THE STATUS OF EARLY CHILDHOOD HEALTH AND DEVELOPMENT IN KIRIBATI

RESULTS FROM A POPULATION WIDE CENSUS

Sally Brinkman
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1818 H Street NW, Washington DC 20433

Telephone: 202-473-1000; Internet: www.worldbank.org

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ABBREVIATIONS

ECCE	Early Childhood Care and Education
EGRA	Early Grade Reading Assessment
EHCI	early Human Capability Index
KeHCI	Kiribati Early Human Capability Index
MHMS	Ministry of Health and Medical Services
MoE	Ministry of Education
PILNA	Pacific Islands Literacy and Numeracy Assessment
SDG	Sustainable Development Goal
TeHCI	Tongan early Human Capability Index
WHO	World Health Organization

ABSTRACT

Kiribati is among the first few countries in the world to have undertaken a national census of children's early health and development. This report presents data collected for 7,194 children aged 3 to 5 years across 21 of the country's islands. Data were collectedon children's health and development, their learning environments at home, and their early childhood education experience, which together, provide a snapshot of how children in Kiribati are developing in their early years and highlights factors that are playing an important role in influencing children's outcomes. Overall, these results provide the country with valuable evidence to guide policy makers and service providers in their program planning and design, evaluation of interventions, and monitoring of children's outcomes. It is hoped that in future, the country will drive repeat census collections, as only with repeat data over time will policy makers, service providers, and communities be able to understand if their work to support children is making a difference.

INTRODUCTION

Kiribati is a sovereign state in the central Pacific Ocean. Comprised of 33 islands, 21 of which are inhabited, Kiribati has a population of approximately 110,000, more than half of which live on the islands of Tarawa, the country's capital. Children make up a third of the country's population, another half of the population are adults, and the remainder are aged 50 years and over. Kiribati's people are Micronesian, and although English is the country's official language, the large majority of the population speak Gilbertese. The country's economy benefits from copra and fish exports, seaweed farming, foreign fishing licensing fees, tourism, as well as developmental aid and remittances from family overseas. The islands of Kiribati are vulnerable to changes in climate, including rising sea levels, increasing temperatures, and rainfall – indeed climate impacts almost all aspects of life in Kiribati.

The Government of Kiribati has made a commitment to foster an educated, skilled, and employable population in order to achieve its overall vision of becoming a wealthy, healthy, and peaceful nation. Further, in conjunction with countries across the world, Kiribati has committed to adopt the United Nations 2030 Agenda for Sustainable Development to end poverty, fight inequality, protect the planet and ensure inclusive and quality education for all. Sustainable Development Goal (SDG) 4.2 states that by 2030, all girls and boys should have access to quality early childhood development, care and pre-primary education so that they are ready for primary education. Similarly, the country has also ratified the United Nations Convention on the Rights of the Child, which further recommends the monitoring of children's development within and across populations.

As a result, education is one of the government's key priorities. Historically, significant investments have been put into primary, junior, and secondary school – the first 9 years of schooling in Kiribati are compulsory and free, and as a result enrolment rates are high. Increasingly, global evidence has demonstrated the importance of children's experiences before school, and so more recently, Kiribati has worked towards prioritising the provision, quality, and monitoring of early childhood care and education (ECCE) services across the country. Specifically, the Government of Kiribati passed an Act on ECCE in 2017, the aims of which are to (i) provide a framework for the regulation of the provision and operation of ECCE services to children from 3 to 6 years of age; (ii) establish a registration and compliance mechanism relating to the provision of ECCE services; (iii) set out requirements for the provision and operation of ECCE services; and (iv) facilitate and support ECCE services implemented at the national and local government levels.

Despite such efforts, concerns remain regarding children's levels of literacy and numeracy achievement across the country, and more broadly across the Pacific region. Results from the latest Pacific Island Literacy and Numeracy Assessment (PILNA) in 2015[1] indicate that at the regional level, although achievement in literacy and numeracy has improved since 2012, more than half of students in years 4 and 6 across the Pacific have still not achieved reading comprehension. Further, findings from the Early Grade Reading Assessment (EGRA) in Kiribati in 2017[2] demonstrate that at grade 3, 13 percent of students still have scores zero in reading comprehension. There are also causes for concern particularly regarding boys' achievement relative to that of girls, as evidenced by results from both the PILNA and the EGRA. Subsequently, education stakeholders are urged to review the evidence and consider intervention strategies to work toward improving children's outcomes.

1 Pacific Islands Numeracy and Literacy Assessment (PILNA) report, Pacific Community, 2015
2 Early Grade Reading Assessment (EGRA), World Bank, 2017

This report is a step forward in achieving these goals. Presented herein are results regarding the status of children's early health and development in Kiribati, as well as their participation in preschool and their learning environments at home. Measuring children's early outcomes in this way will enable the country to highlight areas of need, identify any gaps in services and supports, evaluate the effectiveness of health and ECCE sectors, and provide the evidence needed to guide program and policy development to improve the development of children across the country.

THE EARLY HUMAN CAPABILITY INDEX

The early Human Capability Index (eHCI) was used to measure children's health and development in Kiribati. The eHCI is a population measure designed to capture the key aspects of holistic development in children aged 3 to 5 years that predict their future capabilities and outcomes. Specifically, the eHCI measures children's physical health, verbal communication skills, perseverance and approaches to learning, early literacy and numeracy skills, cultural knowledge, and social and emotional skills. The eHCI was initially developed for use in Tonga to conduct a census of children's development across the country, and as such the methodological details regarding the instrument's development can be found in the original Tongan census report[3]. Following success and learnings from utilisation of the eHCI in Tonga, other countries across the Pacific have since committed to adapting and implementing the eHCI for population measurement, including Kiribati.

The Kiribati eHCI (KeHCI) was based on the Tongan version of the eHCI (TeHCI) due to similarities in culture and language between Tonga and Kiribati. To adapt the instrument for use in Kiribati, the creator of the eHCI, Sally Brinkman, together with staff from the Ministry of Health and Medical Services (MHMS), the Ministry of Education (MoE), as well as other key stakeholders, used both Tongan and English versions of the eHCI to translate the instrument to Kiribati language and ensure the translations were capturing the true essence and intent of each item. The instrument was then piloted to ensure respondents understood the questions being asked of them, and were able to respond to each item as intended. Teachers from four preschools in South Tarawa participated in the pilot. They were trained in how to complete the instrument via the traditional pen and paper method, and were then asked to return completed KeHCI forms for the children in their class. The tool was then further revised based on the teachers' experiences throughout the pilot.

As a result of similarities in culture across islands in the Pacific, the KeHCI captures aspects of children's development similar to that measured by the TeHCI, indicating what 'good' child development looks similar across the Pacific region. Specifically, the KeHCI includes 75 items designed to measure 9 different aspects of children's development: verbal communication, approaches to learning, numeracy and concepts, cultural knowledge, formal literacy (reading), formal literacy (writing), social and emotional skills, perseverance, and physical health.Together, these aspects of development have been shown to be highly predictive of children's later learning and educational achievement.

Scores for each of the KeHCI domains range from 0 to 1, with 1 being the best score and 0 being the poorest. The data are not weighted or age standardised so older children should receive higher scores on each of the domains compared to younger children to reflect more advanced development. From these 9 domains an overall literacy and numeracy score is derived, as well as an overall development score, both ranging from 0 to 1 with 1 being the best score. In addition, the KeHCI captures basic background characteristics for each child, including their primary caregiver's educational level, their participation in early childhood education programs, as well as their learning environments at home. Both English and Kiribati versions of the KeHCI are presented in Appendix A.

3 Brinkman, S. & Thanh Vu, B. (2017). Early Childhood Development in Tonga: Baseline Results from the Tongan Early Human Capability Index. World Bank Group, Washington, DC.

DATA COLLECTION

Data were collected from March to June 2017 on7,194 (approximately 80 percent) of children aged 3 to 5 years old in Kiribati. Children resided in 164 villages across 21 islands, with most living in South Tarawa (N=3,154), Kiritimati (N=550), Abaiang (N=515), and North Tarawa (N=410). Data were collected from children's primary caregivers or preschool teachers and included questions about their health and development, their learning environments at home,and their early childhood educatione xperience. Together, this information provides a snapshot of how children are developing in their early years.

As demonstrated in Table 1, there were a relatively equal number of children in each age group, as well as an even number of males and females in the population sample. A small number of children were reported to have a disability, and the majority of children's caregivers had completed at least some form of education, with levels of education reasonably similar across children's mothers and fathers.

Table 1: Sample characteristics

Variable	Number (percent)	
Gender	Male	3,657 (50)
	Female	3,408 (47)
	Missing	129 (2)
Age	3 years	2,184 (30)
	4 years	2,128 (30)
	5 years	1,992 (28)
	Missing	890 (12)
Special needs status	Yes	559 (8)
	No	5,883 (82)
	Missing	752 (10)
Mother's education	Some primary school	582 (8)
	Completed primary school	1,251 (17)
	Completed junior school	2,007 (28)
	Completed secondary school	2,234 (32)
	Higher/tertiary education	696 (10)
	Missing	324 (5)
Father's education	Some primary school	686 (10)
	Completed primary school	1,318 (18)
	Completed junior school	1,908 (27)
	Completed secondary school	2,168 (30)
	Higher/tertiary education	640 (9)
	Missing	474 (7)

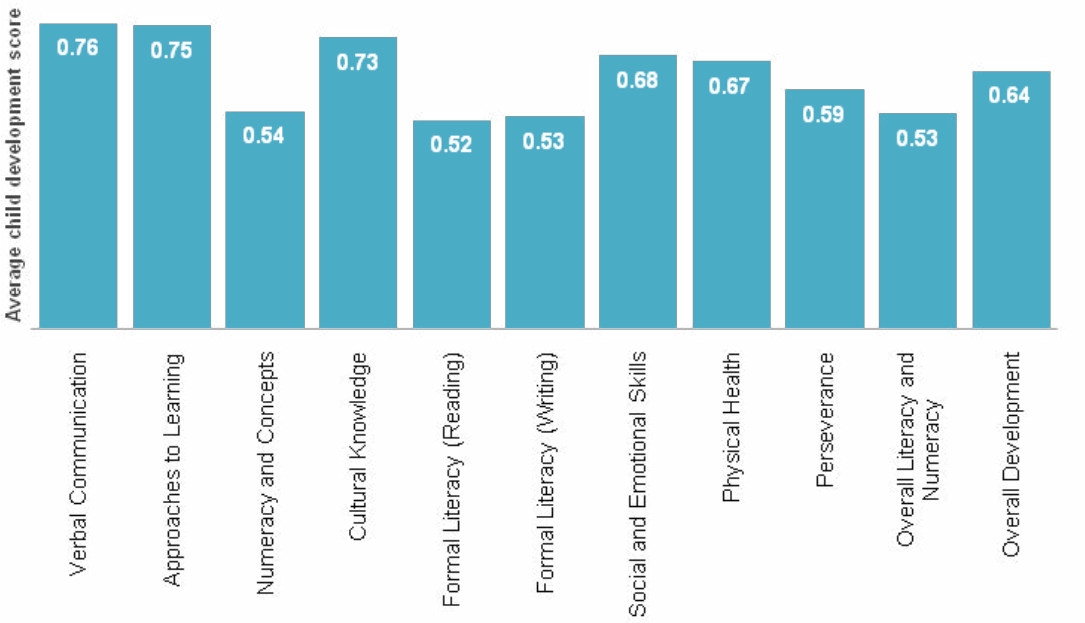
RESULTS

Child Development

Early childhood development is the most crucial period in life as it determines later health, wellbeing and achievement throughout the life course. Early childhood development is generally defined as children's holistic development from conception to age 8, and this development occurs when children learn how to move, think, and interact at increasingly complex levels. There are different areas or domains of development including physical, social and emotional, language, and cognitive development, with each of these domains being influenced by a combination of biological and environmental factors.

As discussed, the tool used to measure children's development in this report is the Kiribati version of the eHCI (KeHCI). Figure 1 presents children's average scores across the 9 KeHCI developmental domains, as well as summary indicators of overall literacy and numeracy scores and average overall development. Across the entire sample, children scored highest on domains measuring verbal communication skills, approaches to learning, and cultural knowledge, and lowest on domains that measure children's more formal aspects of development – their early reading, writing, and maths skills. These results are consistent with those previously reported on for the children of Kiribati, with concerns regarding low levels of literacy and numeracy achievement as identified by the PILNA. Below we explore these results in more detail in order to gain an understanding of the factors that are influencing children's development in Kiribati.

Figure 1: Children's development across domains



Early language skills

Good language development supports a child's ability to communicate with others, and these skills lay the foundation for learning to read and write. Caregivers and teachers were asked about children's early language skills; with almost all children reported to know their name (94 percent), and the majority were also able to use simple words (69 percent), a simple sentence (63 percent), and practice turn-taking in conversations (60 percent).

Early maths skills

Basic numeracy skills such as being able to recognise a number or a shape, understanding object size and weight, and being able to count are all important for children to become numerate and ready to learn further at school. Most caregivers and teachers reported that children could recognise shapes such as a triangle, circle and square (79 percent), could count to 10 (62 percent), and could identify 3 colours (68 percent). Fewer children were said to understand the concept of yesterday, today and tomorrow (29 percent), and were able to count to 20 (19 percent).

Early literacy skills

Familiarity with words, sounds, and language, as well as the more formal aspects of literacy that develop later in childhood, reading and writing, are all important skills children need to be able to further develop and learn at school. Caregivers and teachers were asked about children's familiarity with books; 52 percent of children could hold a book and turn its page correctly, and 27 percent were able to follow the words in a book from left to right. When asked about children's reading abilities, it was reported that 41 percent could read 4 or more familiar words. Respondents were also asked about children's writing abilities, with 55 percent able to write 3 or more letters, and 32 percent able to write simple words.

Early social and emotional skills

Social and emotional skills are important for getting along with others and forming healthy relationships, and these skills enable children to adapt to their school environment. Caregivers and teachers reported that majority of children are willing to share their belongings (79 percent), willing to help others (75 percent), and are able to show respect for other children (66 percent) and adults (60 percent). However, many children were also reported to sometimes display negative social behaviours such as kicking, biting, or hitting (42 percent).

Child development disparities

Figure 2 below demonstrates differences in overall development according to children's age and gender. Consistent with the international child development literature, older children were found to be developing better than younger children and girls were developing slightly better than boys, and these patterns were found to be statistically significant across all KeHCI domains. Figure 3 demonstrates small differences in children's overall development scores based on their parent's levels of education, with children whose parents had completed a higher level of education having slightly better development when compared to children of parents with a lower education. Further analysis revealed that this pattern was statistically significant when examining father's education on all domains except for perseverance and writing skills. In contrast, this pattern was only statistically significant when looking at mother's education on domains of reading, writing and numeracy skills. Generally, we would expect to see a stronger relationship between caregiver's education and children's development, particularly so when examining maternal education. These results suggest that in Kiribati, other factors are having a stronger influence on children's development, and indeed, similar results have been found using the eHCI in a census of children's development in Samoa.

