Evaluation Nurses' Knowledge Level Related Obstructive Sleep Apnea Syndrome

Bassam Mahdi Flyyih(1) , Wafaa Ismail Sherif(2) , Hanan Abo-Bakr Mohamed(3)

1 Higher Health Institute –Iraq Ministry of Health

2&3Mansoura University, Faculty of Nursing, Egypt

1.ABSTRACT

Obstructive sleep apnea syndrome (OSAS) is a serious and often underreported condition, despite its highly prevalent distribution. It's found in over 60% of patients with stroke and identified as an independent stroke risk factor. Nurses play an integral role in assessing and managing patients with a high risk of developing OSAS. **Aim***:* To **evaluate nurses' knowledge level related** OSAS **associated with stroke. Method: Design:** Descriptive Cross sectional research design was utilized**. Sample/Setting**: A convenient sample of nurses working in Al-Sadder teaching hospitals (STH), Iraq and Neurology Ward Mansoura University Hospitals (MUH), Egypt who met inclusion criteria was selected. **Tools:** The one tool were collected by using structure interview questioner two parts a validating questionnaire**;** a demographic data form, and nurses' Nurses' Knowledge Related to Obstructive Sleep Apnea Syndrome. **Results:** The majority the studied nurses at MUH had satisfactory level of knowledge related Obstructive Sleep Apnea Syndrome, whereas more than half of the studied nurses at STH (59.2%) had unsatisfactory level. **Conclusions:** A difference in the level of nursing knowledge related to Obstructive Sleep Apnea Syndrome patients between Iraq and Egypt. **Recommendations:** Providing continuous in-service education for nurse's knowledge related to nursing care with obstructive sleep apnea syndrome. Hospital libraries should also play an active role in providing materials that can help nurses to read related to obstructive sleep apnea syndrome.

Keywords: Nurses Knowledge, Obstructive Sleep Apnea Syndrome

2.Introduction

Obstructive sleep apnea (OSA) is a respiratory disorder during sleep based on repeated pauses in breathing. OSA is an important healthcare concern and one of the most common sleep disorders. The incidence varies significantly among published epidemiological studies with an overall published burden of 4–30%. Despite this high incidence, only 10% of OSA patients are properly diagnosed and treated. Common risk factors for OSA patients include obesity, regional fat distribution (central pattern of obesity), skin-fat fold thickness, male gender and neck circumference (>41 cm for females and >43 cm for males) **(Peracaula ., et al 2022).**

OSA is a disorder of repetitive oropharyngeal collapse during sleep. These events are caused by an imbalance between the force that sustains the airway open (activity of its musculature) and the force that attempts to close it (anatomical and physiological factors). This imbalance between muscle forces causes pharyngeal obstruction and generates total or partial closure of the respiratory airways named apnea or hypopnea, respectively **(Demerjian, et al 2022).**

Obstructive sleep apnea is the most prevalent type of sleep disordered breathing, affecting over 1 billion of the 7.3 billion persons in the globe between the ages of 30 and 69. (OSA). The prevalence of OSA is increasing and is a global problem. The greatest risk factor for OSA and the cause of the increase in prevalence is the rise in obesity on a global scale. 2–6 In this study, we look at approaches to tackling the global burden of OSA, disease burden, contributing variables, and obstacles **(Lyons, et al**, 2020**).**

Nurses can be quite important in the subject of sleep health, but it's possible that they don't fully comprehend the importance of sleep or how it relates to one's general health and well-being. Once in a professional context, this knowledge gap in practicing nurses could prevent them from promoting the value of sleep and identifying sleep disorders **(Gellerstedt, et al, 2019).**

The Study's Objective

Evaluate nurses' knowledge level related obstructive sleep apnea syndrome (OSAs).

3.Method

3.1Study Design: Descriptive Cross sectional research design was utilized.

3.2Setting:

Collecting data was down between two countries (Iraq – Egypt): **Iraq** in Al-Sadder Teaching Hospitals – Ministry of Health – Iraq and **Egypt** at Mansoura University's Specialized Medical Hospital. Egypt.

