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Assessment of Nurses' Knowledge Regarding Preventive Guidelines for Sudden Infant Death Syndrome

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ABSTRACT

Background: Sudden infant death syndrome constitutes one of the most prevalent reasons for mortality within the first year of life, although there are still challenges to prevention, and the underlying mechanisms causing sudden death are not known. Although SIDS has been discovered worldwide since 1960, it is still poorly understood in Iraq, possibly due to a lack of research on the syndrome and the substantial modifications in safe sleeping practices from generation to generation. In light of these considerations, this research was conducted to improve the nurses' knowledge of SIDS prevention guidelines and to ascertain the relationship between their knowledge and socioeconomic factors. **Methods:** A purposive sample of fifty nurses employed in the Neonatal Intensive Care Unit (NICU) from the Central Paediatric Teaching Hospital in Al-Karkh and The Children's Welfare Teaching Hospitals in Medical City, Baghdad, Iraq, was chosen for the research. The study duration was from September 14, 2023, to January 14, 2024. To collect data, the investigators employed self-reported questionnaires that they devised after reviewing relevant articles and previous studies. The SPSS version 26.0 was used to analyse the data. **Results:** The findings of this research investigated that most of the participants were females with a nursing institute within the age range of 20 or younger than 30. The majority remained unmarried and had been working in the NICU for under 5 years. Furthermore, the majority of the participating nurses weren't involved in any education courses about sudden infant death syndrome. **Conclusion:** The present research concluded that most of the nurses had a poor to a fair level of knowledge regarding preventive guidelines for sudden infant death syndrome. Moreover, a significant relationship was found between nurses' knowledge and their age and sex. However, no statistically significant correlation was identified between nurses' knowledge and other variables, including years of experience, marital status, nursing qualifications, or attendance at training courses.

Keywords: Knowledge; Nurses; Preventive Guidelines; Sudden Infant Death Syndrome (SIDS)

INTRODUCTION

"Sudden Infant Death Syndrome (SIDS) and Sudden Unexpected Infant Death (SUID)" were first described in 1969 to attract interest in some infants with similar clinical symptoms who died suddenly after birth (Duncan & Byard, 2018; Fraile-Martinez *et al*., 2024). SIDS refers to the unexpected and unexplained death of an infant under 12 months of age, even after a thorough investigation. This evaluation typically involves a comprehensive examination, a detailed analysis of the circumstances surrounding the death, and an inquiry of the infant's health records. (Corwin, Misra & Tehrani, 2024; Gemble *et al*., 2020). It was among the top five reasons for infant mortality in the United States in 2020 (CDC, 2024). In 2020, Iraq's Infant Mortality Rate (IMR) is 20 per 1000 births (World Bank Open Data, 2020). SIDS reaches its highest occurrence within the ages of two and four months, with 90% prevalent by six months.

Under two percent of cases affect infants older than nine months (Priyadarshi, Balachander & Sankar, 2022). SIDS are more common in males than in girls, with a ratio of three to two (Alsarhan, 2021). It is unclear

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exactly what causes SIDS. Research indicates that insufficient responses to hypoxaemia, hypercapnia, and other internal and external factors are associated with SIDS. Lying on the back is the simplest method of survival for SIDS (Eunice Kennedy Shriver National Institute of Child Health and Human Development, 2023). There has been a general decline in SIDS deaths as a result of advocacy campaigns that highlighted prone sleeping as a preventive measure. After doctors began promoting "On the Back to Sleep," the US experienced a greater than 50% decline in the occurrence of SIDS (Cole *et al*., 2020; Habich *et al*., 2024; Hirai *et al*., 2019). The American Academy of Paediatrics (AAP) advised creating a secure lying setting to lower the danger of sleep-related deaths (Jenco, 2024). This entails sharing a room but not a bed, sleeping on the back, utilising a firm, flat surface, staying away from soft bedding, and not overheating. Other recommendations to lower the incidence of SIDS involve breastfeeding, routine immunisation, preventing exposure to cigarettes, cannabis, alcoholic beverages, opiates, and illegal substances, and using pacifiers. Among the new recommendations are bed sharing, substance use, home cardiorespiratory monitoring, tummy time, and the use of cardboard boxes as a temporary emergency sleeping environment (Jenco, 2024; Moon *et al*., 2022). Nurses in NICUs inform and demonstrate to parents, based on their understanding and beliefs about SIDS, how to follow these guidelines prior to discharge (Randall, Thompson & Wilson, 2019). While they constitute the majority of NICU staff, nurses who care for newborns are in an important position to have a significant impact on the evolving neonatal environment.

