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High risk of obstructive sleep apnea–hypopnea syndrome: prevalence and associated factors in a Cameroonian urban population using the STOPBANG questionnaire

Abstract

Objective: Little is known about obstructive sleep apnea-hypopnea syndrome (OSAHS) in sub-Saharan Africa. Effective diagnostic tools are still scarce and expensive in this region. Our study aimed to assess the prevalence and factors associated to the high risk of OSAHS (HR-OSAHS) in a sub-Saharan African population.

Methods: This cross sectional study was conducted from November 2015 to May 2016 in Yaoundé, the capital of Cameroon. Adults aged >16 years were recruited from 4 districts and 4 administrative buildings. Data were collected during a face-to-face interview. The HR-OSAHS was defined by a STOPBANG score ≥3. Logistic regression was used to determine the HR-OSAHS associated factors via adjusted odds ratio (aOR), with a significance level of 5%. Data were digitized and analyzed using Epi data version 3.1 and Stata version 12.0 respectively.

Results: Four hundreds persons were enrolled in the study. Their Mean age was 34.8±11.2 years and 228 of them (57%) were men. All of the participants lived in Yaoundé and its surroundings and 2/3 had a sedentary activity profile. The most common symptoms (with more than 30% of frequency each) were decreased concentration (44.5%), daytime sleepiness (39.7%) and arousals (39.0%), daytime asthenia (33.2%), snoring (30.5%) and morning headache (30.2%). The HR-OSAHS prevalence was 24.5% (20.5 - 28.9)%. Its associated factors [OR (95% confidence interval), p-value] were Mallampati score ≥3 [4.8 (2.2, 10.2), <0.001], parents hypertension [2.6 (1.5, 4.4), <0.001], macroglossia [2.2 (1.2, 4.0), 0.007], decreased libido [1.9 (1.1, 3.5), 0.033] and insomnia [1.7 (1.3, 3.1), 0.051].

Conclusion: HR-OSAHS is common in this urban sub-Saharan African population, and its associated factors are consistent with OSAHS features. This suggests a good sensitivity of the STOPBANG in this population.

Keywords: high risk, OSAHS, prevalence, associated factors, Cameroon, STOPBANG

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Abbreviations: OSAHS, obstructive sleep apnea-hypopnea syndrome; AHI, apnea-hypopnea index; LIC, low income countries; SSA, sub-Saharan Africa; HR-OSAHS, high risk of obstructive sleep apnea-hypopnea syndrome; ESS, epworth sleepiness scale; HBP, high blood pressure; BMI, body mass index; c/aOR, crude/adjusted odds ratio

Introduction

Obstructive sleep apnea-hypopnea syndrome (OSAHS) is a frequent and serious condition, given the cardiovascular and accidental risks.[1–5] Data on OSAHS come mainly from developed countries, where diagnostic and therapeutic tools are codified and accessible for the majority. In low-income country (LIC) and sub-Saharan Africa (SSA) especially, the condition remains unknown by the population and most of the caregivers, while the epidemiological transition leads to an increasing prevalence of non-communicable diseases.[6,7] Diagnostic devices can be found only in specialized centers of large cities. The few studies available in sub-Saharan Africa have focused on the high risk of OSAHS (HR-OSAHS), based on easy-to-use screening tools.[8–10] This study was designed to enrich fundamental and epidemiological data on OSAHS in SSA. The aim was to assess the prevalence of OSAHS symptoms and high-risk based on the STOPBANG questionnaire, and to search for its associated factors in a Cameroonian urban population.

Material and methods

Study design and population

The study took place in Yaoundé, the political capital of Cameroon, between November 2015 and May 2016. It was approved by the Institutional Ethics Committee for Research on Human Health, at the University of Douala. Black subjects aged 16 or over and living in the city and its surroundings were asked to participate. Those with a history of OSAHS, shift work or pregnancy were excluded from the study. We selected the population study using a two-stage clusters stratified sampling. The stratification variable was the type of activity,

divided into office activity (administrative buildings) and outdoor activity (neighborhoods and / or markets). In the office activity group: 2 buildings in the city (Ministry of Higher Education and National Institute of Youth and Sport) were first chosen by convenience, then one or more services from each institution were randomly chosen, and all the members of the selected services were systematically invited to participate to the study, until the desired number of participants was obtained. In the outdoor activity group: 4 districts (Omnisport, Essos, Tropicana and Ekounou) were chosen by convenience among the most popular and endowed with significant external activity (markets, street vendors, manual workers). Then the streets of each district were crossed, and the questionnaire was proposed to all working adults encountered. The required sample size was calculated using the Statcalc function of Epi Info 7 software. Considering a 35% HR-OSAHS prevalence found by Ozoh in Nigeria 1 year ago,[8] a 5% margin of error and a 95% confidence interval, the required sample size was 350 subjects.

