



AUSPLAY: METHODOLOGY REPORT 2021-22

Covering the data collection period July 1, 2021 to June 30, 2022

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1 Introduction

1.1 Survey overview

The AusPlay Survey (AusPlay) is a large-scale national population tracking survey funded and led by the Australian Sports Commission (ASC). It fills a major gap in national sport and physical recreation data following the Australian Bureau of Statistics' (ABS) decision in June 2014 to cease funding for all sport and recreation data collection.

AusPlay is the first national survey in Australia to collect adult and children's sport and physical recreation participation data on the same annual survey vehicle. Big Village (formerly ENGINE/ORC International) was appointed by the ASC in 2015 to deliver AusPlay, following an open tendering process.

The three main objectives of AusPlay are to:

1. Provide insights to help sports grow participation and track trends
2. Provide data that informs government investment, policy, and program delivery; and
3. Identify and describe links between sport participation and other influential factors.

1.2 Purpose of this report

AusPlay data collection commenced in October 2015. This seventh methodological report covers the: sample design; data collection; weighting; and margin of error calculations, as they relate to the survey data collected from July 1, 2021 to June 30, 2022.

Separate documents with detailed information on the survey questions and key terms and definitions used in AusPlay reporting can be accessed on the [Clearinghouse for Sport](#).

2 Sample design

2.1 Target population

The target population for AusPlay is all Australian residents. Randomly selected Australian residents aged 15 years and over are interviewed directly in a CATI interview. Children aged 0-14 are covered by interviewing adult respondents, who are parents or guardians of at least one child in their household, about one randomly selected child.

2.2 Sample design

From the start of AusPlay in Q4, 2015 until Q2, 2019 the AusPlay sample design was a dual frame overlapping design with 50% of the sample being from a landline frame and 50% from a random digit dialling (RDD) mobile phone frame. In Q3, 2019 the sample design changed to a single frame RDD mobile design (100% mobile design).

2.3 Annual sample size

The AusPlay target sample size in 2021/22 was 20,000 (aged 15+), spread equally across the year. The sample size achieved was 20,025 (Persons 15+), with a corresponding achieved child sample size of 3,468. Further details are set out in Table 1 below.

2.4 Random respondent selection

2.4.1 Adult selection

The owner of the mobile was approached for an interview. Up to 5 call-backs were made to attempt to obtain an interview.

2.4.2 Child selection

For each adult respondent who was a parent or guardian of at least one child in their household (aged under 15 years) one child was selected using the last birthday method. The adult respondent completed the AusPlay questionnaire child section as it related to the selected child.

2.5 Sample frame

The RDD mobile phone sample frame was obtained from *SamplePages*.

3 Data collection

3.1 Interviewing

Interviewing was conducted from Big Village’s dedicated CATI facility in Melbourne as well as remotely from interviewers’ own home during and after the various lockdowns as result of the COVID-19 pandemic. The team of interviewers selected were briefed specifically on the project prior to the commencement of the fieldwork.

This report covers the fieldwork period from July 1, 2021 to June 30, 2022. In this period a total of 20,025 interviews were conducted amongst adults aged 15 years and over. Of these respondents 3,468 completed the AusPlay questionnaire child section for a randomly selected child aged 0-14 (selected using the last birthday method). Interviews were conducted continuously over the year.

All interviewing (whether centralised or remote) was carried out in compliance with ISO 20252 and membership requirements for the Australian Data and Insights Association (formerly the Association of Market and Social Research Organisations (AMSRO)) and The Research Society (formerly the Australian Market and Social Research Society (AMSRS)).

The table below shows the adult and child sample sizes achieved for the states and territories.

Table 1. Adult and child sample achieved by state/territory (2021-22)

State	Adult sample	Child sample
NSW	7,105	1,302
Vic	4,965	832
Qld	3,436	601
SA	1,326	192
WA	1,910	322
Tas	472	58
NT	171	38
ACT	640	123
Total	20,025	3,468

3.2 Response rate

The response rate is set out below, using the internationally recognised AAPOR (American Association for Population Opinion Research) standard for calculating response rates.

