

Knowledge of Sudden Infant Death Syndrome and Recommended Sleep Practices for Infants Amongst Doctors and Nurses: A Multicentre Study in Sokoto, Sokoto State, Nigeria

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ABSTRACT

Background: The American Academy of Paediatrics (AAP) started the Back to sleep campaign since 1992 to reduce the incidence of Sudden infant death syndrome (SIDs) and expanded its recommendations in 2011 to include provisions to ensure safe sleep environment for infants. Health workers, especially doctors and nurses are to ensure correct information is given to parents. However, knowledge gaps still exist among health workers even in developed countries.

Objective: To assess knowledge on SIDs and recommended sleep practices for infants among doctors and nurses in two major hospitals, Usmanu Danfodiyo University Teaching Hospital (UDUTH) and Specialist Hospital Sokoto (SHS) in Sokoto town in order to bridge knowledge gap among healthcare providers.

Methods: This was a cross-sectional multicentre study of 154 health workers carried out between 1st August, 2016 and 31st October, 2016. Doctors from the Paediatrics and Obstetrics departments, nurses in all the Paediatric and Obstetrics units of both hospitals were consecutively recruited. A structured questionnaire on knowledge of Sudden infant death syndrome and sleep recommendations was administered. Data was analysed with SPSS version 22

Results: Out of 154 health workers that participated, only 25 (16.2%) were aware of the AAP recommendations. Seventy-six (49.4%) selected side position as the recommended position while 62 (40.3%) selected supine position. More nurses than doctors (57.6% vs 32.3%) gave advice to mothers on sleep position even though the doctors were more aware of the AAP recommendations and correct infant sleep position. Although, the paediatric nurses had more knowledge of the recommended supine sleep position, more obstetric nurses gave advice to mothers about sleep position ($p = 0.005$). Also, paediatricians had more knowledge of the supine sleep position ($p = 0.03$) compared to obstetricians.

Conclusion: More doctors and nurses in this study selected the side sleeping position as the recommended one. Also, frequency of giving advice to mothers on sleep position was also low.

Key words: Knowledge, SIDs, infant, sleep position, doctors, nurses, Sokoto.

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Introduction

Sudden infant death syndrome (SID) is defined as the sudden unexpected and unexplained death of a baby in the first year of a baby in the first year of life that occurs during sleep of which no cause can be elucidated after performing an autopsy, examining the death scene and reviewing the dead scene and reviewing the clinical history.¹ It is a leading cause of infant mortality in developed countries which had been recognized since 1974². The actual cause is not



known but there are recognized risk factors which when reduced by simple interventions have led to a significant drop in incidence of SIDs. The most common hypotheses which is the triple risk theory involves the critical development period (infancy), a vulnerable infant (with weakened arousal reflexes) who is exposed to external stressors like side or prone sleeping position and bed sharing.³

In 1992, the American Academy of Paediatrics (AAP) in collaboration with the National Institute of Child Health and Human Development (NICHD) first recommended placing infants on their back while sleeping. With the Back to Sleep Campaign, there has been progressively decline in deaths attributable to SIDs from 7,000 infants/year to 2,234 infants/year in 2001 and 1600 infants/year in 2015.^{4,5} Other risk factors in the sleeping environment have been identified leading to expanded recommendations in 2011 by the AAP.³ Some of these recommendations target health professionals especially paediatricians and nurses who are to partake in National campaigns which focus on safe sleep practices. They are also enjoined to provide parents with SIDs education even before birth and engage in continuous research to eliminate SIDs.³

In many developing countries including Nigeria, SIDs is not a recognised problem for obvious reasons.⁶ Other identifiable causes of death such as diarrhoea, respiratory infection, and malnutrition predominate in infancy. Therefore, efforts are more geared to tackle these largely preventable deaths. However, the unrecognized burden of SIDs should not be overlooked since many of the predisposing factors are also present in this environment.⁷ Health workers should be well enlightened as they engage in educating parents on these simple interventions known to reduce SIDs. Studies among health workers in the United States indicate that over the years, knowledge on the preferred supine sleep position has been increasing.⁸ The proportion of doctors who were aware of the recommended position in the United States,⁹ Spain¹⁰ and Turkey¹¹ was 78%, 58% and 17% respectively. In Egypt, 31.9% of doctors were aware of the supine position while 31.3% of nurses identified a non-prone position as the recommended one.¹² In Nigeria, no study amongst health workers has been reported. However, studies carried out in different areas of Nigeria among mothers show low level of

knowledge of the recommended sleep position and poor sleep practices which reflects low input from the health workers.¹³⁻¹⁵ This study, therefore, assessed the knowledge of sudden infant death syndrome, recommended sleep position and environment for infants amongst doctors and nurses in 2 major hospitals in Sokoto metropolis, Nigeria with a view to address the knowledge gaps amongst them.

