The health of Australian South Sea Islanders in Mackay

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Abstract

The objectives of the study were to provide baseline information on the health of Australian South Sea Islanders for the development of health programs. The study was a cross sectional study of a randomised sample of identified Australian South Sea Islander households in Mackay.

Australian South Sea Islanders were shown to have low socio-economic status, with high levels of diabetes, heart disease, hypertension and obesity. They have a long history of discrimination within Australia, reflected in their socio-economic and health standards. There is a need for culture specific health programs to address these health problems, supported by the Australian South Sea Islander Community.

Introduction

Australian South Sea Islanders are the descendants of indentured labourers recruited to establish the sugar industry in Queensland between 1862 and 1904. Between 55,000 and 60,000 workers were recruited from around eighty Pacific Islands — the majority from islands now identified as the Solomon Islands and Vanuatu — often under circumstances of coercion and deception.

" Australian South Sea Islanders are the descendants of indentured labourers recruited to establish the sugar industry in Queensland between 1862 and 1904. Between 55,000 and 60,000 workers were recruited from around eighty Pacific Islands ... often under circumstances of coercion and deception. "

Between 1904 and 1906, however, most were deported by the newly formed Commonwealth of Australia under provisions of the Pacific Island Labourers Act (1901, 1906), legislation consistent with the (then) government's White Australia Policy. Some 1,654 gained exemptions on the basis of residency in Australia of at least twenty years, age or frailty, marriage to a native of another island, or to a non-Islander, having children educated in state schools, or holding leasehold or freehold land[1]. It is estimated that a further 1,000 South Sea Islanders evaded deportation[2].

Those granted exemption were subjected to further discriminatory legislation. In 1902 the Commonwealth government instituted a bonus payment for 'white' sugar, 'grown and milled unsullied by black hands'[1] The Queensland government followed by effectively banning South Sea Islanders from cultivating land for cane growing through the Leases to Aliens Act (1912) and the Sugar Acts (1913), and an Industrial Arbitration decision in 1919 excluded them from the sugar industry that they had originally been recruited to establish. Institutional discrimination, of course, reflected the more pervasive discrimination to which South Sea Islanders were subjected in the community[1].

The descendants of these original labourers now number between 15,000 and 20,000 persons, with between 10,000 and 12,000 self identifying as Australian South Sea Islanders. In 1992 the Human Rights and Equal Opportunity Commission published *The Call for Recognition: A Report on the Situation of Australian South Sea Islanders*[3] Based on a census of this population, it provided demographic and socio-economic data, and reported high levels of diabetes, cardiovascular disease and asthma[4]. The Report indicated that no previous studies of the health of Australian South Sea Islanders had been identified.

This study was initiated following meetings in 1992 with representatives of a number of Australian South Sea Islander community organisations in Mackay who expressed a need for base-line data on their health, and factors affecting their access to health services. Representatives of these organisations formed a community reference group to advise on the project development, and to review its findings. Eleven

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Australian South Sea Islanders were recruited as research assistants, and assisted with the development of the sampling frame, the preparation and pre-testing of the survey questionnaires, and their administration.

Methods

The study population consisted of Australian South Sea Islanders resident in Mackay. Census estimates indicated that the Mackay region had the greatest concentration of Australian South Sea Islanders, with 3,420 (at least 28.5%) of the population[4].

Table 1. Australian South Sea Islander sample by age and sex

Age group	Male	Female	Total
0 to 14 years	48	27	75
15 to 29 years	45	45	90
30 to 44 years	34	31	65
45 to 59 years	14	21	35
60+ years	11	9	20
Total	152	133	285

Ages of 2 males and 5 females were not recorded

The study comprised three elements: key informant interviews, household questionnaires completed by principal care providers, and questionnaires, completed by household members over fifteen years old. The study was approved by the University of Queensland Ethics Committee, and the community reference group.

Key informant interviews

In-depth semi-structured interviews were conducted with nine key informants within the Australian South Sea Islander community in Mackay. Of these, two were male, and seven female. Each informant was a member of a community organisation, and held responsibility for health in either the community or with the Mackay Regional Health Authority. The content of the interviews was informed by a series of seven meetings with community organisations over a period of 18 months. Interviews were taped and transcribed for analysis.