Figure 2: Children's overall development by gender and age

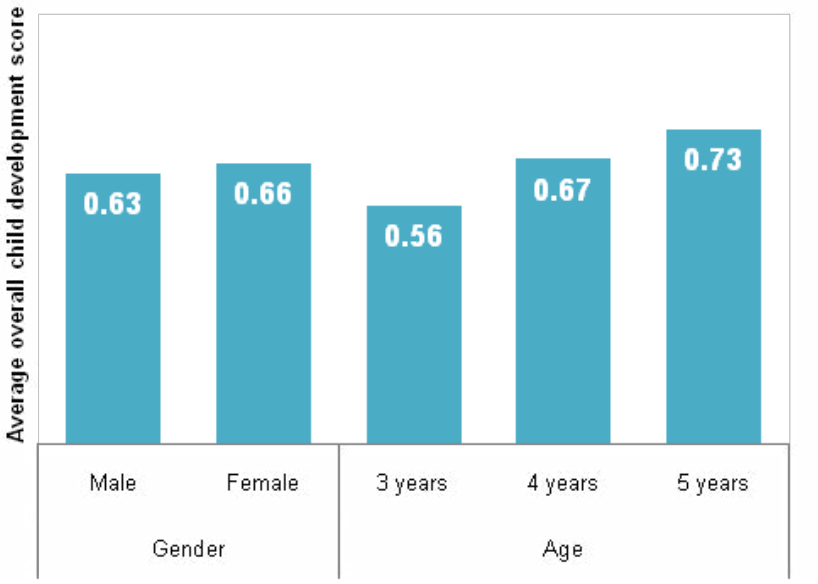


Figure 3: Children's overall development by mother's and father's education

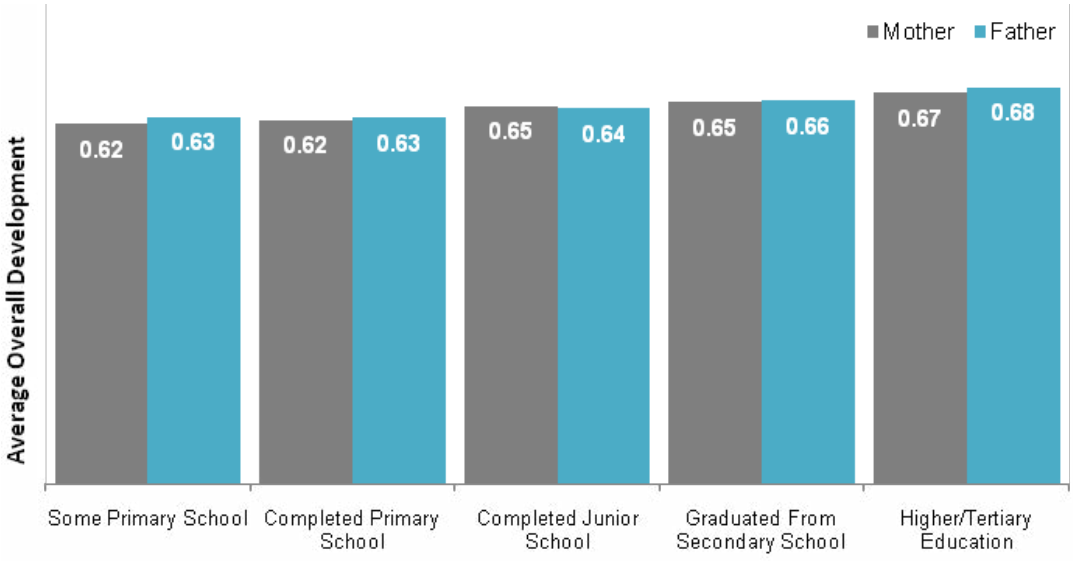


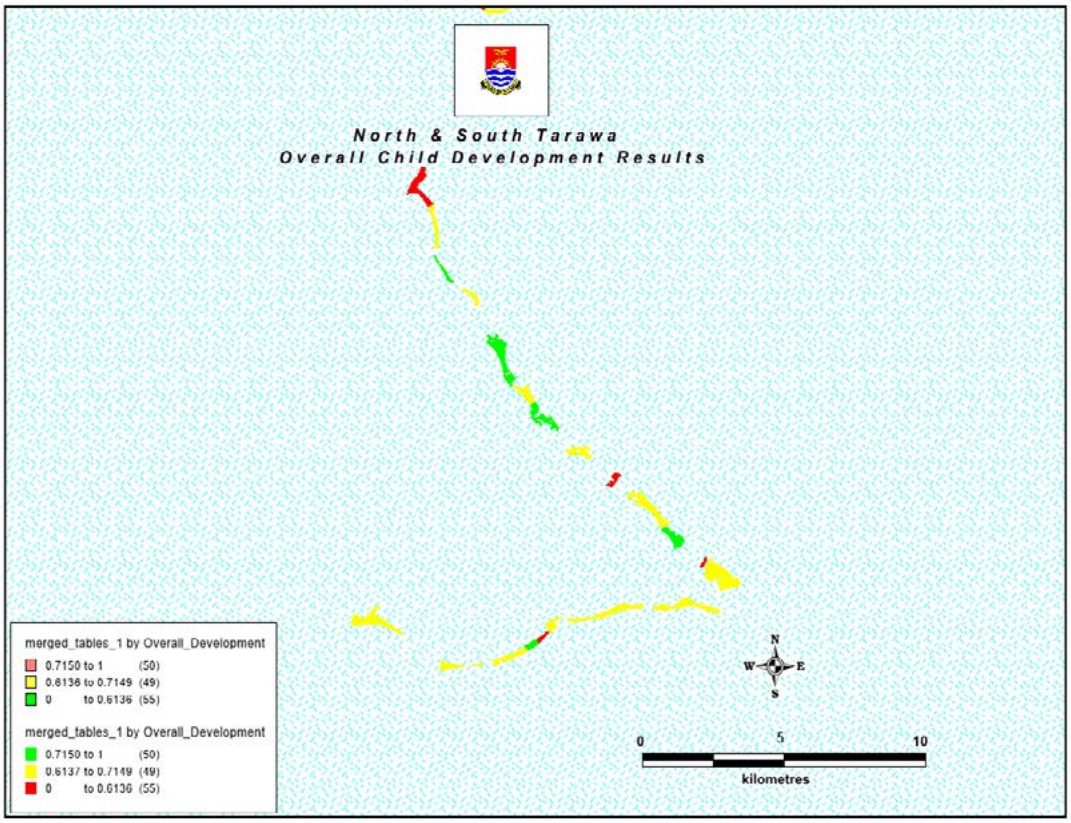
Figure 4 compares children's overall development scores across 21 islands of Kiribati, and includes the number of children on each island for which data were collected. Children from Beru and Teeraina for example, have higher average overall development scores compared to children from Nonouti and Tabuaeran, and these differences are statistically significant.

To further explore children's development across islands, Figures in Appendix B demonstrate development on each KeHCI domain across the islands of Kiribati. Results demonstrate that in general, children on some islands such as Beru and Teeraina, have better scores compared to children living on other islands such as Nonouti and Abaiang. However, results are somewhat inconsistent dependant on the domain of focus. For instance, while children from Arorae had the lowest scores on the approaches to learning domain when compared to children from other islands, the same children from Arorae had the highest scores on the physical health domain relative to children from other islands. These findings indicate that programs with universal coverage, supporting the learning and development

of children across all islands, are required, rather than the implementation of programs that are targeted at specific geographical areas only. Throughout this report the potential drivers behind these patterns in children's development across islands are explored.

Children's development across each island has also been compared using colour coded mapping. Islands were coloured to represent how children are developing compared to those on other islands. The bottom third of villages where children on average, have the poorest development, are coloured red, the middle third are coloured yellow and the top third performing villages are coloured green.Maps were created for each developmental domain and are available for viewing at the Ministry of Education. Presented in Figure 4 is the map for children's overall development in North and South Tarawa.

Figure 4: Children's overall development across North and South Tarawa



Child Health and Nutrition

Good health and nutrition are essential not only for children's survival, but for healthy growth and development. If children are healthy they will be more likely to develop well throughout childhood, achieve better outcomes at school and be more productive as an adult. Children's height and weight were measured to calculate undernutrition in the forms of stunting, wasting and underweight.

A child who is stunted is too short for their age, resulting from the failure to grow both physically and cognitively due to chronic or recurrent undernutrition. Specifically, stunting as defined by the World Health Organization (WHO) growth standards is more than 2 standard deviations below the median height-for-age. Stunting is largely irreversible and has long term negative impacts throughout the life course. In contrast, a child who is wasting is too thin for their height and this is a reflection of sudden weight loss most often due to starvation or disease. Wasting is defined as more than 2 standard deviations below the median weight-for-height. Untreated, wasting can progress severely and increases the

risk of child mortality significantly. Lastly, if a child is classified to be underweight, this could imply that they are stunted or wasted, or both. Underweight is defined as more than 2 standard deviations below the median weight-for-age.

Table 2 presents the prevalence of these three forms of undernutrition amongst children in Kiribati alongside the degree of public health significance of these prevalence rates according to the WHO classification system.[4]

Table 2: Undernutrition prevalenceand public health significance

Form of Undernutrition	Percent of children	WHO classification
Stunting	29.4	20-29='medium' public health significance
Wasting	5.8	5-9 = 'medium' public health significance
Underweight	12.2	10-14 = 'high' public health significance

Evidently, stunting is of considerable concern with almost a third of children in Kiribati affected, likely to be the result of having a diet that consists predominantly of foods that are poor in nutritional quality. The prevalence of wasting is also a significant concern and reflects experiences of food insecurity or disease. The number of children who are underweight in Kiribati is of high public health significance. As this indicator does not take into account a child's height, it is not possible to determine whether these children are underweight due to acute or chronic nutrition deficiencies. Nevertheless, SDG 2 aims to end all forms of malnutrition by 2030, so while not as informative as stunting or wasting, the proportion of underweight children is still an important indicator for the country to track. Rates of wasting and underweight in Kiribati are similar to that found in other Pacific countries such as Tuvalu, while the prevalence of stunting in Kiribati is considerably lower than that in Tuvalu, and indeed lower than rates of stunting in East-Asian countries as well as sub-Sahara Africa. Yet, undernutrition in Kiribati remains a serious concern; these figures indicate that children in Kiribati require better nutrition and healthcare to develop well.

Despite concerning results regarding the prevalence of undernutrition amongst children in Kiribati, children's physical health as measured by the KeHCI appears satisfactory (see Figure 1). Considering the aspects of physical development that are assessed in this domain (e.g. if the child washes their hands after toileting, if the child takes care not to get hurt), it is clear that undernutrition prevalence and scores on the physical development KeHCI domain measure two different aspects of how a child is developing. As such, information regarding undernutrition as well as children's physical development scores on the KeHCI should be used in combination to provide a comprehensive picture of children's health and development as has been done in this report.

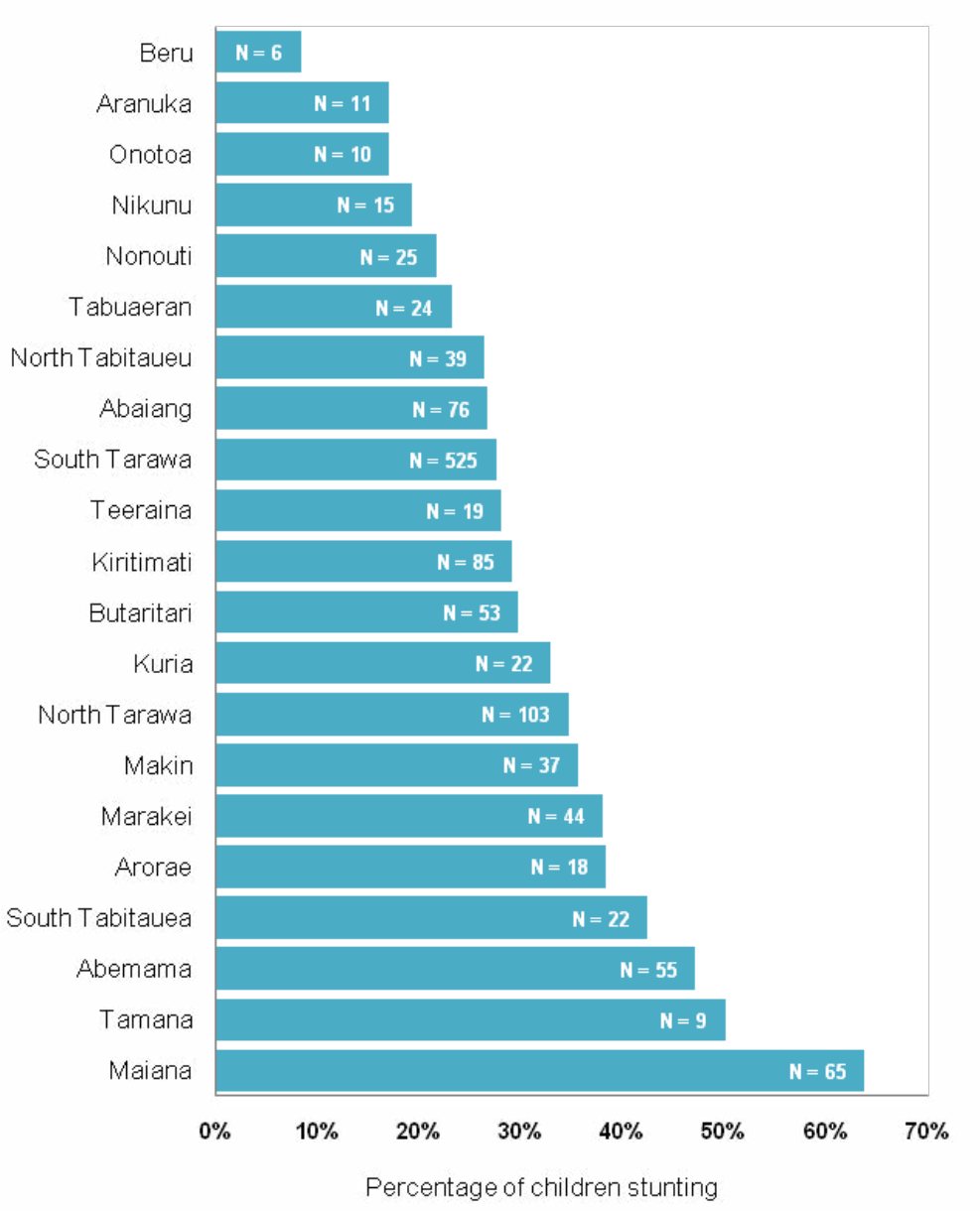
While rates of undernutrition did not vary by age or gender, they did vary depending on which island a child lived on, and these differences were statistically significant. As Figure 5 shows, stunting rates ranged from as low as 8 percent in Beru to as high as 64 percent in Maiana. It should be noted that some islands had small numbers of children and so results should be interpreted with caution. For instance, while half of children in Tamana were stunted, this figure represents less than 10 children. Nonetheless, this variation in stunting suggests that some islands may be experiencing far greater problems than others, in terms of nutrition quality and diet diversity, prolonged food insecurity, or inadequate health care.

To gain an understanding of early childhood nutrition practices in Kiribati, information was also collected about children's experiences of breastfeeding. Breastfeeding provides babies

4 Further information regarding WHO growth standards, their definitions and interpretation can be found at the following links:
http://www.who.int/nutgrowthdb/about/introduction/en/index2.html
http://www.who.int/nutgrowthdb/about/introduction/en/index5.html

with the nutrition they need for healthy development, protects against disease and reduces infant mortality. The WHO recommends children be breastfed exclusively until 6 months of age (that is, that they do not consume any food or drink other than breastmilk), with continued breastfeeding with complimentary foods up until 2 years of age. Encouragingly, 94 percent of children aged 3-5 in Kiribati had been breastfed, and of these children, the majority had been breastfed for longer than 6 months (80 percent).

Figure 5: Stunting prevalence by island



Information was also collected on how often children fell ill, and the majority were reported to get sick often (70 percent). Illness reported by caregivers and teachers included whooping cough (16 percent), diarrhoea (8 percent), respiratory infections (6 percent), and conjunctivitis or pink eye (6 percent), with the remaining 33 percent reporting other types of sickness. Such frequent sickness could be due to a number of factors including poor hygiene and sanitation, inadequate health services, and poor nutrition and diet.

Evidently, while we have observed positive breastfeeding practices in Kiribati, children are experiencing sickness frequently. Further analyses were conducted to explore if both of

these factors were influencing children's stunting, wasting and underweight rates, but no statistically significant associations were found. As such, further work is required in order to better understand what is influencing the considerable rates of undernutrition in Kiribati.