It is imperative that nurses possess professional experience and understanding to safely sleep infants, thereby lowering the danger of SIDS and resting deaths. In Iraq, there is no awareness of the topic. This may be due to inadequate sudden infant death syndrome research. In addition, safe sleeping practice guidelines have drastically altered over time (Alzubaidi *et al*., 2022). Therefore, this study was designed to measure the knowledge of nurses regarding preventive guidelines for SIDS and to determine the relationships between nurses' knowledge and their demographic characteristics.

METHODOLOGY

The research employed a descriptive study design and was conducted at Children Welfare Teaching Hospitals in Medical City and at The Central Teaching Hospital of Paediatrics in Al-Karkh in Baghdad City, Iraq. This study focused on nurses working in the Neonatal Intensive. In hospitals, there are approximately 402 nurses working in the Intensive Care Unit (ICU), Cardiac Care Unit (CCU), Operation Theatre (OT), Medical Ward, and Surgical Ward.

Defining Inclusion, Exclusion and Sample Size Criteria

The sample size calculation was determined as calculated by Richard Geiger: equivalent population proportion = 50%, error probability = 5%, confidence = 95%, and the standard score corresponding to the level of confidence = 1.96 (Sample Size Calculator, 2024). The predicted sample size was 50 (n = 50). The eligibility criteria are registered staff nurses at Children Welfare Teaching Hospitals and at The Central Teaching Hospital of Paediatrics, all nursing educational levels, and nurses on the night and morning shifts. Excluded from the research were respondents, staff nurses on prolonged leave, nurses with fewer than six months of clinical work experience, and nurses not involved with insertion, care, or management.

Data Collection Process

The participants were asked to give their informed permission for participation after receiving thorough information. Furthermore, stringent procedures were implemented to guarantee participant confidentiality, obstructing source identification. Data gathering took place over a period of five months, starting on September 14, 2023, and lasting until January 14, 2024. For the study, a non-probability (purposive) sampling of fifty nurses was selected.

The Instrument of the Study

To assess the knowledge of nurses regarding preventive guidelines for sudden infant death syndrome, researchers designed a structured self-report questionnaire after reviewing relevant articles and previous studies. It consisted of two parts:

First Part: nurses' socio-demographic data: It included age, sex, qualification in nursing, marital status, years of experience in the NICU, and participation in a training course.

Second Part: Nurses' knowledge about preventive guidelines for sudden infant death syndrome: It contained 32 questions about the definition of SID, causes, risk factors, and prevention recommendations.

Study Tool's Rating and Scoring

The knowledge scale of the tool was graded using a three-point Likert scale, with the scores being I know (1), uncertain (0), and I don't know (0). After determining the range from the lowest and greatest score, the range score was divided into three levels and scored as follows: bad = 0-0.33, fair = 0.34–0.66, and good = 0.67–1. This method was used for calculating the knowledge score.

