Knowledge, attitudes and practices of nurses in training and professional nurses on sleep apnees syndrome in Kara in 2020

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SUMMARY

Introduction: Sleep apnea syndrome (SAS) is a condition that is characterized by respiratory abnormalities (hypopneas, apnea) occurring during sleep. In patients with SAS, strokes are more severe. SAS is also responsible for memory impairment and decreased intellectual performance.

Objective: We carried out this study to assess nurses' practical knowledge and attitudes about SAS.

Method: This was a descriptive cross-sectional study from 05 to 30 July 2020 involving 90 nurses working in the different departments of the CHU Kara and the CHR Kara who agreed to fill in the self-questionnaire sheet.

Results: A total of 90 out of 105 expected nurses participated in the study. The definition of SAS in adults, and risk factors in adults, were not known in 33.85% and 93.85% respectively. Nocturnal symptoms of SAS and diagnostic examinations were not known in 93.85% and 73.85% respectively. Complications of SAS were known only in 20.00%. The majority (70.77%) of respondents have already observed snoring in patients and 81.54% of them did not report the nocturnal symptoms observed in patients to doctors. The overall level of knowledge about SAS was low (75.38%). Almost all nurses (98.89%) wanted to have training in SAS.

Conclusion: The level of knowledge was mostly insufficient. Continuous training of nurses on the SAS is necessary.

Keywords: Knowledge; Attitude; Sleep apnea syndrome; Nurse; Togo

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INTRODUCTION

Sleep apnea syndrome (SAS) is a condition that is characterized by respiratory abnormalities (hypopneas, apnea) occurring during sleep. The SAS was indeed elucidated and individualized for the first time in 1976 by the neurologist Christian Guilleminault [1]. Three cardinal signs characterize this condition: snoring, breathing pauses, and excessive daytime sleepiness. SAS is a public health issue and affects 2 to 5% of the adult population in France [2]. In sub-Saharan Africa, epidemiological data on the prevalence of SAS in different countries are scarce. This is due to the lack of diagnostic tools. In Togo, the first studies showed that this condition is underdiagnosed, with an annual screening of 27 cases [3]. In the absence of treatment, SAS inevitably evolves into medical and/or socio-professional complications. The most serious medical complications are represented by stroke. In patients with SAS, strokes are more severe and are accompanied by poorer remote recovery and excess mortality [4]. SAS is also responsible for memory impairment and decreased intellectual performance [5]. Other medical complications are cardiovascular and metabolic [6]. There are also socio-professional complications such as road accidents, and accidents at work [7]. As nurses are at the forefront of defense in the management of hospitalized patients, they should be the ones who frequently screen for this pathology in common practice. A study has already been carried out in Togo on doctors' knowledge of SAS. None had yet been carried out among nurses. This motivated the conduct of this study which aims to assess the knowledge and practical attitudes of nurses on SAS.

METHODOLOGY

Study framework

The study was carried out in two major hospitals in the city of Kara: The University Hospital Center (CHU) and the Regional Hospital Center (CHR). Located on the west side of the city of Kara, the CHU Kara is the reference center of the entire northern region of Togo. It has 5 major departments namely medicine and medical specialties, pediatrics, obstetric gynecology, surgery and surgical specialties then medical radio imaging and biomedical analysis service. The CHR is located 2 km east of the CHU

and has 6 major departments: medicine, gynecology-obstetrics, pediatrics, surgery, medical radio ima,ging and the laboratory service of biological analyzes.

Study population

Included in this study were graduate nurses/state auxiliaries working in study centres as well as nursing students on internship in these centres during the study period. Nurses who did not agree to complete the self-questionnaire or who were not present during the survey period were not included.

Sample size

Of the 105 respondents who agreed to participate in the study, 90 met the inclusion criteria (acceptance rate of 85.71%). Of the 90 respondents to the questions, 65 (72.22%) had once heard of SAS.

