

Ethnic-specific analyses of factors impacting longitudinal response patterns in the *Growing Up in NZ* birth cohort study

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Background









































- Longitudinal studies can provide valuable insights
- Good cohort retention rate needed
- Maintaining high retention rates can be challenging
- Response and retention associated with ethnicity, education, SES, health, etc.
→ But lacking ethnic-specific research

Study aim: examine characteristics associated with longitudinal response patterns in the *Growing Up in NZ* study by ethnicity

Growing Up in New Zealand study



- Aotearoa's largest birth cohort study
 - Recruited 6853 **children** before their birth via pregnant **mothers** (n = 6823)
 - **Partners** recruited and interviewed independently in pregnancy (n = 4401)
- Designed to reflect the ethnic diversity of Aotearoa
- At birth:
 - Cohort broadly generalisable to NZ births (e.g., ethnicity and NZDep)
 - Adequate explanatory power for Māori (1 in 4), Pacific (1 in 5) and Asian (1 in 6) children

Child age	Ante-natal	Peri-natal	6w	35w	9m	12m	16m	23m	2y	31m	45m	54m	72m	8y	10y	12y
Mother CAPI*																
Father CAPI*																
Child CAPI*																
Mother CATI†																
Child e-support‡																
Mother electronic																
Father electronic																
Partner electronic**																
Child electronic																
Teacher electronic																
Child measurements∞																
Child samples§																
Data linkage#																
Data linkageΔ																
Data linkage°																