Validity of the Instrument

A group of professionals evaluated the clarity, applicability, and sufficiency of the questionnaire to meet the study objectives and establish the content validity of the early-developed instrument. Thirteen experts from various domains were given a questionnaire that was prepared. There were five truthful individuals from the "College of Nursing at the University of Baghdad"; one each from the "College of Nursing at the University of Babylon" and the University of Karbala; one each from the Al-Kindy College of Medicine at the "University of Baghdad"; one each from the College of Medicine at the Al-Mustansiriyah University; two specialised physicians from Abu Ghraib General Hospital; and one specialised physician from the Central Teaching Hospital of Paediatrics. Copies of the study materials were sent to those specialists. These experts were given copies of the study tools and asked to assess the study instrument's adequacy and clarity of information.

Instrument Reliability

The nurses in the pilot study met similar criteria as the original research population; the pilot study was conducted on five nurses in a children's welfare teaching hospital and a paediatric teaching hospital, and the interval period was two weeks from December 26, 2023, to January 9, 2024 (Bolarinwa, 2015). The reliability results present an alpha correlation coefficient of (r = 0.740), which is considered statistically acceptable.

Statistical Analysis

The study's data was analysed using SPSS for Windows Version 26.0. Additionally, the data were presented as percentages (%), mean ± standard deviation values, and Alpha Cronbach and were subjected to a parametric chi-square test analysis. *P*-values less than 0.05 were considered statistically significant.

Ethical Consideration

The study was approved by the Ethics Committee of College of Nursing Scientific Research, University of Baghdad, Iraq with reference number 2 on 22nd November, 2023.

RESULTS

Table 1: The Distribution of the Nurses Based on their Sociodemographic Traits

No.	Traits		F	%
1	Age (Years)	20 – less than 30	42	84
		30 – less than 40	6	12
		40 – less than 50	0	0
		50 and more	2	4
		Total	50	100
		M ± SD	26.56 ± 6.6	
2	Sex	Male	6	12
		Female	44	88
		Total	50	100

3	Qualification in Nursing	Secondary school	12	24
		Diploma	24	48
		Bachelor	14	28
		Total	50	100
4	Marital Status	Unmarried	28	56
		Married	22	44
		Total	50	100
5	Years of Experience in NICU	Less than 5	40	80
		5 – less than 10	8	16
		10 – less than 15	0	0
		15 and more	2	4
		Total	50	100
6	Participation in Training Course	None	46	92
		Inside country	4	8
		Outside country	0	0
		Total	50	100

(No: Number, f: Frequency, %: Percentage)

According to Table 1, the nurses' average age was 26.56±6.6 years, and 84% of the nurses were aged 20-less than 30 years. The sex of nurses refers to females, as reported among 88% of nurses. Among nurses, the highest percentage reported having a diploma in nursing (48%). Regarding marital status, 56% of nurses were still unmarried, and 44% were married. The number of years of experience in the NICU indicated that 80% of respondents had fewer than five years of expertise. Concerning participation in training courses, only four nurses (8%) attended training courses inside the nation.

Table 2: The Assessment of General Nurses' Knowledge About Sudden Infant Death Syndrome

Levels of Knowledge	F	%	M	SD
Poor	26	52	1.48	1.085
Fair	22	44		
Good	2	4		
Total	**50**	**100**		

(M: Mean total score, SD: Standard deviation of the total score)
Poor= 0 – 1.66, Fair= 1.67 – 3.33, Good= 3.34 – 5

This table 2 shows that nurses had poor level of knowledge, as reported by 52% of nurses.

Table 3: The Assessment of Nurses' Knowledge about Causes of Sudden Infant Death Syndrome

Levels of Knowledge	F	%	M	SD
Poor	22	44	2.52	1.388
Fair	24	48		
Good	4	8		
Total	**50**	**100**		

(Poor= 0 – 2.33, Fair= 2.34 – 4.66, Good= 4.67 – 7)

This table 3 demonstrates that participants had a fair level of knowledge, as reported by 48% of the nurses in this study.

Table 4: The Assessment of Nurses'' Knowledge about Risk Factors for Sudden Infant Death Syndrome

Levels of Knowledge	F	%	M	SD
Poor	16	32	4.00	2.082
Fair	30	60		
Good	4	8		
Total	**50**	**100**		

Poor= 0 – 3.33, Fair= 3.34 – 6.66, Good= 6.67 – 10

According to table 4, 60% of the nurses in this research reported having a fair degree of knowledge.