Methodology

Study area

The study was carried out in Sokoto town, the capital of Sokoto State. It lies between latitude 13°3'5"N and longitude 5°15'53"E of the Equator.¹⁶ Based on 2006 census population figure of 427,760, its projected population in 2016 was 574,873 at an annual growth rate of 3%.¹⁷ Inhabitants are mainly ethnic Hausa and Fulani but many other ethnic groups are also resident in the State. A cross section of all the socioeconomic classes reside in the town. Agriculture, petty trading and craftsmanship are the main occupations of the people in the state.

The 2 tertiary health centres in the town are Usmanu Danfodiyo University Teaching Hospital and the Specialist Hospital, Sokoto. Both hospitals receive patients from within Sokoto State and the neighbouring Zamfara and Kebbi States. The study was carried out in the Departments of Paediatrics and Obstetrics & Gynaecology of both hospitals. The following units were used: Emergency Paediatric Unit (EPU), Paediatric Medical Ward (PMW), Special Care Baby Unit (SCBU), Ante-natal clinics (ANC), Pre-natal wards, Labour room and Post-natal wards.

Study design

This was a cross-sectional, hospital based, multicenter study from 1st August 2016 to 31st October 2016.

Study population

Health workers (doctors and nurses) from the respective units constituted the study population. These health workers have regular contact with pregnant women and mothers of infants during their routine work.



Sample size

The sample sizes for doctors and nurses was calculated separately. In a previous study in the U.S, 94% of doctors said they were aware of recommendations about SIDS to parents.¹⁰ In another study amongst advance practice nurses in the U.S, 92% of them were aware of the recommended infant sleep position.¹⁸ This figures were used as prevalence in a standard formula as follows.¹⁹

$$n = \frac{z^2 pq}{d^2}$$

Where n = minimum sample size for doctors/nurses

z = Standard normal deviate set at 1.96

p = Prevalence in both studies above^{10, 18}

q = (1 - p) = (1 - 0.94) = 0.06

d = degree of accuracy desired = 0.05

For doctors, $n = (1.96 \times 1.96 \times 0.94 \times 0.06 / 0.0025)$
= 86.

For nurses, $n = (1.96 \times 1.96 \times 0.92 \times 0.08 / 0.0025)$
= 113.

These figures were corrected for the population of doctors and nurses in the Paediatrics and Obstetrics Department of both hospitals which was 151 doctors and 319 nurses respectively.

The formula is:

$$n = \frac{n^0}{1 + \frac{(n^0 - 1)}{N}}$$

Where n⁰ = initial sample size calculated

n = sample size with finite correction for population size

N = Population size

For doctors, $n = 86 / 1 + (86 - 1 / 151) = 55$; to correct for non-response; $55 / 0.9 = 62$ doctors.

For nurses, $n = 113 / 1 + (113 - 1 / 319) = 86$; to correct for non-response; $83.63 / 0.9 = 92$ nurses.

This gave a total of 154 health workers.

The above number was sampled from both hospitals. Systematic random sampling was done from the staff lists, after calculation of the sampling interval till the total sample size of 154 was attained. Proportionate allocation for gender

and the type of health worker was considered during the sampling thereby controlling for these variables.

Inclusion criteria: All doctors and nurses working in the respective units of the paediatrics and obstetrics departments.

Exclusion criteria: Those who collected data during the study or was involved in the study protocol.

Instrument of data collection: A self-administered structured questionnaire was used to collect the data. This was based on the 2011 recommendations by the AAP.³ The questionnaire was given to them at their work place and collected immediately on completion by one of the researchers.

Data analysis

Responses were entered into SPSS version 22. Data were mainly categorical variables and expressed as proportions. Chi-square or where necessary, Fisher's Exact test, was used to test for statistical significance. A p-value of <0.05 was considered statistically significant.

Ethical approval

Ethical approval for the study was obtained from the Ethics Committee of Usmanu Danfodiyo University Teaching Hospital, Sokoto and that of Specialist Hospital, Sokoto.

