education, is typically one of the largest areas of spending for governments. While the causal direction and interaction mechanisms are by no means established, the positive association between education and health is now well established. The potential indirect financial contribution of education in terms of reduced health costs and increased productivity merits increased policy and research consideration.

The OECD now publishes an annual indicator showing a consistent positive relationship between education and better health across most countries (OECD 2009). Elliot & Schagen (2008) also showed a positive relationship between education level and health for New Zealand adults using Adult Literacy and Lifeskills Survey data. Like their study, sections 3.14 and 3.15 in this report explore this relationship separately for physical and mental health, using the same SF-12 measures. We find similar results for physical health, but unlike their study, we find the relationship between education and mental health to be weaker.

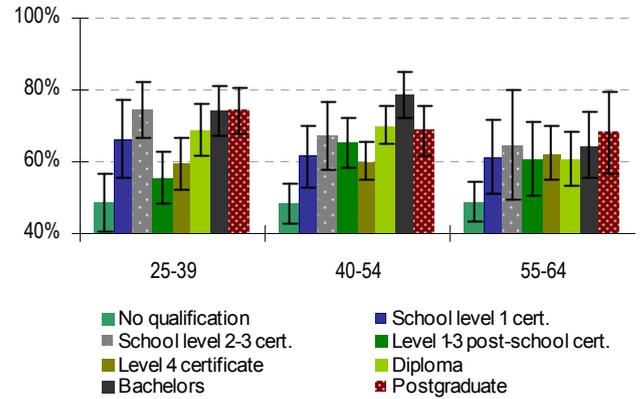
The relationship between self-reported health status and education, as summarised above, is more marked than a number of other indicators in this report. But it is not entirely typical or incremental across all levels. For example, while those with less education (no qualification, one-year upper secondary qualifications or a level 1 to 3 post-school certificate) were less likely to report good health status, so too were those with a higher level tertiary certificate or a diploma. In part, this was due to a higher proportion of older males in these groups – both factors associated with lower health status. Bachelor-educated adults reported higher levels than postgraduate or other levels – although differences were not statistically significant.

Importantly, this same pattern with education held regardless of age or gender. The only statistically significant difference in health status between men and women was at diploma level, where men were 14% less likely to report good health status. Older, higher-educated adults were less likely to report good health status, but for those with no qualifications or one-year upper secondary qualifications, there was no difference across age groups. Education level remained highly significant after adjusting for household income. The same pattern of association also held for New Zealand-born adults only.

**Figure 56: Percentage of 25 to 64-year-olds who rated their health as very good or excellent – by education level and gender**



**Figure 57: Percentage of 25 to 64-year-olds who rated their health as very good or excellent – by education level and age group**



### 3.14 Physical health (SF-12)

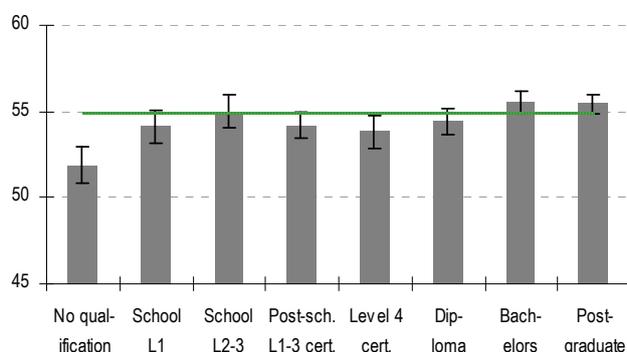
#### *Physical health status as based on median SF-12 score<sup>4</sup>*

This measure of health status followed exactly the same pattern of association with education as that of overall health status discussed previously. However, while the pattern was similar, the size of the differences was smaller and fewer were statistically significant.

The median score for all adults in the NZGSS with level 2-3 school qualifications was 55. Those with no qualifications (52), one-year upper secondary qualifications (54), or tertiary qualifications below degree level (54) had lower scores, but only the result for those with no qualifications was statistically significant. Those with bachelors-level or higher qualifications had higher median scores (55), but these differences were also not statistically different from the group with upper secondary qualifications.

