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Factors Influencing Utilisation of Non-Pneumatic Anti-Shock Garment in The Management of Postpartum Haemorrhage Among Midwives in Ekiti State

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ABSTRACT: *Postpartum haemorrhage (PPH) is one of the leading causes of death among women especially in developing nations which can be managed through the use of non-pneumatic anti-shock garment (NASG). This study was aimed at evaluating the Utilization of NASG in the management of PPH among midwives in Ekiti State. This study adopted an embedded mixed method design. Purposive sampling technique was used to select six health facilities in Ekiti State and a total of 164 midwives participated in the quantitative study and 11 midwives in the qualitative study. Data were collected using self- structured questionnaire and interview guide. Results from the study shows that Midwives mean age was 37 ± 7.64, more than half 65.9% had (NASG) in their facilities, 54.3% have applied NASG on their patients, this corroborates with the result of the interview where majority showed adequate utilization, occasional utilization and awaiting approval for utilization. It was observed that Midwives' don't utilize NASG as a result of availability of other methods of controlling PPH 88.8%, non-availability of the garment 53%t, and Inaccessibility to NASG 48.8%, 36,4% indicated staff training challenge and alternative to NASG utilization 36.4% as the major factors influencing the utilization, this also corroborate with the result from the key informant interview, It was noted that the utilization of NASG was influenced by its availability as the p value gotten was 0.01 which is lesser than 0.05. Conclusively, the utilization of NASG for the management of PPH was on the average.*

KEYWORDS: Utilization, Midwives, Non pneumatic anti-shock garment, Postpartum haemorrhage, Utilization

INTRODUCTION

Postpartum haemorrhage (PPH) is the major cause of maternal morbidity and one of the top three causes of maternal mortality [1]. The prevalence of postpartum haemorrhage (PPH) is estimated to be 6 % and the highest-burden is experienced by women in low-income countries [2]. Postpartum hemorrhage is the most common cause of maternal mortality, it is a global public health problem, women with PPH in developing countries often present in critical condition, when treatment might be insufficient to save lives [3], Postpartum hemorrhage is the leading cause of maternal deaths in the world, every year 132,000 women bleed to death while giving birth, which constitute 46% of deaths globally [4], Postpartum haemorrhage is classified into two namely Primary postpartum haemorrhage and Secondary postpartum haemorrhage [5].

Several studies had been carried out to assess the utilization of anti-shock garment in the management of postpartum haemorrhage in many countries of the world. None of the studies above have talked about the utilization among midwives in Ekiti State. Therefore, the researcher aimed to assess the utilization of non -pneumatic anti-shock garment in the management of postpartum haemorrhage among midwives and explore factors influencing the utilization of non -pneumatic anti-shock garment in the management of postpartum haemorrhage among midwives in Ekiti State, Nigeria.

METHODS

This study adopts an embedded mixed-method study design. Quantitative data on the utilization of anti-shock garments and factors influencing the utilization were collected using a questionnaire, 164 data were collected and analyzed, proportionate sampling technique was used to distribute the participants in the selected hospitals while qualitative data on factors influencing the utilization of non-pneumatic anti-shock garments in the management of postpartum haemorrhage among midwives in Ekiti State was collected using key informant interview, 11 units head were interviewed based on data saturation.

RESULTS

Table.1: Socio-demographic Characteristics of Respondents

Socio-demographic variable	Frequency	Percentage	Mean ± SD
Age range			
22 – 32 years	53	32.3	37 ± 7.64
33 – 43 years	82	50	
44 – 55 years	29	17.7	
Marital status			
Single	24	14.6	
Married	135	82.3	
Divorced	1	0.7	

Socio-demographic variable	Frequency	Percentage	Mean ± SD
Separated	2	1.2	
Widowed	2	1.2	
Religion			
Christianity	139	84.8	
Islam	24	14.6	
Traditional	1	0.6	
Level of education			
Diploma	45	27.4	
First degree	98	59.8	
M.Sc	21	12.8	
Years of professional practice			
1 – 5 years	34	20.7	
11 – 15 years	50	30.5	
16 – 20 years	27	16.5	
21 years and above	53	32,3	
Rank			
NOII	17	10.4	
NOI	35	21.3	
SNO	42	25.6	
PNO	28	17.1	
ACNO	12	7.3	
CNO	27	16.5	

The result of the finding shows participant's socio-demographic variables. The mean age of respondents' ± standard deviation was 37 years ± 7.64, with the greatest proportion of them, 135(82.3%) being married. Also, the greatest proportion, 139(84.8%) are Christians, with 98(59.8%) of them having a first degree as their highest level of education and 50(30.5%) of them indicated that they had 11-15 years of professional practiced. Also, 42 (25.6%) of them were senior nursing officers.