Figures 6-8 explore associations between undernutrition prevalence and children's development across the 9 KeHCI domains, as well as their average overall literacy and numeracy score and their average overall development score. There are statistically significant differences in developmental outcomes between children who are experiencing either stunting, wasting or are underweight, and those who are not. Stunting in particular, has the strongest negative relationship with children's development, especially so for more formal, cognitively driven processes of development including literacy and numeracy skills. These results provide further evidence for the need to understand and address the factors that are influencing undernutrition amongst children in Kiribati.

Figure 6: Children's development across domains by stunting prevalence

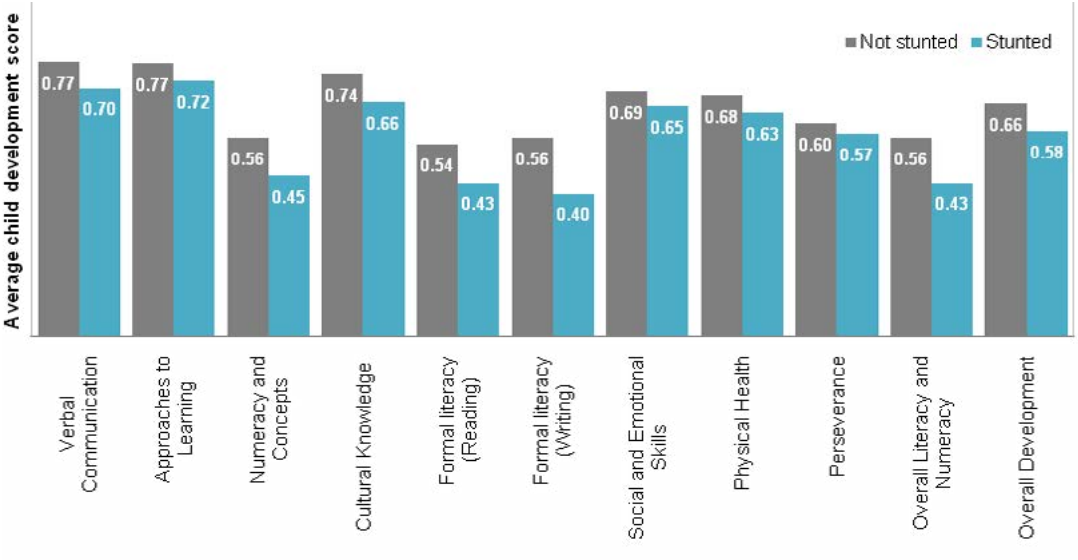


Figure 7: Children's development across domains by wasting prevalence

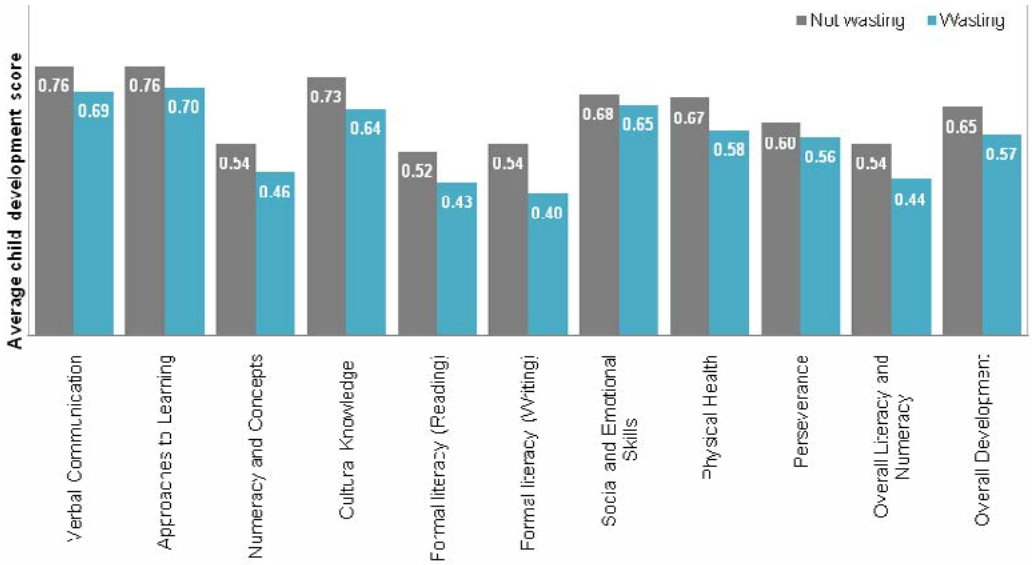
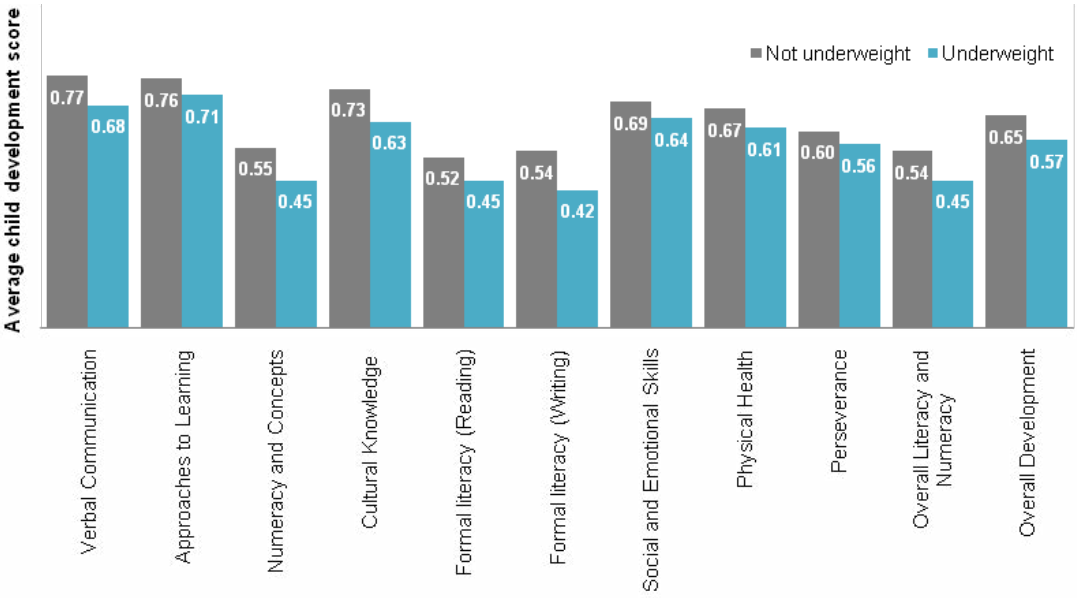


Figure 8: Children's development across domains by underweight prevalence



Preschool Participation

Access to quality early education promotes positive child development and prepares children for a successful transition to school. Encouragingly, most children in Kiribati (92 percent) had attended preschool. Figure 9 below demonstrates that preschool attendance varies by children's age and gender; increasing as children grow older and get closer to school age, with participation rates higher for girls than boys.

Figure 10 demonstrates statistically significant differences across all domains of development between children who had and had not attended preschool – that is, preschool has a clear and consistent positive influence on children's development. These differences are largest when looking at children's approaches to learning, cultural knowledge, social and emotional skills and early literacy and maths skills, which is to be expected considering that these are the types of skills and capabilities that are enhanced by participating in a preschool environment. It should be noted that these results do not take into account important factors such as how much preschool children attended or the quality of preschool that children were exposed to. It is likely that the relationship between preschool attendance and children's development would be stronger if dose and quality were considered, and collecting such data would be useful in future.

Figure 9: Preschool attendance by children's age and gender

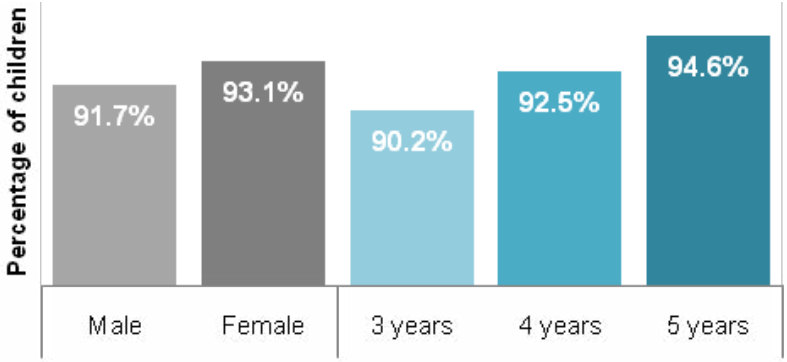


Figure 10: Children's development across domainsby preschool attendance

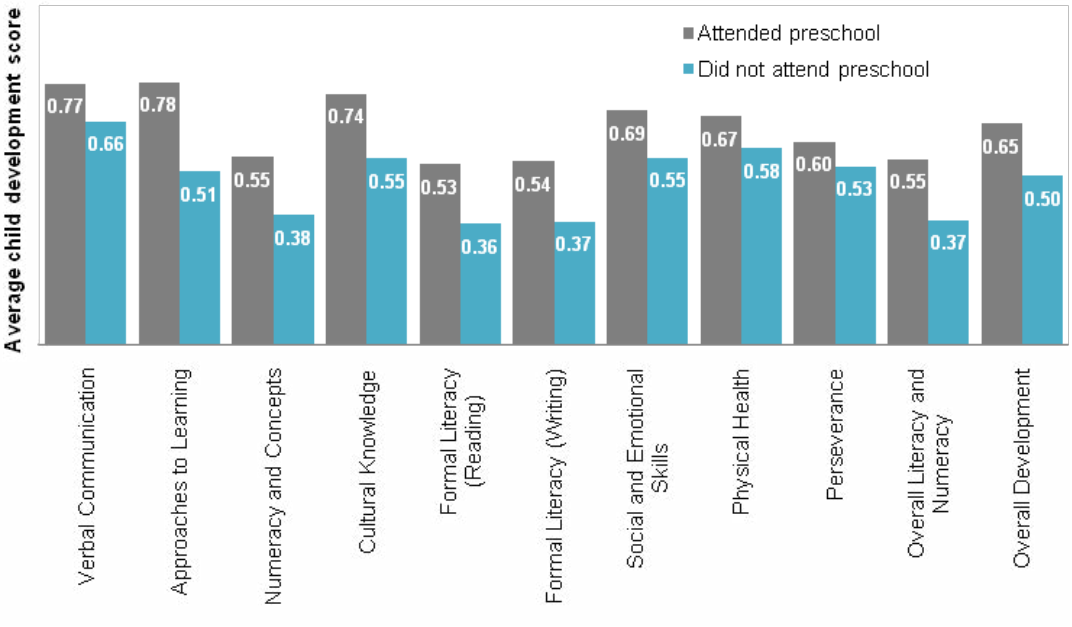
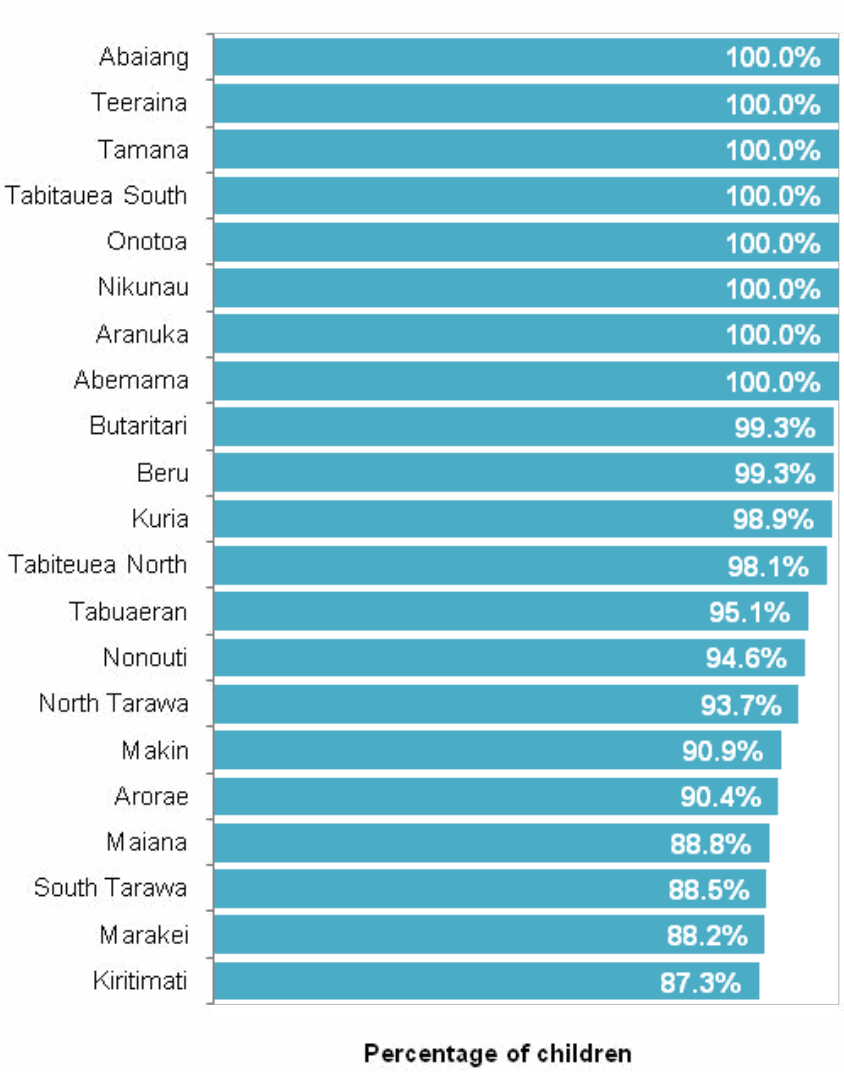


Figure 11 explores preschool attendance across the islands of Kiribati. Encouragingly, preschool attendance rate in Kiribati is quitter high (between 85 and 100 percent). The results also indicate that children attended preschool are doing better. However, results also suggest that preschool could do more to contribute better in child development domains, especially in numeracy and concepts, reading and writing which are lower than other domains (see figure 10 above).

Interestingly, despite the positive association between preschool attendance and children's development, the pattern of preschool attendance across islands does not align well with the pattern of child development outcomes across islands as explored above. For instance, although Kirimati had the lowest preschool attendance rates amongst all islands, children's average overall development in Kirimati was seventh highest amongst islands – and further analyses determine these patterns are not due to the age of children on the island. Patterns in development outcomes and facilitators of child development appear complex, and we continue to discuss potential drivers of this further in the next section of the report.

Figure 11: Preschool attendance by island of residence



Home stimulation

A nurturing home environment that provides love, support, and opportunities to learn and explore is essential to promote a child's healthy development. Parents need to interact with their children frequently through playing together, reading books, singing songs, counting, drawing, and telling stories, in order to provide them with the opportunities they need to learn and develop.

Children's caregivers and teachers were asked about 6 different parent-child engagement activities, and if children's parents or somebody else in the family over 15 years of age had engaged in these activities with each child in the past 3 days. Overall, levels of home stimulation activities in Kiribati were low to moderate – less than half of all children had been read a book in the past 3 days (47 percent), 71 percent had been told a story, 60 percent had sung songs, 42 percent had played somewhere other than home, 58 percent had played in general, and 41 percent had named, counted and drawn objects.

Figure 12 below demonstrates how these home stimulation activities have an important influence on children's outcomes. Evidently, each of the parent-child engagement activities had a statistically significant positive relationship with children's overall development. The children of parents who engaged in these activities with them were developing better than children whose parents did not read to them, tell stories, sing, play, draw, and so on. Indeed, this pattern is evident across each developmental domain, with few exceptions

(singing songs did not significantly influence children's writing skills, and playing did not significantly influence children's reading and writing scores).

