

Supplementary Table 1: Characteristics of All Our Family (AOF) and Alberta Pregnancy Outcomes and Nutrition (APrON) cohort studies

Study characteristics	AOF study	APrON study
Study design	Prospective cohort study	Prospective cohort study
Target population	Pregnant women	Pregnant women
Study location	Calgary, Alberta	Calgary and Edmonton, Alberta (approximately 85% of the sample came from Calgary)
Inclusion criteria	Age: ≥ 18 years Gestational age: < 24 weeks Language: able to complete questionnaires in English	Age: ≥ 16 years Gestational age: < 27 weeks Language: able to complete questionnaires in English
Recruitment period	2008–2011	2009–2012
Recruitment strategies	Community-based: face-to-face recruitment in maternity clinics, posters, and word of mouth, provincial laboratory services etc.	Community-based: face-to-face recruitment in maternity clinics, poster, pamphlets and word of mouth, newspaper, television etc.
Sampling strategies	Community-based, non-stratified sampling	Community-based, non-stratified sampling
Sample size	3,388 pregnant women	2,200 pregnant women
Retention rate until postpartum period	Approximately 90%	Approximately 85%
Follow-ups and data collection (using maternal survey questionnaire) on variables related to this research	– During recruitment, < 24 weeks of gestation: socio-demographics, lifestyle, social support, depression, anxiety – Follow-up in third trimester, 34–38 weeks gestation: anxiety and depression measurement – Follow up survey at 4 months of postpartum period: gestational age at delivery for index pregnancy	– During recruitment, < 27 weeks of gestation: socio-demographics, lifestyle, social support, depression, anxiety – Follow-up in 14–26 weeks of gestation for those participants who were 0–13 weeks of gestation during the recruitment and in 27–40 weeks for those who were 0–26 weeks of gestation during recruitment: anxiety and depression measurement – Follow up survey at 4 months of postpartum period: gestational age at delivery for index pregnancy



Supplementary Table 2: List of AOF and APrON variables related to our research and selected for harmonization

Variables considered	AOF cohort	APrON cohort	Variable matching	Harmonization success
1. Maternal age	Construct: Maternal age at recruitment Type of data: continuous Missing: . (period)	Construct: Maternal age at recruitment Type of data: continuous Missing: 999	- Complete matching of construct - Complete matching of response or data type and coding, except missing value coding	- Successfully harmonized - Data pooled into one variable (appended)
2. Marital status	Construct: Current marital Data type: Categorical 1 Single 2 Single with partner 3 Married 4 Common-law 5 Divorced 6 Separated . Missing	Construct: marital status Data type: Categorical 0 Single 1 Married 2 Divorced 3 Common-law 4 Widowed 5 Separated 999 Missing	- Complete matching construct - Partial matching of response & coding	- Successfully harmonized - Data pooled into one variable (appended)
3. Maternal ethnicity	Construct: Ethnic origin Data type: Categorical 0 Others 1 White/Caucasian	Construct: Ethnic origin? Data type: Categorical 1 Caucasian 2 Chinese 3 Filipino 4 Japanese 5 Korean 6 Latin American 7 Aboriginal/Native 8 South Asian 9 South East Asian 10 Arab 11 West Asian 12 Black 13 Others	- Complete matching construct - Partial matching of response & coding	- Successfully harmonized - Data pooled into one variable (appended)
4. Duration of stay in Canada:	Construct: Time in Canada 0 "Born in CA/lived 5+years" 1 "Lived in CA less than years"	Construct: Born in Canada Yes/No. If no, how long have you lived in Canada? 0 Less than 1 year 2 1-3 years 2 4-5 years 3 over 5 years 888 valid skip	- Complete matching construct - Partial matching response & coding	- Successfully harmonized - Data pooled into one variable (appended)
5. Body mass index	Construct: Pre-pregnancy weight in kg Construct: Height in cm Data type: continuous Missing: .	Construct: Pre-pregnancy weight in kg (records in two variables) Construct: Height (cm) (records in two variables) Data type: continuous Missing: 999	- Complete matching construct - Partial matching of data coding or management system	- Successfully harmonized - Data pooled into one variable (appended)
6. Parity	Construct: Parity (birth to a fetus >24 weeks) 0 No previous births 1 Previous birth to a fetus (at least once) . Missing If previous birth to a fetus, number of live births 1 to 7 - Missing (.)	Construct: Live born children have you had 0 to 4 - missing (999)	- Complete matching construct - Partial matching response and coding	- Successfully harmonized - Data pooled into one variable (appended)
7. Intended pregnancy	Construct: When you became pregnant, were you trying to get pregnant? 1 Yes (Intended) 2 No (Unintended) . Missing	Construct: were you purposely trying to become pregnant? 0 No (Unintended) 1 Yes (Intended) 999 Missing	- Complete matching construct - Complete matching response, with unmatched response value coding (partial matching)	- Successfully harmonized - Data pooled into one variable (appended)