Level of utilization of NASG among midwives

Table 2: Utilization of NASG among midwives in the management of postpartum haemorrhage

Variables	Frequency	Percentage	Mean ± SD
Have applied NASG to patients with postpartum haemorrhage?			
Yes	89	54.3	
No	75	45.7	
NASG application frequency			
1 – 5 times	76	46.3	4 ± 4.45
6 – 10 times	9	5.5	
11 – 15 times	2	1.2	
Never applied NASG	75	45.7	
How will you describe the effectiveness of the NASG you applied to patients?			
Not effective at all	2	1.2	
Fairly effective	10	6.1	
Effective	45	27.4	
Very effective	32	19.5	
Not applicable (never applied NASG)	75	45.7	
Shortest duration range of NASG			
1 – 15 minutes	47	28.7	19 ± 13.45
16 – 30 minutes	32	19.5	
31 – 45 minutes	8	4.9	
Not applicable (never applied NASG)	76	46.3	
Longest duration range of NASG			
2 – 30 minutes	52	31.7	32 ± 40.1
31 – 60 minutes	29	17.7	
61 – 90 minutes	6	3.7	
Not applicable (never applied NASG)	75	45.7	
It takes time to get access to where the NASG was kept			
Yes	33	20.1	
No	56	34.1	
Not applicable (never applied)	75	45.7	
The available NASG was in use for a patient when it was needed for another patient			
Yes	28	17.1	
No	61	37.2	
Not applicable (never applied)	75	45.7	

The table of results of findings above shows the utilization of Non-pneumatic anti-shock garments in the management of postpartum haemorrhage. Results from the study show that 75(45.7%) of the respondents have never applied Non-pneumatic anti-shock garments on patients. Among those that had applied before, 76(46.3%) had applied it 1-5 times, with 45(27.4%) stating it was effective. The identified mean shortest duration range ± standard deviation of application was 19 minutes ± 13.45; the mean longest duration range ± standard deviation of application was 32 minutes ± 40.1, while the overall duration ± standard of NASG application process was 9 minutes ± 7.74. More so, the greatest challenges encountered by 28(17.1%) of them before application of NASG was the availability of the NASG, which was in use for a patient when it was needed for another patient, and the greatest difficulty experienced by 38(23.2%) of the participants' was the inability to apply it correctly at the first attempt (Table 2).

Table 3: Factors affecting the utilization of non-pneumatic anti-shock garment (N= 164)

Factors affecting the utilization of non-pneumatic anti-shock garment	Yes		No	
	Freq.	%	Freq.	%
I am not aware of the presence of NASG in the hospital	41	25.0	123	75.0
Inadequate information about the availability of NASG	63	38.4	101	61.6
Inaccessibility to NASG	80	48.8	84	51.2
Other methods of controlling postpartum haemorrhage are available	145	88.4	19	11.6
Inexperience on the part of the midwife	33	20.1	131	79.9
The hospital policy does not support NASG	35	21.3	129	78.6
Lack of fund	75	45.7	89	54.3
Non-availability of the garment	87	53.0	77	47.0
I see it as a waste of time	13	7.9	151	92.1
To me is not effective	13	7.9	151	92.1
Fear of discomfort during the procedure	33	20.1	131	79.9
It is only beneficial to people in the rural area	38	23.2	126	76.8
The garment is not always convenient to use	37	22.6	127	77.4
I don’t have the experience	37	22.6	127	77.4
It is faulty	17	10.4	147	89.6
The application of NASG takes time	17	10.4	147	89.6
It can only be used by midwives in the preventive setting	54	32.9	110	67.1

The result of the finding displays the factors affecting the utilization of Non-pneumatic anti-shock garments. Results from the quantitative study showed that the greatest factors affecting the use of Non-pneumatic anti-shock garment were the availability of other methods of controlling

postpartum haemorrhage as indicated by 145(88.4%) of the participants followed by the non-availability of the garment, 87(53.0%), and inaccessibility to NASG, 80(48.8%) Table 3.

Table 4: Themes and Sub-Themes of qualitative analysis

Theme	Sub-Theme	Frequency
1. Level of NASG utilization	**a. Adequate NASG Utilization**	4(36.4%)
	b. Occasional NASG Utilization	2(18.1)
	c. Awaiting licensure to use NASG	1(9.1)
	e. not utilized	4(36.4)
2.Factors influencing utilization of NASG	**a. Non-awareness/non-availability**	2 (18.1%)
	b. Staff Training Challenge	4 (36.4)
	c. Alternative to NASG utilization	4 (36.4)
	d. Inadequate knowledge	1 (9.1)%)

Level of the utilization of non-pneumatic anti-shock garment

Table 4 showed the emergence of three sub-themes on the level of NASG utilization; adequate utilization, occasional utilization, awaiting licensure to use and not utilized

The use of the garment by the participants from only the tertiary health facilities was adjudged adequate as shown

Factors influencing the use of non-pneumatic anti-shock garment

Lack of training was found as the major factor affecting the utilization of NASG which was hinged on non-availability and training on how to use the garment.