3.3Study Sample.

All nurses (106) working in previous mentioned setting, who has experience of at least one year, involved in giving stroke sufferers immediate treatment, and accepted to take part voluntarily.

3.4Data collection:

Tools: The study's data collection method included the following one tool: "A structured interview questionnaire". It was created and developed by the researcher to evaluate nurses' understanding of obstructive sleep apnea syndrome. After reviewing relevant recent national and international literature **(Srijithesh, 2011& Al-Mutairi 2022& Nash, 2021).**This tool consists of two main parts as the following:

Part 1: Demographic Characteristics of Staff Nurse's: this part was included personal data for participant nurses e.g. age, gender, marital status, educational level, and years of experiences.

Part 2: Nurses' knowledge related to Obstructive Sleep Apnea Syndrome OSAS, This part was used to assess Nurses' knowledge related obstructive sleep apnea syndrome, included 46 questions for example definition of obstructive sleep apnea syndrome, risk factors for obstructive sleep apnea syndrome, causes of obstructive sleep apnea syndrome, sign and symptom for obstructive sleep apnea syndrome, diagnosis, treatment and prevention for obstructive sleep apnea syndrome.

Scoring system: Each correct answer received (1) mark, while any incorrect or unidentified responses received one mark each (0). Following are the two groups that the total score was divided into:

≤ 75% unsatisfactory

≥ 75% satisfactory

3.5Validity:

The study instrument was validated to determine whether the tools covered the objective of the current study. The study tools were reviewed by five medical surgical nursing experts, 3 from the College of Nursing, Mansoura University Egypt and 2 from the College of Nursing, Maysan University, Iraq in terms of their relevance, comprehensiveness, clarity and applicability. Then, the necessary adjustments were made accordingly.

3.6Reliability:

Reliability was measured in order to assess both the conceptual consistency of the employed items and whether each question on the study instruments measures the same variable. The Cronbach's Alpha test and other methods were used to gauge the level of reliability. it was 0.85-0.92.

3.7A Pilot research:

An experimental study was done on 12 nurse (10%) of the study sample from two different sitting was conducted to test the feasibility, objectivity, clarification, as well as the usability and applicability of the study tools, as well as to recognize potential challenges in the application of the study, and to estimate the time required for data collection, accordingly, the required modification was made, so those sample were excluded from the actual study sample.

3.8Field work:

The framework of the study was carried out as the following:

- The Research Ethics Committee of the Faculty of Nursing at Mansoura University granted ethical approval.
- Official approval has been obtained from the Faculty of Nursing, Mansoura University.
- Official permission has been obtained from the Al-Sadder Teaching Hospital, Maysan, Iraq.
- The head of the specialist medical department granted official permission. Hospitals for the collection of data after sending an official letter from the faculty and explaining the aim and nature of the study.
- The researcher created and developed the tool after evaluating recent pertinent literature.
- Before data collection, the researcher translated the tool into simple Arabic; after checking the accuracy of the translation, the tool was translated back into English.
- After the necessary approval obtained, the researcher started to collect data.
- Staring data collection firstly in Al-Sadder Teaching Hospital, Iraq from October 2022 to end of December 2022.

- Verbal consent was obtained from the nurses who participated and following criteria.
- All participants were made aware of the study's voluntary nature and their freedom to discontinue participation at any time.
- All participants received guarantees about the confidentiality of the information gathered and the privacy of the study sample.
- The researchers introduced themselves to the nurses and explained the nature, goals, and advantages of the study during the initial interview.
- Data collection extends over a period of four months, starting from the beginning of October 2022 until the end of January 2023.
- Interviewing was done individually for each nurse in the above-mentioned setting.
- A comfortable, private place in the waiting area was chosen for the interview.
- The researcher meets nurses one time to collection data using tool 1 by all parts.