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Supplementary Table 2: Continued

Variables considered	AOF cohort	APrON cohort	Variable matching	Harmonization success
8. Smoking	Construct: Smoking status before pregnancy (daily or occasionally) • 1 Yes • 2 No • . missing	Construct: Smoking status before pregnancy (daily or occasionally) • 0 No • 1 Yes • 999 missing	• Complete matching construct • Complete matching response, with unmatched response value coding (partial matching)	• Successfully harmonized • Data pooled into one variable (appended)
9. Alcohol consumption	Construct: Alcohol consumption before pregnancy • 1 Yes • 2 No	Construct: Alcohol consumption before pregnancy • 0 No • 1 Yes	• Complete matching construct • Complete matching response, with unmatched response value coding (partial matching)	• Successfully harmonized • Data pooled into one variable (appended)
10. Drug abuse	Construct: Street drug use before pregnancy • 1 Yes • 2 No	Construct: Recreational drug use before pregnancy • 0 No • 1 Yes	• Complete matching construct • Complete matching response, with unmatched response value coding (partial matching)	• Successfully harmonized • Data pooled into one variable (appended)
11. Maternal education	Construct: The highest level of education completed • 1 Some elementary or high school • 2 Graduated high school • 3 Some college, trade, university • 4 Graduated college, trade, university • 5 Some graduate school • 6 Completed graduate school • . Missing	Construct: The highest level of education completed • 1 Less than high school diploma • 2 Completed high school diploma • 3 Completed trade, technical diploma • 4 Completed university • 5 Completed post-grad • 999 Missing	• Complete matching construct • Partial matching responses and coding	• Successfully harmonized • Data pooled into one variable (appended)
12. Household income	Construct: Total income, before taxes and deductions, of all household members from all sources in the past 12 months • 1 Less than \$10,000 • 2 \$10,000- \$19,999 • 3 \$20,000- \$29,999 • 4 \$30,000- \$39,999 • 5 \$40,000- \$49,999 • 6 \$50,000- \$59,999 • 7 \$60,000 - \$69,999 • 8 \$70,000- \$79,999 • 9 \$80,000- \$89,999 • 10 \$90,000- \$99,999 • 11 \$100,000 or more • . Missing	Construct: Total income, before taxes and deductions, of all the household members from all resources? • 1 Less than \$20,000 • 2 \$20,000 to \$39,999 • 3 \$40,000 to \$69,999 • 4 \$70,000 to \$99,999 • 5 \$100,000 or more • 999 Missing	• Complete matching construct • Partial matching response and coding	• Successfully harmonized • Data pooled into one variable (appended)
13. Weeks of gestation	Construct: week of gestation in first measurement (during recruitment) Construct: week of gestation in second measurement (in third trimester) Data type: continuous	Construct: week of gestation in first measurement during (during recruitment) Construct: week of gestation in second measurement (in second trimester for those who had their first measurement in first trimester) Construct: Week of gestation in third measurement (in third trimester) Data type: continuous	• Complete matching Construct • Partial matching of frequency of measurement	• Successfully harmonized • Data pooled into one variable (appended)
14. Depression during pregnancy	Construct: EPDS score in first measurement (during recruitment: <24 weeks of gestation) Construct: EPDS score in second measurement (in third trimester: 34-38 weeks gestation)	Construct: EPDS score in first measurement (during recruitment: <27 weeks of gestation)	• Complete matching construct • Partial matching in terms of number of measurements and measurement time (week of gestation)	• Successfully harmonized • Data pooled into one variable (appended)

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Supplementary Table 2: Continued

