



# HIGH PROBABILITY FOR UNDIAGNOSED OBSTRUCTIVE SLEEP APNEA-HYPOPNEA SYNDROME IN PREGNANT WOMEN UNDERGOING PRENATAL CARE

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Conflicts of interest: None  
I have no financial relationships to disclose





# CONTEXT

In obstructive sleep apnea-hypopnea syndrome (OSAHS) the individual repeatedly stops breathing during sleep

In pregnancy, the presence of OSAHS has been related to adverse perinatal outcomes

Complications due to undiagnosed OSAHS include cardiovascular, neurological, mental and metabolic diseases

**OBJECTIVE:** To determine the frequency of high risk for OSAHS in pregnant women undergoing prenatal care and to identify associated factors

# METHODS

After signing informed consent, a form was applied that questioned sociodemographic characteristics, obstetric clinical history, perception of distress and fatigue with pregnancy

Cross-sectional study belonging to the research project “Biopsychosocial health in pregnant women”

Pregnant women who, during any of the gestation trimesters, attended prenatal care and their obstetricians considered outpatient follow-up

We applied the scales:



## STOP-Bang questionnaire

Please answer the following questions by checking “yes” or “no” for each one.

	Yes	No
Snoring (Do you snore loudly?)	<input type="checkbox"/>	<input type="checkbox"/>
Tiredness (Do you often feel tired, fatigued, or sleepy during the daytime?)	<input type="checkbox"/>	<input type="checkbox"/>
Observed Apnea (Has anyone observed that you stop breathing, or choke or gasp during your sleep?)	<input type="checkbox"/>	<input type="checkbox"/>
High Blood Pressure (Do you have or are you being treated for high blood pressure?)	<input type="checkbox"/>	<input type="checkbox"/>
BMI (Is your body mass index more than 35 kg per m <sup>2</sup> ?)	<input type="checkbox"/>	<input type="checkbox"/>
Age (Are you older than 50 years?)	<input type="checkbox"/>	<input type="checkbox"/>
Neck Circumference (Is your neck circumference greater than 40 cm [15.75 inches]?)	<input type="checkbox"/>	<input type="checkbox"/>
Gender (Are you male?)	<input type="checkbox"/>	<input type="checkbox"/>

Score 1 point for each positive response.

Scoring interpretation: 0 to 2 = low risk, 3 or 4 = intermediate risk, ≥5 = high risk.

Source: University Health Network, Toronto, Ontario, Canada ([www.stopbang.ca/osa/screening/php](http://www.stopbang.ca/osa/screening/php)). Used with permission from Sauk Prairie Healthcare.

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We applied the scales:

## PERCEIVED STRESS SCALE-10

Sr No.	During last one month, how often you thought or felt a certain way	Never	Almost never	Sometimes	Fairly often	Very often
1.	How often have you been upset because of something that happened unexpectedly?	0	1	2	3	4
2.	How often have you felt that you were unable to control the important things in your life?	0	1	2	3	4
3.	How often have you felt nervous and "stressed"?	0	1	2	3	4
4.	How often have you felt confident about your ability to handle your personal problems?	0	1	2	3	4
5.	How often have you felt that things were going your way?	0	1	2	3	4
6.	How often have you found that you could not cope with all the things that you had to do?	0	1	2	3	4
7.	How often have you been able to control irritations in your life?	0	1	2	3	4
8.	How often have you felt that you were on top of things?	0	1	2	3	4
9.	How often have you been angered because of things that were outside of your control?	0	1	2	3	4
10.	How often have you felt difficulties were piling up so high that you could not overcome them?	0	1	2	3	4

# METHODS

We applied the scales:



## CENTER FOR EPIDEMIOLOGIC STUDIES DEPRESSION SCALE (CESD- 10)

	During the Past Week			
	Rarely or none of the time (less than 1 day)	Some or a Little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	All of the time (5-7 days)
I was bothered by things that usually don't bother me	0	1	2	3
I had trouble keeping my mind on what I was doing	0	1	2	3
I felt depressed	0	1	2	3
I felt that everything I did was an effort	0	1	2	3
I felt hopeful about the future	0	1	2	3
I felt fearful	0	1	2	3
My sleep was restless	0	1	2	3
I was happy	0	1	2	3
I felt lonely	0	1	2	3
I could not get "going"	0	1	2	3

# METHODS

Statistical analysis with EPI-INFO-7

The correlation coefficient between the score of the STOP-Bang scale with the PSS-10 and CESD-10 scales

Main outcome measures: odds ratio (OR) and Spearman's correlation coefficient ( $\rho$ )