3.9 Ethical consideration

The ethical research considerations in this study were as follows:

- Before data collection, the researcher informed nurses of the purpose and nature of the study.
- The study's participating nurses received privacy and confidentiality guarantees from the researcher. The questionnaire's answers and ratings were kept a secret from the participants and their hospitals.
- Nurses were free to leave the study at any moment and without consequence.
- Before the trial got underway, the nurses provided informed consent. The survey's completion constituted consent to take part.

3.10 Statistical Analysis of data:

With the use of the SPSS programmer, the gathered data were arranged, tabulated, and statistically examined (Statistical Package for the Social Sciences, version 23, SPSS Inc. Chicago, IL, USA). The frequency and percentage values for the categorical variables were used. Chi-square test was used to test the differences between two categorical variables in two different settings. Chi-square test also was performed in order to investigate the relationship between two categorical variables. The connection between two continuous variables was evaluated using the Pearson correlation coefficient test. It was regarded as statistically significant at p-value ≤ 0.05 &0.01.

4. Results

Table (1) shows that the mean age of the studied nurses at Main Mansoura University Hospital (MMUH) was 26.05 years, and more than half of them was single male (52.6&50.9%) respectively, technical degree of nursing represent more than two third (64.9%) with more than half of the studied sample have less than 5 years of experience in nursing field (52.6%), and as neurological nurse about two third (66.7%), and most of them did not obtained neurological training courses (61.4%). Regarding demographic characteristics of the studied nurses at Al-Sadder teaching hospital (STH), the mean age of the studied nurses was 30.53 years, and more than half of them was married male (65.3%& 61.2%), with technical degree of nursing (55.1%), less more than 10 years of experience in nursing field (65.4 %), and less than 5 years of experience at neurological department (75.5%), also the majority did not obtained neurological training courses (93.9%). There were statistically significant differences between the nurses of the studied hospital regarding their age, educational levels, experience in nursing, and obtaining neurological training courses.

Table (2) and figure (1) illustrates total levels of nurses' knowledge related to obstructive sleep apnea syndrome at the studied hospitals. It is evidenced that the majority the studied nurses at MMUH (78.9%) had a satisfactory level of knowledge related to OSA, compared to only (44.9%) of nurses at STH with a highly statistically significant difference between the nurses at both hospitals (p=0.000

Table (1): Demographic characteristics of the nurses at the studied hospitals (N: 106)

Characteristics	MMUH (n=57)		STH (n=49)		χ2	P
	No	%	No	%		
Age (years)						
▪ 20 - 30 years	52	91.2	30	61.2	14.47	0.001**
▪ 31 - 40 years	3	5.3	16	32.7		
▪ > 40 years	2	3.5	3	6.1		
Mean (SD)	26.05 (4.82)		30.53 (7.53)		T= 3.63	p=0.000**
Gender						
▪ Male	29	50.9	30	61.2	1.14	0.28
▪ Female	28	49.1	19	38.8		
Marital Status						
▪ Single	30	52.6	17	34.7	3.43	0.06
▪ Married	27	47.4	32	65.3		
Educational level						
▪ Nursing school	0	0.0	12	24.5	16.38	0.000**
▪ Nursing institute	37	64.9	27	55.1		
▪ Bachelor of nursing	20	35.1	12	20.4		
Years of experience in nursing						
▪ < 5	30	52.6	16	32.7	6.27	0.04*
▪ 5-10	18	31.6	16	32.7		
▪ >10	9	15.8	17	65.4		
Neurological training courses						
▪ No	35	61.4	46	93.9	15.41	0.000**
▪ Yes	22	38.6	3	6.1		
Years of experience as neurological nurse						
▪ 1-<5	38	66.7	37	75.5	1.01	0.60
▪ 5-10	10	17.5	6	12.2		
▪ >10	9	15.8	6	12.2		

* Statistically significant ≤ 0.05   **highly statistically significant p ≤ 0.01

* MMUH: Main Mansoura university hospital/ STH: Al-Sadder teaching hospital

Table (2) Levels of nurses' knowledge related to obstructive sleep apnea syndrome at the studied hospitals