Variables considered	AOF cohort	APrON cohort	Variable matching	Harmonization success
		Construct: EPDS score in second measurement (in second trimester:14-26 weeks of gestation for those participants who were 0-13 weeks of gestation during the recruitment) Construct: EPDS score in third measurement (in third trimester: 27-40 weeks for those who were 0-26 weeks of gestation during recruitment)		
15. Anxiety during pregnancy	Construct: anxiety score in first measurement (during recruitment: <24 weeks of gestation), measured by SAI-20 Construct: anxiety score in second measurement (in third trimester: 34-38 weeks gestation), measured by SAI-20	Construct: anxiety score in first measurement (during recruitment: <27 weeks of gestation), measured SCL-90 Construct: anxiety score in second measurement (in second trimester:14-26 weeks of gestation for those participants who were 0-13 weeks of gestation during the recruitment), measured SCL-90 Construct: anxiety score in third measurement (in third trimester: 27-40 weeks for those who were 0-26 weeks of gestation during recruitment), measured SCL-90	• Completely un-matching construct, measured by different anxiety scales that emphasize different component of anxiety	• Successfully harmonized • Pooled anxiety data measured by two different scales as two different variables
Anxiety during pregnancy, measured by EPDS-3A	Construct: EPDS-3A score (from EPDS) in first measurement (during recruitment: <24 weeks of gestation) Construct: EPDS-3A score (from EPDS) in second measurement (in third trimester: 34-38 weeks gestation)	Construct: EPDS-3A score (from EPDS) in first measurement (during recruitment: <27 weeks of gestation) Construct: EPDS-3A score (from EPDS) in second measurement (in second trimester: 14-26 weeks of gestation for those participants who were 0-13 weeks of gestation during the recruitment) Construct: EPDS-3A (from EPDS) score in third measurement (in third trimester: in 27-40 weeks for those who were 0-26 weeks of gestation during recruitment)	• Completely matching construct. However, the EPDS-3A score variable was not readily available in the datasets. EPDS-3A is a part of the EPDS, where the 3 items (EPDS-3A: EPDS items 3, 5 and 6) are considered as items that measure anxiety during pregnancy, making an anxiety scale.	• Successfully harmonized • Data pooled into one variable (appended)
16. Social support during pregnancy	Construct: Social support status • 1 Adequate • 2 Inadequate	Construct: Social support status • Social support score	• Complete matching of construct • Partial matching response coding	• Successfully harmonized • Data pooled into one variable (appended)
17. Gestational age at delivery	Construct: Weeks gestation at delivery Data type: continuous Missing: . (period)	Construct: Weeks gestation at delivery Data type: continuous Missing: 999	• Complete matching of construct • Complete matching of response or data type and coding, except missing value coding	• Successfully harmonized • Data pooled into one variable (appended)
18. Prenatal care visit during pregnancy	Data available: number of prenatal care visit	Data unavailable	• Not applicable or completely unmatching	• Not applicable
19. History of preterm delivery	Data available: previous preterm delivery	Data unavailable	• Not applicable or completely unmatching	• Not applicable

Note: AOF: All Our Families; APrON: Alberta Pregnancy Outcomes and Nutrition; EPDS: Edinburgh Postnatal Depression Scale; STAI-20: State-Trait Anxiety Inventory-State 20-item scale; SCL-90: Symptoms Checklist-90; EPDS-3A: Edinburgh Postnatal Depression scale- anxiety subscale.

Supplementary Table 3: Characteristics of All our Family (AOF) cohort, Alberta Pregnancy Outcomes and Nutrition (APrON) cohort, and combined cohort

