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FACTORS INFLUENCING AVAILABILITY 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; it can be managed through the use of non-pneumatic anti-shock garment (NASG), if available. This study was aimed to determine factors influencing the availability of NASG in the management of PPH among midwives in Ekiti State. The study adopted an embedded mixed-method design. Purposive sampling technique was used in selecting participants; a total of 164 midwives participated in the quantitative study and 11 in the key informant interview. Data were collected using self-structured questionnaire and interview guide; the same were analyzed using chi-square version 25 and ATLAS ti version 9, level of a significant set at 5% (0.05). Results from the study show that midwives' mean age was 37 ± 7.64, more than half (65.9%) had (NASG) in their facilities while 34.1% claimed non availability in their facility. This corroborates the result of the interview where the majority showed availability of one to two garments, while few indicated non-availability. Reasons for non-availability as stated by the participants include the following: lack of funds, cost of buying the garment, inadequate supply of the garment and availability of other methods of controlling PPH. There was a significant association between availability and utilization of NASG as the p-value obtained was 0.01, which is lesser than 0.05; the null hypothesis was therefore rejected. In conclusion, the availability of NASG for the management of PPH was on the average. It is recommended that government and hospital management of each facility should provide the garment for the management of PPH, regular seminar on the use of NASG and policies that will encourage continuous supply and utilization of NASG.*

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

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INTRODUCTION

Globally, the prevalence of postpartum haemorrhage (PPH) is estimated to be 6% and the highest-burden is experienced by women in low-income countries (Ononge et al., 2016). An estimated number of 529,000 women die from complications of pregnancy and childbirth every year, with a global ratio of 400 maternal deaths per 100,000 live births; this implies that one woman dies every hour of every day (WHO, 2018). 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 (Miller, 2017). The mon-pneumatic anti-shock garment is a first-aid device that reverses hypovolemic shock and decreases obstetric haemorrhage (WHO, 2018). It consists of articulated neoprene segments that close tightly with Velcro, shunting blood from the lower body to the core organs, elevating blood pressure, and increasing preload and cardiac output (Miller, 2017).

The non-pneumatic anti-shock garment (NASG) is currently recommended by the International Federation of Gynecologists and Obstetricians (FIGO) and the World Health Organization (WHO), and can be found in PPH guidelines and manual (WHO, 2018). Several studies have 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; thus, this study seeks to assess the availability of non-pneumatic anti-shock garment in the management of postpartum haemorrhage among midwives in Ekiti State, Nigeria. Therefore, the researcher aimed to assess the availability of NASG in the management of postpartum haemorrhage among midwives and explore factors influencing the availability of this garment in the management of postpartum haemorrhage among midwives in Ekiti State, Nigeria. The study also aimed to assess the significant relationship between availability and utilization of NASG in the management of PPH among midwives in Ekiti State.

LITERATURE/THEORETICAL UNDERPINNING

Postpartum Haemorrhage (PPH) is defined as the loss of blood that is greater than 500 ml following a vaginal delivery or blood loss that is more than or equivalent to 1000 ml, following a caesarean section (Egenberg et al., 2017). According to Mavrides et al. (2016), postpartum haemorrhage is classified into two, namely: primary postpartum haemorrhage and secondary postpartum haemorrhage.

Causes of Postpartum Haemorrhage

According to the American Congress of Obstetricians & Gynaecologists (ACOG) (2017), the following are the risk factors for PPH: multiple pregnancies, retained placenta, previous postpartum haemorrhage, perineal laceration, pre-eclampsia, episiotomy, foetal macrosomia general anaesthesia, failure to progress (2nd stage), elective or emergency caesarean section, prolonged third stage and placenta accreta. Mavrides et al. (2016) separated causes of PPH into 4 ‘T’s – tone, thrombin, trauma, and tissue. The common causes include uterine atony (tone), pre-eclampsia (thrombin), perineal laceration (trauma), and retained placenta (tissue).

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Non-pneumatic anti-shock garment (NASG)

The non-pneumatic anti-shock garment is a simple neoprene and Velcro device that looks like the bottom half of a wet suit cut into segments (Miller et al., 2017). It can be used to treat shock, resuscitate, stabilize and prevent further bleeding in women with obstetric hemorrhage. The brain, heart, and lungs are deprived of oxygen when a woman is in shock because blood accumulates in the lower abdomen and legs. The use of NASG reverses shock by returning blood to the heart, lungs, and brain. This restores the woman's consciousness, pulse, and blood pressure. Additionally, the NASG decreases bleeding from the parts of the body compressed under it (Miller et al., 2017).

