Mothers' knowledge of infant sleeping position and its associated factors in Jimma town public health institutions, oromia, south- west ethiopia.

Aynalem Yetwale[1*], Bilen Tigstu[1], Tsegaw Biyazin[1], Belete Fenta[1], Yalemtsehay Dagnaw[2], Yaregal Dessalew[3], Abebaw Alamrew[4]

[1]Department of Clinical Midwifery, Institute of Health, Jimma University, Jimma, Ethiopia

[2]Department of Nursing, Debre Markos University, Debre Markos, Ethiopia

[3]Department of Midwifery, Institute of Health, Assossa University, Assossa, Ethiopia

[4]Department of Midwifery, Institute of Health, Woldia University, Woldia, Ethiopia

Abstract

Background: Unsafe infant sleeping position associated with abrupt and unexpected newborn fatalities, including those caused by sudden infant death syndrome and other sleep-related conditions. Yet, the knowledge of Ethiopian mothers regarding infant sleep positions is still largely unknown. Therefore, this study was aimed to assess mothers' knowledge of infant sleeping position and its associated factors in Jimma town public health institutions in Oromia, South West Ethiopia.

Methodology: An institutional based cross-sectional study was conducted on 409 women in Jimma town public health facilities. The sample size was calculated using the single population proportion formula and samples were taken after proportional allocation was performed for the hospital and health centers using the proportion allocation formula. Data were entered into epi-data version 3.1.1 and exported into Statistical Packages for Social Sciences (SPSS) version 25.0 for cleaning and further analysis. Logistic regression analysis was performed to determine the association between the explanatory and response variables. The strength of association of the dependent and independent variables was presented as crude and Adjusted Odds Ratio (AOR) at a 95% confidence interval. The level of significance was declared at a p-value of less than 0.05 in multivariable logistic regression.

Results: The proportion of infant sleeping position knowledge that was good was 45.5% (95% CI (50.1%-58.9%)), being married (AOR 2.74; 95% CI 1.25-6.04), not having an ANC visit (AOR 0.39; 95% CI (0.15-0.98)), and multigravida (AOR 1.59; 95% CI (1.2-2.49) were significantly associated with good knowledge of infant sleeping position.

Conclusions: In this study, the proportion of maternal knowledge about infant sleeping position was very low. Being married, multigravida, and ANC visit were associated with having good knowledge of infant sleep position. Therefore, health workers should play a key role in disseminating information on safe sleep positions for mothers.

Introduction

The choice of a suitable infant sleeping position is one of the crucial developmental interventions in the infancy age. In order to prevent harm to the baby and to promote their overall health, mothers or other primary caregivers should create safe infant sleeping arrangements [1]. Unsafe Infant sleeping position is linked to Sudden Unexpected Death in Infancy (SUDI), which encompasses Sudden Infant Death Syndrome (SIDS) and other sleep-related deaths [2]. Currently, sleeping on the back is advised for newborns younger than one year (supine position) [3].

Numerous factors affect how caregivers choose to put infants to sleep. These factors include the age, education, race, wealth, needs, parity, and beliefs of the parents, as well as the prematurity, and advice from particular sources [4,5]. Women's lack of awareness of the correct baby sleeping position is the result of following the instructions of their mothers or physicians and their own experience with other children [6].

Now a day reducing infant mortality continues to be on the forefront of public health initiatives. Public health initiatives suggest it is possible to reduce the risk of SUDI by following key safe sleep practice recommendations outlined by the

American Academy of Pediatrics (AAP) [7]. Additionally, the Center for Disease Control and prevention (CDC) and the maternal and child health bureau have developed public education campaigns aimed at reducing SIDS and other sleep related infant deaths. The most significant public health effort was teaching that favored putting infants to sleep on their backs [8].

Infant mortality rates have drastically decreased, with estimates ranging from 65 deaths per 1,000 live births in 1990 to 29 deaths per 1,000 live births in 2018, yet Africa is still showing a high rate, at 47.45 according to the African macro trend report [9]. The infant mortality rate is particularly high in Ethiopia. Due to the fact that choosing a newborn's sleeping position is dependent on the knowledge of the mother, unlike many developing nations, there has been no extensive research on assessing those factors in Africa especially in Ethiopia distinctly in Jimma town. Hence, this study was aimed to assess mother's knowledge of infant sleeping position and its associated factors in Jimma town public health institutions, Oromia, South West Ethiopia.