Household and individual questionnaires

A sampling frame of 387 Australian South Sea Islander households in Mackay was developed from the Dawson Electoral Rolls and the Mackay telephone directory, extending north to Seaforth, west to Marani and as far south as Baker's Creek[5]. The criterion for selection was any household having at least one individual identified by community representatives as Australian South Sea Islander. Primary identification of households was facilitated by distinctive Islander surnames.

A random sample of 150 households was selected. Australian South Sea Islander research assistants established contact with households, and were available for assistance in case of difficulty in completing the questionnaires. The household questionnaire was completed by the principal care provider in the household, with the individual questionnaire completed by all adults in the household over the age of 15 years.

Of the 150 households selected, 82 households participated in the household questionnaires, and 178 adults completed the individual questionnaires. There were 25 refusals to participate, and no contact was made at 43 households despite a minimum of three attempts. The compliance rates compare favourably with the South Sea Islander census undertaken in 1992, with return rates of only 34% for the Mackay region[4]. Statistical analysis was undertaken using EPI INFO software.

Results

Household questionnaire

A. Household demographic data

A total of 299 persons were identified as living in the 82 households surveyed. Gender was recorded for 292 persons: 154 males (52.7%), and 138 females (47.3%). The age and sex distribution are shown in Table 1.

Table 2. Annual gross household income for sample households

Annual gross income	Frequency		Cumulative
	Number	%	%
Nil	1	1	1
Less than $5,000	5	7	8
$5,001 to $10,000	8	11	19
$10,001 to $20,001	19	27	46
$20,001 to $30,000	17	24	70
$30,001 to $40,000	12	17	87
$40,001 to $50,001	7	10	97
More than $50,001	2	3	100

Socio-economic data

Twenty-seven homes (34%) were owned or being purchased by householders or family members. Thirty-three homes (40%) were rented through government funded agencies, including 10 through the Aboriginal and Torres Strait Islander housing cooperative. Private rental was indicated in 16 cases (19%).

The mean household occupancy was 3.65, ranging from one to 15 persons per house. An analysis of occupancy by number of bedrooms showed six of the 51 three

bedroom houses (12%) showed overcrowding, containing between 7 and 15 persons.

Gross annual household income for households sampled is reported in Table 2. The low levels of gross household income corresponded with the profile of gross personal incomes reported in the individual questionnaires.

Eighty-six percent of homes had at least one car garaged at the residence, and the same proportion had the telephone connected. There was no statistical correlation demonstrated between income and telephone or car ownership.

Three households indicated that members had gone without food for at least one day in the past four weeks. A lack of finance was the reason stated for this in all cases, compounded by difficulties with transport, and no functioning stove in one household.

Table 3. Employment category for Australian South Sea Islander respondents

Employment category	Frequency	%
Employed full time	54	32
Employed part time	19	11
Home duties	38	23
Unemployed	32	19
Student	9	5
Retired	12	7
Permanent disability/illness	5	3
Total	169	100

B. Individual questionnaires

Individual self-administered questionnaires were completed by 178 persons; 94 females (52.7%) and 84 males (47.3%). Fifty-eight percent indicated they were currently married or in defacto relationships, with 2% divorced, and 4% widowed. Thirty-five percent had never been married.

Australian South Sea Islander identity

The majority of respondents (93%) were descendants of South Sea Islanders. For these descendants, 73.1% both parents were South Sea Islanders, for 17.3% mothers only and for 9% fathers only. Fifty six percent were able to identify their parent's country or island of origin. The main islands of origin identified were the Solomon Islands (with New Britain and Buka) (48%) and Vanuatu (previously known as the New Hebrides) (46%), with smaller numbers from New Caledonia, the Fiji Islands and Tonga (6%).

On the issue of self-identification, 117 respondents (67%) indicated that they identified themselves as Australian South Sea Islanders, with 45 (26%) combining this with either Aboriginal (18%) or Torres Strait Islander (8%) identity. Three respondents (2%) described themselves as Aboriginal or Torres Strait Islander respectively, and 7 (4%) as other ethnic groups.

Religious affiliation

Historically, religious affiliation has been an important element of Australian South Sea Islander identity, with distinctive patterns evident in the Mackay region. Seventh Day Adventists comprise the dominant religious grouping (39%) with 21.5% members of charismatic churches, equivalent to the proportion of Anglicans. For Queenslanders as a whole, the former two religious groupings represent less than 2.4% of the population[6]. However, less than 42 (25%) respondents described participation in religious activities more than once a month.