The NZGSS included the set of 12 questions from the Medical Outcomes Study Short Form, commonly known as SF-12 questions. This tool is generally accepted as providing a reliable indicator of physical and mental health status, and has widespread use internationally. The answers to these 12 questions are combined into scores from 0 to 100, one for physical health status, and one for mental health status. Both are norm-referenced to an average score of 50. Among the questions included in the SF-12 are the questions on overall health status discussed in 3.13, and the three questions on mental well-being discussed in 3.17. The questions on physical health focus on whether health conditions limit physical activity, more than whether a person has a particular health condition or not.

**Figure 58: Median SF-12 physical health score for 25 to 64-year-olds – by education level**



Education level	Estimate	Is this significantly different* from:	
		Level 2-3 School	Preceding level
No qualification	52	Yes	
School level 1	54		Yes
School level 2-3	55		
Post-school level 1-3 cert.	54		
Level 4 cert.	54		
Diploma	54		
Bachelors	56		Yes
Postgraduate	55		

\* 95% chance the true medians are different.

Resulting physical health scores for the NZGSS sample for adults aged 25 to 64 ranged between 52 and 55 with a median of 54. The pattern of association between median physical health score and education was identical to the pattern for the health status question, although the size of differences between education levels was smaller, and fewer were statistically significant. In fact, gender differences for each level of education were virtually zero using the SF-12 physical health scores. Age group differences were more consistent across levels than for self-reported health status, with scores for older adults ranging from 92%-99% of the score for the equivalently educated younger adults. One disadvantage of using medians alone is that they don't show variations in distribution between education levels. But these median scores, considered alongside self-reported health status, support other findings that physical health is strongly associated with education.

<sup>4</sup> A link to more information on SF-12 can be found at, for example, [www.qualitymetric.com](http://www.qualitymetric.com).

### 3.15 Mental health (SF-12)

*Mental health status as based on median SF-12 score<sup>5</sup>*

*and three of the SF-12 questions:*

*How much of the time during the past four weeks have you felt downhearted and depressed?*

*How much of the time during the past four weeks have you felt calm and peaceful?*

*How much of the time during the past four weeks did you have a lot of energy?*

In contrast to the stronger associations found for physical measures of health, mental health status as measured by these SF-12 measures was not, or was only very weakly, associated with education. Most of the differences were either statistically or materially not significant.

Only for those with level 1 to 3 post-school certificates was there a suggestion of lower overall median mental health SF-12 score.

There was a slightly stronger, but still weak, relationship between education and not feeling depressed. Those with no qualifications or level 1 to 3 post-school certificates were more likely to report feeling depressed. Those with level 4 certificates or higher were less likely to report feeling depressed. However, only the results for degree-level and above qualifications were statistically significant. Only the difference for the lower groups remained after adjusting for household income.

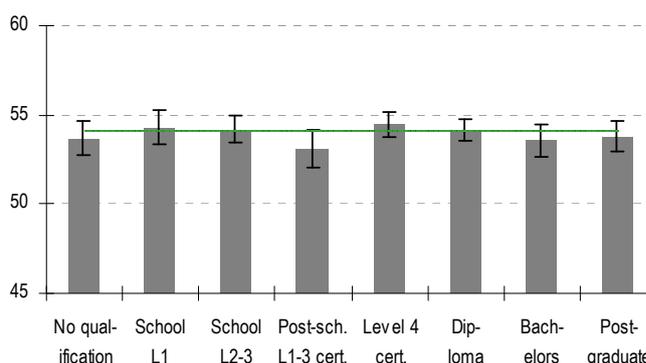
Education was generally not associated with your likelihood of feeling calm and peaceful most or all of the time.

Those with no qualifications or level 1 to 3 post-school certificates were more likely to report lacking energy, but in general, this measure of well-being again did not really appear to be associated with other levels of education.

No significantly different patterns of association with education emerged for men or women, or for different age groups, or when NZ-born adults only were selected.