Results

Socio-demographic and work place characteristics of the study participants

Table 1 shows the characteristics of the respondents according to their demographics and place of work. Most of the nurses were female (76.1%), and more of the doctors were male (66.1%). Those aged 30 to 34 years accounted for the highest proportion. Their distribution according to the hospital, speciality and rank is also shown.

Table 1: Socio-demographic and work parameters of the health workers (n = 154)

Variable	Doctors n (%)	Nurses n (%)
Age		
20 - 24	0 (0.0)	8 (8.7)
25 - 29	10 (16.1)	15 (16.3)
30 - 34	26 (41.9)	27 (29.3)
35 - 39	12 (19.4)	21 (22.8)
40 - 44	13 (21.0)	10 (10.9)
45 - 49	0 (0.0)	7 (7.6)
50 - 54	1 (1.6)	4 (4.3)
Gender		
Male	41 (66.1)	22 (23.9)
Female	21 (33.9)	70 (76.1)
Hospital		
UDUTH	41 (66.1)	57 (62.0)
SHS	21 (33.9)	35 (38.0)
Department		
Paediatrics	36 (58.1)	56 (60.9)
Obstetrics	26 (41.9)	36 (39.1)
Cadre of Doctors		
House officer	11 (17.7)	0 (0.0)
Medical officer	16 (25.8)	0 (0.0)
Registrar	10 (16.1)	0 (0.0)
Senior registrar	20 (32.3)	0 (0.0)
Consultant	5 (8.1)	0 (0.0)
Cadre of Nurses*		
NO 2	0 (0.0)	14 (15.2)
NO 1	0 (0.0)	23 (25.0)
SNO	0 (0.0)	21 (22.8)
PNO	0 (0.0)	15 (16.3)
ACNO	0 (0.0)	8 (8.7)
CNO	0 (0.0)	11 (12.0)

NO = Nursing officer; SNO = Senior Nursing Officer, PNO = Principal Nursing Officer, ACNO = Assistant Chief Nursing Officer, CNO = Chief Nursing Officer

Knowledge about SIDS, AAP sleep recommendations and routine advice to mothers

Of the 154 health workers, only 25 (16.2%) were aware of the AAP recommendations even though 119 (77.3%) knew about SIDs. Figure 1 shows that a high proportion of both the nurses and doctors

were aware of SIDs but fewer of them were aware of the AAP recommendations on infant sleep practices. It is also seen that more nurses gave advice to mothers on infant sleep position than doctors.



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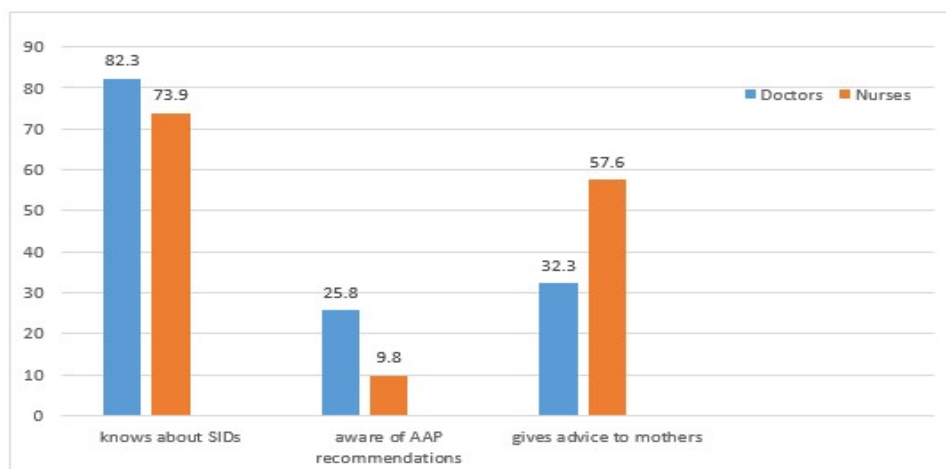


Figure 1: Showing the health workers knowledge and advice given to mothers

Knowledge about infant position during sleep and when awake

Of the total, 76 (49.4%) selected side position as the recommended position while 62 (40.3%) selected supine position. Figure 2 shows that only 41.9% of the doctors and 39.1% of the nurses knew the recommended position for sleeping infants was supine.

About half of the doctors and nurses selected the side position as the recommended one. Fewer of them had knowledge of the recommended position while awake as only 1.6% of the doctors and 6.5% of the nurses were aware of this recommendation.