Materials and Methods

Study area

The study was conducted in Jimma town public health institutions, Oromia regional state, South West Ethiopia. Jimma town is 346 km far from Addis Ababa. In the town there are five public Health centers and two Hospitals that give services for the community such as: curative, preventive and admission services. According to the 2007 census of Ethiopia the total population of Jimma is 182,942 from these male accounts 91,771 and Female accounts 91,171. There are 7 public health care institutions in Jimma town. Of the seven, two are hospitals, and the other five are health centers.

Study design and period

An institutional-based cross-sectional study design was conducted from 1st June to 1st July, 2022.

Study population

All women who gave birth in the past year and attended MCH (Master of Chirurgiae) serves in Jimma town public health institutions were the source population. While mothers who gave birth in the past year and attended MCH served in selected Jimma town health care institutions during the data collection period were the study population.

Sampling technique and sample size

Sample size: The sample size was determined by the assumption of a 50% prevalence considering the absence of previous data on a specific study population and with a 5% margin of error, a 95% Confidence Interval (CI), and a non-response rate of 10%. Based on this assumption, the actual sample size of the study was determined using the formula for single population proportion.

$$n = \frac{(Z_\alpha / 2)^2 \, p(1-p)}{d^2}$$

Where n=Sample size/the desired sample size,

Zα/2 standard (1.96),

P=Expected proportion of infant sleeping position=50%=0.5,

d=Margin of error=5%=0.05,

Therefore;

$$n = \frac{(1.96)^2 \, 0.5(1-0.5)}{(0.05)^2} = 384$$

n=384+10% of the sample size for substitution of non-respondent client=422.4. Therefore, the final sample sizes for this study were 422.

Sampling techniques: From all 7 public health care institutions (5 HC and 2 hospitals) found in Jimma town, the three public health care institutions (2 HC and 1 hospital) were selected by lottery method, and then, proportional allocation was done for the health institutions in terms of previous monthly report number of their MCH service. A systematic sampling technique was used to select study subjects who attended MCH service during the data collection period. The previous monthly report number of MCH service in selected public health care institutions was taken as a total population, which is 2430. Then to obtain the sampling interval (k-value), the formula k=N/n, where k is the constant value, N is the previous monthly report number of MCH service, and n is the sample size. The first study subject was selected by lottery. Every sixth woman who received MCH services at the chosen health care facility had her data collected.

Study variables

Dependent variable: Maternal knowledge of infant sleeping position.

Independent variables (Socio demographic related characteristics): Age, religion, ethnicity, educational status women, educational status husband, marital status, and occupation.

Obstetric related characteristics: Parity, gravid, ANC visit, complication, place of delivery, personnel who conduct delivery.

Operational definition

Maternal knowledge was assessed through 10 knowledge questions, which were adopted in English from different published literatures (10-12). Each question responded with right answer was allotted a scoring of one and every wrong answer was given a score of zero. The total attainable score in knowledge questionnaire is 10. In order to identify a respondent as having good or poor knowledge, the group was divided into 2 categories based on the scores attained So, Respondents who answered greater than the mean score of

Mothers knowledge of infant sleeping position and its associated factors in Jimma town public health institutions, Oromia, South-West Ethiopia.

questions provided for them regarding knowledge were considered as having good knowledge. While those answers below the mean score are those with poor knowledge.

Data collection methods and instrument

Data was collected through face-to-face interviews with respondents using a pre-tested and semi-structured questionnaire. The tool was first prepared in English and then translated into the local language (Afan Oromo). The tool comprises socio-demographic and obstetrical characteristics, relationship to the infant, and knowledge of women regarding sleep position. Three BSc midwifery professionals and one MSc midwifery professional were chosen for data collection and supervision, respectively. One-day training was given for both data collectors and supervisors about the methodology and questionnaire by the investigators.

