Online Supplemental Materials for

Genetic knowledge within a national Australian sample: Comparisons with other diverse populations

Ilan Dar-Nimrod[1,2], Georgia MacNevin[1], Alexandra Godwin[1], Kate Lynch[2,3], Tali Magory Cohen[4], Asha Ganesan[1], and James Morandini[1]

[1] School of Psychology, University of Sydney, [2] The Charles Perkins Centre, University of Sydney, [3] Macquarie University, [4] Tel Aviv University

Please address correspondence to:

Ilan Dar-Nimrod

School of Psychology | Faculty of Science
Rm No, 420 Brennan MacCallum Building, A18

The University of Sydney | NSW | 2006 | Australia
T +61 2 9351 2908 | F +61 2 9036 5223 | ilan.dar-nimrod@sydney.edu.au

Method (Additional information)

Remoteness evaluations:

In line with the Australian Bureau of Statistics (ABS, 2005), postcodes were coded based on the Accessibility/Remoteness Index of Australia (ARIA) developed by the Commonwealth Department of Health and Aged Care (DHAC) and the National Key Centre for Social Applications of GIS (GISCA). Scores ranged from 0-15 with lower scores indicating major cities and higher scores indicating increasing remoteness. For descriptive purposes and in line with the ABS (2005), these scores were summarised into the following Remoteness Areas (RAs): major cities, inner regional, outer regional, remote, and very remote.

Genetic knowledge and affinity:

Overall exposure to genetic information was calculated by averaging two items that assessed the level of study and work in the area of genetics. That is, "Does your work (not study) involve genetics and inheritance?" and "Have you studied genetics and inheritance before (as a school/university subject, or part of a more general course)?" The two items were moderately and positively correlated ($r = .38$, $p < .001$). Lower scores indicated more exposure to genetics. For example, the profession item offered the following options: 1 = Yes, my work mostly focuses on genetics and inheritance (e.g., geneticist, genetic counsellor); 2 = Yes, my work involves genetics and inheritance, but it is not the main focus (e.g., doctor, science teacher); and 3 = No, I do not do work involving genetics and inheritance. Averaged scores ranged from 1-3 with lower scores indicating greater exposure to genetic information.

Genetic affinity was calculated by averaging two items ($r = .39$, $p < .001$) that assessed level of interest in and perceived understanding of genetic information. That is

"How well do you feel like you understand genetics and inheritance?" and "How interested are you in genetics and inheritance?" Lower scores on each item indicated greater genetic affinity. For example, 1 = Very Well, 2 = Quite well, 3 = Not very well, and 4 = Not at all. Averaged scores ranged from 1-4 with the lower scores indicating greater genetic affinity.

Detailed demographics:

For ethnicity, Middle Eastern (10 responses), Aboriginal/Torres Strait Islander (5 responses), Pacific Islander (4 responses), and Multi-ethnic (17 responses), and other (35 responses) were collapsed into the category of other. For State/Territory, the Australian Capital Territory (ACT; 15 responses), Northern Territory (NT; 1 responses) and Tasmania (17 responses), were collapsed into the category of other. For religious background, Buddhism (14 responses), Hinduism (13 responses), Islam (13 responses), Judaism (6 responses), and other (30 responses) were collapsed into the category of other. As the current sample had very few respondents that indicated a high level of exposure to genetics (12 responses) or medium level of exposure to genetics (18 responses), these were collapsed into a single category. The majority of the sample resided in New South Wales and in major cities. The demographic information about the samples of the comparison studies appears in Table S1.

Table S1. *Details of the demographic characteristics of the respondents from previous studies.*

Study	Christensen et al. 2009	Jallinoja & Aro 1999	Molster et al. 2009	Ashida et al. 2011
Sample size	1,200	1,216	1,009	971
Country	USA	Finland	Western Australia	USA
Age	18-90	16-65	18+	18+
Ethnicity	Black, White	-	-	Black, White, Hispanic, other
Education	7 levels	4 levels	5 levels	3 levels
Household income/ socio-economic status	4 levels	6 levels	4 levels	-
Occupation	-	health profession	-	-
Marital status	-	3 levels	-	-
Employments status	-	yes/no	-	-
Geographic location	-	-	Metropolitan, Rural/remote	-
Health status	-	-	-	2 levels
Place of birth	-	-	-	born in the USA
Religious affiliation	-	-	-	-
Political affiliation	-	-	-	-
Parental status	-	-	-	-

Results (additional information)

Item by item comparisons of genetic knowledge:

For a description of the number of correct responses to the individual genetic knowledge items in the current paper and the source papers, see Table S2. Across the 30 items, the percentage of correct answers in the current sample ranged from 19% to 98%. On average, participants performed better than chance on all items with the exception of the two items regarding genetics and race.