Mental health-related issues cover a large range of problems, often receiving less attention than physical issues but responsible for significant loss of productivity and quality of life. The measure of mental health status analysed here from the SF-12 set of questions covers areas such as depression, lack of energy, calmness, impact on daily activities, social interaction and other quality-of-life measures. In addition to the overall mental health score, three of the measures included in SF-12 – depression, energy and calmness are analysed separately.

**Figure 59: Median SF-12 mental health score for 25 to 64 year olds – by education level**

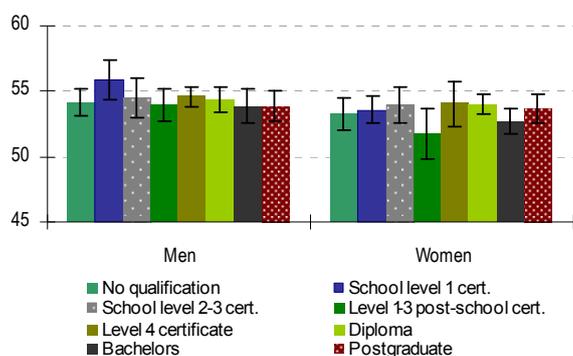


Mental health status, based on median SF-12 scores, in the main, did not appear to be associated with education. Like physical health status, scores are norm referenced to an average of 50. Median scores varied by just 1.3 points across all levels with a median of 54. Only for those with level 1 to 3 post-school certificates was there a suggestion of lower mental health, with a lower score of 53. This difference was statistically significant at the 90% confidence level.

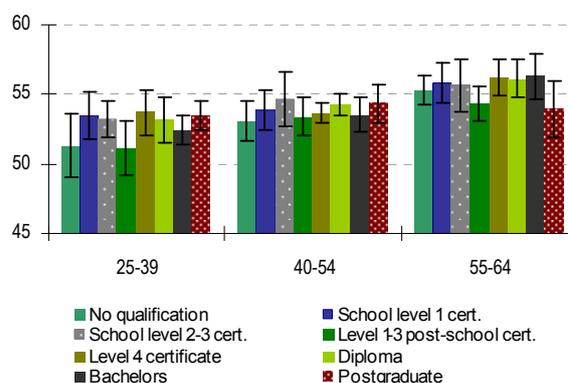
<sup>5</sup> A link to more information on SF-12 can be found at, for example, [www.qualitymetric.com](http://www.qualitymetric.com).

Men had slightly higher median scores than women across all levels, but only the differences at lower education levels were statistically significant. Age was a statistically significant influence, with older adults having higher median scores, but education remained non-significant at any age. There was also no change to this pattern when NZ-born adults were analysed separately. One disadvantage of using medians alone is that they don't show variations in distributions between education levels that may be more significant.

**Figure 60: Median SF-12 mental health score for 25 to 64-year-olds – by education level and gender**



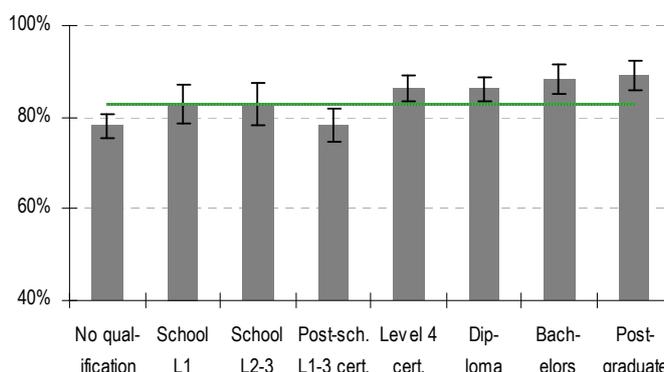
**Figure 61: Median SF-12 mental health score for 25 to 64-year-olds – by education level and age group**



The questions on depression, energy and calmness form three of the questions collected as part of the SF-12. The association between these measures of mental health and education was again very weak and only partially apparent for some levels. Having no qualifications or low-level post-school qualifications was associated with poorer outcomes in these measures, which may reflect factors other than education.