Figure 12: Children's overall development by home stimulation activities

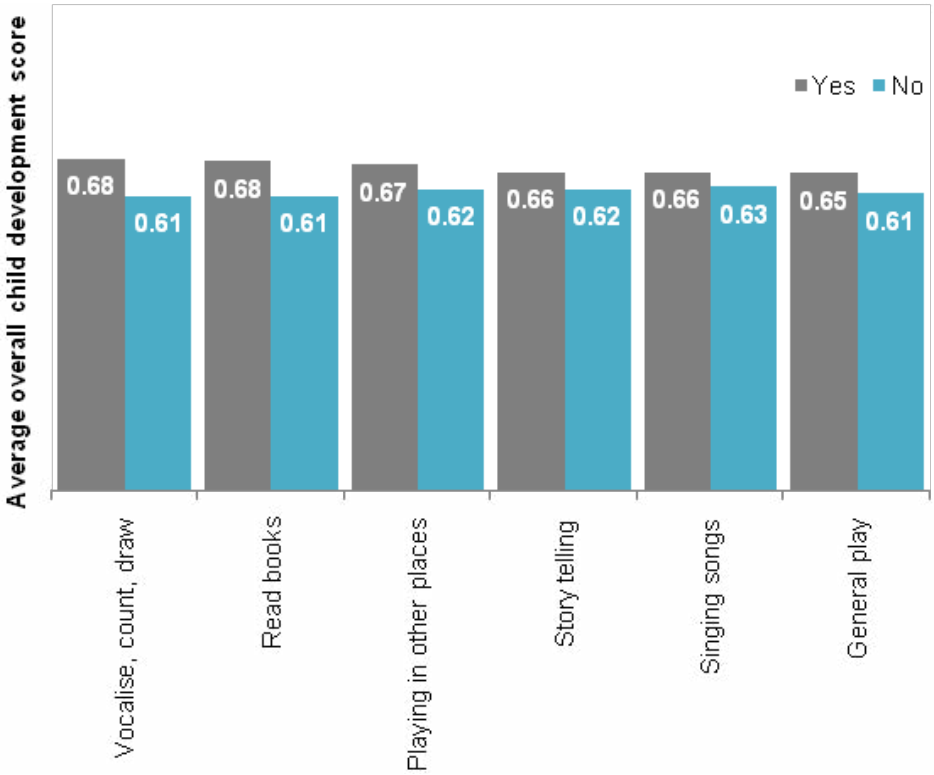


Figure 13: Home stimulation activities by island of residence

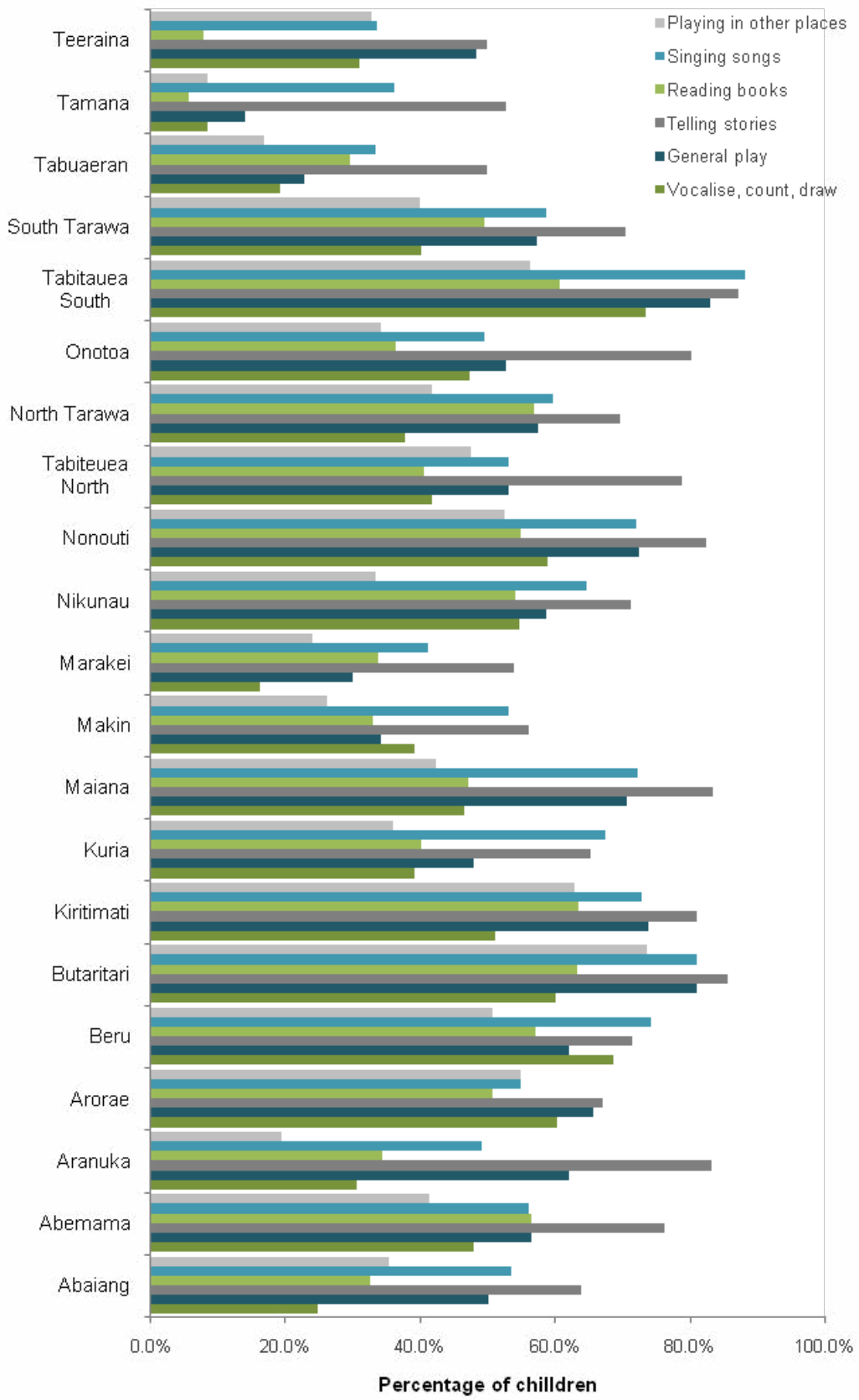


Figure 13 explores children's engagement in home learning activities across the islands of Kiribati to better understand what is driving disparities in children's development across islands. Results show statistically significant differences in caregiver-child engagement

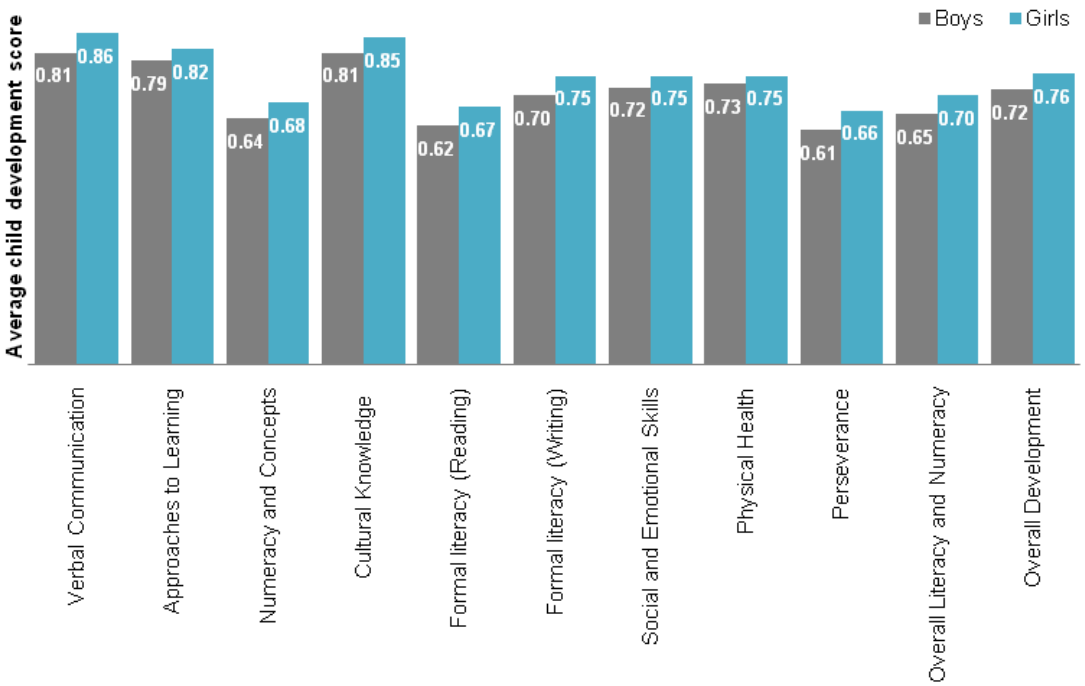
across islands, and results are consistent with differences in child development outcomes across islands also. For instance, stimulation in the home environment is lowest for children in Tamana, Marakei, and Tabuaeran, and in line with this, it is also the children on these islands that have some of the lowest KeHCI development scores in the country. These results indicate that home stimulation may be a significant driver behind differences in children's development across islands.

School readiness of 5-year old

Closely linked to children's development, school readiness focuses on a particular time in a child's life, generally around the age of 5 years, and enables children to begin school with the skills, capabilities, health, and development required to successfully transition into a school learning environment. These skills develop cumulatively, and as such, learning achievement in school is the product of a process of acquiring skills from birth and building advanced skills based upon the mastery of former, more basic skills. For example, a child needs to be able to understand letter names and sounds in order to learn to read. Importantly, school readiness has been linked to positive long-term social and behavioural outcomes, as well as improved academic outcomes.

As a result, we also explored the developmental outcomes of children aged 5 years old to gain an understanding of school readiness in Kiribati. Figure 14 demonstrates children's development across domains separately for boys and girls. Again, consistent with previous results, amongst 5-year old children only, girls outperform boys across all domains of development, even on those for which boys traditionally score higher than girls according to the international literature, such as numeracy and concepts and approaches to learning. Further, gender differences across each developmental domain are statistically significant. Interesting also is that the gender gap in development appears to be increasing with age – that is, as children grow older, boys are falling further behind girls. Again, these results reflect those of the PILNA, which highlighted concerns in achievement for boys, in particular.

Figure 14: Child development across gender for 5 year old

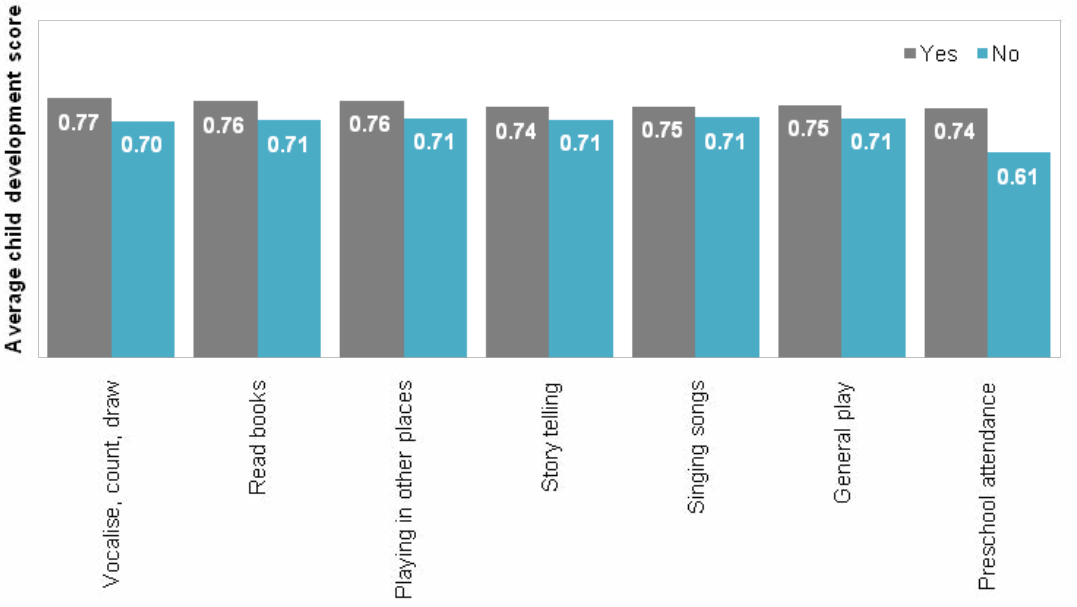


As with results for children aged 3-5 years, Figure 15 below shows that children aged 5 years of age who engaged in home learning activities with their caregivers, and particularly those who attended preschool, had overall better development scores relative to those who were not given these interaction opportunities. Evidently, preschool helps children prepare for school, and this is consistent with the literature around the positive influence of preschool attendance on children's school readiness. Results suggest action should be taken to ensure all 5 yearolds in Kiribati are attending preschool before they commence school in order to prepare them for a successful transition into the school learning environment.

WHICH FACTORS HAVE THE STRONGEST RELATIONSHIP WITH CHILD DEVELOPMENT?

Findings throughout this report have highlighted a range of factors that are influencing children's early development in Kiribati. As such, next we explored which of these are most important for children's development. A series of regression analyses were conducted to determine which of these factors have the strongest relationship with children's overall development. Table 3 below presents the range of variables shown to best predict overall child development scores, all of which are highly statistically significant.

Figure 15: Overall development by preschool attendance and home stimulation activities for 5 year old



Naturally, a child's age has a strong influence on their developmental outcomes, and so too did gender, again reflecting the existence of a considerable gap in development between boys and girls in Kiribati. Stunting had a considerable negative influence on children's outcomes, and while interactions in the home environment – in particular caregivers reading, naming, counting and drawing with their children – positively predict children's development, preschool attendance had the strongest relationship with children's development. Encouragingly, these three factors are modifiable, and can be improved in order to better support children's development and readiness for school.

Table 3: Strongest predictors of child development

Variables	Children's overall development		
	B	SE B	β
Child's age	0.078	0.327	27.566**
Child's gender	0.030	0.077	6.773**
Stunting	-0.041	.006	-7.151**
Attended preschool	0.109	0.148	12.977**
Read books at home	0.078	0.121	9.681**
Vocalised/counted/drew	0.029	0.074	5.929**
R2	0.207		
F	268.148**		

Note: *p < .05, **p < .01

KEY FINDINGS AND RECOMMENDATIONS

Results from the KeHCI national census have provided a snapshot of the early health and developmental outcomes of children aged 3-5 years in Kiribati, and have highlighted the factors that are influencing development outcomes for children across the country.

According to results, children in Kiribati are not receiving the nutrition and health care they need to grow and develop. Almost a third of children are affected by stunting, and this is likely to be negatively impacting children's development outcomes now and in the future. To promote positive development, a basis of good health, nutrition and care for the country's children is critical, and so it is of great importance that undernutrition amongst children in Kiribati is addressed and reduced.

Encouragingly, preschool enrolment and attendance rates in Kiribati are high, and results show that this is having a significant positive influence on all domains of children's development. The country should work to ensure that all children attend preschool before school so that these developmental benefits are maximised. Further, what is not well understood is how often children are attending preschool and for how long, as well as the quality of the early education children are receiving. It is likely that these relationships will be strengthened if preschool attendance and quality were considered. Collecting such data would be useful for program planning and evaluation in future.

Further, results show that nurturing, stimulating home environments are an important mechanism through which children's development can be improved. Increasing the levels of stimulation and support children are receiving at home by enhancing the capacity of caregivers should also be prioritised, and will likely positively influence children's outcomes.

Finally, results demonstrate interesting differences in children's outcomes across 21 of the country's inhabited islands. Exploration of the drivers behind these differences revealed that engagement in learning activities between children and their caregivers in particular varied considerably across islands, influencing children's outcomes. Disparities in children's outcomes across islands are likely a reflection of more resources and greater accessibility and availability of services and supports in some areas compared to others. It is encouraged that this evidence be acted upon by determining where more supports are needed, and implementing intervention strategies to work toward improving children's outcomes.