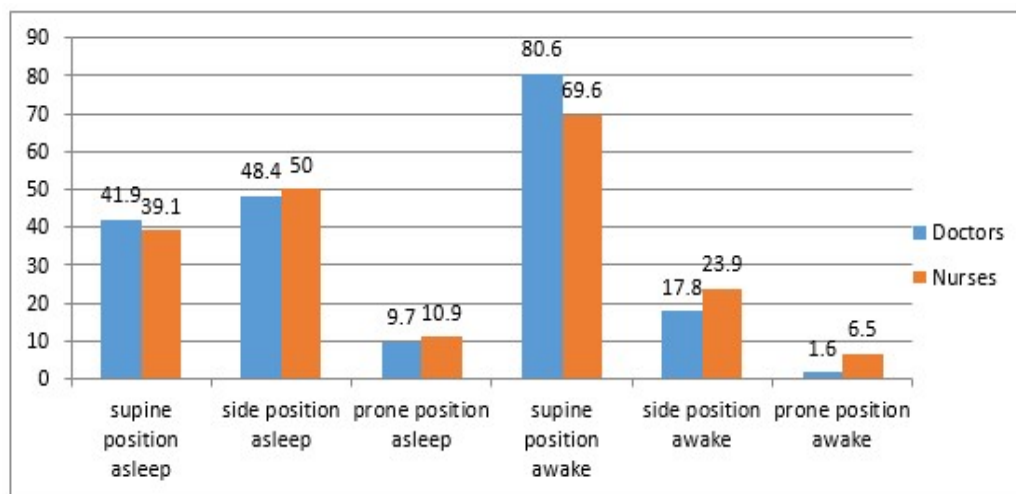


Figure 2: Showing the health workers knowledge of sleep position

Knowledge about infant sleep area, sleep position and practice according to speciality

In Table 2, the knowledge of the nurses in the paediatrics and obstetric speciality were compared. Although, the paediatric nurses had better knowledge of the recommended supine sleep position and type of mattress preferred, it is

seen that the obstetric nurses gave more advice to mothers about sleep position which was significant ($p=0.005$).

Among the doctors, paediatricians had more knowledge of the supine sleep position ($p = 0.03$), risk of bed sharing (< 0.001) and recommended type of mattress (< 0.001).



Table 2: Knowledge about SIDs, sleep position and practice amongst the nurses

	Paediatric Nurses (n=58) n (%)	Obstetric Nurses (n=34) n (%)	X ²	Df	p-value
Knows about AAP recommendations	7 (12.1)	2 (5.1)			0.47*
Information to mothers	27 (46.6)	26 (76.5)	7.9	2	0.005
Knows firm mattress is preferred	31 (53.4)	7 (20.6)	13.5	2	0.004
Knows bed sharing is risky	24 (41.4)	15 (44.1)	5.6	2	0.06
Sleep position	25 (43.1)	11 (32.4)	1.46	2	0.48

* =Fishers exact test

Table 3: Knowledge about SIDs, sleep position and practice amongst the doctors

	Paediatricians (n=36) n (%)	Obstetricians (n=26) n (%)	X ²	Df	p-value
Knows about AAP recommendations	11 (30.6)	5 (19.2)	1.01	1	0.32
Information to mothers	12 (33.3)	8 (30.8)	0.45	1	0.83
Knows firm mattress is preferred	26 (72.2)	8 (30.8)	36.8	2	0.00
Knows bed sharing is risky	28 (77.8)	9 (34.6)	18.7	2	0.00
Supine sleep position	20 (55.6)	6 (23.1)	6.9	2	0.03

Discussion

This study audited the healthcare professionals' knowledge and practice as it regards safe infant sleep recommendations. This is necessary since healthcare professionals should use their knowledge to guide practice of safe sleep recommendations, as it has been proven that what they recommend to parents has a great influence on parents' behaviour at home.⁹ The main findings of this study suggested that the general knowledge of the health care professionals was low.

