

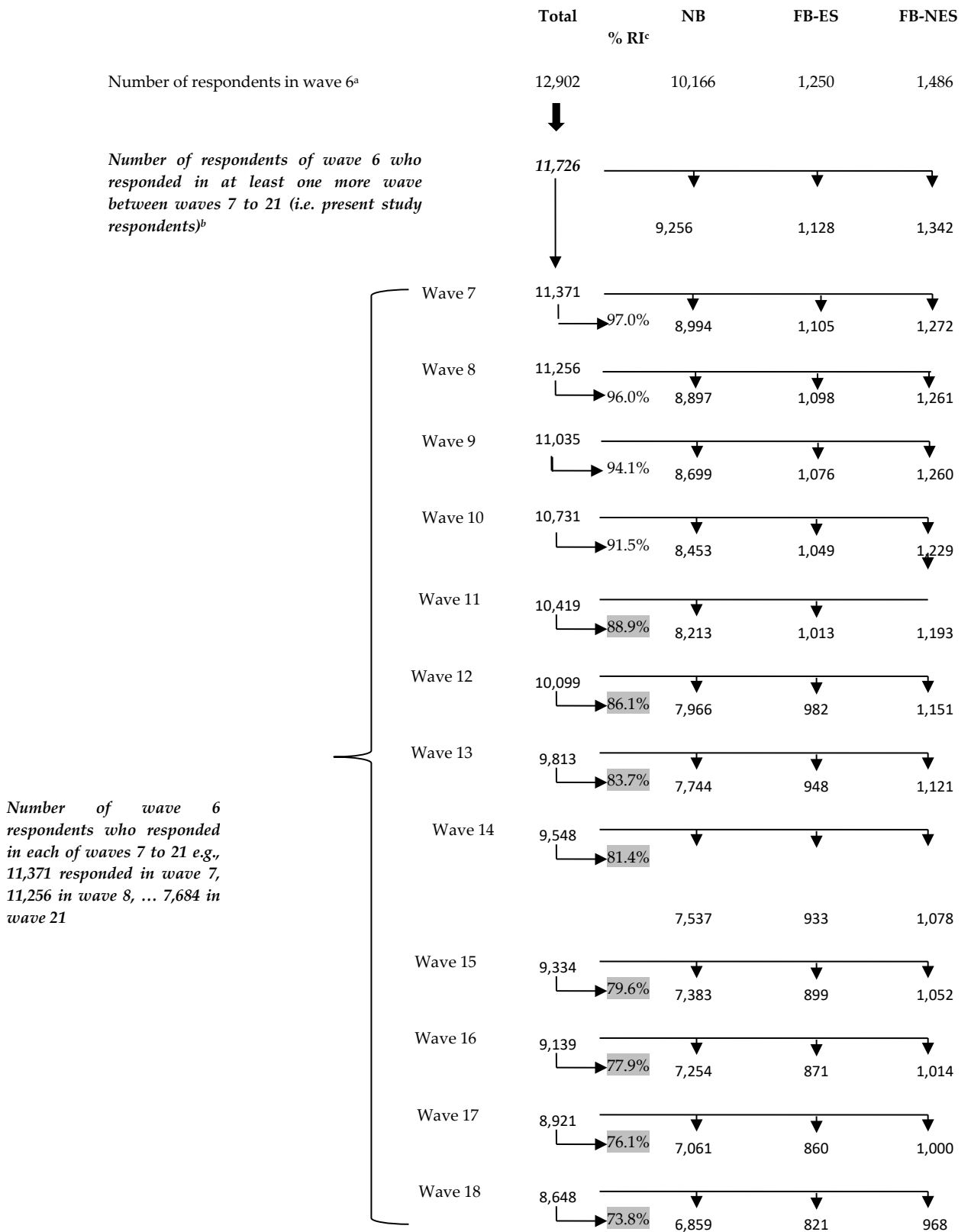
Supplementary material

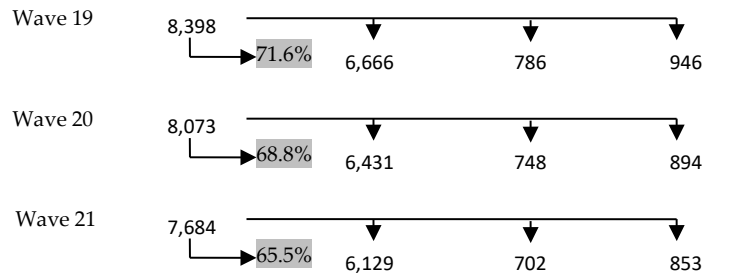
Supplement to: Jatrana, S., Richardson, K., Pasupuleti, S.S.R, Hartono, S. (2025). The longer you stay, the bigger you get? Evidence from an Australian longitudinal study. *Vienna Yearbook of Population Research*, 23. <https://doi.org/10.1553/p-7gcp-6eab>