Instruments and administration

Data were collected during a face-to-face interview, after a written consent was obtained from each respondent. Seventh year medical students specifically trained for the purpose conducted the interviews. The questionnaire included data on: socio-demographic features (age, gender, place of residence, marital status), lifestyle and habits (occupation, toxics and drugs consumptions, activity profile using the Ricci and Gagnon auto test), personal and family medical history (particularly cardiovascular and metabolic conditions), symptoms enquiry, physical examination (including tongue examination and Mallampati score for upper airways assessment), Epworth sleepiness scale (ESS) for daytime sleepiness assessment, and STOPBANG score for HR-OSAHS.

The STOPBANG is a screening tool developed in a Caucasian population, and includes 8 items worth 1 point each: 1) **S**noring, 2) daytime **T**iredness, 3) **O**bserved apnea, 4) high blood **P**ressure (HBP), 5) **B**ody mass index (BMI) >30 kg/m^2 (obesity), 6) **A**ge >50 years, 7) **N**eck circumference >40 cm, and 8) male **G**ender.[11,12] In the original population the sensitivity of a STOPBANG score ≥3 was 93% for moderate OSAHS (apnea hypopnea index [AHI] =15–30/hour) detection and 100% for severe one (AHI >30/h).[12] The Ricci and Gagnon test is an 8-questions auto tests on daily (4 questions) and sportive or leisure (4 questions) activities, which results into 3 profiles: inactive (score<18), active (score 18–35) and very active (score>35).[13] The ESS evaluates the sleepiness risk in 8 different daily situations. Each item is coated 0 to 3, for a total score of 0 to 24. Excessive daytime sleepiness is defined by an ESS >10.[14] The Mallampati was developed to help clinicians predicting the difficulty of intubation. It classifies upper airways opening from class 1 (soft palate, fauces, uvula and pillars are all visible) to class IV (soft palate is not visible at all).[15] Snoring, tiredness, breathing pauses, history of HBP and the age were reported by the participant. BMI (expressed in kg/m^2) was calculated using the formula weight/(height)^2. An electronic scale gave the weight and the height was obtained using a locally wood-made rod. A usual tape was used to measure the neck circumference.

Data analysis

Continuous variables were expressed in mean±standard deviation. The OSAHS symptoms and HR-OSAHS prevalence's were expressed in % with their 95% confidence interval (95%CI). The HR-OSAHS was defined as a STOPBANG score ≥3. We sought the HR-OSAHS associated factors among socio-demographic, anamnestic and clinical data, using a sequential binomial logistic regression. All factors with a p-value <0% on univariate analysis were eligible for the multivariate analysis. From these eligible factors we excluded: 1) those involved in the STOPBANG score calculation as to prevent an information bias, since they were part of the depending variable; 2) those with aberrant values (such as very few or no subject for one or more modality, too large 95% CI, etc.), since they disturbed the models stability; and 3) those without demonstrated or plausible association with OSAHS. The remaining eligible factors underwent successive logistic regression models, following a step-down strategy, with a .05 threshold. The strength of the association was assessed by the adjusted odds ratio (aOR) and its 95% confidence interval. Epidata version 3.1 was used to digitize data. Stata version 12.0 and R Studio version 1.2.1335 version were used for data analysis.

Results

Baseline characteristics of study participants

A total of 400 subjects were enrolled in our study, including 228 men (sex ratio=1.3). They had a mean age of 34.8±11.2 years. Two-fifths (41.3%) of them were aged 25 to 34 years and the extreme ages were 16 and 86. The place of residence was exclusively urban (69.5%) or Peri-urban (30.5%). The occupation was considered as physically inactive (office worker or no occupation) for 62.8% of the sample. Alcohol consumption and known HBP were present in nearly half and a third of them respectively, while almost 40% were obese or overweight. A few proportion of respondents confessed illegal drugs consumption Table 1.