Nurses' knowledge related to OSAS	Levels of nurses' knowledge related obstructive sleep apnea syndrome	MMUH (n=57)		STH (n=49)		χ2	P
		No	%	No	%		
1. Definitions of OSAS	Unsatisfactory	43	75.4	45	91.8	5.02	0.03*
	Satisfactory	14	24.6	4	8.2		
2. Risk factors for OSAS	Unsatisfactory	49	86.0	43	87.8	0.07	0.78
	Satisfactory	8	14.0	6	12.2		
3. Causes of OSAS	Unsatisfactory	13	22.8	23	46.9	6.84	0.009**
	Satisfactory	44	77.2	26	53.1		
4. Sign and symptom of OSAS	Unsatisfactory	9	15.8	22	44.9	10.78	0.001**
	Satisfactory	48	84.2	27	55.1		
5. Diagnosis of stroke of OSAS	Unsatisfactory	7	12.3	18	36.7	8.74	0.003**
	Satisfactory	50	87.7	31	63.3		
6. Treatment and prevention of OSAS	Unsatisfactory	11	19.3	17	34.7	3.21	0.07
	Satisfactory	46	80.7	32	65.3		
Total nurses' knowledge related to OSAS	Unsatisfactory	12	21.1	27	55.1	13.13	0.000**
	Satisfactory	45	78.9	22	44.9		

* Statistically significant ≤ 0.05   /**highly statistically significant p ≤ 0.01

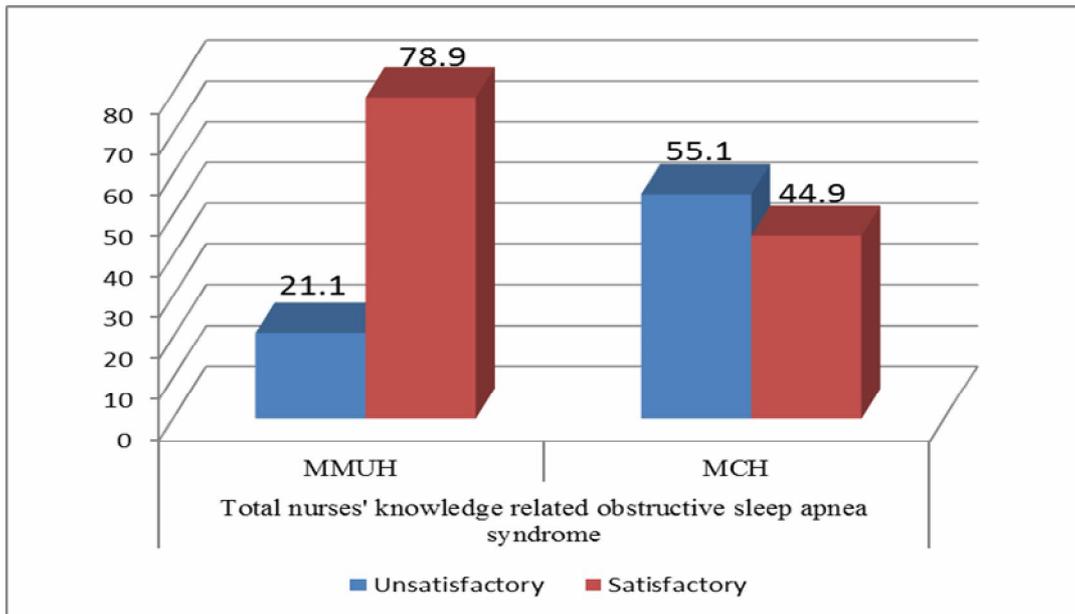* MMUH: Main Mansoura university hospital/ STH: Al-Sadder teaching hospital

Figure (1) Levels of nurses' knowledge related obstructive sleep apnea syndrome at the studied

MMUH: Main Mansoura university hospital/   STH: Al-Sadder teaching hospital

5. Discussion

Hence, four primary parts were covered in the discussion of the results: The first part is concerned with the demographic characteristics of nurses in the hospitals investigated. The second part nurses' knowledge related to obstructive sleep apnea syndrome at the studied hospitals.