Table 2. Response rate (2021-22)

AAPOR Response Rate: July 1, 2021 - June 30, 2022			
		No answer	1,402
		Answering machine	39,555
		Engaged	363
		Other non-contact	0
A	Total Contact Not Made - Eligibility Unknown		41,320
		Disconnected / Invalid number - phone not connected	3,715

AAPOR Response Rate: July 1, 2021 - June 30, 2022			
		Business number/paging service	0
		Incoming call restriction (blocks)	8
		Fax / 'Killed'	5,017
B	Total Contact Not Made - Not Eligible		8,740
1) Total contact not made (A+B)			50,060
		Call back or appointment scheduled	385
		Total language barrier	5,990
		Refused - non-specified	167
		Refused- Eligibility Unknown	158,447
C	Total Contact Made - Eligibility Unknown		134,989
		Out of scope - Aged under 15	378
		Out of scope - residency status	335
		Refused - Age question	72
		Refused - residency status	28
D	Total Contact Made - Not eligible (out-of-scope)		813
E	Contact made - Eligible (completed interviews)		20,025
		Respondent terminate at QRES1a or later	351
		Not proceeding for other reason	0
		Refused - Eligible	12,886
		Refused- parent refused for 15-17yo	145
		Total incapable	1,195
F	Total Contact made - Eligible (non-complete)		14,577
2) Total contact made (C+D+E+F)			170,404
Total finalised outcomes (1+2)			220,464
G	Eligibility rate $[(E + F) / (D + E + F)] \%$		98%
H	Expected eligible from unknown $[G \times (A + C)]$		172,262
J	Total estimated eligible $[E + F + H]$		206,864
RR	Response Rate $[(E / J) \%$		10%

4 Weighting

Weights were calculated for each of the four quarterly sets of data for 2021-22. The weighting process was carried out as follows:

4.1 Weights for the adult sample

Weighting cells were defined by part-of-state x sex x age. These weighting cells are shown in the tables below. The part-of-state cells and the gender x age weighting cells used were as follows:

Table 3. AusPlay part-of-state weighting cells

Stratum
Sydney
Rest of New South Wales
Melbourne
Rest of Victoria
Brisbane
Rest of Queensland
Adelaide
Rest of South Australia
Perth
Rest of Western Australia
Tasmania
Northern Territory
Australian Capital Territory

Table 4. Age x sex weighting cells

Gender	Age
Female	15-24
Female	25-34
Female	35-44
Female	45-54
Female	55-64
Female	65+
Male	15-24
Male	25-34
Male	35-44
Male	45-54
Male	55-64
Male	65+

The combination of 13 geographic and 12 age x sex weighting cells resulted in $13 \times 12 = 156$ weighting cells. In order to avoid unduly large weights, weighting cells were collapsed if the sample size was

less than 5. Weighting cells were collapsed across adjacent age groups but not across sex or part-of-state.

Estimated Resident Population (ERP) data for the 156 weighting cells are available on a quarterly basis.

The initial probabilities of selection for the adult sample (persons 15+) were calculated as being proportional to the number of active mobile phones used by the mobile phone respondent, capped to a maximum of 3 for each respondent. The initial weights were the inverse of the initial probabilities of selection.

Preliminary weights were then calculated by calibrating the initial weights so that the sum of weights for each collapsed weighting cell equalled the ERP value for that cell.

The final adult weights were then calculated by an iterative rim-weighting process using two ABS ERP rim values: (1) the quarterly ERP values by fine age groups up to 80+ (15-17, 18-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80+) x sex at the national level; and (2) the ERP values for the collapsed weighting cells which were used to calculate the preliminary weights.

4.2 Weights for the child sample

The starting point for the child weights was the adult weight for respective adult respondents. The probability of selection of children is inversely proportional to the number of children aged 0-14 in the household. In order to account for this probability of selection the adult weight was multiplied by the number of children aged 0-14 in the household. A further weight adjustment was made which divided the child weight by the number of adults in the household who could have reported the selected child. This adjustment accounts for the fact that the adult weights project to all adults in the population, not just the selected adults.

The final child weights were calculated by an iterative rim-weighting process using two ABS ERP rim values: (1) the quarterly ERP values by age (0-4, 5-8, 9-11, and 12-14) x sex at the national level; and (2) the quarterly ABS child (0-14) ERP values for states and territories. This ensured the weighted child estimates were identical to the two ABS ERP rim values.