In this study, 82.3% and 73.9% of doctors and nurses respectively knew about SIDs. This may be because other causes of death in infants like respiratory infections, malaria and diarrhoea predominate in this environment so knowledge of SIDs is not a priority in their daily work.²⁰ This figure is similar to that reported in Egypt where 79.8% of physicians and 76.8% of nurses were aware of SIDs.¹² In Croatia, it was reported that research on SIDs was very low among physicians which reflects their lack of awareness about the condition.²¹

The knowledge of the AAP recommendations was also low as only 9.8% of the nurses and

25.8% of the doctors said they had detailed knowledge of the recommendations. This is low compared to 70.4% of nurses in a study by Kacho²² and 98% of doctors in a study by Hudak,²³ both in the United States. Among the nurses in this study, only 5.1% and 12.1% of the obstetric nurses and the paediatric nurses respectively said they were aware of the AAP recommendations, compared to Kacho's²³ study in the U.S where 100% of women's health nurses and 88% of paediatric nurses were aware of the recommendations. This reveals a wide gap in knowledge in this environment compared to others where widespread campaigns to publicise the infant sleep recommendations are the norm.

The recommendations by the AAP and NICHD were made primarily for the American populace in response to evidence that certain modifiable behaviours place an infant at risk for sudden death.²⁴ However, they have been widely adapted worldwide and have been proven to reduce the incidence of SIDs and other sleep related deaths significantly.²⁴ Therefore, the need for health workers to have this knowledge cannot be under-rated.



More nurses than doctors (57.6% vs 32.3%) were observed to give information routinely to mothers on sleep position in this study. This is slightly higher than findings by Essa in Egypt where 45.5% of nurses and 27.7% of doctors were reported to frequently discussed this topic with mothers.¹² In a previous study on mothers' knowledge of sleep position in the present study area¹⁵ and also elsewhere in the country,¹⁴ it was found that more mothers got their information from older relatives and nurses before doctors. This is probably because nurses give health talks to expectant mothers on their well-being and that of the unborn baby during ante-natal care. This was recognised by Luca⁸ in a 20 year review on health professionals advice to mothers where it was surmised that mothers with normal pregnancies and deliveries may never get to see a specialist doctor. However, other health workers such as nurses, community health officers and health visitors may be in the forefront of providing such knowledge. Also, Boccuzzo²⁵ in a study among Italian healthcare professionals recognized that since after birth parents seek care for their child in other places such as vaccination centres, hospitals, and medical clinics rather than in birth centres, there is need for information to be specifically provided at locations where infants are seen.

The knowledge of the recommended sleeping position amongst the health workers in this study at 40.3% was higher than 17% of health professionals (doctors and nurses) who selected supine position in a study by Yikilkan¹¹ in Turkey. Knowledge amongst the doctors in this study at 41.9% was also lower than 58%, 69.7% and 78% of doctors (paediatricians, obstetricians and family physicians) who were aware of the right position in studies from Spain and the United States respectively.^{9,10,26} Likewise, only 39.1% of the nurses in this study were aware of the recommended sleep position compared to 92% of advanced practice nurses in a study done in the United States by Nguyen.¹⁸ This may not be surprising as the Back to Sleep campaign has been widespread in the United States since 1994 because SIDS has been identified as a major cause of infant mortality there.

Frequency of awareness of risk of bed sharing among the doctors was lower in this study at 59.7% compared to 75% in the study by Yikilkan.¹¹ Also 42.4% of the nurses in this study were aware of the risk of bed sharing compared

to the study by Nguyen in the US,¹⁸ where 61% of advanced practice nurses were aware of the risk. Bed sharing is a recognised risk factor for SIDS and studies in this environment reveal a high rate of bed sharing because of financial implications and being closer to the baby. However, notwithstanding health workers should be able to provide parents with all necessary information to parents for them to make an informed choice. The low level of knowledge of the recommended sleep position and risk factors for SIDS amongst this cross-section of health workers in Sokoto may have far-reaching consequences on sleep practices of mothers for their infants. It was therefore not surprising that a study on the knowledge of risk factors for SIDS and sleep position amongst mothers in Sokoto showed low level of knowledge and poor sleep practices amongst them.^[15] This was also demonstrated in 2 other studies from Southern Nigeria by Ibeziako and Okpere.^{13,14}

In conclusion, findings from this study reveals gaps in knowledge of doctors and nurses in these 2 major hospitals in Sokoto when compared to other studies. The burden of SIDS may be under-recognized in developing countries for now but efforts to do the needful and educate health workers and the populace on the recommended sleep practices should not wait till it becomes a recognized burden.⁷ Therefore, more enlightenment of health workers during their training and practice, widespread use of media campaigns to educate the populace will go a long way to recognizing and preventing the problem. Also, increased recognition, diagnosis and proper documentation of sudden infant deaths will help in ascertaining the burden of the problem.

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