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Figure S.1 HILDA survey flow chart of the study respondents by country of birth





Total number of responses between waves 6 to 21 by present study respondents

	156,195	123,542	15,019	17,634
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Average number of responses between waves 6 to 21, by present study respondents

	13.32	13.35	13.31	13.14
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^a: total number excludes those three people for whom country of birth is missing;

^b: total number excludes those people for whom country of birth is missing;

^c: RI: per cent of present study respondents in wave 6 who were re-interviewed in various waves.

Note: Country of birth is defined as NB (native-born) and FB (foreign-born) from English-speaking (ES) and non-English-speaking (NES) countries.

Table S.1 Empirical transition probabilities (%) computed from counts of the number of times respondents reported the indicated pair of obesity states in successive observations over waves 6 to 21. Transition probabilities were derived by dividing these counts by row totals

Obesity status transition probabilities		Wave 't+1'	
		Not obese	Obese
Wave 't'	Not obese	94.84	5.16
	Obese	15.52	84.48

Table S.2 Multilevel hybrid logistic regression Model I results showing the odds ratios and their 95% confidence intervals (CI) for obesity by nativity and duration of residence combined for three definitions of obesity (compare with the base Model I analysis of Table 3)

Factor	BMI ≥ 27		BMI ≥ 30		BMI ≥ 33	
	Odds ratio	CI	Odds ratio	CI	Odds ratio	CI
<i>DoR/CoB)</i>						
ES; DoR < 10	0.61	(0.26,1.40)	0.42	(0.11,1.56)	0.38	(0.13,1.09)
ES; DoR 10 to 19	0.56	(0.31,1.01)	0.38	(0.14,1.07)	0.41*	(0.19,0.85)
ES; DoR ≥ 20	0.79	(0.57,1.10)	0.63	(0.39,1.03)	0.77	(0.49,1.21)
NES; DoR < 10	0.34**	(0.17,0.66)	0.24**	(0.09,0.62)	0.27**	(0.13,0.56)
NES; DoR 10 to 19	0.15**	(0.10,0.23)	0.08**	(0.04,0.17)	0.12**	(0.08,0.20)
NES; DoR ≥ 20	0.77	(0.56,1.05)	0.99	(0.60,1.63)	0.83	(0.52,1.33)
NB (R)						

Table S.3 Multilevel hybrid logistic regression Model I results showing the odds ratios and their 95% confidence intervals (CI) for obesity by duration of residence and age at arrival (DoR/AA) for three definitions of obesity (compare with the base Model I analysis of Table 5)

Factor	BMI ≥ 27		BMI ≥ 30		BMI ≥ 33	
	Odds ratio	CI	Odds ratio	CI	Odds ratio	CI
<i>DoR in Australia</i>						
DoR <10; AA < 25	0.63	(0.26,1.52)	0.55	(0.16,1.98)	0.35*	(0.14,0.87)
DoR <10; AA ≥ 25	0.33**	(0.17,0.64)	0.16**	(0.06,0.46)	0.27**	(0.13,0.59)
DoR 10-19; AA < 25	0.34**	(0.20,0.57)	0.21**	(0.09,0.47)	0.24**	(0.14,0.44)
DoR 10-19; AA ≥ 25	0.17**	(0.10,0.27)	0.07**	(0.03,0.17)	0.15**	(0.09,0.25)
DoR ≥ 20; AA < 25	0.84	(0.64,1.11)	0.69	(0.45,1.05)	0.67	(0.44,1.01)
DoR ≥ 20; AA ≥ 25	0.61*	(0.41,0.91)	0.69	(0.36,1.31)	0.77	(0.46,1.28)
NB (R)						

Table S.4 Multilevel Model I hybrid logistic regression results showing the odds ratios and their 95% confidence intervals (CI) for obesity by nativity and duration of residence (DoR) combined using a finer categorisation of DoR than the Model I base analysis in Table 3