Variables	AOF (N = 3,351)		APrON (n = 2,187)		Combined (N = 5,538)	
	n (%)	95% CI	n (%)	95% CI	n (%)	95% CI
Maternal age (years), n (m ± sd)	3245 (30.59 ± 4.56)	–	2182 (30.54 ± 4.51)	–	5427 (30.97 ± 4.56)	–
Maternal age	2612 (77.98)	76.54, 79.35	1700 (77.73)	77.94, 79.43)	4312 (77.13)	76..77, 78.95
<35yrs	633 (18.89)	17.60, 20.25	482 (22.04)	20.34, 23.83	1115 (20.13)	19.10, 21.21
≥ 35yrs	106 (3.13)	2.59, 3.78	5 (0.23)	0.09, 0.55	111 (1.99)	1.65, 2.39
Missing						
Marital status	185 (5.52)	4.80, 6.35	84 (3.84)	3.11, 4.73	269 (4.86)	4.32, 5.46
Single/divorced/separated	3131 (93.43)	92.54, 94.23	2017 (92.23)	91.02, 93.28	5148 (92.96)	92.25, 93.60
Married/common-law	35 (1.04)	0.75, 1.45	86 (3.93)	3.19, 4.83	121 (2.18)	1.83, 2.61
Missing						
Maternal ethnicity	2611 (77.92)	76.48, 79.29	1681 (76.86)	75.05, 78.58	4292 (77.50)	76.38, 78.58
White/Caucasian	705 (21.04)	19.69, 22.45	414 (18.93)	17.34, 20.63	1119 (20.21)	19.17, 21.28
Others	35 (1.04)	0.75, 1.45	92 (4.21)	3.44, 5.13	127 (2.29)	1.93, 2.72
Missing						
Duration of stay in Canada	2987 (89.14)	88.04, 90.15	1877 (85.83)	84.29, 87.22	4864 (87.83)	86.91, 88.66
Born/5 years+	319 (9.52)	85.71, 10.56	165 (7.54)	6.51, 8.73	484 (8.74)	8.02, 9.51
<5 years	45 (1.34)	1.00, 1.79	145 (6.63)	5.66, 7.75	190 (3.43)	2.98, 3.94
Missing						
Body mass index	24.34 ± 5.11	3.94, 5.36	24.20 ± 4.83	2.42, 3.89	24.29 ± 5.00	3.51, 4.54
Underweight (<18.5kg/m2)	154 (4.60)	58.22, 61.54	67 (3.06)	53.74, 57.90	221 (3.99)	56.98, 59.58
Normal weight (18.5–24.99)	2007 (59.89)	20.04, 22.82	1221 (55.83)	16.94, 20.20	3228 (58.29)	19.22, 21.34
Overweight (25–29.99)	717 (21.40)	10.59, 12.77	405 (18.52)	8.65, 11.52	1122 (20.26)	10.13, 11.77
kg/m2)	390 (11.64)	2.00, 3.06	215 (9.83)	11.42, 14.22	605 (10.92)	5.91, 7.22
Obesity (≥30 kg/m2)	83 (2.48)		279 (12.76)		362 (6.54)	
Missing						
Parity	1615 (48.19)	46.50, 49.89	1184 (54.14)	52.04, 56.22	2799 (50.54)	49.44, 51.86
Primiparous	1689 (50.40)	48.71, 52.09	917 (41.93)	39.87, 44.01	2606 (47.06)	45.74, 48.37
Multiparous	47 (1.40)	1.05, 1.86	86 (3.93)	3.19, 4.84	133 (2.40)	2.03, 2.84
Missing						
Intended pregnancy	2668 (79.62)	78.22, 80.95	1708 (78.10)	76.31, 79.78	4376 (79.02)	77.92,80.07
Yes	649 (19.37)	18.06, 20.74	399 (18.24)	16.68, 19.91	1048 (18.92)	17.91, 19.98
No	34 (1.01)	0.73, 1.42	80 (3.66)	2.95, 4.53	114 (2.06)	1.72, 2.47
Missing						
Smoking before pregnancy	544 (16.23)	15.02, 17.52	571 (26.11)	24.31, 27.99	1115 (20.13)	19.09, 21.21
Yes	2776 (82.84)	81.52, 84.08	1530 (69.96)	68.00, 71.84	4306 (77.75)	76.64, 78.83
No	31 (0.93)	0.65, 1.31	86 (3.93)	3.19, 4.83	117 (2.11)	1.76, 2.53
Missing						
Alcohol consumption	2736 (81.65)	80.30, 82.92	1836 (83.95)	82.35, 85.43	4572 (82.56)	81.53, 83.53
Yes	592 (17.67)	16.41, 18.99	262 (11.98)	10.68, 13.41	854 (15.42)	14.49, 16.40
No	23 (0.69)	0.46, 1.03	89 (4.07)	3.31, 4.98	112 (2.02)	1.68,2.43
Missing						
Drug abuse	281 (8.39)	7.49, 9.37	483 (22.09)	20.39, 23.87	764 (13.80)	12.91, 14.72
Yes	3043 (90.81)	89.78, 91.74	1613 (73.75)	71.87, 75.55	4656 (84.80)	83.09, 85.01
No	27 (0.81)	0.55, 1.17	91 (4.16)	3.40, 5.08	118 (2.13)	1.78, 2.54
Missing						
Maternal education	118 (3.52)	2.95, 4.20	58 (2.65)	2.06, 3.41	176 (3.18)	2.74, 3.67
Less than high school	718 (21.43)	20.01, 22.85	200 (9.14)	8.01, 10.42	918 (16.58)	15.62, 17.58
Completed high school	2482 (74.07)	72.55, 75.52	1823 (83.36)	81.73, 84.86	4305 (77.74)	76.62, 78.81
≥High school	33 (0.98)	0.70, 1.38	106(4.85)	4.02, 5.83	139 (2.51)	2.13, 2.96
(trade/technical/university)						
Missing						
Household income	296 (8.83)	7.92, 9.84,	187 (8.55)	7.44, 9.79	483 (8.72)	8.01, 9.49
\$<40,000	477 (14.23)	13.09, 15.46	279 (12.76)	11.42, 14.22	756 (13.65)	12.77,14.58
\$40,000–70,000	789 (23.55)	22.14, 25.01	466 (21.31)	19.64, 23.07	1255 (22.66)	21.58, 23.78
\$70,000–<100,000	1656 (49.42)	47.73, 51.11	1146 (52.40)	50.30, 54.49	2,802 (50.60)	49.28, 51.91
\$≥100,000	133 (3.97)	3.36, 4.69	109 (4.98)	4.14, 5.98	242 (4.37)	3.86, 4.94
Missing						