Part I: The demographic characteristics of the nurses at the studied hospitals

Regarding the demographic characteristics studied nurses in the present study, 106 nurses were included; 57 at the Main Mansoura University Hospital (MMUH), Egypt and 49 at the Al-Sadder teaching hospital (STH) Iraq. Mean age of the studied nurses in MMUH and STH represent (26.05&30.53) respectively. Half of them were males in the studied nurses. More than two third of them were technical nursing education with less than five years' experience. Regarding the training course, it was discovered that about two third the examined nurses lacked a formal cerebral stroke protocol or training programmer. This result was not consistent with **Ali (2010) and Ibrahim (2012).** Who brought out the fact that females made up the majority of the study nurses. Moreover, in the same line **Victor et al,(2012).** Who reported in his study about knowledge and behavior of nurses toward caring of elderly stroke patients that about two thirds of the study nurses were females.

Regarding the nurses who were the subject of the study's age, was in agreement with **Ibrahim**

(2012). Who found that marginally less than three quarters of nurses were between the ages of 20-30 years old. In addition **Victor et al,(2012)** two-thirds of nurses, according to the report were between 20-30 years old.

Regarding to education level, the results of the current study was congruent with **Ali (2010) and El-Ata and Assal (2022).** Stated that technical nurses made up the majority of the nursing staff. However, this result was not on the same line with **Harper (2007).** Who claimed that larger than two thirds of nurses in his research were specialist nurses.

In relation to training courses, The findings of this study are in line with those of **(Yeganeh et al., 2019),** who discovered that the majority of the study nurses didn't take any educational courses related to CVS, and they support **(Zidan, et al., 2017),** who looked at the impact of a designed acute stroke nursing management protocol on nurses' knowledge. Similar to that **Sarah R,et al.,(2015),** found that small percentage (8%) of nurses received training ischemic stroke patient care training programmers. This outcome was consistent with **Harper's (2007).** Finding that just 15% of emergency nurses reported having taken part in continuing education on the use of evidence-based ischemic stroke care.

Part II: Comparing the nurses' knowledge related to obstructive sleep apnea syndrome at the studied hospitals.

The present research demonstrates the total levels related to nurses' knowledge to obstructive sleep apnea syndrome (OSAS) at the studied hospitals. It is obvious that is more than three quarter of the studied nurses at Main Mansoura University (MMUH) had a satisfactory level of knowledge related to OSA, compared to less more than half the nurses at Al-Sadder teaching hospital (STH), with a highly statistically significant difference between the nurses at both hospitals. The research study reveals that there are differences with strong statistical significance in the total knowledge level between nurses in study settings at p ≤ 0.01. Most of the participating the nursing staff at Mansoura University hospitals have satisfactory knowledge level compared to only one third of the nurses at Al-Sadder teaching hospital. This finding shows that there is a knowledge gap on OSA and that the necessary curriculum training courses are needed. In Iraq setting. Our study outlined that the majority of the nurses who were studied in Mansoura had a satisfactory knowledge level. From the viewpoint of the researcher, this difference in the knowledge level may be due the difference of the nursing curriculum in two countries, and / or the regular training. This may suggest investigating the curriculum content in the two settings. The current study clarifies a significant difference in knowledge regarding OSA with statistically significant differences in definitions of OSA, risk factors, causes, symptoms, diagnosis and prevention & treatment at p ≤ 0.01.

This result aligns with that of the findings of a study by **Goyal A, (2018)** who examined the skills and attitude of senior medical students in India. A cross-sectional study of 232 students shown that the degree of knowledge regarding OSAS was very poor. There is need for training courses and workshops to improve this level.

Our research outlines that the greatest percentage of the correct answers were by Mansoura nursing staff. Most of them have a satisfactory knowledge level of the all knowledge subscale items of OSA with statistically significant differences in definitions of OSA, risk factors, causes, symptoms, diagnosis and prevention & treatment. From the viewpoint of the researcher, this difference in knowledge level may be due the difference of nursing curriculum in two countries, and / or training courses. This may suggest investigating the curriculum content in two settings. While in Iraq, the lack of knowledge by nurses may be due to that their Working conditions may result in a lack of knowledge needed to promote the value of sleep and identify sleep disorders.