Factors influencing the availability and utilization of non-pneumatic anti-shock garment

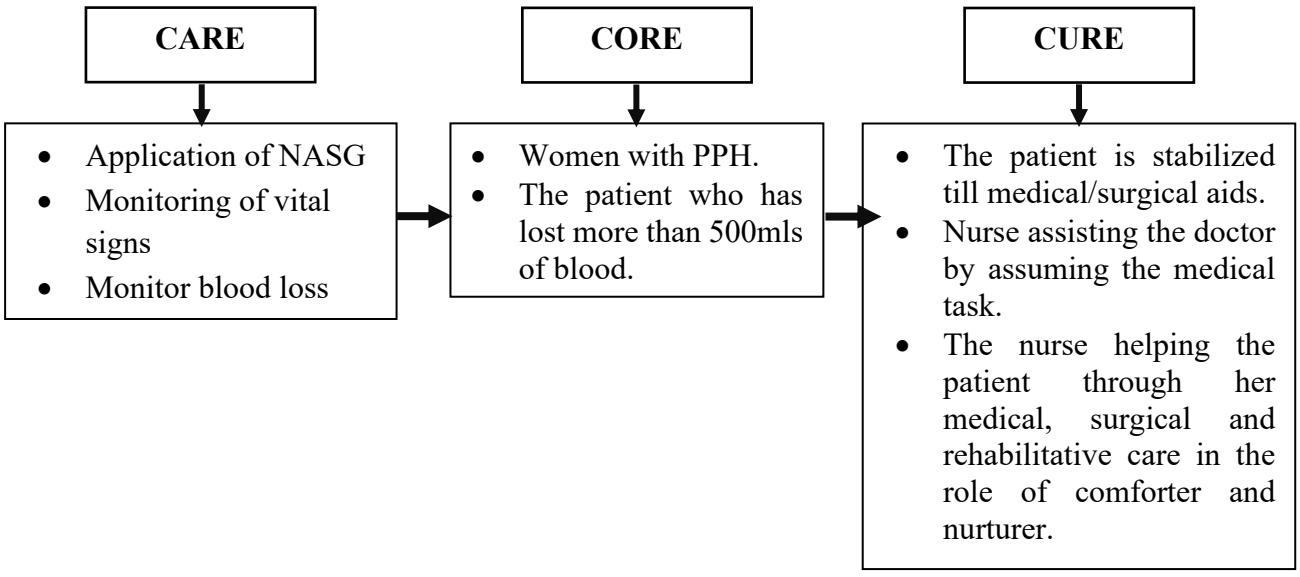
Several factors influence the availability and the utilization of non-pneumatic anti-shock garments. Gadisa et al. (2020) found a significant relationship between knowledge and training with the use of NASG training status. The midwives believe that the cost of buying the NASG is too enormous for the hospital to bear. Therefore, the available anti-shock garments are either locked up or used during a special occasion or were never used, thus affecting the availability and the use of NASG. Non-awareness of the garment and having no skill in using the garment was the major factor influencing the utilization of the garment as outlined by Desta et al. (2020). Lydia et al. (2017) reported the non-availability of NASG and inexperience on the use of the garment as the major factors influencing the availability and utilization of the garment, having no experience in the utilization of NASG.

Theoretical Review

The theoretical framework for this study is adapted from Care-Core-Cure Theory.

This was propounded by Lydia Hall in the late 1960s and referred to as the "three Cs" of Lydia Hall. The theory consists of three independent but interconnected circles that influence one another – ***the care, the core, and the cure.***

Figure 1: Application of Lydia Hall Care-Core-Cure to this study (Akinyemi O.O)



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METHODOLOGY

This study adopts an embedded mixed-method study design. Quantitative data on the availability of anti-shock garments and factors influencing the availability 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 availability of anti-shock garments in the management of postpartum haemorrhage among midwives in Ekiti State was collected using key informant interview; 11 unit heads were interviewed based on data saturation.

RESULTS/FINDINGS

Table.1: Socio-demographic Characteristics of Respondents

Socio-demographic variable	Frequency	Percent	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	
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	

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ACNO	12	7.3
CNO	27	16.5

The result of the finding shows participants' 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 indicating that they had 11-15 years of professional practice. Also, 42 (25.6%) of them were senior nursing officers.

Is a non-pneumatic anti-shock garment available for midwives to use in the management of postpartum haemorrhage in Ekiti State, Nigeria?