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Supplementary Table 3: Continued

Variables	AOF (N = 3,351)		APrON (n = 2,187)		Combined (N = 5,538)	
	n (%)	95% CI	n (%)	95% CI	n (%)	95% CI
Gestational age (week of gestation), n (mean $\pm$ sd) ^a	3309 (16.36 $\pm$ 4.22)	–	2094 (17.02 $\pm$ 5.53)	–	5403 (16.61 $\pm$ 4.78)	–
Measurement 1	3031 (34.47 $\pm$ 1.49)		347 (18.96 $\pm$ 3.09)		3378 (32.88 $\pm$ 5.01)	
Measurement 2	NA		1807 (31.94 $\pm$ 1.71)		1807 (31.94 $\pm$ 1.71)	
Measurement 3						
Anxiety measurement during pregnancy ^a	682 (20.35)	19.00, 21.76	392 (17.92)	16.34, 19.60	1074 (19.39)	18.36, 20.46
Trimester 1	2595 (77.43)	75.99, 78.85	1859 (85.00)	83.44, 86.47	4454 (80.43)	79.36, 81.46
Trimester 2	3027 (90.33)	89.28, 91.31	1810 (82.76)	81.11, 84.32	4837 (87.34)	86.43, 88.21
Trimester 3						
Depression measurement during pregnancy ^a	681 (20.32)	18.97, 21.72	391 (17.88)	16.29, 19.55	1072 (19.36)	18.32, 20.42
Trimester 1	2591 (77.32)	75.86, 78.73	1848 (84.50)	82.91, 85.99	4439 (80.16)	79.08, 81.19
Trimester 2	3019 (90.09)	89.03, 91.08	1803 (82.44)	80.78, 84.01	4822 (87.07)	86.16, 87.94
Trimester 3						
Social support at any time pregnancy	2681 (80.01)	78.62, 81.32	1580 (72.25)	70.32, 74.08	4261 (76.94)	75.81, 78.03
Adequate social support	659 (19.67)	18.35, 21.05	520 (23.78)	22.04, 25.60	1179 (21.29)	20.23, 22.39
Inadequate social support	11 (0.33)	0.18, 0.59	87 (3.98)	3.23, 4.88	98 (1.77)	1.45, 2.15
Missing						
Gestational age at delivery, n (m $\pm$ sd)	2994 (39,056 $\pm$ 1.89)	6.08, 7.80	2128 (39.28 $\pm$ 1.92)	5.48, 7.50	5122 (39.14 $\pm$ 1.91)	6.07, 7.39
Preterm birth (<37 weeks)	231 (6.89)	81.13, 83.70	140 (6.40)	89.62, 92.04	371 (6.70)	84.84, 86.68
No preterm birth	2763 (82.45)	9.65, 11.74	1988 (90.90)	2.09, 3.47	4751 (85.79)	6.84, 8.23
Missing	357 (10.65)		59 (2.70)		416 (7.51)	

Note: denominator is same for each variable as the missing value was included in the total sample.

^aTotal cell count is higher than denominator due to longitudinal nature of measurement.