Conduct of the study

This was a descriptive and analytical cross-sectional study that took place from 05 to 30 July 2020. A pre-established self-questionnaire accompanied by a request to participate was distributed to the participants. To ensure the reliability of the data, nurses were asked to complete the questionnaires, outside working hours and in front of the interviewer. The self-questionnaire consisted of 25 questions distributed as follows:

- Three (3) questions on the socio-demographic characteristics of the respondent: sex, age, year of graduation as a state nurse

- Three (3) questions about the different sources of knowledge of the SAS

- Sixteen (16) questions on theoretical knowledge of SAS: clinical signs, main elements of the clinical examination and main complications, diagnostic strategy, therapeutic possibilities

- Two (2) questions about professional experience with SAS: patients screened, diagnosed, or referred in a care pathway

- One (1) question on the need for training: desire for further training regarding the SAS

Operational definition

For knowledge-related questions:

- when only one proposal was expected, 1 point is awarded for the correct answer, and 0 points when the answer was wrong or the subject replied with "don't know" or refrained from answering

- when more than one proposal was expected, 2 points are awarded when all the checked proposals were correct, 1 point when one or two of the checked proposals were false, and 0 points when the subject answered with "does not know" or refrained from answering or when all the proposals selected by the

respondent were false

Depending on the score obtained by each respondent, three levels of knowledge were defined:

- Low, when the total points obtained were included [0-7] points;

- Medium, when the score was [8-14] points;

- Good, when the subject had totaled [15-22] points

Data analysis

The data collected on the survey sheets were then recorded and analyzed with the epi info 7.2.2.6 software. Qualitative variables were compared with the khi 2 test. The significance level was 0.05.

Ethical considerations

The anonymity of the nurses was ensured by the codification of the questionnaires.

RESULTS

In total, of the 105 participants, 90 met the inclusion criteria. There was a male predominance with a sex ratio M/F of 3. The concept of SAS was known to 65 participants whose mean age was 37 ± 8.17 years. The other socio-demographic characteristics are presented in **Tab. 1**. For 70.31% of the participants, the main source of information they had on the SAS was the teaching received during their university course and 26.15% of them had heard of SAS during an inpatient visit. Among the 65 who had already heard of SAS, 45 (69.23%) remember having received a course on SAS during their university course and the subject of teaching was pneumology (86.67%), neurology (11.11%), physiology (4.44%) and ENT (2.22%). The correct definition of SAS was found by 64.4% of nurses. The main factors favoring SAS in adults and children were cited by the participants in the majority of cases (**Tab. 2**). Among the nocturnal symptoms suggestive of SAS, snoring and apnea were identified by 70.77% and 67.69% of participants respectively. Other nocturnal symptoms, although suggestive, could not be noted; these are nocturia identified by 18.46% of participants and sweats identified by 16.92% of participants. The main suggestive daytime symptoms cited by respondents were headaches in 55.38% of cases, fatigue in 49.23% of cases, daytime sleepiness in 43.08% of cases and concentration disorders in 41.54%. A proportion of 15.30% of participants were unaware of the existence of an SAS self-screening questionnaire. The key examination allowing the confirmatory diagnosis of SAS is nocturnal oximetry according to 46.15% or gasometry according to 38.46% of respondents. The doctor to take charge of the SAS was the pulmonologist, the neurologist or the otorhinolaryngologist (ENT) doctor according to respectively 73.85%, 56.92% and 40% of the participants. The main complications of SAS according to the respondents are presented in **Tab. 3** where it is noted a greater frequency of sudden death (70.77%) and cardiovascular complications (69.23%)

Tab. 1. Sociodemographic characteristics of the study population.

Characteristics	Workforce (n)	Percentage (%)
Occupational category		
IAE	16	17.77
Ide	23	25.56
Nursing students	51	56.67
Age (years)		
[19-29]	18	21.11
[29-39]	26	28.89
[39-49]	40	44.44
[49-51]	5	5.56
Sex		
Masculine	68	75.56
Feminine	22	24.44
IAE: State Practical Nurses		
IDE: State-certified Nurses		

Tab. 2. Factors favouring SAS in adults cited by respondents.