Table 5: The Assessment of Nurses' Knowledge about Prevention of SIDS

Levels of Knowledge	F	%	M	SD
Poor	24	48	3.80	2.677
Fair	14	28		
Good	12	24		
Total	**50**	**100**		

Poor= 0 – 3.33, Fair= 3.34 – 6.66, Good= 6.67 – 10

According to table 5 nurses reported poor level of knowledge (48%).

Table 6: The Overall Assessment of Nurses' Knowledge about Sudden Infant Death Syndrome

Levels of Knowledge	F	%	M	SD
Poor	22	44	11.80	5.809
Fair	28	56		
Good	0	0		
Total	**50**	**100**		

(Poor= 0 – 10.66, Fair= 10.67 – 21.33, Good= 21.34 – 32)

According to this table, which presents an overall assessment of nurses' knowledge about SIDS, 44% of nurses' report having poor to fair levels of acknowledging ($M \pm SD = 11.80 \pm 5.809$).

Table 7: The Relationships among Nurses' Knowledge and Sociodemographic Attributes

Variables		Association
Age (Years)	20 – less than 30	*F*= 3.590 *P* value= 0.045 Sig= S
	30 – less than 40	
	40 – less than 50	
	50 and more	
	Total	
Sex	Male	*t*= 2.334 *P* value= 0.029 Sig= S
	Female	
	Total	
Qualification in nursing	Secondary school	*F*= 0.116 *P* value= 0.891 Sig= Non-Significant
	Diploma	
	Bachelor	
	Total	
Marital status	Unmarried	*t*= 0.928 *P* value= 0.363 Sig= Non-Significant
	Married	
	Total	
Years of experience in NICU	Less than 5	*F*= 0.702 *P* value= 0.506 Sig= Non-Significant
	5 – less than 10	
	10 – less than 15	
	15 and more	
	Total	*t*= 1.424 *P* value= 0.168 Sig= Non-significant
Participation in training course	No	
	Yes	
	Total	

Table 7 illustrates that there is a significant association among nurses' knowledge in the study group and their age group and sex (*p* values = 0.045 and 0.029, respectively), while there is no significant relationship reported among knowledge and the remaining variables of qualification in nursing, marital status, years of experience, and attendance in training courses.

DISCUSSION

Concerning the sociodemographic characteristics of the participants shown in Table 1, the current study revealed that the majority of nurses within the age group were twenty to thirty years older than those within the other age groups. This finding is similar to that of Elwasefy *et al.* (2020), who carried out research on nurses' SIDS-related knowledge and practices. This study disclosed that most participants were between 20 and <30 years old. This result contradicts that of the study by Efe *et al*. (2012), which they investigated. "Nurses' and paediatricians' knowledge about infant sleeping positions and the risk of sudden infant death syndrome" in Turkey and discovered that the majority of the respondents were in the age range of twenty-one to thirty-five. These findings are similar to those of studies conducted by Alhaib and Ajil (2023) and Aziz (2018).

The findings regarding the gender of nurses revealed that most of them were female; from the author's point of view, female nurses are innately more emotional than male nurses, which makes them more qualified for roles that require caring for mothers and infants. This result was confirmed by the findings of a cross-sectional survey performed by Hodges *et al.* (2018) in Columbus, Ohio. Moreover, 98.7% of the NICU nurses were female. According to Owaid and Aziz (2023), the majority of nurses were female. In terms of educational attainment, the present research observes that 56% of nurses had a nursing institute. These findings are similar to those of a study conducted by Abd Elrazek and Ahmed (2020) regarding "nurses' adherence to safe sleep position recommendations for preterm and term neonates" in Egypt, which reported that approximately 50% of participants had nursing institutes. These results contradicted the findings of Salam and Aziz (2020), who found that less than fifty percent of respondents had graduated from nursing high school.