Data quality control

The quality of data was assured before data collection, during data collection, and after data collection. Prior to the actual data collection, the questionnaire was pre-tested on 5% of the sample size. One-day training was given for data collectors and supervisors. During data collection, close follow-up was done by the supervisor and principal investigator. After data collection, the data was checked for completeness, and using epi-data also helps to automatically detect errors made during data entry.

Data analysis

Using SPSS version 25, the collected data was analyzed both descriptively and by binary logistic regression. Descriptive statistics were done and presented using narratives, tables, and figures. Binary logistic regression was used to find the crude association between knowledge of a safe infant sleeping position and explanatory variables. Explanatory variables that had a P-value of less than 0.25 and fulfilled the assumption of logistic regression from bi-variable logistic regression were considered for the multivariable logistic regression model. The strength of association was evaluated using an odds ratio at a 95% confidence interval, and a P-value of 0.05 was considered to declare significant associations.

Results

Socio demographic characteristics

The study was completed by 409 women, yielding a response rate of 97%. With a minimum age of 18 and a maximum age of 48, the respondents' average age was 26.8 years. Muslims (52.6%) and Orthodox (28.8%) were the two most common religions among respondents. The educational status of the respondents varies from illiterate 11.0% to graduate and post-graduate 42.3%. Three hundred twenty-eight (77.8%) were living in urban areas, whereas eighty-one (22.2%) were rural in residency (Table 1).

Variables		Frequency (%)	Percentage
Age	18 and under	5	1.2
	19-24	122	29.8
	25-30	212	51.8
	31-36	55	13.4
	37 and older	15	3.7
Religion	Muslim	215	52.6
	Orthodox	118	28.8
	Protestant	72	17.6
	Others	4	1
Marital status	Single	39	9.5
	Married	370	90.5
	Graduate or post graduate	98	24
Maternal Educational status	Can't read and write	45	11
	Can read and write	106	25.9
	Up to high school	85	20.8
	Graduate or post graduate	173	42.3
Job/occupation	Governmental employee	67	16.4
	Self employed	77	18.8

	Student	24	5.9
	House wife	218	53.3
	Others	23	5.6
Residence	Rural	91	22.2
	Urban	318	77.8
Family size	1-4	215	52.6
	5-8	169	41.3
	9 and above	25	6.1

Table 1. Socio-demographic characteristics of mothers attending mother and child health service in Jimma town public health institutions, Ethiopia 2022.

Obstetric history of the study participants

One hundred twenty (29.3%) of the mothers were primi gravida and 376 (91.9%) of the study participants had at least one ANC visit during their pregnancy. Three hundred seventy-four respondents gave birth at health institutions (Table 2).

Variables		Frequency	Percentage
Gravidity	Primi-gravida	120	29.3
	Multigravida	289	70.7
Parity	Primi-para	166	40.6
	Multi para	211	51.6
	Grand multipara	32	7.8
ANC follow up during last pregnancy	Yes	376	91.9
	No	33	8.1
How many ANC visit	One visit	7	1.7
	2-4 visits	258	63.1
	5 and more	111	27.1
Place of birth for recent pregnancy	home	35	8.6
	At health institutions	374	91.4
Sex of your baby	Male	192	46.9
	Female	217	53.1
How many children	01-Apr	380	92.9
	05-Aug	27	6.6
	9 and above	2	0.2
Pregnancy related complications	Preterm	20	4.9
	Hypertension	56	13.7
	Miscarriage	25	6.1
	Diabetes	6	1.5
	Other	4	1

Table 2. Obstetric history of mothers attending MCH service in Jimma town public health institutions, Ethiopia 2022.

Mothers knowledge of infant sleeping position and its associated factors in Jimma town public health institutions, Oromia, South-West Ethiopia.

Maternal knowledge towards infant sleeping position

The proportion of good knowledge to wards infant sleeping position was 45.5% (95% CI (50.1%-58.9%)) while the other 223(54.5%) (95% CI (41.1-49.9%)) had a poor knowledge (Figure 1).
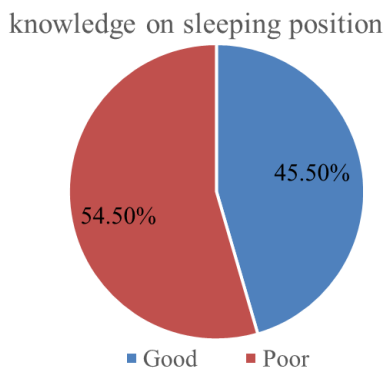

knowledge on sleeping position

■ Good ■ Poor

Figure 1. Infant sleeping position knowledge of mothers attending mother and child health services in Jimma town public health institutions, Ethiopia 2022.