Factors	Workforce (percent)			
	Yes		No	
Adult				
Obesity	56	(86.15%)	09	(13.85%)
Alcohol	26	(40.00%)	39	(60.00%)
Tobacco	25	(38.46%)	40	(61.54%)
Allergy	17	(26.15%)	48	(73.85%)
Short neck	17	(26.15%)	48	(73.85%)
Soporific	16	(24.62%)	49	(75.38%)
GERD*	14	(21.54%)	51	(78.46%)
Fatigue	13	(20.00%)	52	(80.00%)
Child				
Obesity	36	(55.38%)	29	(44.62%)
Hypertrophy of the tonsils	34	(52.31%)	31	(47.69%)
Asthma	29	(44.62%)	36	(55.38%)
Rhinitis	21	(32.31%)	44	(67.69%)
Imperforation of choanes	19	(29.23%)	46	(70.77%)
Gerd	7	(10.77%)	58	(89.23%)
Facial dysmorphia	5	(7.69%)	60	(92.31%)
Nasal polyposis	6	(9.23%)	59	(90.77%)
*GERD: Gastroesophageal Reflux Disease				

Tab. 3. Main complications of SAS by respondent.

Complications	Workforce (n)	Percentage (n/65)
Overall medical complications		
Cardiovascular	45	69.23%
Sudden death	46	70.77%
Neurological	37	56.92%
Endocrine	6	9.23%
Kidney	3	4.62%
Cardiovascular complications		
HTA	22	33.85%
Heart failure	16	24.62%
Rhythm disorder	23	35.38%
Myocardial infarction	23	35.38%
Societal complications		
Accident on public roads	37	56.92%
Low profitability	41	63.08%
Accident at work	35	53.85%
Absenteeism	38	58.46%

cited by the respondents. The main therapeutic options were drug treatment in 53.85% of cases, oxygen therapy in 44.62% of cases, life style measures in 38.46%. 1 nurse surveyed (1.54%) had a good level of knowledge about the SAS, the rest, namely 15 (23.08%) and 49 (75.38%) had respectively a medium and low level of knowledge about

aces. The variation in the level of knowledge according to the professional category was not statistically significant (p = 0.333) as shown in **Tab. 4**. From this **Tab. 4**, it appears that among the 48 student nurses in training who had already heard of SAS, 20 (27.08%) had an average level of knowledge and among the 17 nurses who had already

Tab. 4. Level of knowledge by occupational category.

| | Level of knowledge | | | | | | | |
| | Good | | Medium | | Weak | | Total | |
	n	%	n	%	n	%	n	%
IAE	00	00.00	00.00	00.00	02	3.07	02	3.08
Ide	00	00	02	3.08	13	20.00	15	23.08
Nursing students	01	1.54	13	20.00	34	52.31	48	73.85
Total	01	1.54	15	23.08	49	75.38	65	100

graduated, 2 (11.76%) had an average level of knowledge about the SAS. The main therapeutic options for SAS were drug treatment, oxygen therapy and lifestyle and dietary measures for 53.85%, 44.62% and 38.46% respectively. The use of the device by continuous positive airway pressure (CPAP) was only mentioned by 33.85% of the participants. A proportion of 69.23% of the participants did not know that the SAS is supported in Togo and 98.98% expressed the desire to receive training on the SAS.