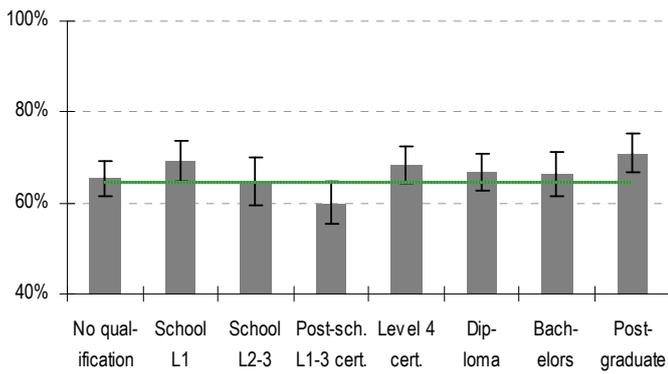
Gender and age did not moderate these relationships. Men were slightly more likely than women to report feeling calm, and having lots of energy. Older adults were significantly more likely to report feeling calm than younger adults. However, any differences between education levels in feelings of depression were small and seldom statistically significant. After adjusting for income, only those with no or level 1 to 3 post-school qualifications remained more likely to report feelings of depression.

**Figure 62: Percentage of 25 to 64 year olds who reported feeling depressed or downhearted none or only a little of the time – by education level**

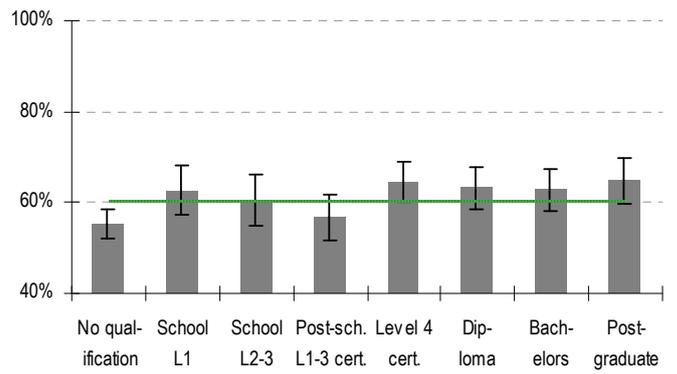


Education was generally not associated with the likelihood of feeling calm and peaceful. Those with level 1 to 3 post-school certificates were less likely to report feeling calm, while those with postgraduate qualifications were more likely. However, differences were small and did not follow the typical pattern of increasing with education.

**Figure 63: Percentage of 25 to 64-year-olds who felt calm or peaceful most or all of the time – by education level**



**Figure 64: Percentage of 25 to 64-year-olds who reported having a lot of energy – by education level**



### 3.16 Smoking

*Do you smoke cigarettes regularly, that is, one or more a day?*

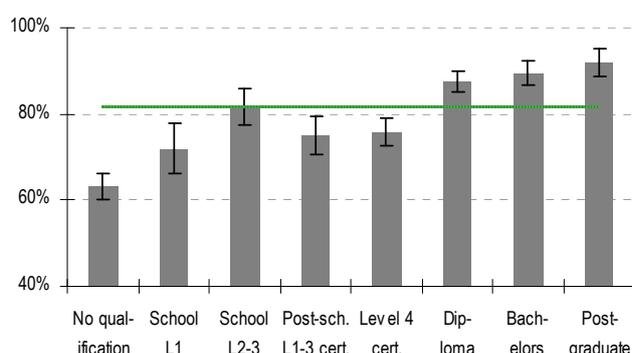
79% of New Zealanders aged 25 to 64 in the NZGSS said no, they were not regular smokers.

Education was very strongly associated with smoking. Those with no qualifications were most likely to be regular smokers (37%). Those with just one year upper secondary qualifications or with level 1 to 4 post-school certificates were also significantly more likely to be smokers (29% and 25%). Those with diploma, bachelors and postgraduate qualifications were less likely to smoke (13%, 10% and 8% respectively).

The relationship was moderated by age. Older adults with less education were significantly less likely to smoke than younger adults with similar levels of education.

Men were marginally more likely to smoke than women, but both had the same strong pattern of association between smoking and education.