The weights for each quarter were designed so that any quarter's sample could be projected to the full population of Australia. One consequence of this is that the sum of the adult weights equals the ERP adult value for that quarter.

This means, however, that the sum of the adult weights for the combined first four quarters of data will equal four times the average ERP adult value for Australia for that period. The weights provided by Big Village for the combined first four quarters of data were divided by 4 to account for this issue.

This principle should be used whenever quarterly data is combined to form multi-quarter data. In general, if q quarters of weighted data are to be combined for analysis of that combined time period the quarterly weights should all be divided by q.

5 Sample error estimates

5.1 Standard errors

The AusPlay results are based on a sample and are therefore subject to sample error. Sample error is measured by the standard error (SE) and the margin of error (MOE). Knowledge of the standard error, or the margin of error, enables the 95% confidence intervals to be constructed around survey results and also enables statistical significance testing to be carried out.

The 95% confidence interval for a survey result is calculated as the survey result plus or minus 1.96 x the standard error. For example, if a survey result of 100,000 has a standard error of 10,000 then the 95% confidence interval is $100,000 \pm (1.96 \times 10,000) = 100,000 \pm 19,600 = (80,400 - 119,600)$.

The relative standard error (RSE) for a particular survey result is the standard error divided by the survey result, expressed as a percentage. The standard errors and the relative standard errors of a range of AusPlay adult and child results are summarised in the four tables below.

The following example demonstrates the use of these tables for annual estimates. Consider an annual survey result for NSW of 200,000 from the adult sample (e.g. 200,000 play golf). The table below shows that the standard error for this result is 14,600 (rounded to the nearest hundred). This means the 95% confidence interval for the survey result is $200,000 \pm 1.96 \times 14,600 = 200,000 \pm 28,600 = (171,400 - 228,600)$.

Table 5. Standard errors of annual adult estimates (2021-22)

Size of estimate	NSW (no.)	Vic (no.)	Qld (no.)	SA (no.)	WA (no.)	Tas (no.)	NT (no.)	ACT (no.)	Australia (no.)
1,000	1,000	1,100	1,200	1,100	1,100	1,100	1,200	800	1,100
2,000	1,500	1,600	1,700	1,600	1,600	1,500	1,700	1,100	1,600
5,000	2,300	2,500	2,600	2,600	2,600	2,400	2,800	1,800	2,500
10,000	3,300	3,600	3,700	3,600	3,600	3,300	3,900	2,600	3,500
20,000	4,600	5,100	5,300	5,100	5,100	4,700	5,500	3,600	5,000
50,000	7,300	8,000	8,400	8,100	8,100	7,500	8,700	5,700	7,900
100,000	10,300	11,300	11,800	11,400	11,500	10,600	12,300	8,100	11,100
200,000	14,600	16,000	16,700	16,200	16,300	15,000	17,400	11,500	15,700
500,000	23,100	25,400	26,500	25,600	25,700	-	-	-	24,800
800,000	29,300	32,100	33,500	32,400	32,500	-	-	-	31,400
1,000,000	32,700	35,900	37,400	36,200	36,400	-	-	-	35,100
1,500,000	40,100	43,900	45,900	-	44,500	-	-	-	43,000
2,000,000	46,300	50,700	53,000	-	51,400	-	-	-	49,700
5,000,000	73,200	80,200	-	-	-	-	-	-	78,500
8,000,000	-	-	-	-	-	-	-	-	99,300

Table 6. Relative standard errors of annual adult estimates (2021-22)

