

## Supplementary Information:

### Section S1. PHQ-9 Questionnaire

#### PATIENT HEALTH QUESTIONNAIRE (PHQ-9)

NAME: \_\_\_\_\_ DATE: \_\_\_\_\_

Over the last 2 weeks, how often have you been  
bothered by any of the following problems?  
(use "✓" to indicate your answer)

	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed. Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead, or of hurting yourself	0	1	2	3

add columns  +  +

(Healthcare professional: For interpretation of TOTAL, TOTAL:   
please refer to accompanying scoring card).

10. If you checked off <i>any</i> problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?	Not difficult at all	_____
	Somewhat difficult	_____
	Very difficult	_____
	Extremely difficult	_____

## PHQ-9 Patient Depression Questionnaire

### For initial diagnosis:

1. Patient completes PHQ-9 Quick Depression Assessment.
2. If there are at least 4 ✓s in the shaded section (including Questions #1 and #2), consider a depressive disorder. Add score to determine severity.

### Consider Major Depressive Disorder

- if there are at least 5 ✓s in the shaded section (one of which corresponds to Question #1 or #2)

### Consider Other Depressive Disorder

- if there are 2-4 ✓s in the shaded section (one of which corresponds to Question #1 or #2)

**Note:** Since the questionnaire relies on patient self-report, all responses should be verified by the clinician, and a definitive diagnosis is made on clinical grounds taking into account how well the patient understood the questionnaire, as well as other relevant information from the patient.

Diagnoses of Major Depressive Disorder or Other Depressive Disorder also require impairment of social, occupational, or other important areas of functioning (Question #10) and ruling out normal bereavement, a history of a Manic Episode (Bipolar Disorder), and a physical disorder, medication, or other drug as the biological cause of the depressive symptoms.

### To monitor severity over time for newly diagnosed patients or patients in current treatment for depression:

1. Patients may complete questionnaires at baseline and at regular intervals (eg, every 2 weeks) at home and bring them in at their next appointment for scoring or they may complete the questionnaire during each scheduled appointment.
2. Add up ✓s by column. For every ✓: Several days = 1 More than half the days = 2 Nearly every day = 3
3. Add together column scores to get a TOTAL score.
4. Refer to the accompanying **PHQ-9 Scoring Box** to interpret the TOTAL score.
5. Results may be included in patient files to assist you in setting up a treatment goal, determining degree of response, as well as guiding treatment intervention.

### Scoring: add up all checked boxes on PHQ-9

For every ✓ Not at all = 0; Several days = 1;  
More than half the days = 2; Nearly every day = 3

### Interpretation of Total Score

Total Score	Depression Severity
1-4	Minimal depression
5-9	Mild depression
10-14	Moderate depression
15-19	Moderately severe depression
20-27	Severe depression

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**Section S2. Check for Any Selection Bias**

Variables		Analytic	Excluded	p-value
		Sample	Sample	
		(N = 565)	(N = 264)	
		n (%)	n (%)	
<b>Depression (PHQ-9 total score, categorical)</b>				
No depression (0)		295 (52.21)	159 (60.23)	
Minimal (1-4)		163 (28.85)	65 (24.62)	
Mild (5-9)		78 (13.81)	32 (12.08)	0.064
Moderate (10-14)		22 (3.89)	2 (0.75)	
Moderately severe (15-19)		3 (0.53)	4 (1.51)	
Severe (20-27)		4 (0.71)	2 (0.75)	
<b>Major depression (shaded areas, binary)</b>				
	Yes	15 (2.65)	8 (3.03)	
	No	550 (97.35)	256 (96.97)	0.760
<b>PHQ-9 score <math>\geq 10</math></b>				
	Yes	29 (5.13)	8 (3.03)	
	No	536 (94.87)	256 (96.97)	0.172
<b>Age (years)</b>				
	15-19*	68 (12.04)	40 (15.15)	
	20-24	247 (43.72)	103 (39.02)	
	25-29	127 (22.48)	65 (24.62)	0.446
	30-39	123 (21.77)	56 (21.21)	
<b>Education</b>				
	No schooling and primary*	307 (54.34)	141 (53.41)	
	Secondary and higher	258 (45.74)	108 (40.91)	0.546
	Missing	0	15 (5.68)	

**Employment status**

Not working*	371 (65.66)	156 (59.09)	0.067
Working	194 (34.34)	108 (40.91)	

**Husband has other wives**

Yes	31 (5.49)	217 (82.20)	
No*	534 (94.51)	16 (6.06)	0.452
Missing	0	31 (11.74)	

**Multiple births**

Yes	16 (2.83)	2 (0.76)	0.056
No*	549 (97.17)	262 (99.24)	

**Total number of alive children per woman**

Mean (standard deviation)	2.34 (1.28)	2.24 (1.19)	
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**Anemia**

Yes	212 (37.52)	11 (4.17)	
No*	353 (62.48)	14 (5.30)	0.514
Missing	0	239 (90.53)	

**Anemia severity**

None*	353 (62.48)	14z (5.30)	
Mild	120 (21.24)	7 (2.65)	0.826
Moderate	87 (15.40)	4 (1.52)	
Severe	5 (0.88)	0	
Missing	0	239 (90.53)	