Anonymous and voluntary participation

Approved by the ethics committee of University of Cartagena, Colombia

**Unadjusted logistic regression was performed:**

- Probability for OSAHS (DV) with sociodemographic characteristics
- Clinical and obstetric considerations, as well as depression and perceived psychological stress (ID)



# OUTCOMES

<b>Sociodemographic Characteristics (n=683)</b>	
Age X ± SD	28.3 ± 6,3
Gestational age X ± SD	31.5 ± 6,9
BMI before pregnancy X ± SD	25.0 ± 5
BMI after pregnancy X ± SD	28.2 ± 4,6
Level of study X ± SD	12.0 ± 2,7
<b>OCCUPATION, n (%) [95% CI]</b>	
Housewife	344 (50.3) [46.6-54.1]
Employee	155 (22.6) [19.7-25.9]
Student	49 (7.1) [5.4-9.3]
Professional	135 (19.7) [16.9-22.9]
<b>RELIGION, n (%) [95% CI]</b>	
Non-practicing believer	273 (39.9) [36.3-43.6]
Practicing believer	410 (60,0) [56,3-63.6]
<b>PSYCHO-EMOTIONAL PROBLEMS AND OTHERS, n (%) [95% CI]</b>	
Economic problems	153 (22.4) [19,4-25.6]
Couple problems	56 (8.2) [6,3-10.5]
Pregnancy anxiety	142 (20.7) [17,9-23.9]
Fatigue in pregnancy	446 (65.3) [61,6-68.7]
Stress (PSS-10)	350 (51.2) [47,5-54.9]
Depression (CESD-10)	142 (20.7) [17,9-23.9]
Cigarette use	0



  
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# OUTCOMES

Continuation of Sociodemographic Characteristics (n=683)	
Nutritional status in pregnancy (adjusted by Curve Rosso Mardones)	
Normal weight	267 (39.1) [35.5-42.8]
Under weight	55 (8.1) [6.2-10.3]
Overweight	238 (34.8) [31.4-38.5]
Obesity	123 (18.1) [15.3-21.1]
Pathological history	
Chronic high blood pressure	31 (4.5) [3.2-6.3]
Mellitus diabetes	18 (2.6) [1.6-4.1]
Hyperlipidemias	3 (0.4) [0.1-1.2]
Hypothyroidism	24 (3.5) [2.3-5.1]
Rhinitis or asthma	80 (11.7) [9.5-14.3]
Anemia	121 (17.7) [15.0-20.7]
Gestational diabetes	50 (7.3) [5.6-9.5]
Trimester of pregnancy	
First	15 (2.2) [1.3-3.5]
Second	157 (22.9) [19.9-26.2]
Third	511 (74.8) [71.4-77.9]
Caesarean sections	
None	403 (59.0) [55.2-62.6]
One	222 (32.5) [29.1-36.1]
Two or more	58 (8.4) [6.6-10.8]
Misbirth	
Abortions	159 (23.2) [20.2-26.5]

*High Risk of OSAHS*  
*Obstructive Sleep Apnea Hypopnea Syndrome.*

**32 (4.69%) [95%CI: 3.34-6.54]**



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# OUTCOMES

## Factors associated with OSAHS Unadjusted Logistic Regression

Variable	OR	95%IC	P
Chronic high blood pressure	16.52	7.03-38.84	<0.05
Fatigue in pregnancy	8.46	2.01-35.73	<0.05
Energy drinks	4.71	1.28 -17.31	<0.05
Gestational diabetes	3.18	1.24-8.14	<0.05
Anxiety in pregnancy	2.40	1.15-5.04	<0.05
Religion	0.83	0.41-1.71	0.63
Abortions	1.38	0.92-2.08	0.11
Anemia	0.85	0.32-2.26	0.75
Mellitus diabetes	2.65	0.58-12.04	0.20
Rhinitis-asthma	1.08	0.37-3.17	0.88
Stress in pregnancy	1.60	0.78-3.27	0.19
Daytime sleepiness	1.20	0.45-3.20	0.71
Beer	1.01	0.13-7.83	0.98
Soft drinks	1.33	0.65-2.73	0.42



# CONCLUSIONS

- Almost 5% of pregnant women presented a high probability for undiagnosed OSAHS
- GDM, HTA, use of energy drinks, anxiety and fatigue with pregnancy, depression and stress were significantly related to a high probability of undiagnosed OSAHS
- It is important to continue making visible the frequency and factors associated with OSAHS, so that health care personnel and the scientific community become aware of the importance of its diagnosis and timely management in pregnancy







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