Size of estimate	NSW (%)	Vic (%)	Qld (%)	SA (%)	WA (%)	Tas (%)	NT (%)	ACT (%)	Australia (%)
1,000	100.0%	110.0%	120.0%	110.0%	110.0%	110.0%	120.0%	80.0%	110.0%
2,000	75.0%	80.0%	85.0%	80.0%	80.0%	75.0%	85.0%	55.0%	80.0%
5,000	46.0%	50.0%	52.0%	52.0%	52.0%	48.0%	56.0%	36.0%	50.0%
10,000	33.0%	36.0%	37.0%	36.0%	36.0%	33.0%	39.0%	26.0%	35.0%
20,000	23.0%	25.5%	26.5%	25.5%	25.5%	23.5%	27.5%	18.0%	25.0%
50,000	14.6%	16.0%	16.8%	16.2%	16.2%	15.0%	17.4%	11.4%	15.8%
100,000	10.3%	11.3%	11.8%	11.4%	11.5%	10.6%	12.3%	8.1%	11.1%
200,000	7.3%	8.0%	8.4%	8.1%	8.2%	7.5%	8.7%	5.8%	7.9%
500,000	4.6%	5.1%	5.3%	5.1%	5.1%	-	-	-	5.0%
800,000	3.7%	4.0%	4.2%	4.1%	4.1%	-	-	-	3.9%
1,000,000	3.3%	3.6%	3.7%	3.6%	3.6%	-	-	-	3.5%
1,500,000	2.7%	2.9%	3.1%	-	3.0%	-	-	-	2.9%
2,000,000	2.3%	2.5%	2.7%	-	2.6%	-	-	-	2.5%
5,000,000	1.5%	1.6%	-	-	-	-	-	-	1.6%
8,000,000	-	-	-	-	-	-	-	-	1.2%

Table 7. Standard errors of annual child estimates (2021-22)

Size of estimate	NSW (no.)	Vic (no.)	Qld (no.)	SA (no.)	WA (no.)	Tas (no.)	NT (no.)	ACT (no.)	Australia (no.)
1,000	140.0%	160.0%	160.0%	160.0%	160.0%	160.0%	170.0%	100.0%	150.0%
2,000	100.0%	110.0%	115.0%	115.0%	115.0%	110.0%	115.0%	70.0%	110.0%
5,000	62.0%	70.0%	72.0%	72.0%	72.0%	70.0%	74.0%	44.0%	68.0%
10,000	44.0%	50.0%	51.0%	51.0%	51.0%	49.0%	52.0%	31.0%	48.0%
20,000	31.0%	35.0%	36.0%	36.0%	36.0%	35.0%	37.0%	22.0%	34.0%
50,000	19.6%	22.2%	22.8%	22.8%	22.8%	22.2%	23.4%	13.8%	21.6%
100,000	13.9%	15.8%	16.2%	16.1%	16.2%	-	-	-	15.3%
200,000	9.8%	11.2%	11.5%	11.4%	11.5%	-	-	-	10.8%
500,000	6.2%	7.0%	7.2%	-	7.2%	-	-	-	6.8%
800,000	4.9%	5.6%	5.7%	-	-	-	-	-	5.4%
1,000,000	4.4%	5.0%	5.1%	-	-	-	-	-	4.8%
1,500,000	3.6%	-	-	-	-	-	-	-	3.9%
2,000,000	-	-	-	-	-	-	-	-	3.4%

Table 8. Relative standard error of annual child estimates (2021-22)

Size of estimate	NSW (%)	Vic (%)	Qld (%)	SA (%)	WA (%)	Tas (%)	NT (%)	ACT (%)	Australia (%)
1,000	1,400	1,600	1,600	1,600	1,600	1,600	1,700	1,000	1,500
2,000	2,000	2,200	2,300	2,300	2,300	2,200	2,300	1,400	2,200
5,000	3,100	3,500	3,600	3,600	3,600	3,500	3,700	2,200	3,400
10,000	4,400	5,000	5,100	5,100	5,100	4,900	5,200	3,100	4,800
20,000	6,200	7,000	7,200	7,200	7,200	7,000	7,400	4,400	6,800
50,000	9,800	11,100	11,400	11,400	11,400	11,100	11,700	6,900	10,800
100,000	13,900	15,800	16,200	16,100	16,200	-	-	-	15,300
200,000	19,600	22,300	22,900	22,800	22,900	-	-	-	21,600
500,000	31,000	35,200	36,100	-	36,200	-	-	-	34,100
800,000	39,200	44,600	45,700	-	-	-	-	-	43,200
1,000,000	43,900	49,800	51,100	-	-	-	-	-	48,300
1,500,000	53,700	-	-	-	-	-	-	-	59,100
2,000,000	-	-	-	-	-	-	-	-	68,300

5.2 Margins of error

As described above, the 95% confidence interval for a survey result is calculated as the survey result plus or minus 1.96 times the standard error. The amount **1.96 times the standard error** is called the **margin of error**.