**Figure 65: Percentage of 25 to 64-year-olds who did not smoke regularly – by education level**

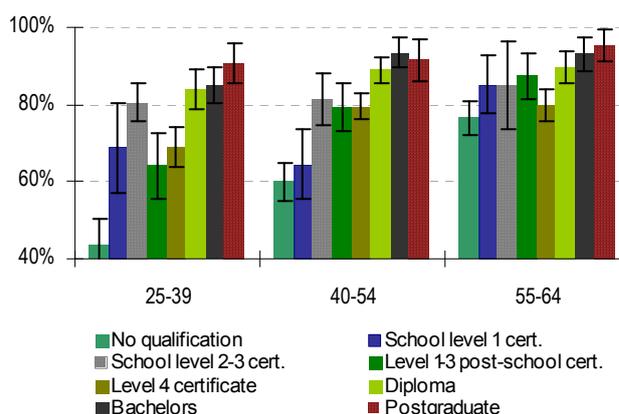


Education level	Estimate	Is this significantly different* from:	
		Level 2-3 School	Preceding level
No qualification	63%	Yes	
School level 1	72%	Yes	Yes
School level 2-3	82%		Yes
Post-school level 1-3 cert.	75%	Yes	Yes
Level 4 cert.	76%	Yes	
Diploma	87%	Yes	Yes
Bachelors	90%	Yes	
Postgraduate	92%	Yes	

\* 95% chance the true proportions are different.

Smoking is a significant public health policy issue in many countries. The direct and indirect costs to individuals and societies are large, and New Zealand, like many other countries, has taken active measures to reduce the incidence and negative effects of smoking. It is not clear the extent to which an individual's education plays a part in their choice to smoke. It is likely, in fact, that other factors influence both educational achievement and smoking choices. Regardless of this, the association between education and smoking was one of the strongest found in this study. It was not moderated by gender, but was moderated by age, where younger adults with less education were significantly more likely to smoke than older adults with similar levels of education. Education remained a significant influence once adjusted for household income as well.

**Figure 66: Percentage of 25 to 64 year olds who did not smoke regularly – by education level and age group**



### 3.17 Safety and security

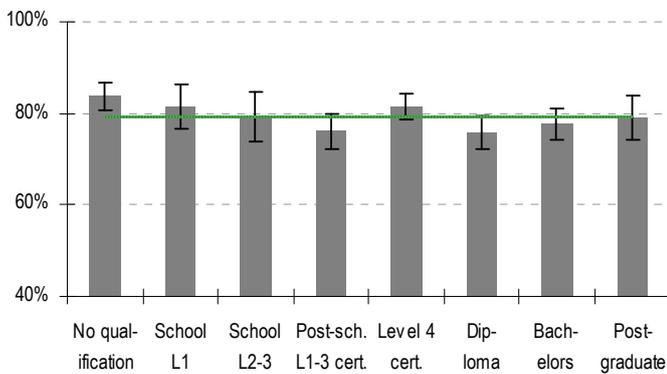
*In the last 12 months, did you have any crimes committed against you?  
In the last 12 months, have you had any traffic accidents?*

80% of New Zealanders aged 25 to 64 had not been a victim of crime in the previous 12 months, and 91% had not had a traffic accident.

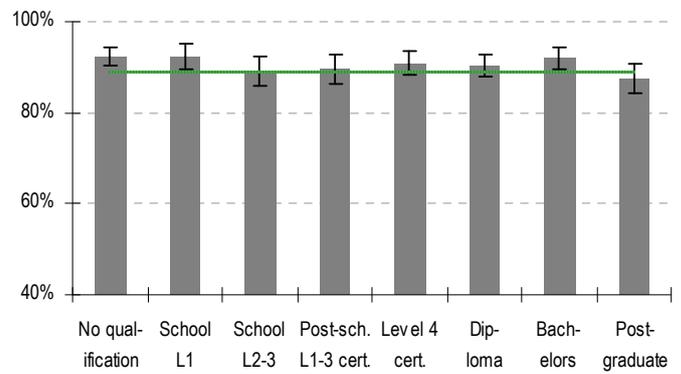
Those with no qualifications were slightly less likely to report being a victim of crime or having had any traffic accidents, although, in general, neither measure appeared associated with level of education.