Income

The gross annual income of individual respondents corresponds with the profile of gross household income, with 53% of individuals earning less than $10,000 per year, and 77% less than $20,000. The data is consistent with the annual gross individual incomes reported in the 1992 Australian South Sea Islander census, where 74% reported an income of $20,000 per annum or less[3,4].

Seventy-seven (46%) respondents indicated that they were in receipt of government benefits, with 36 (21%) receiving unemployment benefits, over double the national average. The Australian South Sea Islander census found an overall rate of unemployment of 28.5%[4]. Thirteen persons (8%) were in receipt of the Aged Pension, 17 (10%) Disability Pension, 9 (5%) Supporting Parent's Benefit and 2 (1%) Sickness Benefit.

Table 4. Area of employment by gender for Australian South Sea Islander respondents

			Total	
Employment	Male	Female	No.	%
Professional	-	3	3	4
Para-professional	2	9	11	15
Trades	12	0	12	17
Welfare/Child care	1	4	5	7
Plant Operator /Driver	8	-	8	11
Labourer and related	17	13	30	42
Other	1	2	3	4
Total	41	31	72	100

Education

Twenty four percent of the sample had less than seven years schooling, with only 21% completing both primary and secondary schooling. Only one respondent had completed a University degree course. The mean age at which respondents left school was 15.2 years.

Table 5. Body Mass Index in Australian South Sea Islanders.
Comparison of BMI by age group in study population with Standard Mean BMI

Age group (years)	Male				Female			
	Standard BMI		Study BMI		Standard BMI		Study BMI	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
15 - 19	22.1	3.4	25.5	5.5	21.9	4.0	24.5	2.5
20 - 24	23.7	3.7	26.5	2.2	22.6	4 4	26.2	8 9
25 - 29	25.0	4.1	24.9	2.2	23.4	5.0	29.6	1 8.0
30 - 34	25 7	3.9	34.8	1 - 5.0	24.4	5 5	28.5	5 7
35 - 39	25.9	3.8	29.4	7.2	24.7	5.4	26.8	1 - 3.6
40 - 44	26.2	3.9	37.1	1 - 7.4	25.1	5.7	30.0	7.2
45 - 49	26.3	4.1	25.1	4.2	25.6	5.7	34.9	4.5
50 - 54	26.0	4.1	32.0	4.6	25.8	5.1	28.3	5.8
55 - 59	26.2	4.1	26.7	5.8	26.3	5.5	35.4	8.4
60 - 64	25.8	3.8	30.1	6.2	26.5	5.4	32.2	8.4
65 +	25.6	3.9	32.3	6.6	26.6	5.4	29.2	2.7

Employment

Seventy-two respondents indicated their current areas of full or part time employment, which are listed in Table 3. Most respondents occupy unskilled positions, although recent employment opportunities in education and health have increased representation in the para-professional categories, particularly for women.

Health

Over 95% (167) of respondents reported their health as being excellent, good or fair, with similar proportions (94.8%, 165) indicating that overall they were either happy or very happy. There was close correlation between perceptions of health, and attitude to life in general (9 df, $p < 0.005$). There were 20 respondents (11%) over the age of 60. Seventeen (10%) respondents were in receipt of the Disability Pension.

In terms of function, two respondents (1.4%) indicated that they were unable to walk in the street, with one indicating that they were no longer able to walk unaccompanied. One respondent also required assistance to move around at home. A further two respondents were unable to walk a kilometre. Stairs proved more difficult to negotiate for a number of respondents, with 8 (4.8%) only able to walk up or down a flight of 5 to 8 steps, 4 (2.4%) confident with 2 to 4 steps, and 1 unable to mount or descent steps at all. Two (1.2%) respondents needed assistance getting out of bed.

Assistance with feeding was necessary for 2 respondents, who had to be fed by others, and one required assistance with dressing and undressing. No respondents required assistance with washing or using the toilet. Activities such as shopping and household duties necessitated assistance for 3 (1.8%) respondents, and one required assistance in meal preparation.

In all cases where assistance was required with functional tasks, family members were nominated as those who provided care. This correlates with findings in key informant interviews which suggested a heavy dependence on family members for care, and a reluctance to seek assistance from external agencies.