Table 2: Availability of non-pneumatic anti-shock garments (N= 164)

Availability of non-pneumatic anti-shock garments (NASG)	Frequency	Percentage
Do you have a non-pneumatic anti-shock garment in your facility?		
Yes	108	65.9
No	56	34.1
If yes, is it available in your unit?		
Yes	82	50.0
No	27	16.5
I don't know	5	3.0
Not applicable	50	30.5
If yes, how many do you have?		
One	39	23.8
Two	43	26.2
I don't know	5	3.0
Not applicable	77	47.0
NASG is available in my unit but faulty		
Yes	12	7.3
No	137	83.5
I don't know	15	9.1
NASG is available for purchase in the open market		
Yes	54	32.9
No	51	31.1
I don't know	59	36.0

The result of the findings shows the availability of non-pneumatic anti-shock garments in the respondents' unit. Results from the study depict that 108 (65.9%) of the respondents have non-pneumatic anti-shock garments in their facility, 82 (50%) have it in their units, 39 (23.8) have

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one garment while 43 (26.2%) have two in their units. However, 27 (16.5%) of them did not have it in their respective wards. Among the respondents that have it in their facility, 12 (7.3%) of them stated that it was faulty. More so, 50 (30.5%) of the respondents had no non-pneumatic anti-shock garment in their facility. In addition, 59 (36.0%) of them stated they do not know if the non-pneumatic anti-shock garments can be bought in the open market (Table 2).

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

Factors affecting the availability and 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
Lack of fund	75	45.7	89	54.3
Non-availability of the garment	87	53.0	77	47.0

The result of the finding displays the factors affecting the availability of non-pneumatic anti-shock garments. Results from the quantitative study showed that the greatest factor affecting the availability of non-pneumatic anti-shock garment was lack of funds (45.7%; Table 3).

This finding was supported by qualitative finding.

Table 4: Participants' socio-demographic variables (N= 11)

Socio-demographic variable	Frequency	Percentage
Age range		
33 – 43 years	2	18.1
44 – 55 years	9	81.9
Level of education		
Diploma	5	45.5
First degree	4	36.4
M.Sc	2	18.1
Years of professional practice		
5 – 10 years	3	27.3
11 – 15 years	2	18.1
16 – 20 years	1	9.1
21 – 25	5	45.5
Rank		
ACNO	1	9.1
CNO	8	72.8
ADNS	2	18.1

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The result of the finding showed participants' socio-demographic variables. The greatest proportion of them, 9 (89.9%) were between age 33-43 years having a diploma as their highest level of education and 5 (45.5%) of them indicated that they had 21-25 years of professional practice. Also, 8 (75.8%) of them were chief nursing officers.

Table 5: Themes and sub-themes of qualitative analysis

Theme	Sub-Theme	Frequency
1. Availability of NASG	a. availability of one garment	2 (18.1%)
	b. availability of two garments	5 (45.5%)
	c. not available	4 (36.4%)
2. Factors influencing the availability of NASG	a. Funding challenge	6 (54.5%)
	b. Cost of the garment	1 (9.1%)
	c. Inadequate supply of garment (few garments)	4 (36.4%)

Availability of NASG

Participants from tertiary health facilities indicated the availability of the garment. Out of the participants that indicated availability, five participants interviewed indicated **availability** of two garments as shown in these excerpts:

"Yes, we have like two in our unit." (CNO Teaching Hospital)

"Ok thank you very much, ma; presently in my unit, ***we have 2*** *and in the hospital generally, it is available…" (CNO Teaching Hospital)*

"In terms of availability, ***we have up to two*** *in the store but it's not been used because we've not gotten the directives to bring it out from the store."* (CNO State Hospital)

Two participants indicated availability of one garment in their unit, as shown in the following excerpts:

"*We have the NASG available in our unit; we have 1."* (*CNO Teaching Hospital*)

"The NASG is available and we rarely have a patient with PPH, once in a while." (CNO Teaching Hospital)

Factors influencing the availability of NASG

The major factors influencing the availability of non-pneumatic anti-shock garments in the management of postpartum hemorrhage were found to be lack of funds and constant use of few available ones. (Figure 2).

On the funding issue, a participant emphatically replied:

"…I think it's lack of funds." (CNO Primary Health Centre)

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Another participant shared a similar view on the cost of buying the garment which is associated with funding.

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 the study of Onasoga et al. (2015), 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.

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

The availability of non-pneumatic anti-shock garments

The result of findings shows that more than half (65.9%) of the respondents have non-pneumatic anti-shock garments in their facility; however, among the respondents that have it in their facility, 7.3% of them stated that it was not working. This corroborates the result from the key informant interview where most of the respondents indicated availability of NASG, which ranged between one and two garments, 23.8% had one while 26.2% had two. However, 30.5% of the respondents had none in their facility. This agrees with a study carried out by Kolade et al. (2014) at University College Hospital, Ibadan, which reveals that 96% of respondents are aware of the availability of NASG.