Table 1 Baseline characteristics of subjects enrolled in the study on the epidemiology of the high risk of obstructive sleep apnea-hypopnea syndrome, Yaoundé, November 2015- May 2016. N=400 (except for the weight category)

Characteristic	Modality	Values
Age, years	Mean+/-standard deviation	34,8±11,1
	Extrems	16–86
Sex, number	men/women	228/172
Place of residence	Urban	278 (69.5%)
	Peri-urban	122 (30.5%)
Occupation type	Manual worker	130 (32.5%)
	Itinerant worker	19 (4.7%)
	Office worker	243 (60.8%)
	No activity	8 (2.0%)
Activity score (Nina and Gagnon)	Inactive	18 (4.5%)
	Active	375 (93.7%)
	Very active	7 (1.8%)
History of high blood pressure		138 (34.5%)
Alcohol consumption		196 (49.0%)
Tobacco consumption		21 (5.2%)

Table continue

Characteristic	Modality	Values
Coffee consumption		142 (35.5%)
Illegal drug consumption		7 (1.7%)
Psychotropic medication		21 (5.2%)
Weight category (N=310)	Thin	12 (3.9%)
	Normal weight	178 (57.4%)
	Overweight	80 (25.8%)
	Obese	40 (12.9%)

Sleep related symptoms

Decreased concentration (44.5%), sleepiness (39.7%) and tiredness (33.2%) were the commonest daytime symptoms, while arousals (39.0%) and snoring (30.5%) were predominant during the night. OSAHS specific symptoms such as sleep breathing pauses (4.2%) were not frequent. More symptoms are detailed in Table 2. The prevalence of excessive daytime sleepiness diagnosed by ESS >10 was 21.0 % (17.0, 25.0) %.

Table 2 Prevalence of obstructive sleep apnea-hypopnea syndrome's symptoms among adults in Yaoundé, November 2015–May 2016, N=400

Symptoms	Number	Prevalence (95% CI), %
Decreased concentration	178	44.5 (39.7, 49.4)
Daytime sleepiness	159	39.7 (34.9, 44.5)
Arousals	156	39.0 (34.3, 43.9)
Tiredness	133	33.2 (28.8, 38.0)

Table continue

Symptoms	Number	Prevalence (95% CI), %
Snoring	122	30.5 (26.2, 35.2)
Morning headache	121	30.2 (25.9, 34.9)
Insomnia	109	27.2 (23.1, 31.9)
Night sweats	93	23.2 (19.1, 27.3)
Decreased libido	82	20.5 (16.8, 24.8)
Restless sleep	46	11.5 (8.4, 14.6)
Nocturia	33	8.2 (5.9, 11.4)
Sleep suffocations	21	5.2 (3.5, 7.9)
Sleep breathing pauses	17	4.2 (2.7, 6.7)

Prevalence and determinants of HR-OSAHS

Of the 400 subjects studied, 98 had a STOPBANG score ≥3. The corresponding prevalence (95% CI) was 24.5% (20.5-28.9)%. In univariate analysis, several factors were associated to the HR-OSAHS with a p-value <0.10. These included most of those involved in the STOPBANG score (age>50 years, male status, hypertension, snoring, daytime asthenia, cervical perimeter and obesity). All of those factors are detailed in Table 3. After exclusion of inappropriate factors (as indicated in "Material and methods" section), 15 variables were eligible for the multivariate analysis. At the end of sequential multiple logistic regression analysis, 5 variables were found to be independent OH-OSAHS associated factors: parent history of HBP, insomnia, decreased libido, a Mallampati score ≥3 and macroglossia. The strongest association occurred with macroglossia [OR (95% CI)=4.8 (2.2, 10.2), p<0.001]. The OR ranged 1.6 to 4.8 Table 4.

Table 3 Factors associated to high risk of obstructive sleep apnea-hypopnea syndrome (HR-OSAHS), frequencies and crude odd ratios (cOR) with their 95% confident interval (95% CI) after univariate analysis, among adults in Yaoundé, November 2015–May 2016