There are several evidence-based interventions that could be implemented in Kiribati to work towards reducing stunting prevalence amongst children, increasing preschool attendance and enriching child-caregiver interactions in the home environment. An example that has been successfully applied in another Pacific country, Tonga, is the delivery of community-based playgroups. Aimed at children from birth to 5 years of age, these playgroups aim to engage caregivers and their children in play-based activities on a weekly basis to promote positive child development by engaging caregivers in improving home stimulation activities which will help prepare children for school. Furthermore, community playgroups can integrate parenting programs to improve caregiver's knowledge of the importance of good health, nutrition, and age-appropriate stimulation activities to promote their child's development. Nutrition supplementation (such as vitamin A, iodine, worming tablets etc.) can also be distributed via the community playgroups as a means of improving children's health and working to reduce rates of stunting. Finally, community-based playgroups can also incorporate toy libraries, whereby families can borrow toys and books to take home and play with their children, further promoting stimulating home environments. Although it is important to ensure that such interventions are evidence-based, it is equally important to ensure that any interventions employed in future are also aligned with the local community, culture and traditions of Kiribati.

Along with Australia, Tonga, Samoa, and Tuvalu, Kiribati is now one of the very few countries in the world to have undertaken a population wide census of children's development.

Results produced findings that we would expect considering the international evidence, as well as some surprising ones, and the country now has comprehensive data that captures the early health and development outcomes of children across the entire country. This provides the country with valuable evidence on which policy makers and service providers can base their planning around, and program evaluation and policy monitoring can be measured against. Repeated implementation of the KeHCI will provide the country with data at multiple time points, and will thus enable Kiribati to evaluate any policy shifts, changes to service delivery, and community action implemented to support early child development. It is hoped that the country will drive repeat KeHCI collections, as only with repeat data over time will policy makers, service providers, and communities be able to understand if their work to support children is making a difference.

APPENDIX A

English and Kiribati versions of the KeHCI Dissemination materials

Determining the capability of children in Early Childhood Education

EDUCATION DEPARTMENT

MINISTRY OF EDUCATION

Kiribati Early Human Index Capability (ECHI)

School ☐ **Event** ☐ **Other** ☐

Date: day | month | year **Supervisor** ☐

School Name - ☐ **Village** ☐

INFORMATION ABOUT THE SURVEY:

There are two important steps of how to fill the question in this survey

1. Write in the space provided
2. Please tick(√) where applicable

THE SURVEY HAS TEN PARTS:

Part 1: Child's Historical Background
Part 2: Health Development of the Child
Part 3: Relationships
Part 4: Culture and Traditions, and Behaviour
Part 5: Proper considerations of social and emotional competence
Part 6: Persistent/Capability
Part 7: School and Learning
Part 8: Mathematics and its parts
Part 9: Formal literacy - Reading
Part 10: Formal Literacy – Writing
Part 11: Further Questions – preschool participation and home stimulation

Kiribati Early Human Capability Index (Determining the capability of children in Early Childhood Education)

For children who attend preschool, this survey should be completed by the preschool teacher. Preschool teachers may need to ask the caregiver to be able to answer some of the questions. For example, questions on the child's historical background and the reasons for attending preschool.

For those children who are not attending preschool, the survey should be completed by a caregiver of the child.

Kiribati Early Human Index Capability (KIECHI)

For each question, you are humbly requested to write your responses in the boxes provided. It is important to note that each child was brought up differently and have different styles of learning. Some children would walk before their peers; that is a truly observable fact. It is not expected that children will be able to answer all the questions. What is important, however, is that the responses we receive are truly authentic.

It is a requirement that your responses must be truthful so that a whole and factual representation of the child could be accurately presented, and by which an appropriate intervention could be developed in order to assist the child in improving his learning experience.

Community results will be provided back to the community after the survey is completed. The child's name will not be used against anything. Sharing this to anyone else is forbidden.

1. Child's Historical Background

A	Name of the Child		
B	Child's Date of Birth		
C	Sex	☐ Male	☐ Female
D	Village settled by the child: _____		
E	Mother's Education	☐ Some Primary School ☐ Completed Primary School	☐ Completed junior School
		☐ Graduated From Secondary School	☐ Higher/Tertiary Education
F	Father's Education	☐ Some Primary School ☐ Completed Primary School	☐ Completed junior School
		☐ Graduated From Secondary School	☐ Higher/Tertiary Education
G	Guardian's Education (if the child is not staying with parents)	☐ Some Primary School ☐ Completed Primary School	☐ Completed Junior School
		☐ Graduated From Secondary School	☐ Higher/Tertiary Education
H	Has this child ever been breastfed	☐ Yes	☐ No
I	If yes, How long was the child being breastfed? ≤2; >2 to ≤4; >4 to ≤6; >6	☐ Under 2 months <2	☐ Above 4 to 6 months >4 to ≤6
		☐ 2 to 4 months ≥2 to ≤4	☐ Above 6 months >6

2. Health Development of the Child

1	Child's Height	_____	cm
2	Child's Weight	_____	kg
		Yes	**No**
3a	Does the child get sick often?		
3b	What kind of sickness ☐ Diarrohea ☐ Acute respiratory infection ☐ Whooping cough ☐ Pink eye/conjunctivitis ☐ Other		
4a	Does the child have any disabilities?		
4b	If "Yes" to Q4a (tick all that apply) ☐ Physical impairment ☐ Visual impairment ☐ Mental impairment ☐ Speech/Language impairment ☐ Hearing/deafness ☐ Slow / developmental delay) ☐ Others (specify) _____		
5a	Is the child practising cleanliness and healthy living? (Clean hands each time he/she uses the toilet?)		
5b	Is the child personally practising cleanliness and healthy living on his own?		
6	What are this child's talents? ☐ singing songs ☐ dancing ☐ drawing ☐ sport		
7	Is the child being careful from being hurt? (burnt, drown, fall, stumble)		
8	Does the child know the difference between good and bad food?		

3. Communication

		Able	Unable
9	The child is able to use a sequence of words?		
10	The child is able to use a simple sentence?		
11	The child is able to wait for the other person to finish speaking, in a conversation, before he/she could speak?		
12	The child is able to explain things in Kiribati?		
13	The child is able to communicate as a mature person? (talkative, enquiring)		
14	The child knows his/her name?		
15	The child knows the name of one of his/her parents/guardians.		

4. Culture and Traditions, and Behaviours

		Able	Not Able
16	The child is able to exhibit behaviours of affection, understanding and patience to others?		
17	The child is able to identify two valuable foods in Kiribati?		
18	The child is able to identify two edible plants in Kiribati?		
19	The child is able to express Kiribati behaviours and traditions as in giving respect to others, and in being humble?		
20	The child is able to exhibit behaviours of trust worthiness and commitment to do something?		
21	The child is able to make good friendships?		
22	The child is able to join cultural and traditional way of Kiribati life? Kiribati local dance)		
23	The child is able to say a short prayer?		

5. Proper Considerations of Social and Emotional Competence

		Yes	No
24	The child is willing to share his toys and belongings with others?		
25	The child is able to keep his belongings very well?		
26	The child knows how to respect older people?		
27	The child knows how to respect other children?		
28	The child accepts his/her responsibilities when he/she is being instructed to carry them out?		
29	The child welcomes the opinions of others?		
30	The child does what he/she is supposed to do, or not to do?		
31	The child is willing to help others?		
32	The child communicates easily with other children?		
33	The child frequently kicks, bites, or hits older people or children?		
34	The child can be patient long enough before receiving his/her needs?		
35	The child always knows the difference between good and bad?		
36	The child can follow simple instructions.		

6. Persistent/Commitment and capability

		Yes	No
37	The child can mostly do his/her work on his own?		
38	The child always completes his/her work?		
39	The child always needs to be reminded about completing what he/she was doing?		
40	The child gets bored quickly when he/she was doing his/her job/task?		

7. Learning

		Yes	No
41	The child prefers learning new ideas to familiar concepts?		
42	The child examines how a new toy works?		
43	The child always desires learning of new concepts?		
44	When the child is placed in an unfamiliar setting with a person he/she knows, would he be delighted to learn?		
45	The child is keen to learn new activities?		

8. Mathematics and its parts

		Able	Unable
46	The child is able to see shapes such as a triangle, a circle, and a square?		
47	The child is able to name and identify 3 colours or more?		
48	The child is able to sort and classify objects (such as shapes, colours and sizes)?		
49	The child is able to pronounce and recognise numbers from 1 to 10?		
50	The child is able to count up to 10?		
51	The child is able to count up to 20?		
52	The child is able to count up to 100?		
		Yes	No
53	The child is aware that the dog is taller than the rat?		
54	The child is aware of the order of time in a day? (morning, then afternoon then evening)		
55	The child is aware of yesterday, today and tomorrow?		
56	The child is aware that the chair is heavier than a pencil?		
57	The child is aware that number 8 is larger than number 2?		

9. Formal literacy - Reading

		Yes	No
58	The child knows the pronunciation of three letters in the sequence of A E I?		
		Able	**Unable**
59	The child is able to identify 3 letters or more in the sequence of A E I?		
60	The child is able to identify 10 letters or more in the sequence of A E I?		
		Yes	**No**
61	There are reading books at the child's place of residence? (illustrated books and magazines)		
		Able	**Unable**
62	The child is able to properly hold the book and appropriately turn its pages in the right order?		
63	The child is able to follow the right way of reading? (from left to right, from top to bottom)		
64	The child is able to read 4 or more familiar words?		

10. Formal Literacy - Writing

		Able	Unable
65	The child is able to draw a picture that could be recognised? (person's image)		
66	Copy or trace the outline of a letter over an already written letter?		
67	The child is able to write 3 letters or more? (A E I)		
68	The child is able to write his name?		
69	The child is able to write simple words?		

11. Further Questions

		Yes	No
70	Is the child attending a pre-school (pre-school?		

71a	If "Yes" to Q70, which school is he/she attending? _____
71b	Reasons for attending this pre-school: ☐ Close to the child's place of residence ☐ Good Teachers ☐ Good Classroom(s) ☐ Completely available resources ☐ Other - specify
71c	If there are other reasons, please tell us _____
71d	If "No" to Q70, why is the child not attending pre-school? _____ (in a very respectable and humble manner, continue to probe further until the main reason is revealed)

		Yes	No
72a	Have you been attempting some attempting to encourage your child to attend to the pre- school?		
72b	If Yes, What have you been attempting? _____		
72c	If the response is a "No", why? (in a very respectable and humble manner, continue to probe further until the main reason is revealed) _____		
73	How old was the child when he first attended to the pre- school?	_____	Years
74	Was there any time during the school year that the child did not attend pre-school?	_____	Week
		_____	Month
75	In the last 3 days, were you or somebody else in your family who is over 15 years of age had ever been with the chid in engaging in the following activities? ☐ Read books or scanning over illustrated books ☐ Story telling ☐ Singing songs to/with the child ☐ Play in other places other than the child's place of residence ☐ Play with the child ☐ Identify and vocalise names, count or draw things together with the child		

MINISTRY OF EDUCATION
P O Box 263, BIKENIBEU, TARAWA
Phone: (686) 28091/28032 Fax: (686) 28222

KIRIBATI EDUCATION INDEX HUMAN CAPABILITY (Ki ECHI)

School ☐ **Event** ☐ **Other** ☐

Te Bong: day | month | year **Supervisor** ____

Te Reirei: ____ **Village** ____

Rongorongo tabeua ibukin te Kakae :

Uoua aron kanoaan te booma aio
1. Kanoai bwangabwanga
2. Korea eti (√) n te tabo ae e riai

Lai tebwina mwakoron te kakae aio :

Mwakoro 1: Rongorongon te ataei ma ngke e moan bungiaki
Mwakoro 2: Marurungin te ataei
Mwakoro 3: Reitakin te ataei ma tabeman
Mwakoro 4: Katei, Aroaro, ao te Koaua
Mwakoro 5: Rinanoakin aron reitakina ma ana namakin
Mwakoro 6: Ana konaa/kababanean nanona
Mwakoro 7: Nanona ni kan reirei
Mwakoro 8: Te warebwai ao iterana nako
Mwakoro 9: Ana konabwai ni wareware
Mwakoro 10: Ana konabwai ni koroboki
Mwakoro 11: Tititraki tabeua

Kinakin aia Konabwai Ataei n Aia Reirei Ataei Aika Uarereke

Ibukia ataei ake a reirei, e riai kanoakina irouia taan reirei. Iai itera tabeua ake a na kainnanoi aia ibubuoki kaaro ma taan tararua n aron are ni mwakoro ake 1 ao 11.
Ibukia ataei ake aki reirei, a kabaeaki kaaro ma taan tararua ni kaekai titiraki ni kabane.
Kam butiaki bwa kam a korei ami kaeka ni kabane inanon te baoki ane tauraoi. E riai ni matata bwa kairakia ao waakia ataei n tatabemania nako e bon kakaokoro.Iai ataei aika a moan taai n nakonako imwaia roroia. Akea te kantaninga bwa ataei a na kona ni kaekai titiraki ni kabane. Te bwai ae e kakawaki bon karekean kaeka aika koaua mai irouia bwa e aonga ni kinaki raoi te ataei n ana konabwai ao ni kona ni wakinaki karaoakin kawai ni ibuobuoki nakon katamaroan ana reirei te ataei.

Ngkana e bwanin raoi te waaki iaon te kakae aio, ao e na tibwauaki kukune nakon te bota-n-aomata. E na aki kabonganaki aran te ataei inanon te kakae aio ao e katabuaki tibwauan aio ma tabeman

1. Rongorongon te Ataei

A	Aran te ataei		
B	Ana bongi ni bung	day	month / year
C	Rikina	☐ Mmwane	☐ Aine
D	Te kaawa ae e maeka iai te ataei: ____		
E	Ana reirei te tina	☐ Tabeua te tai n te moan rinan ☐ Te moan – rinan	☐ Kauarinan ake mai nano
		☐ Kauarinan ake ieta	☐ Katenrinan
F	Ana reirei te karo	☐ Tabeua te tai n te moan rinan ☐ Te moan – rinan	☐ Kauarinan ake mai nano
		☐ Kauarinan ake ieta	☐ Katenrinan
G	Ana reirei te tia tararua te ataei (ngkana e aki maeka te ataei ma ana karo)	☐ Tabeua te tai n te moan rinan ☐ Te moan – rinan	☐ Kauarinan ake mai nano
		☐ Kauarinan ake ieta	☐ Katenrinan
H	E mmamma ngke e moani bungiaki?	☐ Eng	☐ Aki
I	Ngkana eng, ao manra te kammamma? ≤2; >2 to ≤4; >4 to ≤6; >6	☐ Iaan 2 namwakaina <2	☐ raka iaon 4 ma e ke iaan 6 namwakaina >4 to ≤6
		☐ 2 nakon 4 namwakaina ≥2 to ≤4	☐ raka iaon 6namwakaina >6

2. Marurungin te Ataei

1	Abwakin te ataei	_____	cm
2	Rawawatan te ataei	_____	kg
		Eng	Tiaki
3a	E itutuaki n te aoraki am ataei?		
3b	Tera aorakina ae e okioki ☐ Bekanako, ☐ Aorakin kawain te ikeike, ☐ Te kaikeike, ☐ Te Waimata, ☐ Tabeua riki		
4a	Iai toaraan rabwatan am ataei?		
4b	Ngkana iai (titiraki 4a) ao tera? (Korea te kanikina ae eti n te bwaoki inano ni kaoti) ☐ Toaraan rabwatana ☐ Toaraan ana taratara ☐ Toaraan te iango ☐ Toaraan te maroro / karabakau ☐ Toaraan te kakauongo/bonokau ☐ Toaraan ana waaki n te reirei (iremwe / oimwi rikirakena ☐ Tabeua riki (koroi ngkana iai) _____		
5a	E maeuakina te kakaitiaki ao n tararua maurina? (Te tebo bai n taai nako imwin kabonganakin te kai n nakotaari ?)		
5b	E maeuakina te kakaitiaki ao n tararua maurina bon irouna?		
6	Tera ana tarena te ataei? ☐ Anene ☐ Korotamnei ☐ Mwaie ☐ takakaro		
7	E ataa maurina te ataei bwa e na aki ikoaki? (bue, bwabwa, bwaka, bebeinako)		
8	E ataa kaokoron amwarake aika raraoi ao aika buakaka te ataei?		