On the item level, chi-squared tests of independence were conducted to test for differences in the percentage of correct responses between the current paper and the source papers. Some items appeared in more than one source paper leading to 36 comparisons. The criterion for significance was adjusted to account for the number of statistical tests simultaneously performed on the data. Bonferroni adjusted p-values were calculated such that the critical p-value ($\alpha = .05$) was divided by the number of comparisons (36) to attain adjusted p-value of .0013. Of these comparisons, 26 were significant, in each, the current sample had a greater percentage of correct responses (p's $< .001$).

Table S2. Number and percentage of respondents correctly answering genetic knowledge. Questions

	Question (subcategory or genetic knowledge)	Answer	Correct respondents in the current study n (%)	Source Paper	Correct Respondents from previous studies %	Between papers test of frequency of correct responses
1.	The onset of certain diseases is due to genes, environment and lifestyle (disease)	Correct	648 (90%)	Jallinoja and Aro (1999)	1070 (88%)	$\chi^2(1, N = 1936) = 1.82, p = .18$
2.	A gene is a disease (disease)	Not Correct	698 (97%)	Jallinoja and Aro (1999)	1058 (87%)	$\chi^2(1, N = 1936) = 53.0$**
3.	One can see a gene with the naked eye (physiology/biology)	Not Correct	706 (98%)	Jallinoja and Aro (1999)	1058 (87%)	$\chi^2(1, N = 1936) = 68.2$**
4.	Healthy parents can have a child with a hereditary disease (disease, family)	Correct	691 (96%)	Jallinoja and Aro (1999); Molster et al. (2009)*	1034 (85%) 918 (91%)	$\chi^2(1, N = 1936) = 55.7$** $\chi^2(1, N = 1729) = 16.2$**

	Question (subcategory or genetic knowledge)	Answer	Correct respondents in the current study n (%)	Source Paper	Correct Respondents from previous studies %	Between papers test of frequency of correct responses
5.	The carrier of a disease gene may be completely healthy (disease)	Correct	677 (94%)	Jallinoja and Aro (1999); Molster et al. (2009)	1009 (83%) 868 (86%)	$\chi^2(1, N = 1936) = 49.1$** $\chi^2 (1, N = 1729) = 28.3$**
6.	All serious diseases are hereditary (disease, family)	Not Correct	670 (93%)	Jallinoja and Aro (1999)	1009 (83%)	$\chi^2(1, N = 1936) = 39.9$**
7.	The child of a disease gene carrier is always also a carrier of the same disease gene (disease, family)	Not Correct	540 (75%)	Jallinoja and Aro (1999)	730 (60%)	$\chi^2(1, N = 1936) = 44.9$**
8.	A gene is a piece of DNA (physiology/biology)	Correct	626 (87%)	Jallinoja and Aro (1999); Molster et al. (2009)	693 (57%) 605 (60%)	$\chi^2(1, N = 1936) = 186.9$** $\chi^2 (1, N = 1729) = 149.2$**
9.	Genes are inside cells (physiology/biology)	Correct	576 (80%)	Jallinoja and Aro (1999)	669 (55%)	$\chi^2(1, N = 1936) = 123.0$**

Question (subcategory or genetic knowledge)	Answer	Correct respondents in the current study n (%)	Source Paper	Correct Respondents from previous studies %	Between papers test of frequency of correct responses
10. A gene is a cell (physiology/biology)	Not Correct	403 (56%)	Jallinoja and Aro (1999)	620 (51%)	$\chi^2(1, N = 1936) = 4.51, p = .03$
11. A gene is a part of a chromosome (physiology/biology)	Correct	533 (74%)	Jallinoja and Aro (1999); Molster et al., (2009)	547 (45%) 525 (52%)	$\chi^2(1, N = 1936) = 154.7$** $\chi^2(1, N = 1729) = 85.6$**
12. Genes are bigger than chromosomes (physiology/biology)	Not Correct	518 (72%)	Jallinoja and Aro (1999)	499 (41%)	$\chi^2(1, N = 1936) = 173.3$**
13. It has been estimated that a person has about 20,000-25,000 genes* (physiology/biology)	Correct	475 (66%)	Jallinoja and Aro (1999)	219 (18%)	$\chi^2 (1, N = 1936) = 452.4$**
14. Your blood can uniquely identify you because it contains your DNA	Correct	634 (88%)	Molster et al. (2009)	918 (91%)	$\chi^2 (1, N = 1729) = 3.91, p = .048$