Our results from Iraq are similar to study by**, Saad (2021)** studied nurses' knowledge regarding nursing care of obstructive sleep apnea in Sudan and found that the majority of the study participant with poor knowledge regarding the prevention, definition of polysomnography and treatment of obstructive sleep apnea. In addition, **Embarak, Zake, Abd-El-Azem, and Sileem, (2020)** found that the OSA level of knowledge and awareness in Sharkia Governorate health care workers was far from the optimal level. Moreover, **Sharma, and Srijithesh (2013)** studied the sleep disorder awareness of obstructive sleep apnea was poor among health professionals in South India from undergraduate students to specialist doctors and nursing staff.

Additionally, Among medical students at a prestigious Nigerian university, an OSA survey research found only one third of the studied nurses were with adequate knowledge score as less than half of questions were answered correctly **(Ozoh etal.,2020)**. These results were in consistent with the results of the France population as their knowledge was fairly well aware of symptoms suggestive of OSA. Most of them knew the main symptoms **(Budhiraja, Budhiraja & Quan, 2020; Dutt, Janmeja, Mohapatra & Singh ,2019)**. These are the study's findings. are in consistent with research at Qassim University, Saudi Arabia to assess the level of knowledge of medical students toward OSAS **(Almutairi et al.,2022)**.

Furthermore, the knowledge of OSA had been evaluated in different settings. The study conducted by **Goyal, Aswin and Pakhare, (2019)** is in consistent with the current study. Goyal examined the knowledge of senior medical students in India toward OSA in adults. A cross-sectional study of 232 students demonstrated that the measure of knowledge toward OSA by the students was very poor, urging training courses and workshops to improve this level. **Goyal et al(2019).**Additionally expressed that the degree of knowledge OSA was below average. Similarly, the present study reveals the same outcome among Saudi students, their level of knowledge was unsatisfactory **(Almohaya et al., 2018)**.

The overall findings indicate that nursing education and clinical experiences should be enhanced to aid identifying and managing the OSA patients. To increase nurses' knowledge of OSA, it is suggested including sleep disorder, in particular

OSA, in the new nursing academic curriculum. Nurses should also be exposed to continuous training courses and workshops on how to recognize clinical characteristics, risk factor evaluation, genetic predisposition, and management of OSA as well as referral to specialists.

6.Conclusion

From the current study it can be concluded that nurses at Mansoura University Hospital had satisfactory knowledge about obstructive sleep apnea syndrome associated with stroke. On the other hand, nurses in al-Sadder Teaching Hospital, Iraq were had unsatisfactory knowledge level about obstructive sleep apnea syndrome associated with stroke.

7.Recommendations

1. Providing continuous in-service education for nurse's knowledge related to nursing care with obstructive sleep apnea syndrome.

2. Nurses should be encouraged to attend national and international conferences, workshops, and training courses related to nursing care with obstructive sleep apnea syndrome.

3. Replicate the current study on a large probability sample of different Geographical regions in the two countries of the study to raise the efficiency of nurses' performance in caring for them obstructive sleep apnea syndrome patients. To achieve more general results.

8.References

Ali. E, (2010): Establishing Standards of Nursing Care for Stroke Patients.

Almohaya A, Qrmli A, Almagal N, Alamri K, Bahammam S& Al-Enizi M. (2018). Sleep medicine education and knowledge among medical students in selected Saudi Medical Schools. BMC Med Educ. 13(1):133. https://doi. org/10.1186/1472-6920-13-133.

Almutairi,A Almutairi,H, Althwiny,F Nasser, A, Juidan, R & Alhujaili,H. (2022). Evaluation of knowledge level related to obstructive sleep apnea syndrome in medical students at Qassim University . International Journal of Medicine in Developing Countries. 5(1):017–022.https://doi.org/10.24911/IJMDC.51-1602111032.