Diabetes was diagnosed in 13 (7.6%) of respondents, with a prevalence of 2.8% in those under 45 years, rising to 20.5% in those over 45 years. There was no significant difference in prevalence by gender. Cardiovascular disease was also prominent in the sample; heart disease was reported in 11 (6.4%) respondents, with 22 (12.8%) reporting a diagnosis of hypertension.

High serum cholesterol was reported in 12 (7.0%) of respondents. There were predictable relationships between diagnosed diabetes and other pathology: with heart disease (OR 4.53, 2 df, $p < 0.05$, Fisher exact); with renal disease (OR 2.56, 2 df, $p < 0.0009$, Fisher exact) and with hypertension (OR 7.48, 2 df, $p < 0.00002$, Fisher exact). Obesity was found to be statistically correlated with hypertension (OR 3.86, 2 df, $p < 0.0007$).

Sixty-one (35.2%) of the sample described themselves as being overweight, including 5 (2.9%) who considered themselves obese. Obesity had been recognised as a problem by health practitioners, with 26 (15.3%) of those who regarded

themselves as overweight or obese having been instructed to lose weight. Although the correlation between self-perceived overweight and advice to lose weight was high (OR 3.32, 2 df, p < 0.00003), 14 (8.2%) of those who considered themselves average or below average weight indicated that they had also been instructed to lose weight. Estimations of Body Mass Index (BMI) from reported weights and heights indicated relative obesity across all age groups, with a wide standard deviation, shown in Table 5.

Table 6. Smoking by gender in Australian South Sea Islander respondents

	Males	Females	Total
Smokers	40 (49.5%)	32 (35.2%)	72
Non-Smokers	41 (50.5%)	59 (64.8%)	100
Total	**81 (100%)**	**91 (100%)**	**172**

Asthma was relatively common, with 24 (14.3%) reporting diagnosed asthma, and 36 (21.3%) reporting wheeze when they did not have a respiratory infection. There was no statistical association demonstrated between reported respiratory conditions and smoking, though the incidence of smoking in the sample was high (Table 6). Renal disease was reported in 19 (11%) cases, and cancer in 8 (4.7%). Skin conditions were reported by 13 (7.6%) of respondents.

Access to Health Care

Twenty-eight (18%) respondents had sought medical attention in the past week, with 8 having had three or more appointments. For the great majority of respondents (127, 75%) emergency care could be provided within 30 minutes, and within one hour for all but three respondents. Queensland Ambulance Transport Service subscriptions were maintained by 109 (62%) respondents. Eighteen (10%) were currently members of private medical insurance schemes.

Travel to medical care was most likely to be by private transportation (162, 93%), with a family member or friend usually accompanying the patient in 38% or cases. Twelve respondents reported difficulties in travel for medical care, with eight citing the absence or irregularity of public transport as the major obstacle to access to care, and four specifying the costs of transport as being prohibitive. Nine respondents (5%) had been obliged to travel out of the region for medical care.

Health Care Provider Preferences

In terms of decisions regarding the choice of health care provider a range of factors were important. The quality of care was cited by 84 (48%) respondents as being important, with 74 (42%) indicating that an established relationship with doctor or staff influenced their choice. Seventy-two (41%) rated access to care as a key factor, with only 57 (32%) nominating cost.

When asked where respondents preferred to go for health care, 111 (65%) indicated a preference for private General Practitioner care, with 40 (23%) respondents choosing the Mackay Base Hospital for their primary medical needs. Twenty one (12%) respondents preferred to use the Aboriginal and Islander Community Health Service.

There was a clear correlation between identity and preference for care providers. The majority of respondents who identified themselves *only* as Australian South Sea Islanders, preferred Private Practitioners or the Mackay Base Hospital. Those who identified themselves as Aboriginal or Torres Strait Islander, or who identified themselves as both Australian South Sea Islander *and* Aboriginal or Torres Strait Islander, were significantly more likely to choose the Aboriginal and Islander Community Health Service for their care (OR 1.2, p < 0.006). There was no statistically significant relationship between gender and preference for health care provider.

Discussion

Australian South Sea Islanders find themselves in a unique position in Australian society. They have little in common with more recent groups of migrants, including those from Pacific Island nations, having been settled in Australia for up to 130 years. Comparisons with current Pacific Island populations, or with migrant Pacific Island populations in New Zealand or the United States of America are useful, but do not acknowledge the impact of generations resident in Australia.