	Question (subcategory or genetic knowledge)	Answer	Correct respondents in the current study n (%)	Source Paper	Correct Respondents from previous studies %	Between papers test of frequency of correct responses
	(physiology/biology)					
15.	If close relatives have diabetes/heart disease, you are more likely to develop these (disease, family)	Correct	605 (84%)	Molster et al. (2009)	878 (87%)	χ^2 (1, N = 1729) = 3.08, p =.079
16.	If a person is the carrier of a disease gene it means that they have the disease (disease)	Not Correct	641 (89%)	Molster et al. (2009); Ashida et al. (2011)*	807 (80%) 562 (76%)	χ^2 (1, N = 1729) = 25.27** χ^2 (1, N = 1691) = 195.4**
17.	Having increased genetic risk means you get that disease regardless of what you do (family)	Not Correct	576 (80%)	Molster et al. (2009)	757 (75%)	χ^2 (1, N = 1729) = 5.89, p =.015
18.	Living a healthy lifestyle will not make any difference if you have an	Not Correct	475 (66%)	Molster et al. (2009);	686 (68%) 208 (26%)	χ^2 (1, N = 1729) = .77, p =.38

Question (subcategory or genetic knowledge)	Answer	Correct respondents in the current study n (%)	Source Paper	Correct Respondents from previous studies %	Between papers test of frequency of correct responses
increased genetic risk for a disease (disease)			Ashida et al. (2011)*		χ^2 (1, N = 1691) = 340.8**
19. Your blood contains a full copy of all your genes (physiology/biology)	Correct	518 (72%)	Molster et al. (2009)	686 (68%)	χ^2 (1, N = 1729) = 3.11, p =.078
20. It is the father's chromosomes that decide if a baby is a boy or a girl (family)	Correct	511 (71%)	Molster et al. (2009)	626 (62%)	χ^2 (1, N = 1729) = 14.9**
21. Half your genes come from your mother and half from your father (family)	Correct	554 (77%)	Molster et al. (2009)	555 (55%)	χ^2 (1, N = 1729) = 87.9**
22. Once a genetic marker for a health condition is found in a person, the condition can be prevented or cured (disease)	Not Correct	403 (56%)	Ashida et al. (2011)	200 (29%)	χ^2 (1, N = 1691) = 225.5**

Question (subcategory or genetic knowledge)	Answer	Correct respondents in the current study n (%)	Source Paper	Correct Respondents from previous studies %	Between papers test of frequency of correct responses
23. Only mothers can pass on genetic conditions (family)	Not Correct	677 (94%)	Ashida et al. (2011)	814 (88%)	χ^2 (1, N = 1691) = 41.2**
24. People who have a genetic marker for a disease are unhealthy (disease)	Not Correct	677 (94%)	Ashida et al. (2011)	730 (86%)	χ^2 (1, N = 1691) = 105.1**
25. On average, a person has half their genes in common with their siblings (family)	Correct	533 (74%)	Christensen et al. (2010)	960 (80%)	χ^2 (1, N = 1920) = 9.28, p =.002
26. Our genes tell us which race we belong to (social group)	Not Correct	137 (19%)	Christensen et al. (2010)	300 (25%)	χ^2(1, N = 1920) = 9.13, p =.003
27. Two people from the same race will always be more genetically similar to each other than two people from different races (social group)	Not Correct	259 (36%)	Christensen et al. (2010)	516 (43%)	χ^2 (1, N = 1920) = 9.23, p =.002

	Question (subcategory or genetic knowledge)	Answer	Correct respondents in the current study n (%)	Source Paper	Correct Respondents from previous studies %	Between papers test of frequency of correct responses
28.	Two women will always be more genetically similar to one another than a man and a woman (social group)	Not Correct	518 (72%)	Christensen et al. (2010)	528 (44%)	χ^2 (1, N = 1920) = 141.7**
29.	A mother and daughter who look alike have more genes in common than a mother and daughter who do not look alike (family)	Not Correct	482 (67%)	Christensen et al. (2010)	444 (37%)	χ^2(1, N = 1920) = 161.6**
30.	Single genes directly control specific human behaviours (behaviour)	Not Correct	439 (61%)	Christensen et al. (2010)	288 (24%)	χ^2(1, N = 1920) = 261.5**

Note. *Indicates the wording of the item was modified from the source paper. **Significant at $p < .001$, p-values are otherwise stated within the table.

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