Variable group	Variables		Sample size	HR-OSAHS, number (%)	cOR (95% CI)	p-value
Socio-demographic	Age (years)	<25	63	6 (9.5)	0.3 (0.1 , 0.7)	<0.01
		25-34	165	29 (17.6)	0.5 (0.3, 0.8)	<0.01
		55-64	26	17 (65.4)	6.8 (2.9, 15.9)	<0.01
	Gender	Men	228	76 (33.3)	3.4 (2.0, 5.8)	<0.01
		Woman	172	22 (12.8)	1	
Personal history	Cardiovascular disease	Yes	30	24 (80.0)	16.0 (6.3, 40.6)	<0.01
		No	370	74 (20.0)	1	
	Personal HBP	Yes	27	22 (81.5)	17.2 (6.3, 46.9)	<0.01
		No	373	76 (20.4)	1	
	Gastroesophageal reflux	Yes	5	4 (80.0)	12.8 (1.4, 116.0)	0.01
		No	395	94 (23.8)	1	
	Alcohol consumption	Yes	196	57 (29.1)	1.6 (1.0, 2.6)	0.02
		No	204	41 (20.1)	1	
Family history	Parents HBP	Yes	138	54 (39.1)	3.2 (2.0, 5.1)	<0.01
		No	262	44 (16.8)	1	
	Parents insomnia	Yes	81	28 (34.6)	1.9 (1.1, 3.2)	
		No	319	70 (21.9)	1	
	Sibling obesity	Yes	30	12 (40.0)	2.2 (1.0, 4.8)	0.03
		No	370	86 (23.2)	1	
	Siblings snoring	Yes	122	45 (36.9)	2.5 (1.5, 4.0)	<0.01
		No	278	53 (19.1)	1	

Table continue

Variable group	Variables		Sample size	HR-OSAHS, number (%)	cOR (95% CI)	p-value
	Siblings HBP	Yes	37	20 (54.1)	4.3 (2.1, 8.6)	<0.01
		No	363	78 (21.5)	1	
	Siblings insomnia	Yes	27	14 (51.9)	3.7 (1.7, 8.2)	
		No	373	84 (22.5)	1	
	Descendants obesity	Yes	6	4 (66.7)	6.4 (1.2, 35.4)	0.03
		No	394	94 (23.9)	1	
	Descendants snoring	Yes	34	14 (41.2)	2.3 (1.1, 4.9)	0.01
		No	366	84 (23.0)	1	
	Descendants HBP	Yes	34	21 (61.8)	6.1 (2.9, 12.7)	<0.01
		No	366	77 (21.0)	1	
Night symptoms	Snoring	Yes	160	60 (37.5)	3.2 (2.0, 5.1)	<0.01
		No	240	38 (15.8)	1	
	Observed apnea	Yes	17	7 (41.2)	2.2 (0.8, 6.1)	0.09
		No	383	91 (23.8)	1	
	Nocturia	Yes	33	13 (39.4)	2.1 (1.0, 4.5)	0.03
		No	367	85 (23.2)	1	
	Arousals	Yes	156	47 (30.1)	1.6 (1.0, 2.6)	0.02
		No	244	51 (20.9)	1	
	Suffocations	Yes	21	9 (42.9)	2.4 (1.0, 6.0)	0.04
		No	379	89 (23.5)	1	
	Insomnia	Yes	109	37 (33.9)	1.9 (1.2, 3.2)	<0.01
		No	291	61 (21.0)	1	
	Sweats	Yes	93	31 (33.3)	1.8 (1.1, 3.0)	0.01
		No	307	67 (21.8)	1	
Daytime symptoms	Sleepiness	Yes	159	49 (30.8)	1.7 (1.1, 2.8)	0.01
		No	241	49 (20.3)	1	
	Tiredness	Yes	138	48 (34.8)	2.3 (1.4, 3.6)	<0.01
		No	262	50 (19.1)	1	
	Decreased concentration	Yes	178	56 (31.5)	2.9 (1.2, 3.1)	<0.01
		No	222	42 (18.9)	1	
	Decreased libido	Yes	82	34 (41.5)	2.8 (1.7, 4.7)	<0.01
		No	318	64 (20.1)	1	
	Polyphagia	Yes	16	7 (43.8)	2.5 (0.9, 6.9)	0.06
		No	384	91(23.7)	1	
	Polydipsia	Yes	44	17 (38.6)	2.1 (1.1, 4.1)	0.01
		No	356	81 (22.8)	1	
Physical findings	Weight category	Obese	32	17 (53.1)	4.0 (1.9, 8.3)	<0.01
		Overweight	80	30 (37.5)	2.2 (1.3	
		Thin	12	0 (0)	/	
		Normal	176	28 (15.9)	1	
	Neck circumference	>40 cm	68	41 (60.3)	7.3 (4.2, 12.9)	<0.01
		≤40 cm	332	57 (17.2)	1	
	Macroglossia	Yes	135	59 (43.7)	4.5 (2.8, 7.3)	<0.01
		No	265	39 (14.7)	1	
Scores	Epworth	24-Nov	84	27 (32.1)	1.6 (0.9, 2.7)	0.06
		0 - 10	316	71 (22.5)	1	
	Ricci & Gagnon	Inactive	18	8 (44.4)	2.6 (1.0, 6.8)	0.04
		Active or very active	382	90 (23.6)	1	
	Mallampati	4-Mar	49	32 (65.3)	8.1 (4.5, 15.5)	<0.01
		2-Jan	351	66 (18.8)	1	