3. Arona n Reitaki

		Konaa	Aki kona
9	E kona ni kabonganai nako rinanin taeka		
10	E kona ni kabongana te kibu n taeka ae bwanin raoi		

11	E kona n tataninga motin ana kakarabakau temanna imwain ae e taetae		
12	E kona ni kabwarabwarai raoi bwai n te taetae ni Kiribati		
13	E kona ni kakarabakau kanga te ikawai ? (babarantiko, titiraki)		
14	E ataa arana?		
15	E ata aran temanna mai ibuakoia ana karo, tinana ke taan tararua.		

4. Te Katei, Rabakauna ao te Koaua

		Konaa	Aki kona
16	E kona te ataei ni kaoti banna aika a raraoi (itangiringiri, ota ao n taotaona n nano)		
17	E kona te ataei n rinei uoua amwaraken Kiribati aika a bongana?	.	
18	E kona te ataei n rinei uoua arokan Kiribati aika a kakanaki?		
19	E kona te ataei ni maiuakin aroaro ma katein Kiribati ni kaota te karinerine ma te nanorinano nakoia tabemang?		
20	E kona ni kaoti banna n onimakinaki ao ni kababanean nanona ni karaoan te bwai teuana?		
21	E kona te ataei ni kaoti/maiuakin aro ni iraorao?		
22	E kona te ataei n iri katei ma anuan maiun te I-Kiribati (te mwaie ni Kiribati)		
23	E kona te ataei n taekina te tataro ae e kimototo		

5. Rinanoakin Aron Reitakina ma ana Namakin

		Konaa	Aki kona
24	E tauraoi nanon te ataei ni ibuokanibwai n ana bwai n takakaro ao tabeua riki ma raona n ataei		
25	E kona te ataei ni kawakin raoi ana bwai		
26	Te ataei e ata aron karineaia aomata aika a ikawai		
27	Te ataei e ata aron karineaia raona n ataei		
28	E butimwaea katabeana te ataei ngkana e tuangaki		
29	E butimaea aia iango raona n ataei?		
30	E reitanako kakaraoakin te bwai ae e tuangaki ke ni katoka karaoakin te bwai ae e tuangaki bwa e na aki karaoia		
31	E tatauraoi te ataei aio ni buokia raona		

32	E bebete iroun te ataei aio te reitaki ma raona n ataei		
33	E okioki karaoan mwakuri n aron butiboroan, tenakin ao oreakia aika a ikawai ao aika a uarereke iroun te ataei aio.		
34	Te ataei aio e kona n tataninga imwain reken te bwai ae kainanoia		
35	E ata te kaokoro imarenan ae raoiroi ao e buakaka te ataei?		
36	E kona n iri nanon kaetieti aika a bebete.		

6. Ana Konaa/Kababanean Nanona

		Konaa	Aki kona
37	E kona te ataei ni karaoa ana mwakuri i bon irouna n anglin te tai?		
38	E ti tia ana mwakuri te ataei aei?		
39	E rangi ni kakainanoa kauringaakina te ataei ibukin katiaan ana mwakuri		
40	E rangi ni kai waekoa ni botu te ataei inanon tain karaoan tabena ke ana mwakuri		

7. Nanona ni kan reirei

		Eng	Tiaki
41	E tatangiri baika a boou ni kan reiakin ni kaineti ma bwaai aika e tataneiai iai te ataei?		
42	Te ataei e kamatebwaia aron mwakurin ana bwai n takakaro ae e bou?		
43	Mamaten nanon te ataei aei te reirei baika a boou		
44	Ngkana e katukaki te ataei n te tabo ae e aki tataneiai ma te aomata temanna ae e kina/tataneiai, e na kukurei n reirei?		
45	E kakaraua n rinanon raoi ao ni kabanea nanona nakon ana bwai n reirei te ataei aio?		

8. Te Warebwai ao Iterana Nako

		Konaa	Aki kona
46	E kona te ataei aio ni kinai tein rabwatan bwai n aron te turaiaengkoro, te mronron, ao te tikuea?		
47	E kona te ataei n atong aran kaara ao ni kakaokoroi 3 kaara ke e raka riki?		

48	Te ataei aio e kona ni kaokoroi ao ni bairei bwai nakon tein rabwataia (n aron tein rabwatan bwai, karaia ao buburaia)?		
49	Te ataei aio e kinai namba ao ni kona ni wareki man 1 nakon 10?		
50	Te ataei aio e kona ni wareki namba man teuana nakon tebwina?		
51	Te ataei aio e kona ni wareki namba man teuana nakon uabwi?		
52	Te ataei aio e kona ni wareki namba man teuana nakon 100?		
		Eng	Tiaki
53	Te ataei e ataia ae te kamea e rietata riki nakon te kimoa?		
54	Te ataei e ata birin te tai n te bongina? (ingabong ao te bakantaai ao te tairiki)		
55	Te ataei e ata te bong are ngkoananoa, te bong aei ao ningabong?		
56	Te ataei e ataia bwa te kaintekateka e tinebu riki nakon te bentira?		
57	Te ataei e ataia bwa te namba ae 8 e bubura riki nakon 2?		

9. Ana konabwai - Te Wareware

		Eng	Tiaki
58	E rabakau te ataei ni katangimania teniua tenan moan man n aron rinania n aron A E I?		
		Konaa	Aki kona
59	E kona ni kinai ao ni kotei 3 te man ke n raka riki n aron rinania n aron A E I ?		
60	E kona ni kinai ao ni kotei 10 te man ke n raka riki n aron rinania n aron A E I .....?		
		Eng	Tiaki
61	Iai boki ni wareware ni mwengan te ataei? (booki aika a koro tamneiaki ao beebwa ni wareware aika a kara)		
		Konaa	Aki kona
62	E kona n taua raoi te boki ao n rai baeia n arona ae e eti?		
63	E kona te ataei n atala bwa e na wareware mai iaa? (man te maing nakon te atai, mai eta nako nano)		
64	E kona te ataei ni wareki e raka iaon aua taeka aika e taneiai ma ngaai?		

10. Te konabwai - Te koroboki

		Konaa	Aki kona
65	E kona ni koroi tamnein baika a kinaki (tamnein te aomata)		
66	E kona n rimwiin aron korean manin te koroboki ane e oti tamneina?		
67	E kona te ataei ni koroi 3 ke n raka riki manin te koroboki ? (A E I)		
68	E kona ni korea arana?		
69	E kona ni korei taeka aika uarereke? (moa, ika, uee)		

11. Titiraki Riki

		Eng	Tiaki
70	E reirei te ataei aei n aia reirei ataei aika a uarereke (pre-school?		
71a	Ngkana "eng", ao e reirei ia? _____ _____		
71b	Bukina ngkai e reirei n te reirei anne ☐ E kaan ma mwengana ☐ A raoiroi taan reirei ☐ A raraoi umanreireina ☐ A tauraoi bwain reirei ni kabane ☐ Tabeua riki		
71c	Ngkana iai riki bukina ae e aki taekinaki i eta, taiaoka tuangai _____ _____		
71d	Ngkana "tiaki", tera bukina ngkai e aki reirei te ataei? _____ _____ (reitanako/karioa te titiraki n te aro ae e riai ao ni karinerine ni karokoa e otinako raoi bukina)		

		Eng	Tiaki
72a	Ko a tia ni kaunga natim nakon te reirei		
72b	Ngkana eng, tera ae ko a tia ni karaoia ? _____ _____		
72c	Ngkana te kaeka tiaki, ao bukin tera? _____ _____		
73	Iraua ana ririki te ataei ngke e moan rin n te reirei n aia reirei ataei aika uarereke?	_____	Ana ririki
74	Iai taai ae bwakabwaka iai reirein am ataei? Ae tao iraua?	_____	Te wiki
		_____	Te namakaina
75	E reke am tai tenibong n nako ke ngkana tiaki ngkoe temanna kain am utu ae raka ana ririki nakon 15 n tia n reitaki ke ni waaki ma am ataei iaon aika inano? ☐ Te wareboki ke te mamataku n te boki n tamnei ☐ Karaki nakoina ☐ N anene nakon te ataei ke n anene ma ngaia ☐ Takakaro ma te ataei n te tabo teuana ae tiaki mwengana ☐ Takakaro ma te ataei ☐ Rinei ao n atongi aran bwaai, wareki ke koroi bwaai ma te ataei?		