This term enables the calculation for a 95% confidence interval to be re-expressed as follows: the 95% confidence interval for a survey result is calculated as the survey result plus or minus the margin of error. The relative margin of error (RMOE) for a particular survey result is 1.96 x the relative standard error or the margin of error divided by the survey result, expressed as a percentage.

The margins of error and the relative margins of error of AusPlay adult and child estimates are summarised in the four tables below. It can be seen that the margin of error values in the tables below is 1.96 times the equivalent standard error values (rounded to the nearest hundred).

The following example demonstrates the use of these tables. Consider an annual survey result for NSW of 200,000 from the adult sample (e.g. 200,000 play golf). The table below shows that the margin of error for this result is 28,687. This means the 95% confidence interval for the survey result is 200,000 +/- 28,687 = (171,313 - 228,687). This is the same 95% confidence interval that was calculated in the same example above, using the standard error tables.

Table 9. Margins of error of annual adult estimates (2021-22)

Size of estimate	NSW (no.)	Vic (no.)	Qld (no.)	SA (no.)	WA (no.)	Tas (no.)	NT (no.)	ACT (no.)	Australia (no.)
1,000	2,028	2,223	2,321	2,242	2,253	2,074	2,411	1,590	2,177
2,000	2,869	3,144	3,282	3,171	3,186	2,933	3,410	2,249	3,079
5,000	4,536	4,971	5,190	5,014	5,038	4,638	5,391	3,555	4,868
10,000	6,415	7,030	7,339	7,090	7,125	6,558	7,625	5,028	6,884
20,000	9,072	9,943	10,379	10,027	10,076	9,275	10,783	7,111	9,736
50,000	14,344	15,721	16,411	15,854	15,932	14,665	17,049	11,243	15,393
100,000	20,285	22,232	23,209	22,421	22,531	20,740	24,111	15,900	21,770
200,000	28,687	31,441	32,822	31,709	31,864	29,330	34,098	22,486	30,787
500,000	45,358	49,713	51,897	50,136	50,381	-	-	-	48,678
800,000	57,374	62,882	65,645	63,417	63,728	-	-	-	61,574
1,000,000	64,146	70,305	73,393	70,903	71,250	-	-	-	68,841
1,500,000	78,563	86,105	89,888	-	87,263	-	-	-	84,313
2,000,000	90,717	99,426	103,793	-	100,763	-	-	-	97,357
5,000,000	143,436	157,206	-	-	-	-	-	-	153,934
8,000,000	-	-	-	-	-	-	-	-	194,713

Table 10. Relative margins of error of annual adult estimates (2021-22)

Size of estimate	NSW (%)	Vic (%)	Qld (%)	SA (%)	WA (%)	Tas (%)	NT (%)	ACT (%)	Australia (%)
1,000	202.8%	222.3%	232.1%	224.2%	225.3%	207.4%	241.1%	159.0%	217.7%
2,000	143.4%	157.2%	164.1%	158.5%	159.3%	146.7%	170.5%	112.4%	153.9%
5,000	90.7%	99.4%	103.8%	100.3%	100.8%	92.8%	107.8%	71.1%	97.4%
10,000	64.1%	70.3%	73.4%	70.9%	71.3%	65.6%	76.2%	50.3%	68.8%
20,000	45.4%	49.7%	51.9%	50.1%	50.4%	46.4%	53.9%	35.6%	48.7%
50,000	28.7%	31.4%	32.8%	31.7%	31.9%	29.3%	34.1%	22.5%	30.8%
100,000	20.3%	22.2%	23.2%	22.4%	22.5%	20.7%	24.1%	15.9%	21.8%
200,000	14.3%	15.7%	16.4%	15.9%	15.9%	14.7%	17.0%	11.2%	15.4%
500,000	9.1%	9.9%	10.4%	10.0%	10.1%	-	-	-	9.7%
800,000	7.2%	7.9%	8.2%	7.9%	8.0%	-	-	-	7.7%
1,000,000	6.4%	7.0%	7.3%	7.1%	7.1%	-	-	-	6.9%
1,500,000	5.2%	5.7%	6.0%	-	5.8%	-	-	-	5.6%
2,000,000	4.5%	5.0%	5.2%	-	5.0%	-	-	-	4.9%
5,000,000	2.9%	3.1%	-	-	-	-	-	-	3.1%
8,000,000	-	-	-	-	-	-	-	-	2.4%