HBP, high blood pressure

Citation: Massongo M, Bitchong Ekono CF, Bassogbag R, et al. High risk of obstructive sleep apnea–hypopnea syndrome: prevalence and associated factors in a Cameroonian urban population using the STOPBANG questionnaire. *Sleep Med Dis Int J.* 2020;4(1):6–12. DOI: 10.15406/smdij.2020.04.00065

Table 4 Factors associated with the high risk of obstructive sleep apnea-hypopnea syndrome (HR-OSAHS) before and after multi variate analysis using sequential logistic regression models, among adults in Yaoundé, November 2015-May 2016

Variable		Univariate analysis				Final model	
		Sample size	HR-OSAHS, number (%)	cOR (95% CI)	p-value	aOR (95% CI)	p-value
Inactive profile	Yes	18	8 (44.4)	2.6 (1.0, 6.8)	0.04		
	No	382	90 (23.6)	1			
Alcohol consumption	Yes	196	57 (29.1)	1.6 (1.0, 2.6)	0.02		
	No	204	41 (20.1)	1			
Parents HBP	Yes	138	54 (39.1)	3.2 (2.0, 5.1)	<0.01	2.6 (1.5, 4.4)	<0.001
	No	262	44 (16.8)	1		1	
Siblings HBP	Yes	37	20 (54.1)	4.3 (2.1, 8.6)	<0.01		
	No	363	78 (21.5)	1			
Nocturia	Yes	33	13 (39.4)	2.1 (1.0, 4.5)	0.03		
	No	367	85 (23.2)	1			
Arousals	Yes	156	47 (30.1)	1.6 (1.0, 2.6)	0.02		
	No	244	51 (20.9)	1			
Suffocations	Yes	21	9 (42.9)	2.4 (1.0, 6.0)	0.04		
	No	379	89 (23.5)	1			
Insomnia	Yes	109	37 (33.9)	1.9 (1.2, 3.2)	<0.01	1.7 (1.3, 3.1)	0.051
	No	291	61 (21.0)	1		1	
Sweats	Yes	93	31 (33.3)	1.8 (1.1, 3.0)	0.01		
	No	307	67 (21.8)	1			
Sleepiness	Yes	159	49 (30.8)	1.7 (1.1, 2.8)	0.01		
	No	241	49 (20.3)	1			
Decreased concentration	Yes	178	56 (31.5)	2.9 (1.2, 3.1)			
	No	222	42 (18.9)	1			
Decreased libido	Yes	82	34 (41.5)	2.8 (1.7, 4.7)	<0.01	1.9 (1.1, 3.5)	0.033
	No	318	64 (20.1)			1	
Mallampati score	4-Mar	49	32 (65.3)	8.1 (4.5, 15.5)	<0.001	4.8 (2.2, 10.2)	<0.001
	2-Jan	351	66 (18.8)	1		1	
Macroglossia	Yes	135	59 (43.7)	4.5 (2.8, 7.3)	<0.01	2.2 (1.2, 4.0)	0.007
	No	265	39 (14.7)	1			
Epworth sleepiness score	24-Nov	84	27 (32.1)	1.6 (0.9, 2.7)	0.06		
	0 - 10	316	71 (22.5)	1			

Citation: Massongo M, Bitchong Ekono CF, Bassogbag R, et al. High risk of obstructive sleep apnea–hypopnea syndrome: prevalence and associated factors in a Cameroonian urban population using the STOPBANG questionnaire. *Sleep Med Dis Int J.* 2020;4(1):6–12. DOI: 10.15406/smdij.2020.04.00065

Discussion

Revealing that up to 24.5% of the adult population was at high risk of having OSAHS was major finding in this community-based study. This is an important issue given the seriousness of that condition. Another important point is that almost all factors (except parents HBP) significantly associated with a STOPBANG ≥3 in this study, are recognized OSAHS-related features. This reinforces the importance and reliance of the STOPBANG questionnaire in detecting OSAHS.