APPENDIX B

Development on each KeHCI domain across the islands of Kiribati

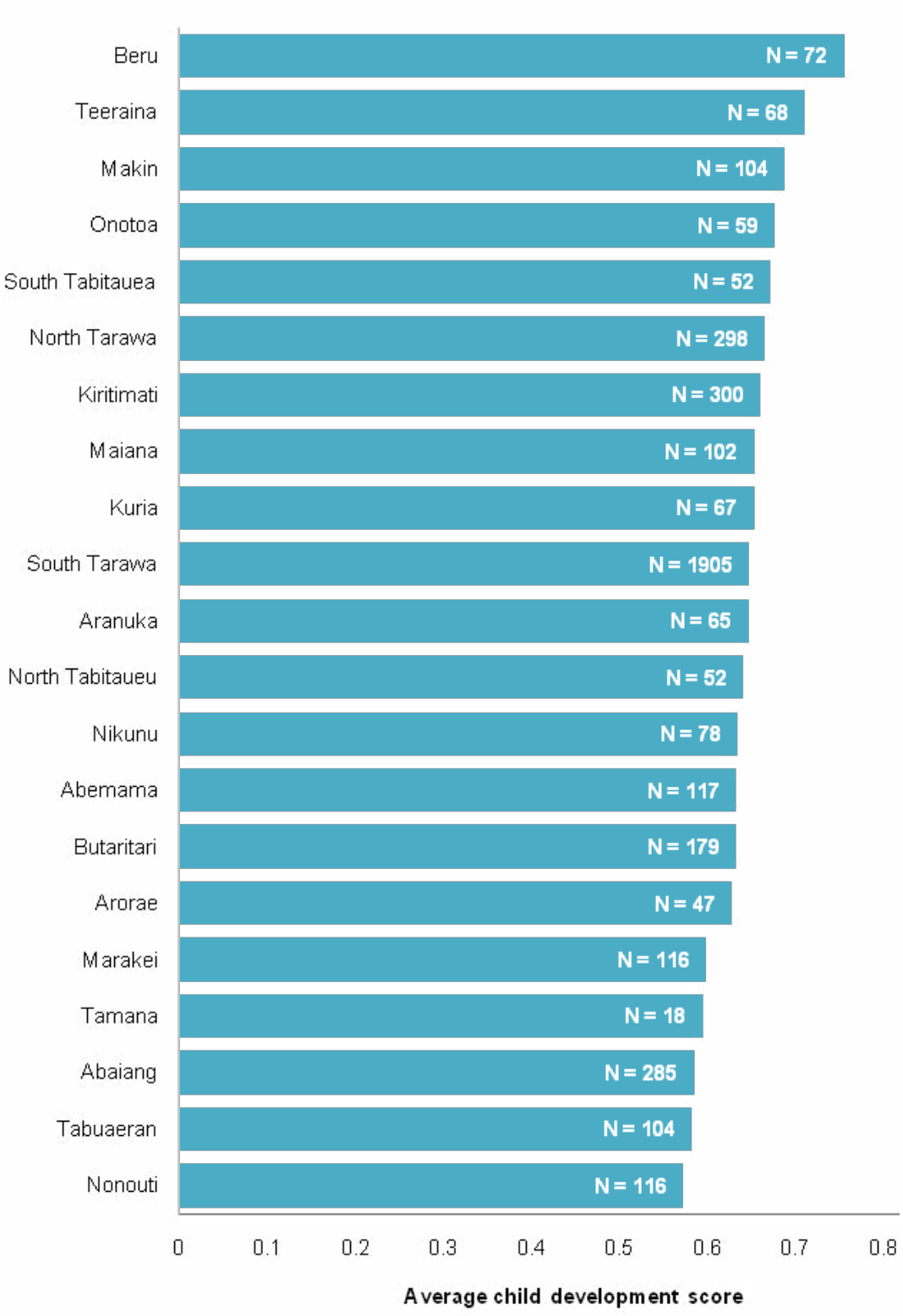


Figure 17: Children's physical health by island of residence

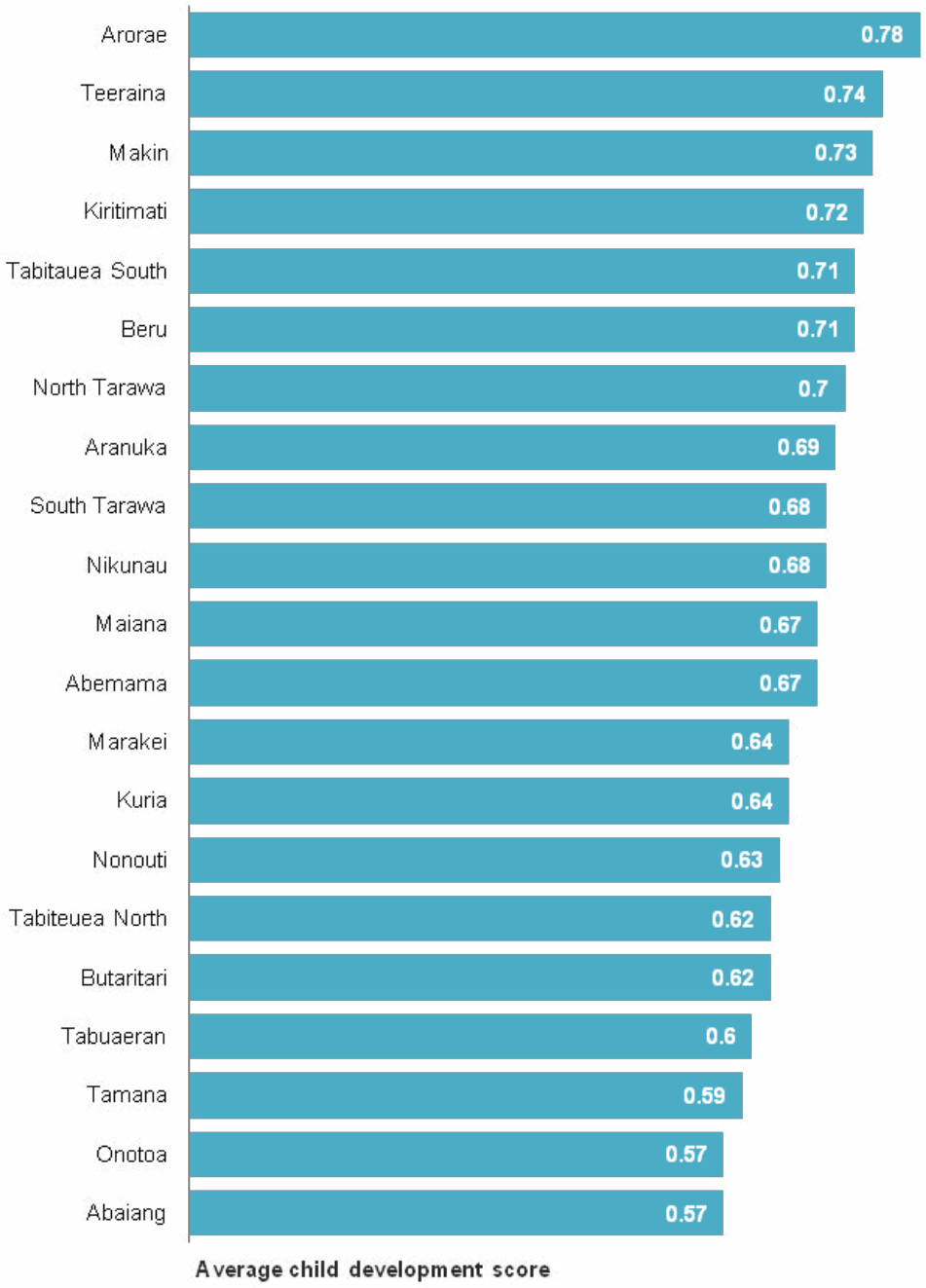


Figure 18: Children's general verbal communication by island of residence

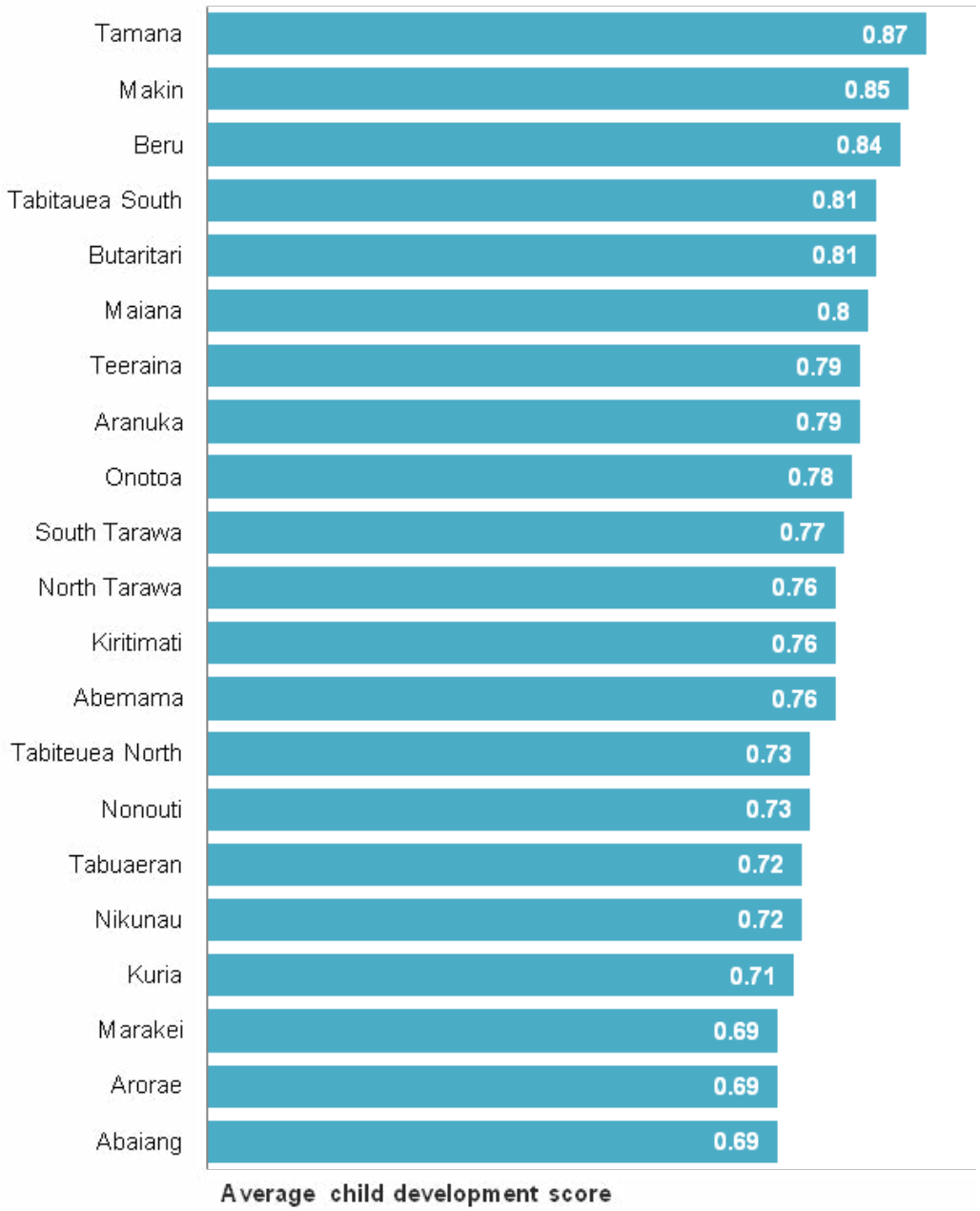


Figure 19: Children's approaches to learning by island of residence

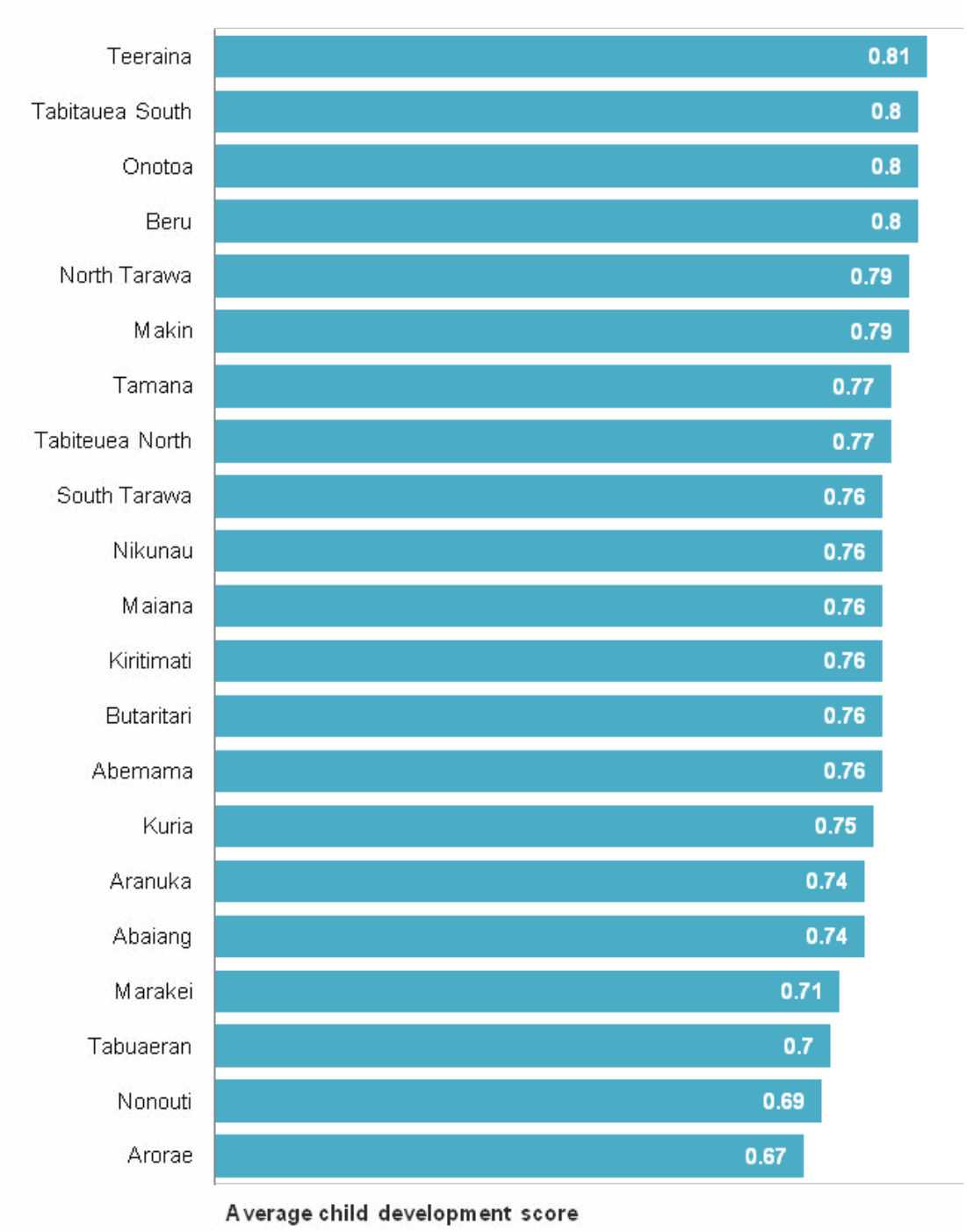


Figure 20: Children's numeracy and concepts by island of residence

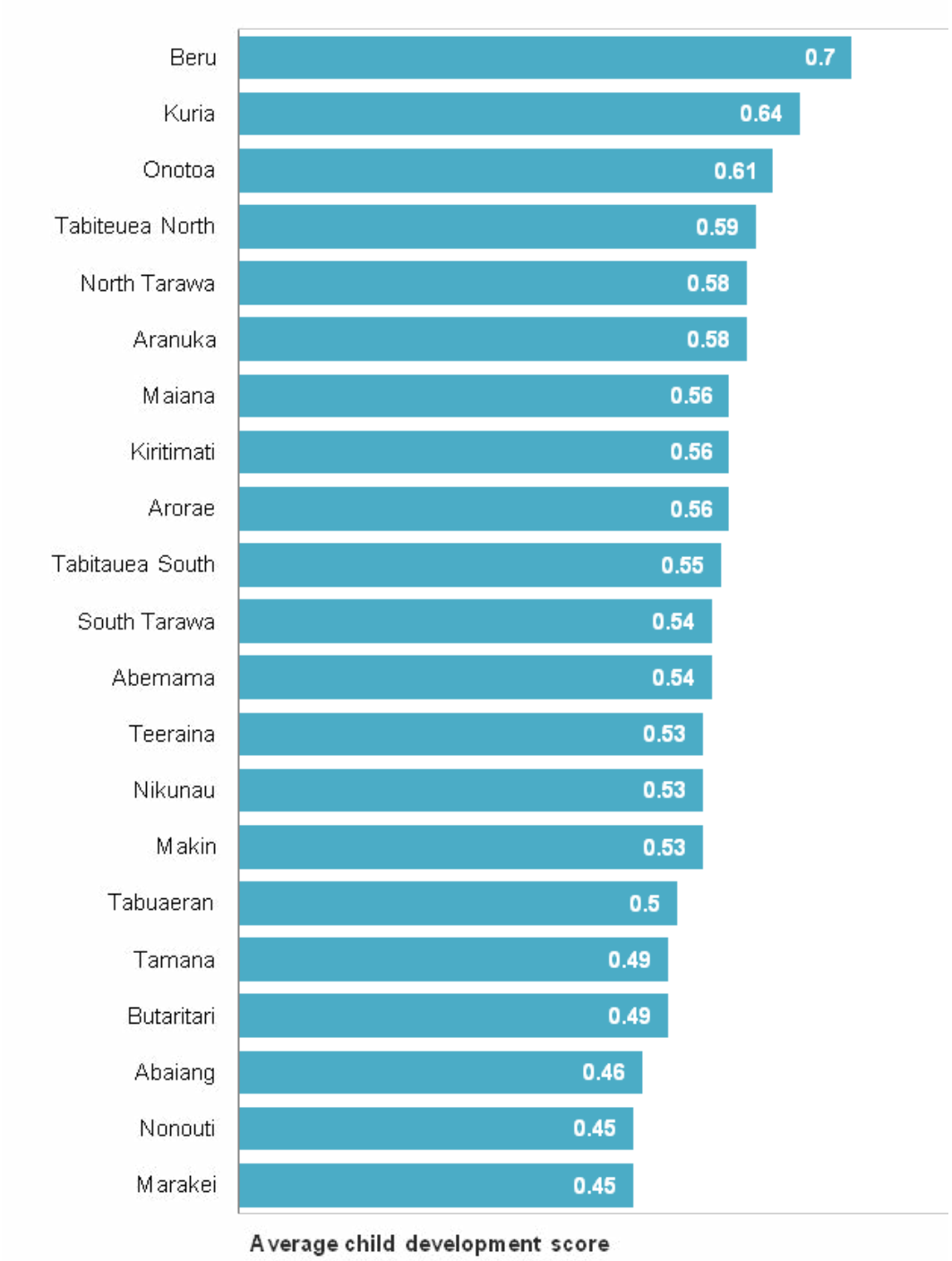