Factors associated with knowledge towards infant sleeping position

In bivariate logistic regressions, the following variables were significantly associated with having good knowledge of infant sleeping position: marital status COR=3.06 (1.41-6.42); residence COR=1.36 (1.01-2.192); not having ANC visit COR=0.29 (0.13-0.69); gravidity COR=1.59 (1.03-2.45); place of birth COR=1.92 (1.02-4.02); and maternal educational status (having formal education) COR=2.23 (1.13-4.38). However, only three variables, being married (AOR 2.74; 95%CI 1.25-6.04), not having an ANC visit (AOR 0.39; 95% CI (0.15-0.98)), and multi gravidity (AOR 1.59; 95% CI (1.2-2.49), were significantly associated with good knowledge

of infant sleeping position in multivariate logistic regressions (Table 3).

Discussion

The proportion of infant sleeping position knowledge that was good was 45.5% (95% CI (50.1%-58.9%)), while the other 223 (54.5%) (95% CI (41.1%-49.9%)) had poor knowledge. The finding of this study was higher than studies conducted in southern Brazil (34.7%) [10], in university of port Harcourt teaching hospital, port Harcourt, Nigeria [11], and in Sokoto town in Nigeria [12]. This variation is possible due to variation in the year of study, the sample size, and socioeconomic and cultural differences in the populations assessed in these studies.

The current study indicated that there was a strong association between being married marital status, and having good knowledge of infant sleeping positions [13]. Married respondents were 2.74 times more likely to have good knowledge of infant sleep position than their counterparties. The finding was supported by a study conducted in Cheyenne, the United States [14]. These findings could possibly be due to involvement of a partner in acquiring health education and choosing infant sleep position. Additionally, it is no secret that married women could get more support from their husbands compared with unmarried (single) once.

Another independent variable which had a significant association with having good knowledge of infant sleep position was Gravida. Multigravida women were 1.59 times more likely to have good knowledge of infant sleep position than primi gravida (AOR 1.6; 95% CI (1.2-2.49)). This is possible because multigravida women have more experience sleeping with their infants than primipara women [15]. The finding was supported by a study conducted in southern Brazil [10].

In this study, not having an ANC visit was significantly associated with not having good knowledge of infant sleep

Variables		Practice		COR	AOR	P-value
		Poor	Good			
Marital status	Single	30	9	1		0.012*
	Married	193	177	3.06 (1.41-6.62)	2.74(1.25-6.04)	
Residence	Rural	55	36	1		0.814
	Urban	168	150	1.36 (1.01-2.192)	1.06 (0.632-1.79)	
Anc visit	Yes	197	179	1		0.046*
	No	26	7	0.29 (0.13-0.69)	0.39 (0.15-0.98)	
Gravida	Primi	75	45	1		0.42*
	Multi	148	141	1.59 (1.03-2.45)	1.59 (1.2-2.49)	
Place of birth	Home	24	11	1		0.437
	Health facility	199	175	1.92 (1.02-4.02)	1.38 (0.61-3.09)	
Maternal educational status	No formal education	32	13	1		0.105
	Having formal education	191	173	2.23 (1.13-4.38)	1.84 (0.88-3.84)	

Table 3. Factor associated with knowledge of infant sleeping position among mother attending MCH service in Jimma town public health institutions, Ethiopia 2022.

position. Study participants who had no ANC visit were 60% less likely to have good knowledge of infant sleeping positions than their counterparts. The finding was supported by a study a cross section study done in Yozgat Bozok University, Yozgat, Turkey [16]. This is possibly due to mothers who had no ANC visit having less chance of getting health information from health providers than their counterparties.