Some demographic characteristics of our population differed from those of the Center Region (of which Yaoundé is the capital), such as the proportion of 25-34 years old people (26.2% vs 41.3% in our study) or the men predominance which was not found among the Center region population.[16] This could be explained by the recruitment sites, which were places of work and outdoor (physical) occupation for half of the sample, increasing the probability to enroll more young adults and more men. The proportion of overweight (25.8%) and obese (12.9%) people in our sample is consistent with the Cameroonian overall data. These were investigated by Nansseu et al.,[17] in a recent systematic review that pooled 26 studies for 55,155 subjects, and found 26.0% and 15.1% of overweight and obese people respectively.[17] In our study, symptoms considered as sleep related (decreased concentration, daytime tiredness, arousals, snoring, morning headache) appeared to be common among the population sample. Most of them are non-specific and can have various origins. Furthermore, the lack of details (frequency, intensity, circumstances, etc.) in the questionnaire could alter the answers' precision. We did not find locally produced data to compare with most of our symptoms frequencies. Insomnia had been studied in Nigerian adult population by Gureje et al.,[18] in a nationwide survey: the found 11.8% prevalence,[18] quite lower than the one we had. The use of a more precise definition by the Nigerian team (complain lasting at least 2 weeks within the previous 12 months) could partially explain this gap.

We have found very few studies on HR-OSAHS in SSA using the STOPBANG questionnaire. Three out of the four we found came from Nigeria, which is the direct neighbor of Cameroon. Ozoh et al.,[8] found a 36.3% prevalence of HR-OSAHS in Nigerian hospitalized and ambulatory adult patients.[8] Their population sample made of patients vs. healthy adults in our own may easily explain their higher prevalence. A much more higher prevalence (48.8%) was found by the same author in Lagos (Nigeria), among intra-city commercial drivers,[9] who are known to be on higher risk for OSAHS.[19–22] The third study was a Nigerian community-based one, the authors found a 41.3% HR-OSAHS prevalence.[23] A higher mean age (44±10 years) and a greater proportion of obese (27.7%) could favor a higher risk in that population compared to our sample. Kenne Kenyo[24] conducted the last out of 4 studies, simultaneously with our own, in the West region of our country. Their prevalence of HR-OSAHS was 17.8%, in an adult (≥19 years) rural population.[24] We assume that rural populations are more active and have reduced risk of developing lifestyle-related disorders such as OSAHS, compared to urban population. Concerning HR-OSAHS predictors, most of studies either used the Berlin questionnaire, which is another screening tool, or concerned specific populations of patients rather than general population or all comers' patients. We found only two studies STOPBANG-based HR-OSAHS predictors. The first is the aforementioned Nigerian study on patients attending several hospitals. Hypertension, age > 65 years, cigarette smoking and cardiovascular diseases were the HR-OSAHS determinants.[8] The other study came from Iran, among adults aged >18 ans. In this study, HR-OSAHS was associated with BMI, age, cardiovascular disease and diabetes.[25]

Our study had some methodological limitations: 1) selection of districts and buildings by convenience could lead to a selection bias, 2) recruitment limited to the active population did not necessarily reflect the community configuration, and may have contributed to bring out a male predominance. One of the strengths of our study is its pioneering nature concerning OSAHS in the Central Africa sub-region. At the end of this work, many questions on OSAHS remain unresolved as: 1) the diagnostic performance of STOPBANG for screening for OSAHS in SSA, 2) the prevalence of HR-OSAHS in specific patient populations (cardiovascular, metabolic, neurological), and 3) the real prevalence of OSAHS in Central Africa.

Conclusion

The prevalence of HR-OSAHS based on STOPBANG was high in this community sample of an urban population in Cameroon. This result is consistent with the change in lifestyle and the epidemiologic transition in SSA. The HR-OSAHS associated factors were symptoms and features generally related to OSAHS, which can reinforce the validity of the STOPBANG questionnaire in OSAHS screening. More complete studies, notably with sleep exploration, are needed to confirm these data, and improve the population, caregivers and decision-makers awareness on OSAHS.

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Conflicts of interest

There was no conflict of interest for any of the authors in this study.

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