

Twin Research and Human Genetics

Article title: Exploring the link between parental sociodemographic characteristics and multiple births: Insights from national birth data in Japan, 1995–2020

Author: Tasuku Okui, Naoki Nakashima

Supplementary Table S1. The occupations of each occupational class for each year.

Occupational class	Year					
	1995	2000	2005	2010	2015	2020
Upper non-manual workers	Administrative and managerial workers and professional and engineering workers					
Lower non-manual workers	Clerical workers, sales workers, and service workers					
Manual workers	Transport and communication workers, and craft, mining, manufacturing, construction, and labor workers	Transport and communication workers and production processes and related workers	Transport and communication workers and production processes and related workers	Manufacturing process workers, transport and machine operating workers, construction and mining workers, and carrying, cleaning, packaging, and related workers	Manufacturing process workers, transport and machine operating workers, construction and mining workers, and carrying, cleaning, packaging, and related workers	Manufacturing process workers, transport and machine operating workers, construction and mining workers, and carrying, cleaning, packaging, and related workers

Others	Unemployed persons, security workers, agriculture, forestry, and fishery workers, workers	Unemployed persons, security workers, agriculture, forestry, and fishery workers, workers	Unemployed persons, security workers, agriculture, forestry, and fishery workers, workers engaged in an unclassified occupation	Unemployed persons, security workers, agriculture, forestry, and fishery workers, workers engaged in an unclassified occupation	Unemployed persons, security workers, agriculture, forestry, and fishery workers, workers engaged in an unclassified occupation	Unemployed persons, security workers, agriculture, forestry, and fishery workers, workers engaged in an unclassified occupation
--------	---	---	---	---	---	---

---

Supplementary Table S2. The results of regression analysis using multiple imputation.

Characteristics	Unadjusted analysis		Adjusted analysis	
	RR (95% CI)	p-value	Adjusted RR (95% CI)*	p-value
<b>Maternal age group</b>				
19 years or less	0.47 (0.42, 0.52)	<0.001	0.56 (0.50, 0.63)	<0.001
20–24 years	0.59 (0.57, 0.61)	<0.001	0.68 (0.65, 0.70)	<0.001
25–29 years	0.79 (0.78, 0.81)	<0.001	0.84 (0.82, 0.86)	<0.001
30–34 years	Reference		Reference	
35–39 years	1.18 (1.15, 1.20)	<0.001	1.14 (1.12, 1.17)	<0.001
40 years or more	1.22 (1.17, 1.27)	<0.001	1.18 (1.13, 1.23)	<0.001
<b>Paternal age group</b>				
19 years or less	0.53 (0.46, 0.62)	<0.001	0.86 (0.72, 1.02)	0.089
20–24 years	0.62 (0.60, 0.65)	<0.001	0.85 (0.81, 0.89)	<0.001
25–29 years	0.81 (0.80, 0.83)	<0.001	0.92 (0.90, 0.95)	<0.001
30–34 years	Reference		Reference	
35–39 years	1.16 (1.14, 1.18)	<0.001	1.07 (1.05, 1.10)	<0.001
40 years or more	1.21 (1.18, 1.24)	<0.001	1.09 (1.06, 1.12)	<0.001
<b>Maternal nationality</b>				
Japanese	Reference		Reference	
Non-Japanese	0.81 (0.76, 0.87)	<0.001	0.80 (0.74, 0.86)	<0.001
<b>Paternal nationality</b>				
Japanese	Reference		Reference	
Non-Japanese	0.97 (0.90, 1.04)	0.362	1.04 (0.97, 1.12)	0.3
<b>Household occupation</b>				
Farmer	0.95 (0.90, 1.00)	0.058	1.00 (0.95, 1.06)	0.863
Self-employed	0.90 (0.88, 0.93)	<0.001	0.91 (0.88, 0.94)	<0.001
Full-time employees at smaller companies	0.86 (0.85, 0.88)	<0.001	0.91 (0.89, 0.93)	<0.001
Full-time employees at larger companies	Reference		Reference	
Others	0.86 (0.83, 0.88)	<0.001	0.91 (0.88, 0.93)	<0.001

Unemployed	0.78 (0.72, 0.85)	<0.001	0.85 (0.78, 0.93)	<0.001
Maternal occupation				
Upper non-manual workers	Reference		Reference	
Lower non-manual workers	0.90 (0.87, 0.93)	<0.001	0.93 (0.90, 0.96)	<0.001
Manual workers	0.81 (0.76, 0.86)	<0.001	0.89 (0.83, 0.95)	<0.001
Others	0.92 (0.90, 0.94)	<0.001	0.99 (0.96, 1.01)	0.372
Paternal occupation				
Upper non-manual workers	Reference		Reference	
Lower non-manual workers	0.92 (0.90, 0.94)	<0.001	0.96 (0.94, 0.99)	0.001
Manual workers	0.85 (0.83, 0.87)	<0.001	0.95 (0.93, 0.98)	<0.001
Others	0.93 (0.90, 0.96)	<0.001	0.99 (0.95, 1.02)	0.41
Fiscal year				
1995	Reference		Reference	
2000	1.12 (1.09, 1.15)	<0.001	1.10 (1.07, 1.13)	<0.001
2005	1.31 (1.28, 1.34)	<0.001	1.24 (1.21, 1.28)	<0.001
2010	1.08 (1.06, 1.11)	<0.001	1.00 (0.97, 1.02)	0.766
2015	1.13 (1.10, 1.16)	<0.001	1.01 (0.98, 1.04)	0.491
2020	1.16 (1.12, 1.19)	<0.001	1.04 (1.00, 1.07)	0.024

RR, risk ratio; CI, confidence interval

\*Parental age groups, parental nationalities, parental occupations, household occupation, and year were included in the regression analysis.