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Although they are not indigenous peoples of Australia, they have shared some aspects of the disadvantage experienced by those communities, with particular legislative discrimination specifically intended to deport them from Australia, and for those who remained, to curtail their economic and employment opportunities. Comparison with Aboriginal and Torres Strait Islander communities may be more appropriate, given the existing recognition of the low health and socio-economic indicators in those communities.

The findings of this study are consistent with results of the census, which highlighted the socio-economic disadvantage

of Australian South Sea Islanders, with low household incomes and home ownership, high levels of unemployment and limited educational achievement.

Refusals to participate in the survey reflected the composite nature of the Australian South Sea Islander community and its complex relationship with the Aboriginal and Torres Strait Islander communities. Nine of the 25 households refusing to participate were from related family groups. Reasons given for refusal included reluctance to disclose personal information, fear of loss of benefits such as Obstat, and the perception that Australian South Sea Islanders need to "struggle like their forebears" and not seek government assistance.

Socio-economic indicators for Australian South Sea Islanders in this survey are comparable with the Aboriginal and Tories Strait Islander population of Mackay, based on the 1991 census. In that census, 41% of Aboriginal and Torres Strait Islander respondents reported an annual household income of less than $30,000 compared to 70% of this Australian South Sea Islander sample, with 22% earning less than $20,000, compared to 46%[7].

Conversely, home ownership by Australian South Sea Islanders of 34% compares favourably to the rate of 25.4% (157 of 617 homes) for Aboriginal and Torres Strait Islander persons in Mackay identified in the 1991 ABS census data, but is well below the 68.3% average for Australia in 1986[7].

Rates for diabetes mellitus, hypertension, heart disease, obesity and renal disease reflect similar findings in the Pacific, Aboriginal and Torres Strait Islander communities.

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The prevalence of reported diabetes mellitus of 7.6% in the Australian South Sea Islander population compares to 1.4% for the Australian population as a whole. In the age group of 45 - 64 years, the reported rate of 20.5% in Australian South Sea Islanders compares to 8.8% for all Australians, reported in census findings[8]. It must be acknowledged that this method of establishing prevalence understates the prevalence of diabetes by comparison to studies using diagnostic plasma glucose testing[9].

Using fasting blood glucose and 2 hourly blood glucose following a 75 gram glucose load, researchers in Vanuatu demonstrated a range of prevalence from 1% in rural Tanna to 2.1% for males and 12.1% for females in urban Vila, compared to earlier studies that had found prevalence rates of 2.3%, but without the strong differential between rural and urban centres[10,11]. In studies from the Solomon Islands, however, Eamon *et al.* found no correlation between diabetes and westernisation in Melanesians, arguing that genetic inheritance may be the critical variable[12]. In contrast, the impact of Pacific migration on diabetes has been clearly demonstrated in Tokelau migrants to New Zealand, where dietary and lifestyle changes were held responsible for increasing diabetic prevalence[13].

The prevalence of diagnosed diabetes in central Australian Aborigines, based on clinic data, has been estimated at 5.4% for males, and 8.8% for females[14]. Given their strong links to Melanesian groups, it may be more appropriate to compare diabetes rates in Australian South Sea Islanders to those in Torres Strait Islanders. Prevalence studies for diabetes in the Torres Straits, using blood glucose levels, showed rates of 18% for the predominantly Melanesian outer island groupings, and 13% in the Thursday Island and Bamaga areas[15].

Australian South Sea Islanders would appear to be at risk due both to the genetic tendency to diabetes evident in some Melanesian, Micronesian and particularly Polynesian populations, and to the dietary and lifestyle changes implicit in western patterns of living[16].

The association between diabetes and cardiovascular disease has been observed in a number of Pacific studies. The links between hypertension and obesity are also predictable, as are links with the high level of renal disease reported. Higher incidences for glomerulonephritis, as well as higher prevalences of diabetic nephropathy in Polynesians has been noted in New Zealand studies[17].

Cardiovascular disease was reported in this study by 25 (14.6%) respondents, with 6.4% reporting diagnosed heart disease, and 12.8% hypertension. The 1989 - 90 National Heart Survey recorded Australian rates of 13% reporting a cardiovascular condition, with 9% reporting hypertension. The reported prevalence of cardiovascular conditions for Aboriginal (8.2%) was lower than that of other Australians[18].