This lack of association remained when examined for men and women separately, or for different age groups. Men and women appeared equally likely to have been a victim of crime or involved in a traffic accident, regardless of level of education.

**Figure 67: Percentage of 25 to 64-year-olds who were not a victim of crime – by education level**



**Figure 68: Percentage of 25 to 64-year-olds who had not had a traffic accident – by education level**



These indicators explored the association between education and safety and security, and the role that education might play in whether you are likely to be involved in a traffic accident, or be a victim of crime. One might surmise that education, to the extent that it reflects an individual's skills, and ability to make rational choices, might have an influence on these indicators. However, these indicators reflect the experience of victims or participants rather than perpetrators, and this may be acting to remove educational effects. While those with no qualifications were less likely to have been a victim of crime, there was no indication from the NZGSS data that education was linked to these two measures of safety and security.

### 3.18 Environmental practices

*Of the things that you know you can recycle, how much does your household actually recycle?  
How often does your household do things to minimise energy use?  
How often does your household do things to minimise water use?*

72% of New Zealand households recycled most or all of the things they knew they could recycle. 56% lived in households that did things most of all of the time to minimise energy use, and 48% lived in households that did things most of all of the time to minimise water use.

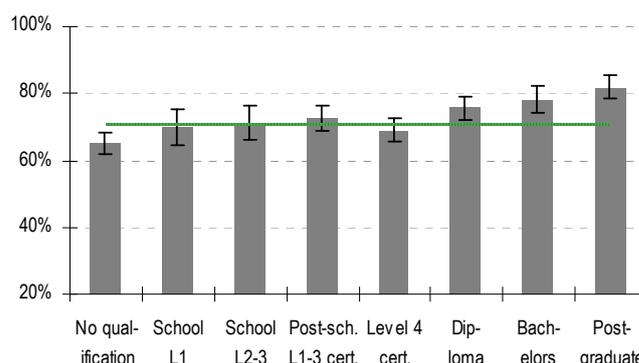
Education was moderately associated with household recycling. Those with no qualifications were less likely to live in households which recycled most things. Those with diploma, bachelors or postgraduate qualifications were more likely to (76, 78% and 82%). There were no significant differences for those with levels in between.

There were no significant differences in the proportion of households that did things most of the time to save energy or to save water. Household income had a large and moderating effect on the energy and water indicators (where there may be direct costs involved), but education had a higher influence than income on recycling.

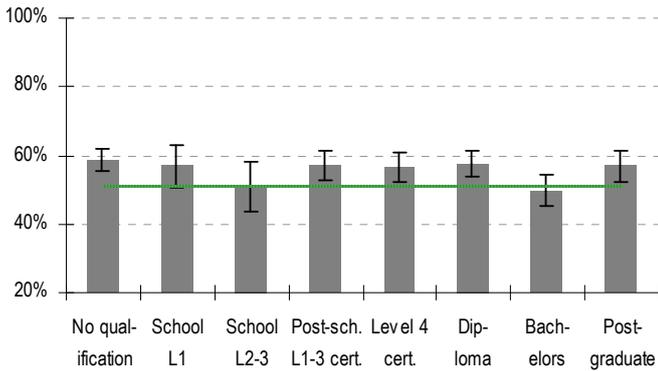
Environmental issues are now a key area of policy interest nationally and globally. Many central and local governments have active policy agendas and programmes aimed at minimising waste, conserving valuable resources and reducing human impact on the environment. The NZGSS data affords us the opportunity of exploring the extent to which this responsibility is shared across adults with different education levels.

These associations are summarised above. There are direct financial costs associated with not saving energy, and sometimes with not saving water. These costs are likely to be a factor moderating the relationship of these two indicators with education. By contrast, a decision to recycle carries a low cost. Those households with less income (a factor associated with less education) have more motivation to save than those with more income. When these indicators are regressed against level of education and income, income has more influence than education in saving energy and water, while education has more influence than income in recycling.