*CAPI computer assisted personal interview

†CATI computer assisted telephone interview

‡E-support via Zoom

**Mother's partner – not necessarily the child's father

∞Child's height, weight and waist circumference

§Child biological samples - throat, nose and elbow swab and/or saliva

#Child's routine health records

ΔChild's education records

°Linkage of child's home address to environmental records

Defining response rate



Mother and/or child answered at least 1 question

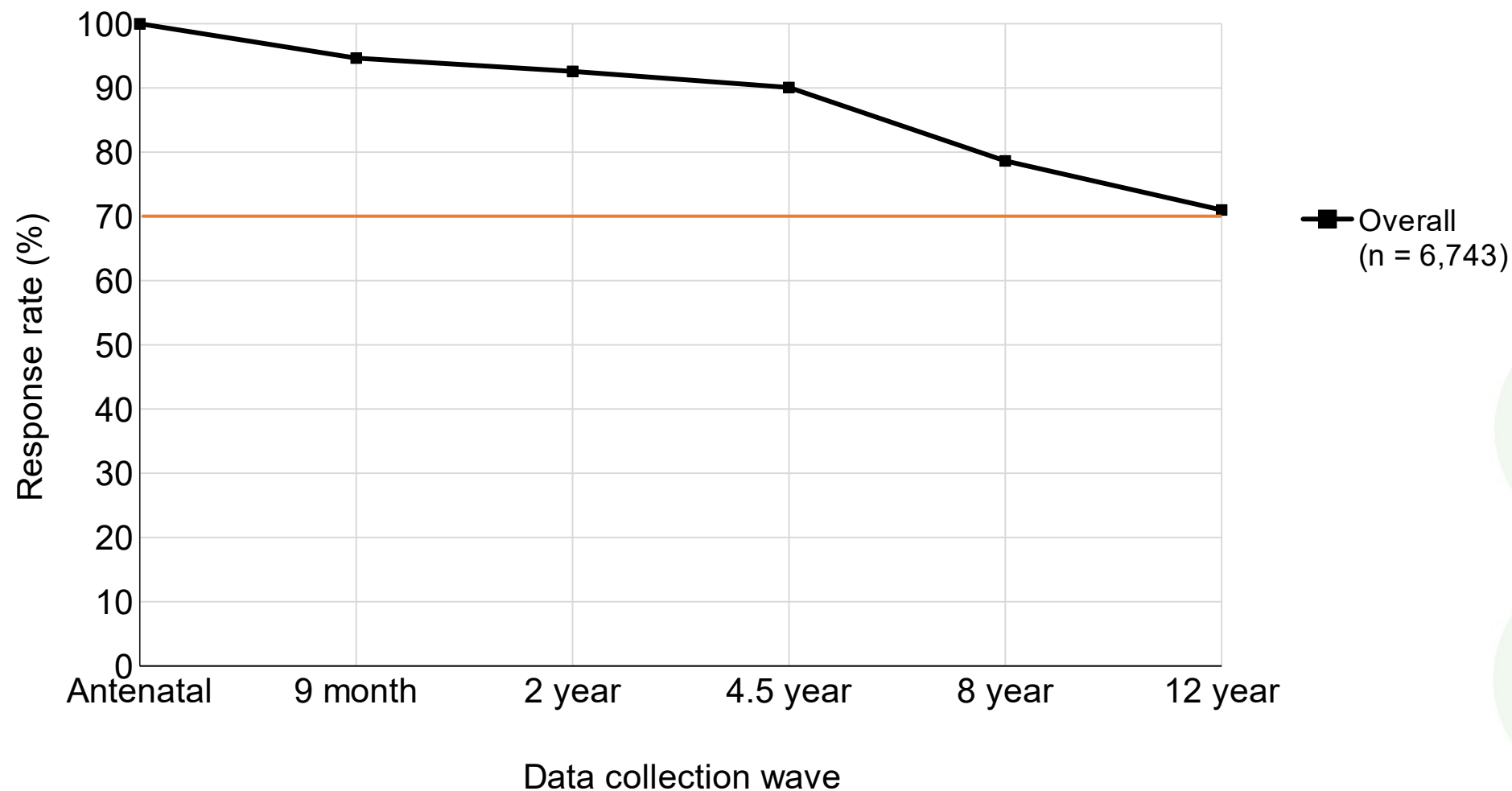


$$\text{"Household" response rate} = \frac{\text{number of responses}}{\text{eligible cohort}}$$