DISCUSSION

Socio-Demographic Characteristics of the Respondents

Results of the study indicate that the mean age of respondents was 37 ± 7.64 years, with the greatest proportion of the respondents, 82.3% married, with 59.8% of them having a first degree as their highest level of education and less than half 30.5% of them had 11-15 years of work experiences. Also, 25.6% of them were Senior Nursing Officers. This agrees with a study which shows that 50 (44.6 %) of the respondents were between 25-30 years, old. Most 61 of the respondents 61.6% had 11 years and above working experience [2]

The result of finding from the key informant interview on socio-demographic variables showed that the greatest proportion of the respondents, 89.9% were between age 33-43years having diploma as their highest level of education and 45.5% of them indicated that they had 21-25 years of professional practiced. Also, 75.8% of them were chief nursing officers.

Utilization of NASG

The result of the study on utilization of NASG showed less than half 45.7% of the respondents have never applied NASG on patients before while about 46.3% had applied it 1-5 times, with 27.4% confirming it was effective. The identified mean shortest duration range ± standard deviation of application was 19 minutes ± 13.45; the mean longest duration range ± standard deviation of application was 32 minutes ± 40.1, while the overall duration ± standard of NASG application process was 9 minutes ± 7.74. More so, the greatest challenges encountered by 28(17.1%) of them before application of NASG was the availability of the NASG, in use for a patient when it was a need for another patient and the greatest difficulty experienced by of the participants' was the inability to apply it correctly at the first attempt 23.2%., this agrees with [6] who reported that 62,5% of the respondents claimed to know the usage on non-pneumatic anti-shock garment but only 53 46.4% claimed to have used it. This also agrees with [7] which showed that non-pneumatic anti-shock garment number was another factor that statically associated with utilization of non-pneumatic anti-shock garment by health care professionals. Hospitals having two and above non-pneumatic anti-shock garments were around nine times more likely used than those who have one.

Generally, the outcome of utilization of the garment was effective, this agrees with [8] which confirmed that NASG reduces the adverse maternal outcomes from postpartum haemorrhage. Also [9] in their systemic review of five quasi-experimental studies that tested the NASG as a treatment for hypovolemic shock secondary to obstetric hemorrhage at the tertiary care facility level.

Factors influencing the utilization of NASG

Results from the study show that 88.4% of the respondents claimed that other methods of controlling postpartum haemorrhage as the major factor influencing the availability and utilization of NASG. The use of other methods topped the list of factors influencing the availability and utilization of NASG. This finding aligns with the result of the interview transcripts analyzed which showed that nursing staff adopts other methods in controlling postpartum haemorrhage and for the fact that the Midwives were license to make use of Oxytocin. Also, 53% claimed non-availability of the garment, 48.8% claimed inaccessibility to NASG, and 45.7 said lack of funds while 32.9% said the garment can only be used by midwives in the preventive setting. From the result of the in-depth interview, factors affecting the availability and utilization of the NASG was found to include lack of fund, cost of buying the garment, rare cases of postpartum hemorrhage, constant use of the few available ones, lack of constant training, non-awareness of the use of the garment and inadequate knowledge on the use of the garment. This study agrees with [7] which showed that good utilization of non-pneumatic anti-shock garment was seen among health care professionals who took training on non-pneumatic anti-shock garment as compared to those who have no training. Those health professionals who trained on non-pneumatic anti-shock were about thirteen times more likely used than those who had no training. This may be since attending training can help health care professionals to get more knowledge on how to apply, remove non-pneumatic anti-shock garments and this can improve their utilization of non-pneumatic anti-shock garments. The midwives believed that the cost of buying the NASG is too enormous for the hospital to bear. This has also affected the use of NASG as the available anti-shock garments are either locked up

or used during special occasions or were never used. This validates the claim of the midwives as 53% believed that non-availability of the garment poses a serious problem to the utilization of NASG. Therefore, this agrees with [10] who outlined non-availability and inexperience as the factors affecting the availability and utilization of the use of NASG

CONCLUSION

The study showed that the availability and utilization of the garment for the management of postpartum haemorrhage were on average. Midwives are aware of the NASG for postpartum haemorrhage The garment should therefore be made available in all health institutions offering maternity service especially at the level of primary health care, midwives rendering maternity service should have access to this important garment in the management of postpartum haemorrhage. There was a significant association between the availability and utilization of NASG among midwives in the management of postpartum haemorrhage.

What is already know on this topic

- Postpartum hemorrhage is the most common cause of maternal mortality
- Postpartum hemorrhage is classified into two namely Primary postpartum hemorrhage and Secondary postpartum
- It is know that the utilization of NASG is generally low

What this study adds

- The outcome of utilization of the garment was effective in the management of PPH
- The availability and utilization of the garment for the management of postpartum hemorrhage were on average in the study setting
- This study has clearly shown the factors influencing the utilization of NASG among nurses in Ekiti State

Competing interests

The authors declare no competing interest.

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