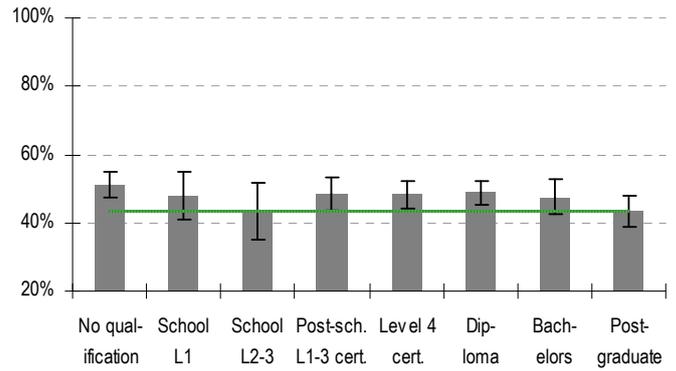
**Figure 69: Percentage of households that recycled most or all of the things that could be recycled – by education level**



**Figure 70: Percentage of households that did things most or all of the time to save energy – by education level**

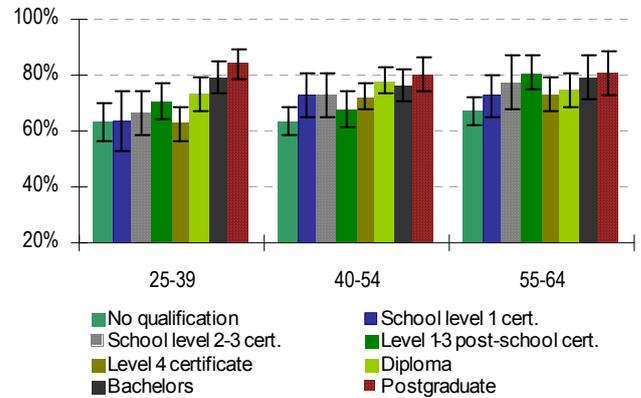


**Figure 71: Percentage of households that did things most or all of the time to save water – by education level**

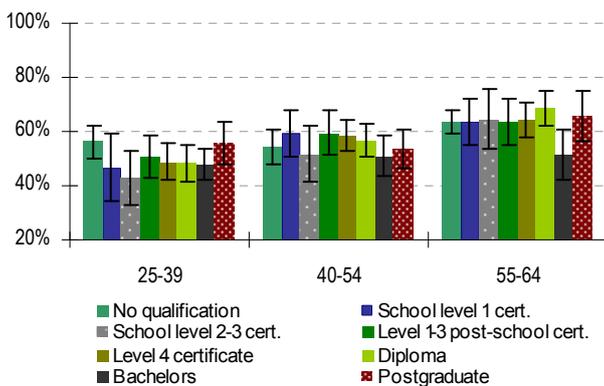


The gender of the person responding for the household did not generally affect these relationships, and any differences between men and women of comparable education levels were not statistically significant. The age of the person responding for the household was a significant factor, and moderated the relationship with education slightly. Households with older adults were generally more likely to recycle, and do things to save energy or water, than those with younger adults. The differences were more marked at lower education levels. Age was less of a factor at diploma level and above.

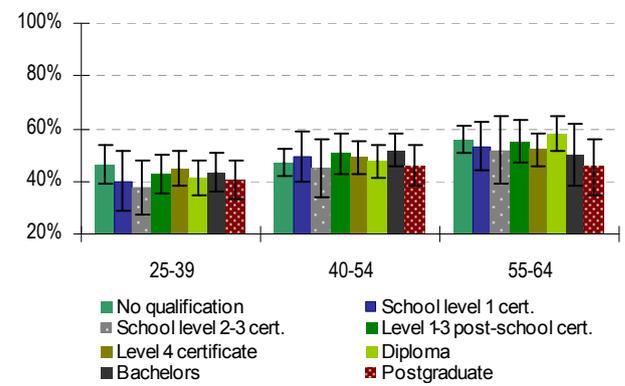
**Figure 72: Percentage of households that recycled most or all of the things that could be recycled – by education level and age group**



**Figure 73: Percentage of households that did things most or all of the time to save energy – by education level and age group**



**Figure 74: Percentage of households that did things most or all of the time to save water – by education level and age group**



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