DISCUSSION

Our study consisted of making an inventory of the knowledge and attitudes of qualified nurses and nurses in training on the SAS at the CHU-Kara and the CHR-Kara, the two reference centers in the northern part of the country (Togo). This study had a high turnout of 85.71% similar to that of Al-Khafaji whose study was done among primary care physicians and had a turnout of 85% [8]. SAS is a condition whose understanding is recent. Nurses have an important role in the detection and management of this condition. Nurses are on the front line in the care of hospitalized patients. They can therefore discover symptoms suggestive of SAS and lead to the detection of this pathology which remains underdiagnosed in our working conditions. The general level of knowledge about SAS was low in 75.38% of cases and average in 23.08% of cases. This level of knowledge did not vary according to the professional category of the participants (p=0.333; CI=95%). Nevertheless, among the 48 nurses in training who had a notion of SAS, 20 (27.08%) had an average level of knowledge of SAS. This rate was 2 in 17 (11.76%) among registered nurses. These figures attest to the recent introduction of SAS teaching in the training curricula of paramedical schools in Togo. The main source of information for our respondents on SAS was the university course (70.31%), particularly during lessons in pneumology (86.71%), neurology (11.11%) or ENT (4.11%). The other sources of information were the visit of hospitalized patients (26.15%), radio and television programs (10.77%) and the medical press (3.08%). These data make it possible to underline that nurses in our contexts are not passionate about reading the medical press. In decreasing order of frequency, obesity, alcohol and tobacco consumption were the main contributing factors cited by respondents in our study. In children, obesity (55.38%) was the main contributing factor mentioned, followed by tonsillar hypertrophy and adenoids (52.31%). Obesity has indeed been reported by the literature as being the main risk factor for SAS regardless of age. Morbid obesity associated with SAS determines Pickwick syndrome

[9]. This predisposition to the disease of the obese subject therefore seems well integrated by the respondents. The influence of obesity on the collapsibility of the VAS is exerted locally by the excess of soft tissues around the pharyngeal walls thus reducing their caliber. This is usually an android-type obesity [10]. In the absence of obesity, the cervical circumference has a much more predictive value. The risk of SAS is present when this circumference exceeds 43 cm in men, 41 cm in women [11]. Snoring (70.77%) and respiratory arrest (67.69%) were the main nocturnal symptoms of SAS reported in our study. The main daytime symptom was headache (55.38%). Adambounou, et al. in Togo reported in 2015 that drowsiness was the main daytime symptom cited by respondents. These results testify to a good knowledge of the respondents concerning the three cardinal signs of SAS which are: daytime sleepiness, apnea and snoring. The association of these symptoms is also found in 7.5% of the population in the study by Meslier, et al. [2]. The male sex is the most at risk of SAS as well as advanced age [12]. The incidence increases almost linearly with age in adults. Indeed, Lee reported in his study that for an apnea-hypopnea index greater than 5 per hour in the male group, the prevalence was 69.4% for the 60-64 age group and 87.8% for the 65 to 69 age group [13]. Polysomnography is the test that confirms the diagnosis of SAS [14]. Our respondents seem unfamiliar with the additional examination to be used for the confirmation of SAS, especially since only 13.85% were able to mention it. The complications of SAS are essentially cardiovascular and neurological, as certain epidemiological studies have revealed [15]. Apart from sudden death (70.77%), these cardiovascular and neurological complications were cited respectively in 69.23% and 56.92% of cases during our study. Among those who cited cardiovascular complications, less than half (33.85%) mentioned hypertension as being the main one of these complications. The major cardiovascular complication in patients with SAS is indeed hypertension, the prevalence of which is estimated at 60% [16]. SAS has repercussions on the socio-professional life of those who suffer from it. These consequences are multiple and include, among others, accidents on public roads, the risk of which is multiplied by three (03), work accidents, the risk of which is doubled; which requires systematic screening of people working in high-risk occupations [17]. These 2 major complications were only mentioned by half of the participants in the study, in particular in 56.92% for public road accidents and 53.85% for work accidents. Respondents also mentioned low profitability (63.08%) and absenteeism (58.46%). The use of the apparatus by CPAP remains the reference treatment of the SAS and

must be in first intention. It suppresses respiratory events, restores normal sleep quality and eliminates daytime sleepiness. However, in our study, only 1 out of 3 patients mentioned this type of treatment, which testifies to their lack of knowledge about the management of SAS. In addition, for having observed SAS in a hospitalized patient, only 18.46% of nurses considered it useful to inform the doctor. However, 78.85% knew that the patient should be referred to the pulmonologist for proper care.

CONCLUSION

The overall level of knowledge of the nurses who participated in the study is low. The majority of nurses, regardless of their professional category and seniority, had shortcomings regarding the cardinal signs suggestive of SAS as well as its complications and the means of its management. This study follows the need to insist on the teaching of SAS during university training and during practical internships in hospitals.

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