Table 11. Margins of error of annual child estimates (2021-22)

Size of estimate	NSW (no.)	Vic (no.)	Qld (no.)	SA (no.)	WA (no.)	Tas (no.)	NT (no.)	ACT (no.)	Australia (no.)
1,000	2,700	3,100	3,100	3,100	3,100	3,100	3,300	2,000	2,900
2,000	3,900	4,300	4,500	4,500	4,500	4,300	4,500	2,700	4,300
5,000	6,100	6,900	7,100	7,100	7,100	6,900	7,300	4,300	6,700
10,000	8,600	9,800	10,000	10,000	10,000	9,600	10,200	6,100	9,400
20,000	12,200	13,700	14,100	14,100	14,100	13,700	14,500	8,600	13,300
50,000	19,200	21,800	22,300	22,300	22,300	21,800	22,900	13,500	21,200
100,000	27,200	31,000	31,800	31,600	31,800	-	-	-	30,000
200,000	38,400	43,700	44,900	44,700	44,900	-	-	-	42,300
500,000	60,800	69,000	70,800	-	71,000	-	-	-	66,800
800,000	76,800	87,400	89,600	-	-	-	-	-	84,700
1,000,000	86,000	97,600	100,200	-	-	-	-	-	94,700
1,500,000	105,300	-	-	-	-	-	-	-	115,800
2,000,000	-	-	-	-	-	-	-	-	133,900

Table 12. Relative margins of error of annual child estimates (2021-22)

Size of estimate	NSW (%)	Vic (%)	Qld (%)	SA (%)	WA (%)	Tas (%)	NT (%)	ACT (%)	Australia (%)
1,000	270.0%	310.0%	310.0%	310.0%	310.0%	310.0%	330.0%	200.0%	290.0%
2,000	195.0%	215.0%	225.0%	225.0%	225.0%	215.0%	225.0%	135.0%	215.0%
5,000	122.0%	138.0%	142.0%	142.0%	142.0%	138.0%	146.0%	86.0%	134.0%
10,000	86.0%	98.0%	100.0%	100.0%	100.0%	96.0%	102.0%	61.0%	94.0%
20,000	61.0%	68.5%	70.5%	70.5%	70.5%	68.5%	72.5%	43.0%	66.5%
50,000	38.4%	43.6%	44.6%	44.6%	44.6%	43.6%	45.8%	27.0%	42.4%
100,000	27.2%	31.0%	31.8%	31.6%	31.8%	-	-	-	30.0%
200,000	19.2%	21.9%	22.5%	22.4%	22.5%	-	-	-	21.2%
500,000	12.2%	13.8%	14.2%	-	14.2%	-	-	-	13.4%
800,000	9.6%	10.9%	11.2%	-	-	-	-	-	10.6%
1,000,000	8.6%	9.8%	10.0%	-	-	-	-	-	9.5%
1,500,000	7.0%	-	-	-	-	-	-	-	7.7%
2,000,000	-	-	-	-	-	-	-	-	6.7%

5.3 Usability of the survey results

It is common practice to describe the usability of annual survey results as follows:

- Results with RMOE values less than 50% are broadly reliable for most purposes
- Results with RMOE values between 50% and 100% are able to be used with caution
- Results with RMOE values greater than 100% are unreliable for general use.

A literal translation of this rule, given the result that the RMOE value is 1.96 x the RSE values, is as follows:

- Results with RSE values less than 25.5% are broadly reliable for most purposes
- Results with RSE values between 25.5% and 51% are able to be used with caution
- Results with RSE values greater than 51% are unreliable for general use.

Noting the approximation involved in these rules this could be approximated as follows:

- Results with RSE values less than 25% are broadly reliable for most purposes
- Results with RSE values between 25% and 50% are able to be used with caution
- Results with RSE values greater than 50% are unreliable for general use.

The two tables below apply these rules to show the ranges of results that are (1) **Broadly reliable** (RMOE <50%, RSE <25.5%); (2) **Should be used with caution** (50% <RMOE < 100%, 25.5% < RSE <51%); and (3) **Unreliable for general use** (RMOE > 100%, RSE >51%) for each state and territory, for adult and child results.

An example in the use of these tables is as follows. Consider an annual estimate of 18,000 for Queensland from the adult sample. This estimate is in the range 5,400 to 21,500 and thus should be used with caution.