Factors influencing the availability of NASG

Factors deduced from the key informant interview on availability include availability of one to two garments at the tertiary health facilities, availability of one garment at a secondary facility, and non-availability of the garment at the primary health facilities. Factors affecting the availability were found to include lack of funds, cost of buying the garment, non-availability of the garment, rare cases of postpartum hemorrhage, and constant use of the few available ones. The midwives believed that the cost of buying the NASG was too enormous for the hospital to bear. 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 Lydia et al. (2017) who outlined non-availability and inexperience as the factors affecting the availability and utilization of the use of NASG.

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IMPLICATION TO RESEARCH AND PRACTICE

Nursing Education

Student nurses should be taught on the utilization of the NASG so as to improve their efficacy when the garment is available.

Nursing Administration

Administrators in nursing should ensure that NASG are made available for use in controlling PPH by the midwives.

Nursing Practice

Midwives need to know that having used the garment before with effective results, they ought to help in encouraging others to use it.

Nursing Research

Midwives' past experience of the procedure also suggests areas that need to be researched to make possible suggestions on improving the system.

CONCLUSION

The study showed that the availability of NASG for the management of PPH was on the 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.

FUTURE RESEARCH

Utilization of NASG among health care professionals in the management of PPH and factors influencing utilization are recommended.

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REFERENCES

American Congress of Obstetricians & Gynaecologists (2017). Practice Bulletin No.183: Postpartum Haemorrhage Obstetrics and gynaecology. 130(4):e168-e186

Desta A., A, Berhane, M, & Woldearegay, T., W. (2020). Utilization Rate and Factors Associated with Non-Utilization of Non-Pneumatic Anti-Shock Garment in the Management of Obstetric Hemorrhage in Public Health Care Facilities of Northern Ethiopia: A Cross-Sectional Study.: 12 Pages 943—951 https://doi.org/10.2147/IJWH.S266534

Egenberg, S., Masenga, G., Bru, L., E., Eggebo, T., M., Mushi, C., Massay, D., & Oian P (2017). Impact of multi-professional, scenario-based training on postpartum hemorrhage: a quasi-experimental, pre- vs. post-intervention study. BMC Pregnancy Childbirth,17(1):287.

Gadisa, B., Gemechu, T., Makeda, S., & Sena, B. (2019). Utilization of non-pneumatic anti-shock garment and associated factors for postpartum hemorrhage management among health care professionals in public hospitals. 10.1186/s12978-020-0891-6

Kolade, O., A, Tijjani, W., A, Oladeji, M., A, & Ajibade, L., A. (2014) Midwives' knowledge and utilization of anti-shock garment in the prevention of postpartum hemorrhage shock. J Nurs Health Sci.2014; 3:9–16.

Lydia, B., Ramyil, S., & Ogundeko, O. (2017) Knowledge and management of postpartum haemorrhage among skilled birth attendants in primary health centers. Public Health International: 2(4):124-130.

Mavrides, E., A., S., Chandraharan, E., Collins, P., Green, L., Hunt, B., J., Riris, S., & Thomson A., J. (2016). On behalf of the Royal College of Obstetricians and Gynaecologists Prevention and management of postpartum haemorrhage. *BJOG Int J Gynaecol.;124: e106–e49.*

Miller, S., Bergel, E., F., E., l., Ayadi, A., M., & Gibbons, L. (2017). Non-Pneumatic Anti-Shock Garment (NASG), a First-Aid Device to Decrease Maternal Mortality from Obstetric Hemorrhage: *A Cluster Randomized Trial. Abdel-Aleem H, editor. PLoS One 2013;8(10): e76477.*

Onasoga, O., A., Duke, E., Danide., I., U., & Jack-ide, I., O. (2015). Midwives 'knowledge and utilization of non -pneumatic anti-shock garment in reducing the complication of postpartum haemorrhage in selected health care facilities, 4(4),977–981. International Journal Reproductive contraceptive Obstetrics and Gynecology. 2015:977–81

Ononge, S., Mirembe, F., Wandabwa, J & Campbell, O., M. (2016). Incidence and risk factors for postpartum hemorrhage. Reproductive Health, pp*13:*38.

WHO, UNICEF, UNFPA & World Bank (2018): Trends in maternal mortality. http://whql.bdoc.who.int/publication.

WHO. (2016): WHO statement regarding the use of misoprostol for postpartum haemorrhage prevention and treatment.: r*etrieved from www.k4health.org.*

Article DOI: 10.52589/AJHNM-4JIEIHH6
DOI URL: https://doi.org/10.52589/AJHNM-4JIEIHH6