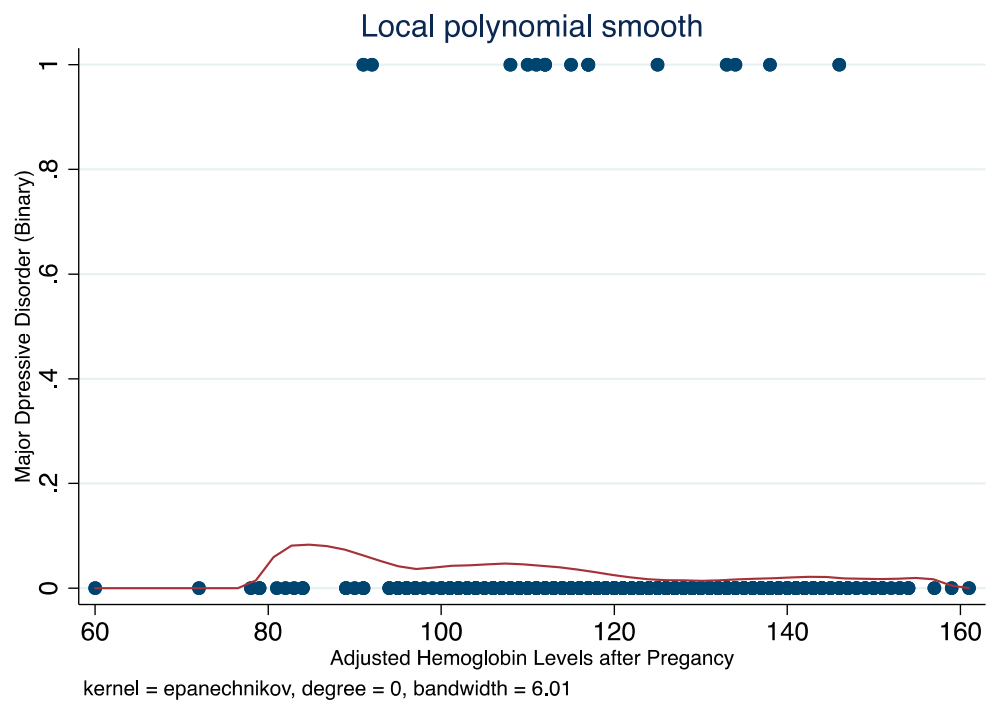
**Hemoglobin (g/L)**

Mean (standard deviation)	123.40 (14.82)	119.36 (15.05)	
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**Section S3.** Adjusted Hemoglobin Levels after Pregnancy

Major Depressive Disorder				Moderate to Severe Depression			
(Model 3)				(Model 4)			
	Odds ratio	95% CI	p-value	Odds ratio	95% CI	p-value	
<b>Anemia</b>							
<b>status (g/dl)</b>							
Mild	4.79	1.45 to 15.82	0.01*	2.36	1.01 to 5.52	0.05	
Moderate to severe	2.07	0.47 to 9.19	0.34	1.36	0.47 to 3.95	0.57	
<b>Age (years)</b>							
20-24	0.75	0.08 to 7.13	0.80	0.86	0.22 to 3.31	0.82	
25-29	0.81	0.07 to 9.38	0.86	0.59	0.11 to 3.00	0.52	
30-39	0.32	0.02 to 5.97	0.44	0.56	0.09 to 3.58	0.54	
<b>Education</b>							
Secondary and higher	2.79	0.81 to 9.63	0.11	1.25	0.54 to 2.89	0.60	
<b>Employment</b>							
<b>status</b>							
Working	1.84	0.62 to 5.45	0.27	1.04	0.46 to 2.33	0.93	
<b>Husband</b>							
<b>has other</b>							
<b>wives</b>							
Yes	3.41	0.63 to 18.36	0.15	2.06	0.55 to 7.67	0.28	
<b>Multiple</b>							
<b>births</b>							

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Yes	2.32	0.25 to 21.26	0.46	2.53	0.52 to 12.29	0.25
Total						
number of						
alive	1.65	0.92 to 2.95	0.09	1.35	0.89 to 2.05	0.16
children per						
woman						

**Section S5. Likelihood-Ratio Test**

Using likelihood-ratio test, we tested the null hypothesis that model 1 (variable anemia is binary) is better than model 3 (variable anemia is ordinal). The results are shown below:

LR Chi-Square	1.42
P-value	0.2329

Thus, we observed that the chi-squared value generated by the Wald test, with a chi-squared of 1.42 and an associated p-value of 0.23. Since the p-value is greater than 0.05, we failed to reject the null hypothesis, indicating that the model 1 is better than model 3.

**Section S6. Regression: Odds ratios, p-values and 95% confidence intervals (CI) for correlates of major depressive disorder and moderate to severe depression (a cutoff score of 10 on the PHQ-9 questionnaire), using anemia as a binary variable and including months since birth.**

	Major Depressive Disorder (Model 5)			Moderate to Severe Depression (Model 6)		
	Odds ratio	95% CI	p-value	Odds ratio	95% CI	p-value
<b>Anemia status (g/dl)</b>						
Yes	3.31	1.08 to 10.16	0.04*	1.98	0.92 to 4.27	0.08
<b>Age (years)</b>						
20-24	0.73	0.08 to 7.01	0.79	0.83	0.21 to 3.22	0.79
25-29	0.85	0.07 to 9.78	0.90	0.55	0.11 to 2.82	0.47
30-39	0.33	0.02 to 6.17	0.46	0.50	0.08 to 3.22	0.47
<b>Education</b>						
Secondary and higher	2.53	0.75 to 8.49	0.13	1.20	0.52 to 2.73	0.67
<b>Employment status</b>						
Working	1.87	0.64 to 5.49	0.26	1.02	0.45 to 2.29	0.96
<b>Husband has other wives</b>						
Yes	3.31	0.60 to 17.57	0.17	2.09	0.56 to 7.76	0.27
<b>Multiple births</b>						
Yes	2.29	0.25 to 20.73	0.46	2.30	0.47 to 11.24	0.30
<b>Total number of alive children per woman</b>	1.59	0.90 to 2.80	0.11	1.36	0.89 to 2.06	0.15
<b>Months since giving birth</b>	0.94	0.78 to 1.12	0.50	1.07	0.92 to 1.25	0.40