Factor	Model I	
	Odds ratio	CI
<i>DoR/CoB</i>		
ES; <5 years	0.71	(0.02, 22.06)
ES; 5-9 years	0.41	(0.10,1.64)
ES; 10-14 years	0.75	(0.27,2.06)
ES; 15-19 years	0.72	(0.33,1.55)
ES; 20-24 years	0.65	(0.34,1.25)
ES; 25-29 years	0.75	(0.41,1.35)
ES; ≥ 30 years	0.46**	(0.29,0.73)
NES; <5 years	0.15**	(0.04,0.63)
NES; 5-9 years	0.28**	(0.12,0.67)
NES; 10-14 years	0.30**	(0.16,0.59)
NES; 15-19 years	0.27**	(0.15,0.48)
NES; 20-24 years	0.44**	(0.27,0.74)
NES; 25-29 years	0.35**	(0.21,0.59)
NES; ≥ 30 years	0.54**	(0.34,0.84)
Australia (R)		

Note: Country of birth was categorised as NB, FB from English-speaking and non-English-speaking countries.

Duration of residence was categorised into less than 5 years, 5-9, 10-14, 15-19, 20-24, 25-29 years, and greater than or equal 30 years in Australia.

Table S.5 Multilevel hybrid logistic regression results Model I showing the odds ratios and their 95% confidence intervals (CI) for obesity by nativity and age at arrival using an increased number of age at arrival categories (compare with the Model I base analysis of Table 4)

Factor	Model I	
	Odds ratio	CI
Country of birth and age at arrival		
ES; AA < 15	0.91	(0.48,1.72)
ES; AA 15-24	0.33*	(0.14,0.79)
ES; AA 25-44	0.33**	(0.17,0.68)
ES; AA 45-64	1.06	(0.08,13.47)
NES; AA < 15	0.53	(0.28,1.01)
NES; AA 15-24	0.54	(0.27,1.08)
NES; AA 25-44	0.15**	(0.08,0.28)
NES; AA 45-64	0.60	(0.11,3.21)
Australia (R)		

Note: Country of birth is categorised as NB, FB from ES and NES countries. Age at arrival is categorised into less than 15 years, 15-24, 25-44, and 45-64.

Figure S.2 Distribution of duration of residence and age at arrival to Australia among foreign-born respondents at wave 6