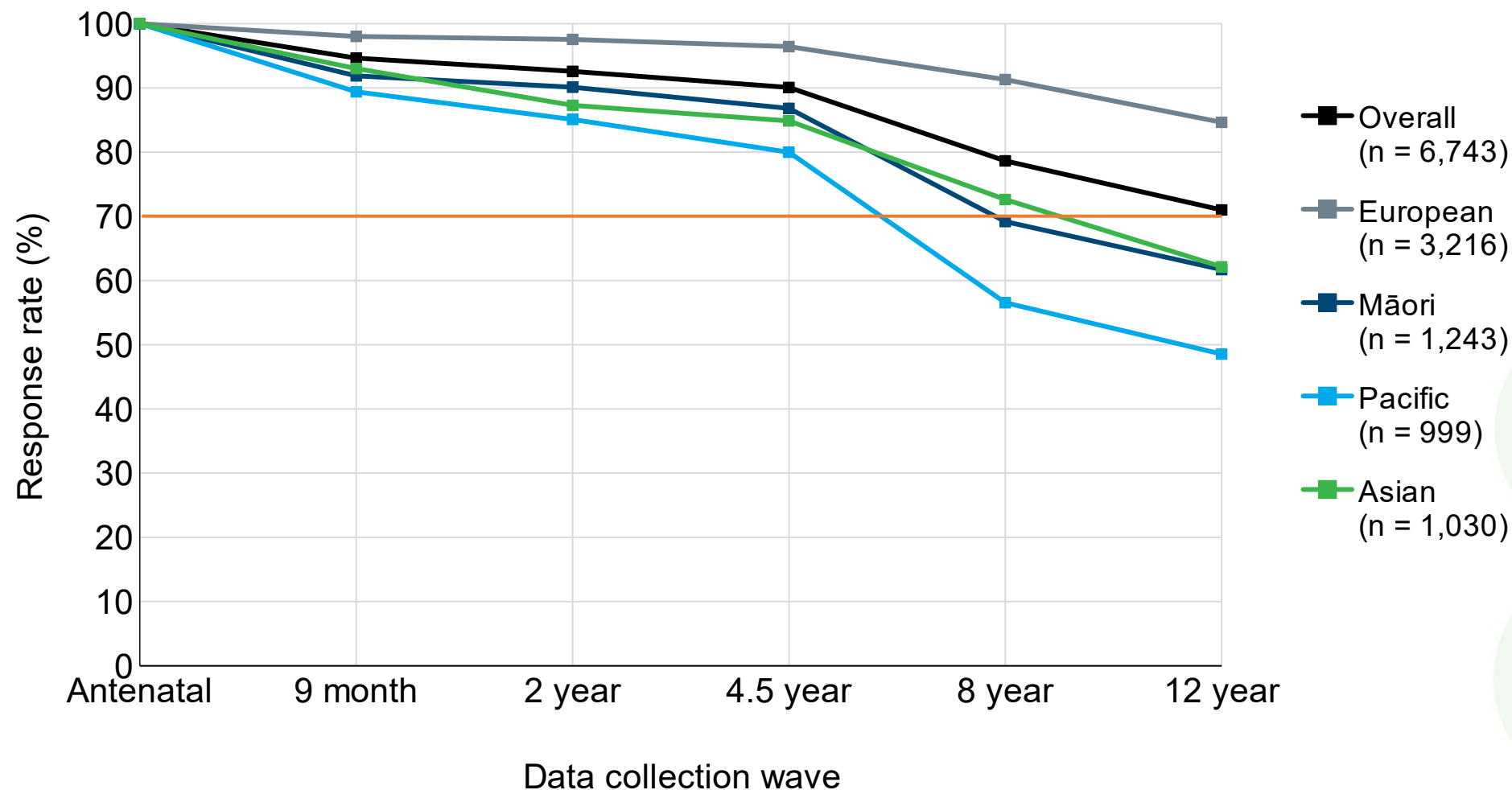


Child alive at 12-years and is first-born
(n = 6,743)

Response rates by data collection wave



Response rates by data collection wave

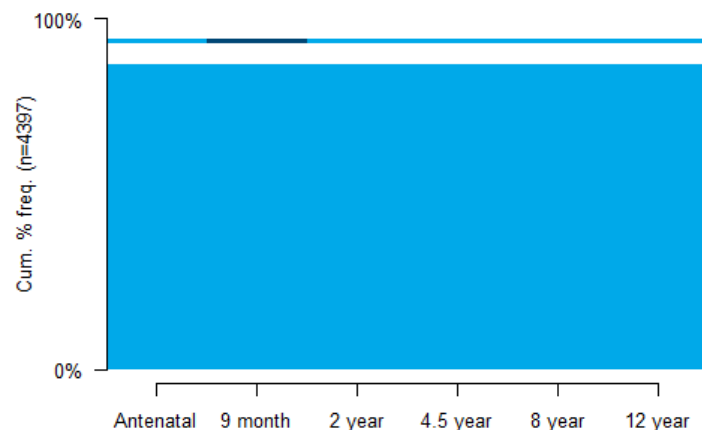


Note. Mothers' external prioritised ethnicity at baseline used.

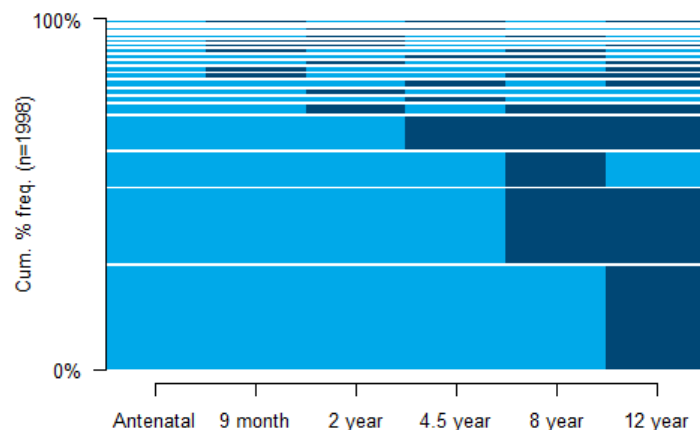
Longitudinal response patterns



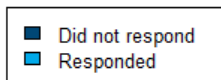
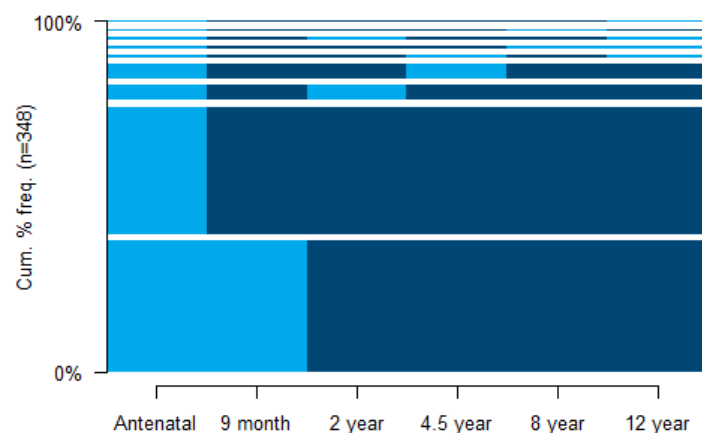
1. Frequent responders (65%)