The prevalence of hypertension recorded in Vanuatu ranged from 2.2% in rural Tanna to 6.3% for males and 12.4% for females in urban Vila[10]. In New Zealand, coronary heart disease mortality figures for Pacific Island men were similar to those of the European population, with deaths for Maori significantly higher[19].

Key risk factors for diabetes and cardiovascular disease in the Australian South Sea Islander community include obesity, with its links to diet and lifestyle, and smoking. The subjective under-estimation of obesity compared to Body Mass Index identified in this study suggests some reluctance to address the problem. Menzies notes that in the census of Australian

South Sea Islanders, only one of 1184 respondents volunteered obesity as a health problem[4]. Preliminary examination of 24 hour dietary recall suggests a pattern of moderate to high fat and sugar intake. A similar tendency to increasing obesity associated with urbanisation has been demonstrated in Vanuatu[19], and in other Pacific nations[20].

Key informants indicate that although traditional elements of diet, such as fish, taro and yam, are still common, foods that do not require their extended preparation times, and "fast foods" in particular, are progressively displacing them. As with Aboriginal workers in the pastoral industry, and subsequently with food rations, the early diet provided to the 'kanakas', as they were known, was high in fat, sugar and salt, an undesirable base for a dietary transition[1,21].

Cigarette smoking is more common among Australian South Sea Islander compared to other Australians in the 1990 ABS estimate for the Mackay region[22]. 49.5% of Australian South Sea Islander males smoke compared to 39.1% overall, and 35.2% of Australian South Sea Islander females, compared to 27.9%[6].

Religious denomination was expected to demonstrate a correlation with smoking behaviour and the drinking of alcohol since both Seventh Day Adventist and the charismatic churches hold strong anti-smoking and anti-drinking positions. On analysis, this was not confirmed. However, there was a strong correlation between non-participation in religious activities for all denominations and smoking (OR=3.02, 2 df, $p < 0.0002$) and drinking (OR=2.12, 2 df, $p < 0.000001$). This correlation with non-participation in religious activity also applied to the frequency of alcohol consumption (8 df, $p < 0.005$). Within specific denominations, the patterns for Seventh Day Adventists correlated strongly with participation; those who did not participate were more likely to smoke (OR=2.99, 2 df, $p < 0.003$) or drink (OR=2.07, 2 df, $p < 0.002$). Numbers in other denominations were too small to permit statistical analysis.

Conclusion

The study has identified high levels of diabetes, and related cardiovascular and renal disease in the Australian South Sea Islander Community. Comparable disease levels in the Aboriginal and Tories Strait Islander community have justified target programs with culturally specific approaches addressing these problems[23,24]. Zimmet *et al.* and Taylor argue that although the causality remains complex, programs that promote healthier lifestyles through good nutrition, reduction of obesity, increased physical activity and reduction in smoking, alcohol consumption and stress are appropriate interim measures until more specific studies are available[25,26]. However, the underlying socio-economic disadvantage will need to be eliminated before health differentials between this population and other Australians are corrected. In the short term, there is a clear need for culture specific health promotion programs for Australian South Sea Islanders, delivered with the support and ownership of community organisations.

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Acknowledgements

Funding for this research was provided by the Department of Health and Human Services through their Home and Community Care program, Queensland Health and the University of Queensland. The Mackay Regional Health Authority provided assistance through their Aboriginal Tories Strait and South Sea Islander Health Unit with the preparation and distribution of survey questionnaires.

The authors wish to thank the Australian South Sea Islander community for their support in this research, and in particular Christine Andrew, Gladys Andrew, Winnie Boah, Henry Bobongie, Charles Fatnowna, Shirley Miller, Noah Sabbo, Jenny Timor, Rowena Trieve, and the research assistants Steven Baggow, Winnie Boah, Janie Bobongie, Lenol Choppy, Clacy Fatnowna, Harold Fatnowna, Marion Healy, Ada Mallie, Merle Mann, Helene Parter and Olivene Youse.

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" Comparable disease levels in the Aboriginal and Tories Strait Islander community have justified target programs with culturally specific approaches addressing these problems. "

Every week people in Tonga are smoking 2.5 million cigarettes and drink 35,500 cans of imported beer. While this cost $4 million in trade deficit it gave the government $4.6 million (35%) of its revenue in 1994. Australia and New Zealand are the biggest suppliers.

From 'Matangi Tonga', January - March 1996, p11