Budhiraja R, Budhiraja P& Quan SF.(2020). Sleep-disordered breathing, and cardiovascular disorders. Respir Care. 55(10):1322. 32-2.

Demerjian, G. G., Goel, P., Patel, M., Sims, A., Demerjian, R. M., & Barkhordarian, A. (2022). Dental Comorbidities and Risk Factors of Sleep-Disordered Breathing. In *Dental Sleep Medicine: A Clinical Guide* (pp. 163-187). Cham: Springer International Publishing.

Dutt N, Janmeja AK, Mohapatra PR& Singh AK.(2019). Quality of life impairment in patients of obstructive sleep apnea and its relation with the severity of disease. Lung India. 30(4):289–94.

Ebrahim. E (2019). Assessment of Nurses Performance Caring for Patients with Cerebrovascular Stroke on Intensive Care Units.

El-Ata, A., & Assal, R. (2022). Effect of an educational program on nurses' knowledge regarding care of patients with cerebral stroke. Port Said Scientific Journal of Nursing, 9(3), 326-346.

Embarak, S., Zake, L. G., Abd-El-Azem, W., & Sileem, A. E. (2020). Awareness of obstructive sleep apnea among critical care physicians in Sharkia Governorate, Egypt. The Egyptian Journal of Bronchology, 14, 1-9.

Gellerstedt, L., Medin, J., Kumlin, M., & Karlsson, M. R. (2019). Sleep as a topic in nursing education programs? A mixed method study of syllabuses and nursing students' perceptions. *Nurse education today*, *79*, 168-174.

Goyal A, Aswin P& Pakhare AP.(2019). Poor knowledge and attitude regarding obstructive sleep apnea (OSA) among medical students in India: a call for MBBS curriculum change. Sleep Vigil. 2019;2(1):45–50. https://doi.org/10.1007/ s41782-017-0028-3.

Harper, J.P. (2019) Emergency Nurses Knowledge of Evidence-Based Ischemic Stroke Care: A Pilot Study. Journal of Emergency Nursing, 33, 202-207. https://doi.org/10.1016/j.jen.2006.11.002.

Ozoh OB, Ojo OO, Iwuala SO, Akinkugbe AO, Desalu OO & Okubadejo NU. (2020). Is the knowledge and attitude of physicians in Nigeria adequate for the diagnosis and management of obstructive sleep apnea? Sleep Breath 21:521 7.

Peracaula, M., Torres, D., Poyatos, P., Luque, N., Rojas, E., Obrador, A., ... & Tura-Ceide, O. (2022). Endothelial Dysfunction and Cardiovascular Risk in Obstructive Sleep Apnea: A Review Article. *Life, 12*(4), 537.

Saad, A. A. A. (2021). Nurses Knowledge regarding Nursing Care of Obstructive Sleep Apnea at Royal Care International Hospital, Khartoum State, Sudan (2020) (Doctoral dissertation, University of Gezira).

Sharma, S., & Srijithesh, P. R. (2013). Sleeping over a sleep disorder-Awareness of obstructive sleep apnoea as a modifiable risk factor for hypertension and stroke: A survey among health care professionals and medical students. Annals of Indian Academy of Neurology, 16(2), 151.

Traynelis L. with Cerebrovascular Stroke on Intensive Care Units.

Victor, Rose E , Adika J& Franco L.(2019). knowledge and behavior of nurses toward care of elderly stroke patients, international journal of tropical medicine 7 (2) 74 79

Yeganeh, M. R., Bagheri, Z. F., Mohammadi, T. K., Roshan, Z. A., & Pouralizadeh, M. (2019). The Knowledge of Nurses about Evidence-based Guideline in Patients with Acute Ischemic Stroke.

Zidan, S., YOUSSEF, W., ABD-ALLAH, FOAD., & EL-FEKY, H. A. (2017). Impact of a Designed Acute Stroke Nursing Management Protocol on Nurse's Knowledge and Practices. Impact Journals, 5(10), 23-40