Figure 21: Children's cultural knowledge by island of residence

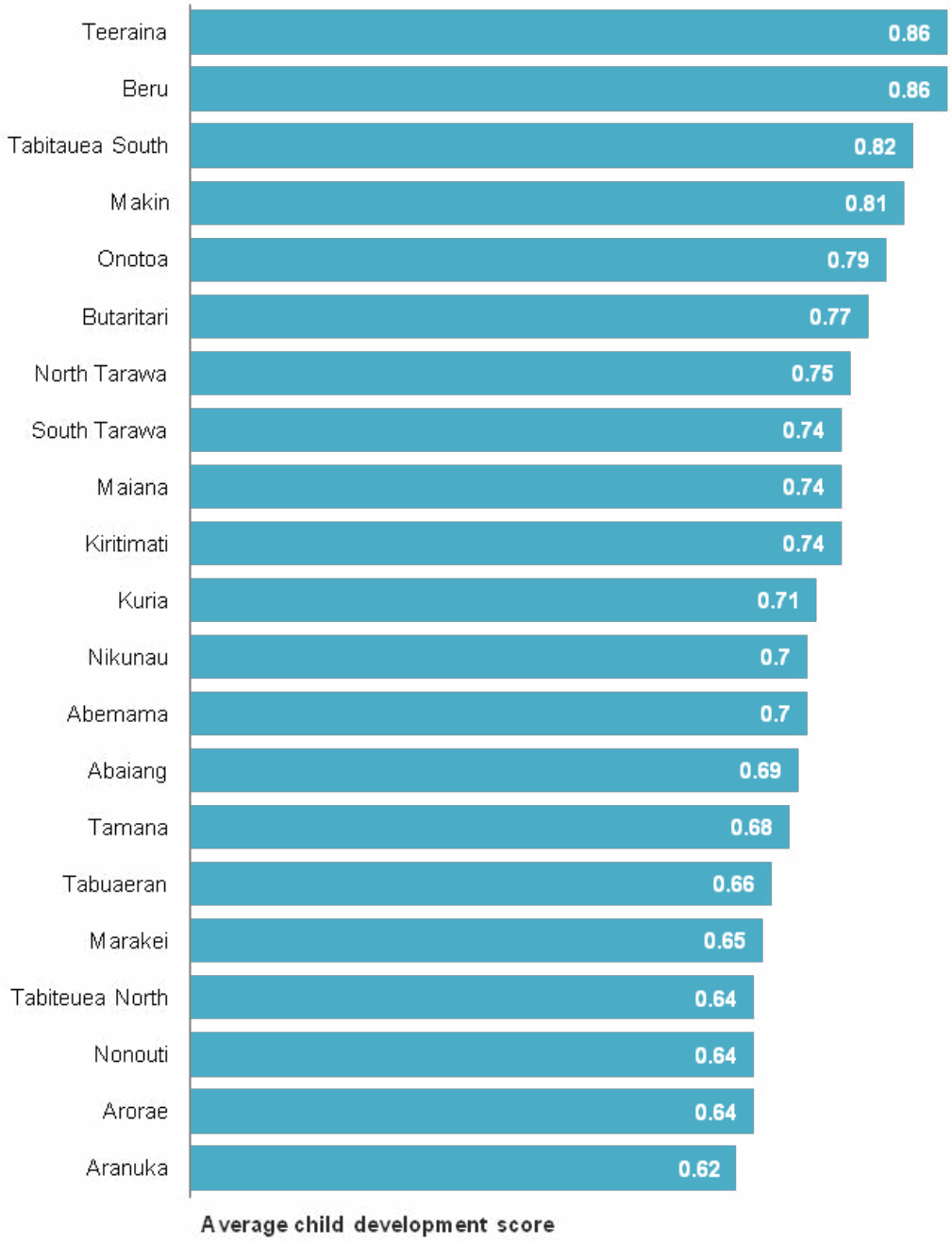


Figure 22: Children's formal literacy (reading) by island of residence

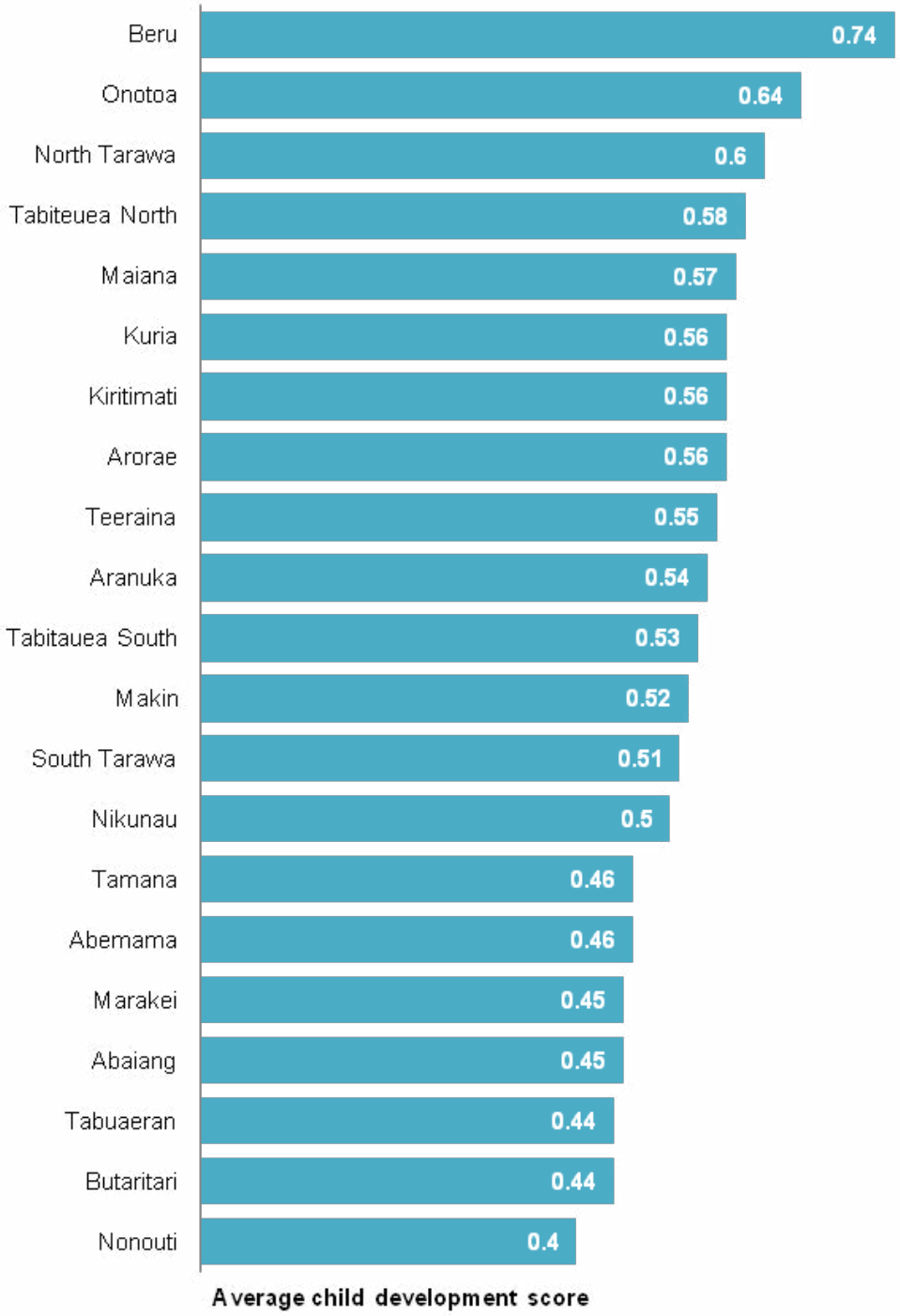


Figure 23: Children's formal literacy (writing) by island of residence

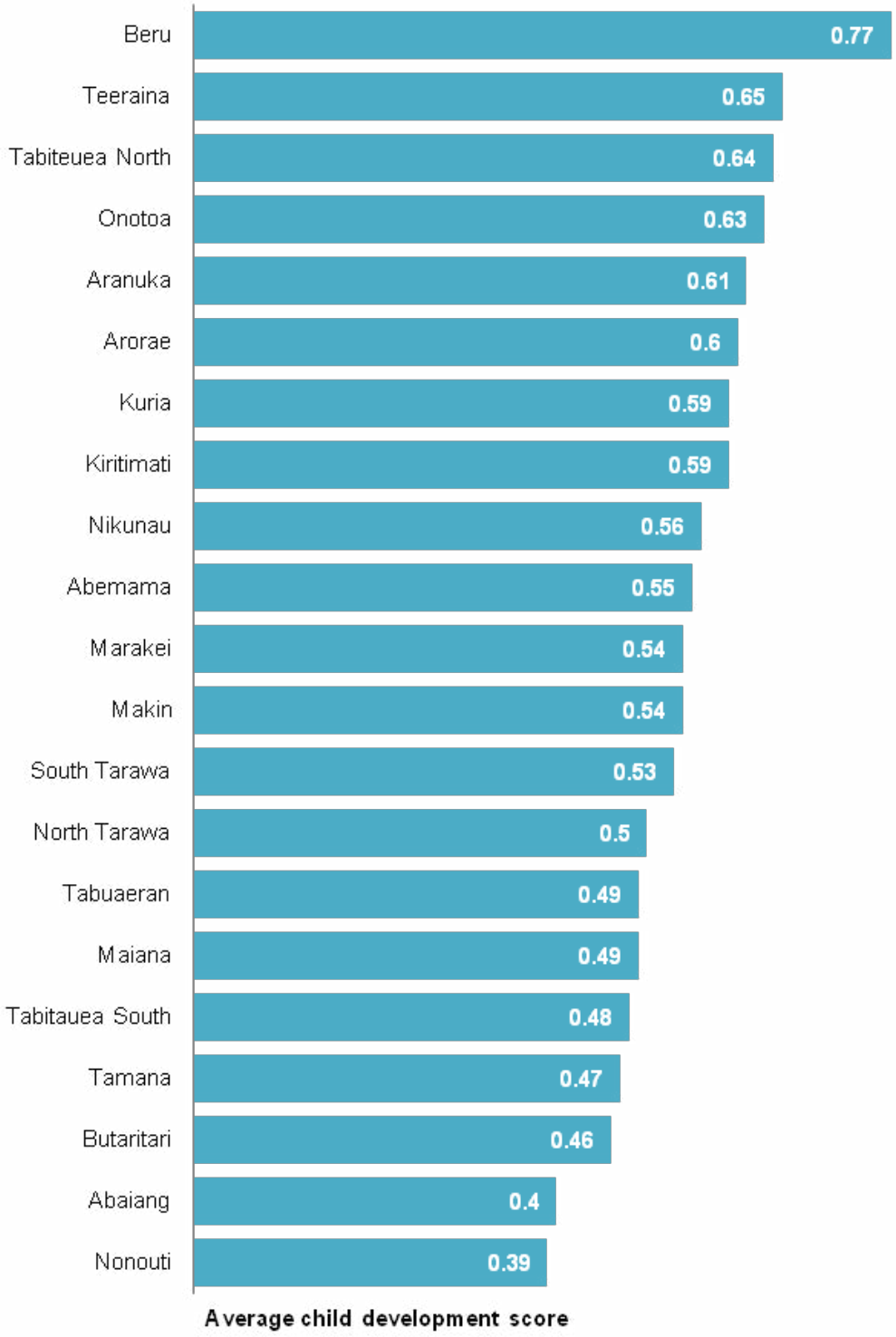


Figure 24: Children's social and emotional development by island of residence

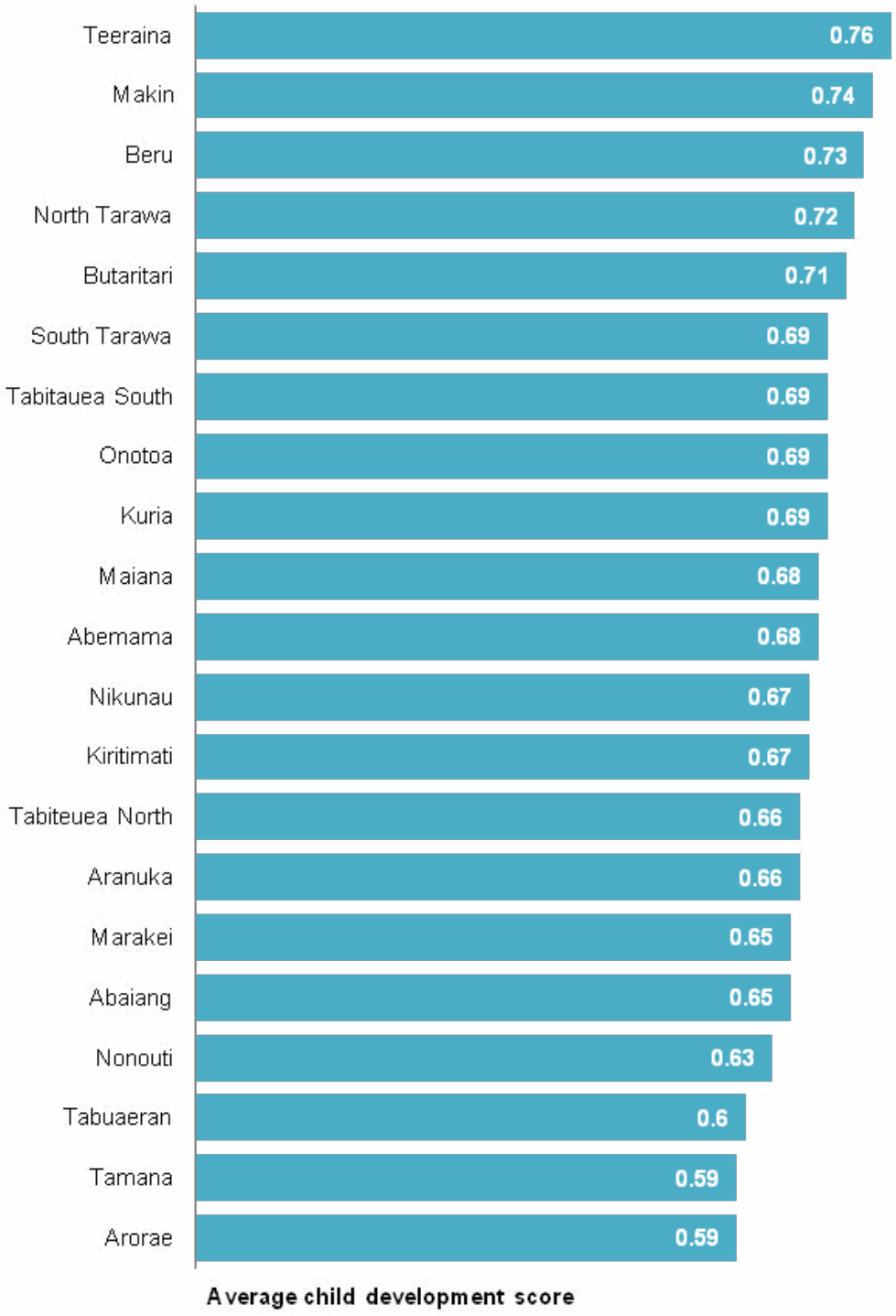
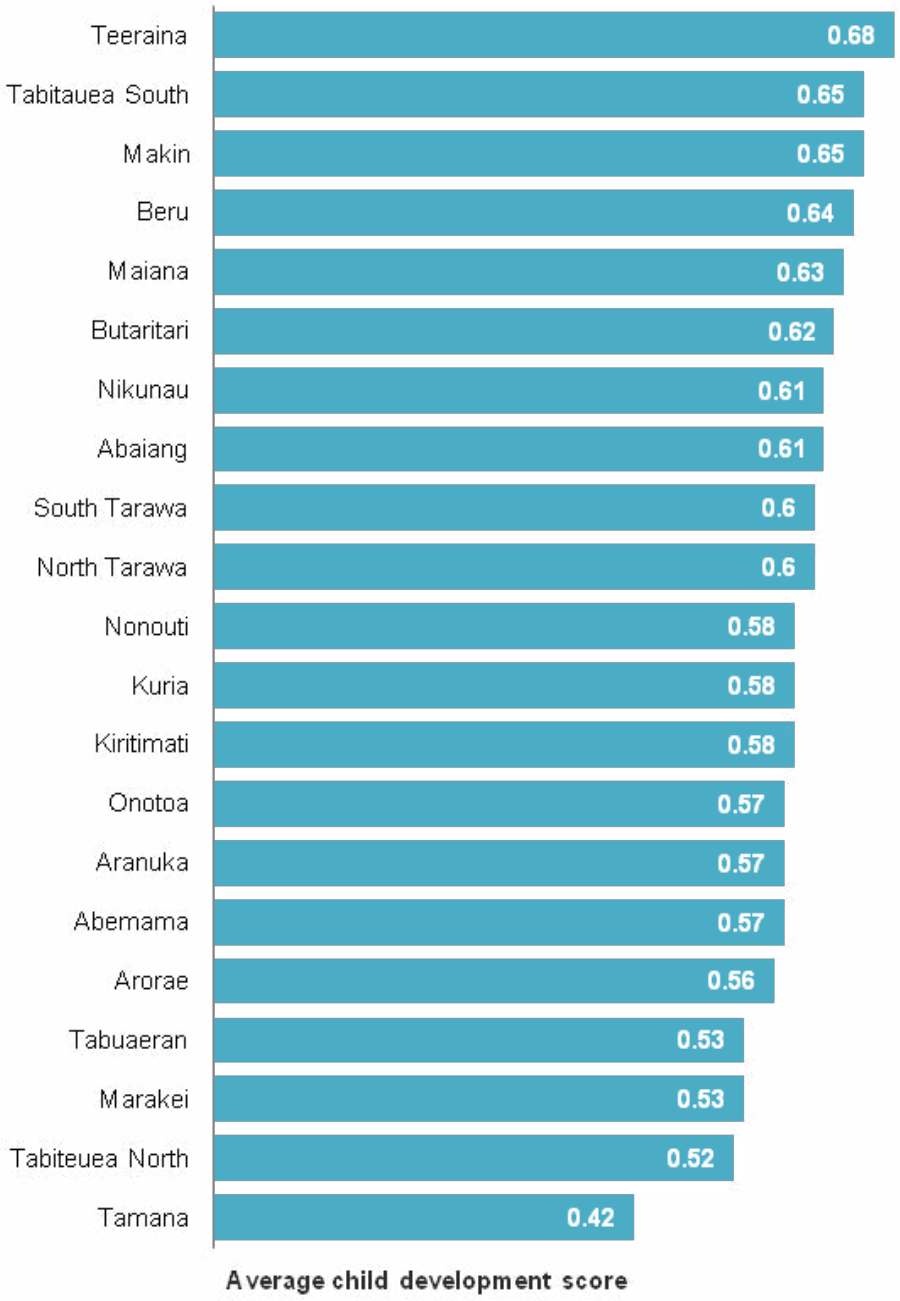


Figure 25: Children's perseverance by island of residence

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