Conclusions

In this study, the proportion of maternal knowledge about infant sleeping position was very low. Being married, multigravida, and having an ANC visit were all associated with having good knowledge of safe infant sleep position. Therefore, health workers should play a key role in disseminating information on safe sleep positions for mothers and create mass awareness regarding the consequences of the wrong sleeping position among the population. Additionally, researchers should conduct further research on the topic to find related problems and implement the findings.

Ethical Consideration

Ethical clearance and permission were obtained from the ethical review committee of Jimma University, school of midwifery. Study participants were informed about the objectives, benefits, risks, and their right to participate in the study. The study subjects were informed that their responses would be coded and used only for research purposes. Participants' names were made anonymous to affirm confidentiality throughout the study. Moreover, informed written consent was obtained before data collection started.

Limitations

Being the first to assess the situation in Ethiopia and the study area, in particular, is the strong side of the study. However the study was limited to addressing mothers who attended MCH service at private health care institutions.

References

1. TFoSID Syndrome. The changing concept of sudden infant death syndrome: Diagnostic coding shifts, controversies regarding the sleeping environment, and new variables to consider in reducing risk. Pediatrics 2005; 116(5): 1245-55.

2. Moon RY, Oden RP. Back to sleep: Can we influence child care providers? Pediatrics 2003; 112(4): 878-82.

3. Wennergren G, Aim B, Øyen N, et al. The decline in the incidence of SIDS in Scandinavia and its relation to risk-intervention campaigns. Acta Paediatrica 1997; 86(9): 963-8.

4. Colson ER, Rybin D, Smith LA, et al. Trends and factors associated with infant sleeping position: The national infant sleep position study, 1993-2007. Arch Pediatr Adolesc Med 2009; 163(12): 1122-8.

5. Hoffman HJ, Hillman LS. Epidemiology of the sudden infant death syndrome: Maternal, neonatal, and postneonatal risk factors. Clin Perinatol 1992; 19(4): 717-37.

6. Cesar JA, Cunha CF, Sutil AT, et al. The opinion of mothers regarding babies' sleeping position after a national campaign: A population-based study in the far south of Brazil. Rev Bras de Saude Matern Infant 2013; 13: 329-33.

7. Moon RY, Syndrome TFoSID. SIDS and other sleep-related infant deaths: Expansion of recommendations for a safe infant sleeping environment. Pediatrics 2011; 128(5): e1341-e67.

8. Control CfD, Prevention. Healthier mothers and babies. MMWR Morb Mortal Wkly Rep 1999; 48(38): 849-58.

9. Vakili R, Emami Moghadam Z, Khademi G, et al. Child mortality at different world regions: A comparison review. Int J Pediatr 2015; 3(4.2): 809-16.

10. Cesar JA, Marmitt LP, Carpena MX, et al. Maternal knowledge and unsafe baby sleep position: A cross-sectional survey in Southern Brazil. Matern Child Health J 2019; 23(2): 183-90.

11. Okpere A, Opara P. Mothers' knowledge and practice of infant sleep position. Niger J Paediatr 2014; 41(4): 312-5.

12. Syndrome TFoSID. SIDS and other sleep-related infant deaths: Updated 2016 recommendations for a safe infant sleeping environment. Pediatrics 2016; 138(5): e20162938.

13. Isezuo K, Adamu A, Jiya F, et al. Infant sleep practices and knowledge of sudden infant death syndrome among mothers of infants attending the paediatric clinics of a tertiary hospital in Sokoto, Nigeria. J Sci Res Rep 2017; 16(1): 1-10.

14. Goetter MC, Stepans MBF. First-time mothers' selection of infant supine sleeps positioning. J Perinat Educ 2005; 14(4): 16-23.

15. Genovesi F, Ferrari R, Maciel S, et al. Child care among primiparous and multiparous women in a birth cohort study. Int J Womens Health Wellness 2017; 3(050): 2474-1353.

16. Zeren E, Taplak AŞ, Polat S. Creating a safe sleep environment for babies: what are the practices performed by mothers? J Health Res 2021; 36(2): 323-33.

*Correspondence to:

Aynalem Yetwale

Department of Clinical Midwifery,

Institute of Health, Jimma University,

Jimma, Ethiopia

E-mail: aynalemyetwale@gmail.com