Table 13. Reliability rules for annual adult estimates (2021-22)

	Broadly reliable <i>(RMOE less than 50%, RSE less than 25%)</i>	Use with caution <i>(RMOE between 50% and 100%, RSE between 25% and 50%)</i>	Not reliable for general use <i>(RMOE greater than 100%, RSE greater than 50%)</i>
NSW	Greater than 16,500	Between 4,100 and 16,500	Less than 4,100
Vic	Greater than 19,800	Between 4,900 and 19,800	Less than 4,900
Qld	Greater than 21,500	Between 5,400 and 21,500	Less than 5,400
SA	Greater than 20,100	Between 5,000 and 20,100	Less than 5,000
WA	Greater than 20,300	Between 5,100 and 20,300	Less than 5,100
Tas	Greater than 17,200	Between 4,300 and 17,200	Less than 4,300
NT	Greater than 23,300	Between 5,800 and 23,300	Less than 5,800
ACT	Greater than 10,100	Between 2,500 and 10,100	Less than 2,500
Australia	Greater than 19,000	Between 4,700 and 19,000	Less than 4,700

Table 14. Reliability rules for annual child estimates (2021-22)

	Broadly reliable <i>(RMOE less than 50%, RSE less than 25%)</i>	Use with caution <i>(RMOE between 50% and 100%, RSE between 25% and 50%)</i>	Not reliable for general use <i>(RMOE greater than 100%, RSE greater than 50%)</i>
NSW	Greater than 29,600	Between 7,400 and 29,600	Less than 7,400
Vic	Greater than 38,200	Between 9,500 and 38,200	Less than 9,500
Qld	Greater than 40,100	Between 10,000 and 40,100	Less than 10,000
SA	Greater than 40,100	Between 10,000 and 40,100	Less than 10,000
WA	Greater than 40,200	Between 10,100 and 40,200	Less than 10,100
Tas	Greater than 37,500	Between 9,400 and 37,500	Less than 9,400

	Broadly reliable <i>(RMOE less than 50%, RSE less than 25%)</i>	Use with caution <i>(RMOE between 50% and 100%, RSE between 25% and 50%)</i>	Not reliable for general use <i>(RMOE greater than 100%, RSE greater than 50%)</i>
NT	Greater than 42,200	Between 10,500 and 42,200	Less than 10,500
ACT	Greater than 14,800	Between 3,700 and 14,800	Less than 3,700
Australia	Greater than 35,800	Between 9,000 and 35,800	Less than 9,000

5.4 Margins of error of proportions

The above margin of error tables set out the margins of error for estimates of total (e.g. 200,000 adults play golf). These tables may also be used to calculate the margins of error of estimates of proportions (e.g. 10% of adults play golf). To calculate the margins of error of survey proportions the steps needed to be taken are shown by means of an (imaginary) example.

Consider an annual AusPlay estimate for which 10% of adults in a particular category in NSW play golf. The following steps should be used to calculate the relative margin of error and 95% confidence interval for this estimate:

1. Determine the annual numerator and denominator values which give rise to the estimate of proportion. For example, if there are an estimated 200,000 NSW adults in the category of interest and of those 20,000, (10%) play golf.
2. Use the adult annual tables for relative margin of error to determine the relative margins of error of the numerator and denominator totals. From table 10 above it can be seen that the relative margin of error of the numerator (20,000) is 45.4% and for the denominator (200,000) is 14.3%.
3. The relative margin of error of the proportion (10%) is calculated by firstly squaring the relative margin of error of the numerator ($45.4\%^2 = 0.2061$) and the denominator ($14.3\%^2 = 0.0204$) and subtracting the squared relative margin of error of the denominator from that of the numerator ($0.2061 - 0.0204$), giving the value of 0.1857.
4. Finally, the relative margin of error of estimate of proportion (10%) is the square root of the final figure obtained (0.1857) which is 0.431 or 43.1%. This value is the relative margin of error of the estimate of 10%. The margin of error of the estimate of 10% is then $43.1\% \times 10\% = 4.3\%$ (since the margin of error is the relative margin of error multiplied by the estimate).
5. From the above we can then conclude that the 95% confidence interval for the estimate of 10% is $10\% \pm 4.3\% = (5.7\% - 14.3\%)$.