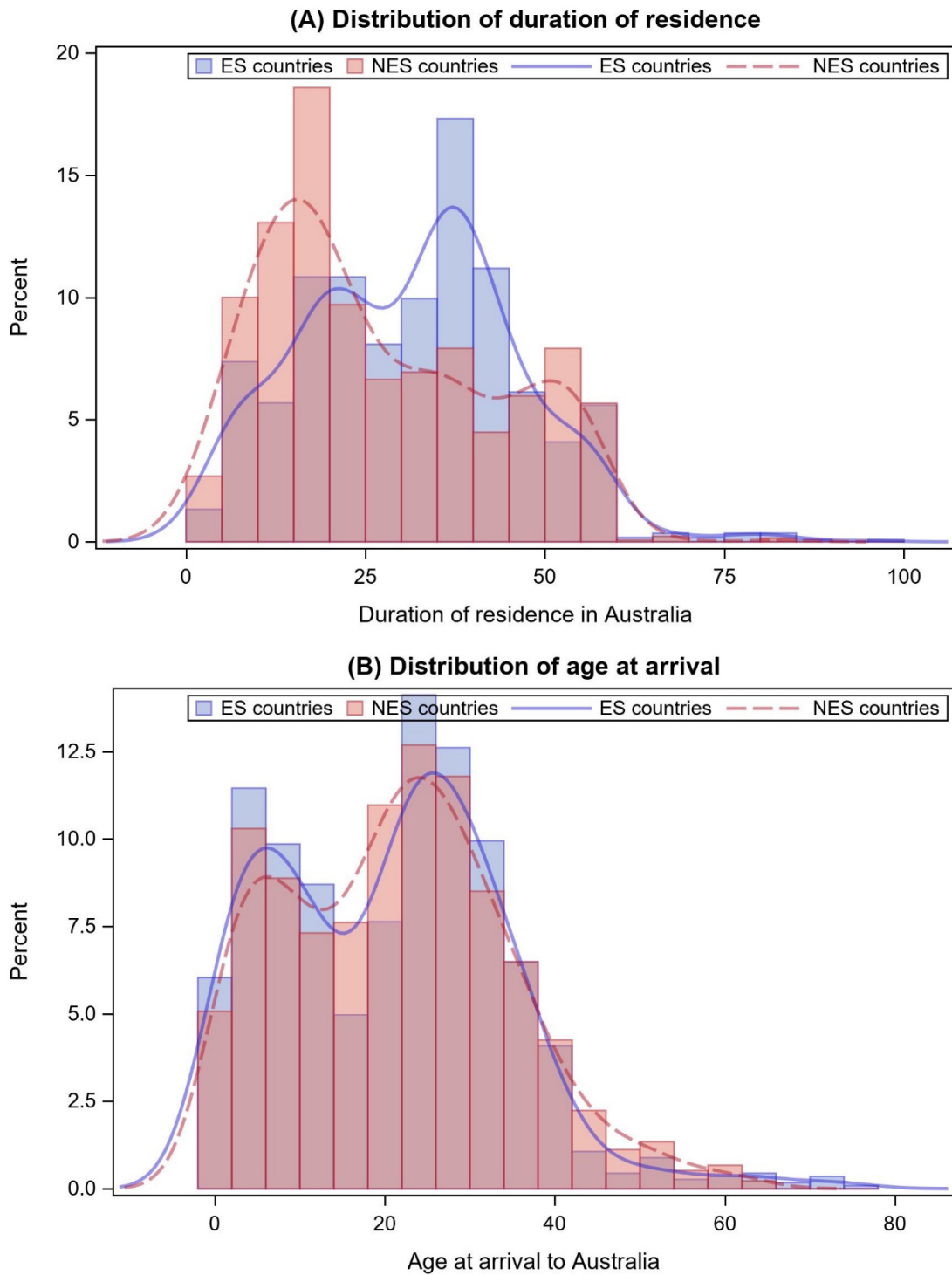
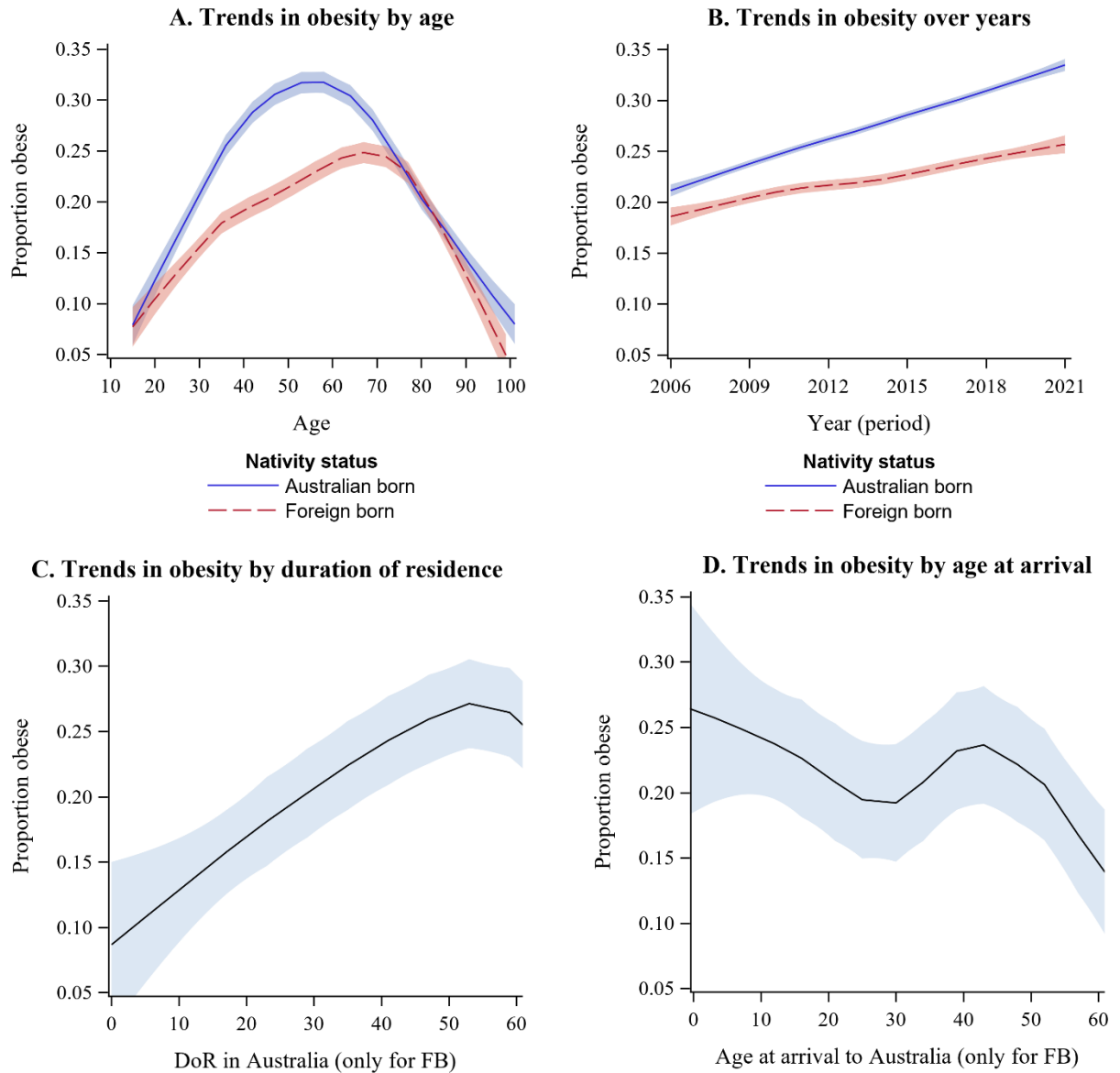