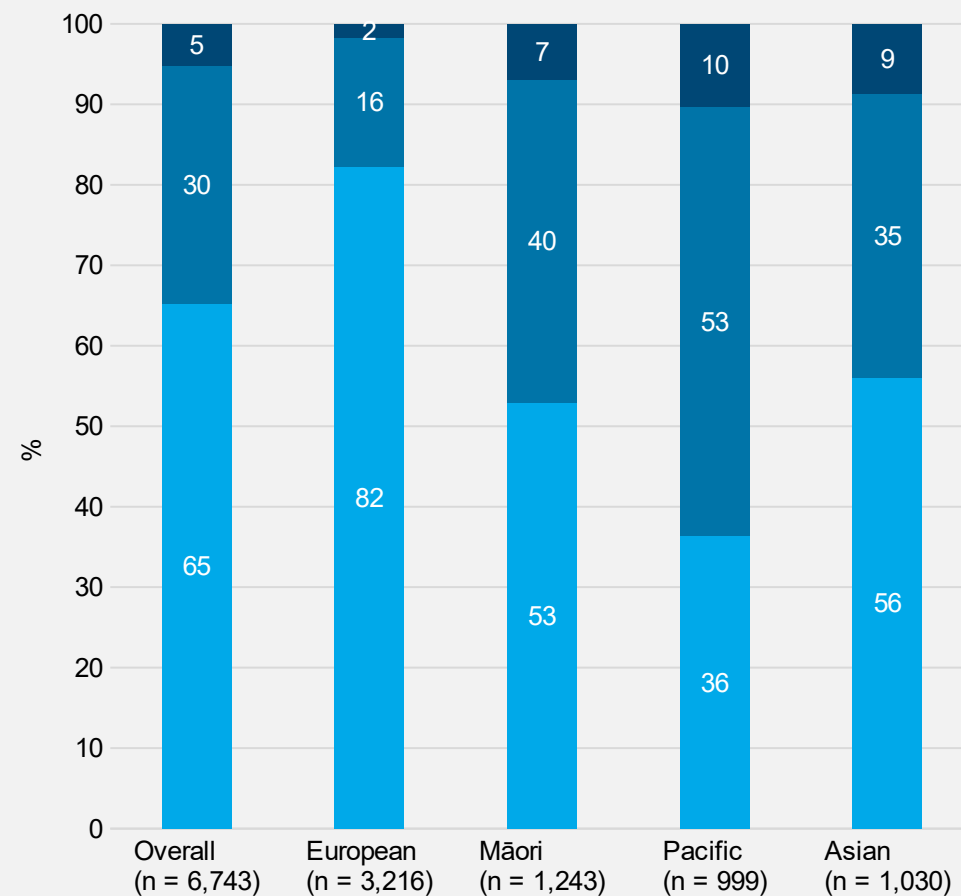
2. Intermittent non-responders (30%)



3. Frequent non-responders (5%)



Response cluster by ethnicity



■ Frequent responders ■ Intermittent non-responders ■ Frequent non-responders

Note. Mothers' external prioritised ethnicity at baseline used.

Characteristics associated with response patterns



Characteristic	Overall	European	Māori	Pacific	Asian	Less likely to respond if...
Mother ethnicity (ext)	●	N/A	N/A	N/A	N/A	Māori, Pacific, Asian
Child sex	●		●			Male
Mother age	●	●	●	●	●	Younger
Mother education	●	●	●	●	●	Lower education
Household dep (Dep-17)	●	●			●	Higher deprivation
Area dep (NZDep)	●		●	●	●	Higher deprivation
Main language	●	●	●	●	●	Not English
Household structure	●	●	●			Extended family
Years in neighbourhood	●	●		●		Shorter duration
General health	●	●				Poorer health
Racial discrimination	●			●	●	No discrimination
Pseudo R^{2a}	.19/.21/.29	.07/.07/.11	.13/.16/.21	.13/.15/.21	.10/.12/.16	

Note. All characteristics are from the antenatal data collection wave. ● indicates $p < .05$. ^aMcFadden/CoxSnell/Nagelkerke.

Discussion



- Analyses using the overall sample mask ethnic differences
- Response rates: overall vs by ethnicity
- In the overall regression model, characteristics associated with response patterns were generally consistent with existing literature
- Ethnic-specific analyses provided nuanced insight:
 - Some characteristics were consistently associated with response patterns (e.g., mother age, education, main language)
 - Others differed by ethnicity (e.g., deprivation, general health, racial discrimination)
 - Individual factors for European
 - Structural factors for Māori, Pacific and Asian

Implications



- Beware of deficit explanations for observed “ethnicity effects”
- Longitudinal response patterns are associated with multiple factors of disadvantage
- Targeted retention strategies needed
- Importance of ethnic-specific analyses

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