According to the present study, most of the study participants were unmarried. This result contradicts the findings of studies conducted by Mohammed, Abd Ali and Al Mosawi (2023), Mohammed and Aziz (2023), Mohammed and Hammod (2016). In terms of nurses' years of experience, the current research showed that 68% of the respondents had worked in NICUs for fewer than five years. This result coincided with the results of Soliman *et al*. (2022), who investigated "Assessment of Nurses' Performance Regarding Infant Sleep Position on Sudden Infant Death Syndrome at Neonatal Intensive Care Units," Egypt. Over two-thirds of the nurses in the study (75.7%) had less than five years of experience. These results contrast with those of a study carried out by Jassm and Aziz (2020). Regarding training, the results clearly show that most nurses did not participate in training, as shown in Table 1. This result agrees with previous studies (Abbas & Jasim, 2019; Ahmed & Hassan, 2022; Soliman *et al*., 2022; Hussein & Mansour, 2019).

Discussion of Assessment of Nursing Knowledge Regarding Preventive Guidelines for Sudden Infant Death Syndrome

The assessment of nurses' knowledge about SIDS is that 44% of nurses declared poor to fair levels of knowledge (M ± SD = 11.80 ± 5.809). Elwasefy *et al*. (2020) reported a low level of knowledge regarding updated recommendations for SIDS prevention during the initial phase of the study, with an overall mean score of 6.71 ± 2.17. This finding was in accordance with the results of a previous study in Egypt by Soliman *et al*. (2022), which showed that inadequate knowledge about infants' sleep positions on the SIDS had been demonstrated by the majority of participants in the study. This outcome was consistent with the outcomes of a previous study performed in Turkey by Efe *et al.* (2012). The purpose of the survey was to determine the level of information that paediatricians and nurses had about the sleeping positions and environment of infants. The results showed that the participants' knowledge was insufficient. Furthermore, these results agree with the results of Hodges *et al*. (2018), which demonstrated that nurses' knowledge of the "American Academy of Paediatrics' recommendations for safe infant sleep" was low. The findings of the present study were approved by Hamadneh (2014), who reported that 40% of NICU nurses who answered the questionnaire were unaware of the national SIDS prevention guidelines published by the American Academy of Pediatrics. The results disagree with those of Regina, Ann Gibbons and Rosemary (2010), that application of the American Academy

of Paediatrics' Guidelines to lower the risk of sudden infant death syndrome in Neonatal Intensive Care Units' revealed that while most NICU nurses who participated in the study were able to identify the majority of the AAP-recommended risk-reduction strategies, some nurses still lacked this knowledge. This finding contrasts with the study by Helaly (2020), which evaluated neonatal nurses' knowledge and practices regarding the reduction of sudden infant death syndrome (SIDS) risks, reporting that the majority of nurses possessed adequate knowledge about SIDS. Additionally, in the descriptive correlational study carried out by Kacho (2015), the findings revealed that the majority (89%, n = 75) of respondents were aware of the expanded recommendations.

Limitation

The study was conducted on limited participants to determine nurses' knowledge related to preventive guidelines for SIDS. Assessments studied provide a decision-making framework for nurses to develop care for infants incorporating evidence-based practice concepts. Thus, this study was conducted to help nurses be educated regarding preventive guidelines for SIDS.

CONCLUSION

Most of the nurses had a poor to fair level of knowledge regarding preventive guidelines for SIDS. Moreover, a significant relationship was found between nurses' knowledge and their age and sex. However, no statistically significant relationship was identified between nurses' knowledge and other variables, including years of experience, marital status, nursing qualifications, or attendance at training courses. Future research should focus on enhancing nurses' knowledge and awareness concerning preventive guidelines for SIDS through training and teaching initiatives.

Conflict of Interest

The research's authors disclose that they have no conflicts of interest.

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