Figure S.3 Smoothed trends in obesity by age, period (year), duration of residence and age at arrival



Note: Coloured bands indicate a 95% confidence interval (CI) around a trend line for the smoothed proportion of obese people. All graphs and CIs were produced using a common smoothing parameter of 0.5. Non-overlapping confidence intervals indicate a significant difference between the trends for those years in which confidence intervals do not overlap.

For foreign-born respondents, the sum of age at arrival and duration of residence in Australia would equal their current age. As with age, period, and cohort (cohort=age+period) they cannot be included together in a regression model, but the above plots provide an indication of the general trend in obesity by these variables.

The objective of this study is to compare the obesity status of foreign-born (FB) immigrants, and its trend by duration of residence (DoR) and age at arrival (AA), vis-à-vis native-born (NB) Australians. However, including AA and DoR in the analysis is not feasible as these variables do not apply to NB Australians. Nonetheless, for readers who wish to see an analysis with DoR and

AA as continuous variables we did a separate analysis just for FB people. These results are presented below in Table S1, and a brief summary is provided thereafter.

Table S.6 Multilevel hybrid logistic regression model results for foreign-born people in Australia with obesity as the dependent variable

Factor	Model 1		Factor	Model 2	
	Odds ratio	95% CI		Odds ratio	95% CI
Intercept	0.00**	(0.00, 0.02)	Intercept	0.00**	(0.00, 0.01)
Country of birth (CoB)			CoB		
NES countries	0.09**	(0.03, 0.29)	NES countries	0.62	(0.23, 1.71)
ES countries (R)			ES countries (R)		
DoR in Australia	1.01	(0.98, 1.04)	AA to Australia	0.94**	(0.91, 0.97)
CoB*DoR (Interaction)	1.08**	(1.04, 1.11)	CoB*AA (Interaction)	1.01	(0.97, 1.06)
Age	0.99	(0.97, 1.01)	Age	1.05**	(1.03, 1.07)
Gender			Gender		
Female	0.85	(0.49, 1.49)	Female	0.82	(0.47, 1.43)
Male (R)			Male(R)		
Wave number	1.08**	(1.05, 1.10)	Wave number	1.08**	(1.05, 1.10)
Number of times responded	1.06	(0.98, 1.13)	Number of times responded	1.06	(0.99, 1.14)

Note: (R) indicates reference group. Country of birth is categorised as FB from English-speaking (ES) and non-English-speaking (NES) countries.

Model 1 includes age, sex, wave effects and number of responses out of the sixteen waves (waves 6 to 21) as covariates with CoB, DoR (a continuous variable) and their interaction the main exposure variables.

Model 2 includes age, sex, wave effects and number of responses out of the sixteen waves (waves 6 to 21) as covariates with CoB, AA (a continuous variable) and their interaction the main exposure variables.

In Model 1, CoB, DoR and their interaction were the main exposure variables. Results show that FB people from NES countries have lower odds of obesity as compared to FB people from ES countries (OR 0.09; 95% CI 0.03-0.29). The DoR main effect is not statistically significant but its interaction with CoB is (OR 1.08; 95% CI 1.04-1.11). This suggests that the effect of DoR changes by CoB. In particular, there is no evidence that the odds of obesity increase with DoR for FB people from ES countries. In contrast the rate at which the odds of obesity increase with DoR is 8% higher for FB people from NES countries than for the FB from ES countries, and is statistically significant.

In Model 2, CoB, AA and their interaction were the main exposure variables. Results show that there is no significant difference in obesity between FB people from ES and NES countries (OR 0.62; 95% CI 0.23-1.71). The AA main effect (0.94; 95% CI 0.91-0.97) is significant while its interaction with CoB (1.01; 95% CI 0.97-1.06) is not. This suggests that each one-year increase in AA results in a 6% decrease in the odds of obesity among FB people, with no significant difference between FB people from ES countries and FB people from NES countries.