



UTILIZATION OF ANTI-SHOCK GARMENT IN MANAGEMENT OF POST-PARTUM HAEMORRHAGE AMONG MIDWIVES' IN BENIN CITY.

Omoregie, Eniye Favour¹, Ajani Shade Toyin¹, Emeshili, Abieyuwa², Oderinde Mary Oselumese³, Okwu Ifeoma Ebelechukwu¹ and Abure-Pedro, Ruth¹

¹Department of Midwifery, College of Nursing Sciences, University of Benin Teaching Hospital, Benin City, Edo State, Nigeria

² Department of Nursing, WellSpring University; Benin City, Edo State, Nigeria

³Department of Nursing, Igbinedion University; Okada, Edo State, Nigeria

Correspondence: Omoregie, Eniye Favour, College of Nursing Sciences, University of Benin Teaching Hospital, Benin City.

Email: favoumoregie14@gmail.com +2348060615136

ABSTRACT

Each day, around 1,000 women die due to complications during childbirth, with postpartum haemorrhage (PPH) being a leading cause of maternal mortality globally. PPH is defined as vaginal bleeding exceeding 500ml after vaginal delivery, over 1,000ml following a caesarean section, or any amount that could threaten the woman's health. This study aims to assess midwives' knowledge regarding the anti-shock garment and its significance in managing postpartum haemorrhage among new mothers. A total of 100 midwives were selected using a census survey technique. Data collection was conducted via questionnaires, and results were analyzed through frequency tables, pie charts, and bar charts. A null hypothesis stating no significant relationship between midwives' awareness and the use of the anti-shock garment was tested using the chi-square statistical method at a 0.05 significance level. The calculated value was 92.16, exceeding the critical value of 3.84, leading to the retention of the hypothesis. The findings indicated that 96% of midwives were aware of the anti-shock garment; however, 79% acknowledged that it is seldom utilized in PPH management within the maternity unit. Midwives at UBTH possess knowledge about the anti-shock garment, its application in practice is limited. The study recommends that the In-Service Education Unit at UBTH organize regular workshops to enhance training on the use of the anti-shock garment and ensure its availability for healthcare personnel.

Keywords: Utilization, Anti-shock garment, Postpartum haemorrhage, Midwives, Management

INTRODUCTION

Every day, approximately 1,000 women die in childbirth (WHO, 2018). Post-partum haemorrhage is the most common cause of obstetric haemorrhage and one of the five leading cause of maternal mortality in the world. Post-partum haemorrhage (PPH) is vaginal bleeding in excess of 500ml after vaginal delivery or in excess of 1,000ml after caesarean section or any amount that can make the condition of the client deteriorate hence, jeopardizing her survival (Miller.et.al,.2017). Treatment protocols for PPH and hypovolaemic shock includes the administration of uterotonic agents, bimanual compression of the uterus, manual removal of placenta, repair of lacerations, blood transfusion and surgery. All of these may be unobtainable in low-resource settings, and women may experience long delays receiving treatment at these facilities and the woman can die within a few hours unless she receives immediate and prompt medical care; therefore, when delay in managing PPH occurs, firstly what is needed to stabilize women with hypovolaemic shock until definitive treatment is obtainable.

In 2017, the joint statement of International Council of Midwives (ICM) and International Federation of Obstetricians and Gynaecologists (IFOG) recommended research on anti-shock garment to reduce mortality among women suffering from PPH. The Non Pneumatic Anti-shock Garment (NASG) is a first aid lower body compression device, made from Neoprene and Velcro to reverse shock in trauma patients by shunting blood from the lower extremities and pelvis to the vital organs. Clinical trials into the NASG have been conducted in Nigeria according to a pre-intervention/post intervention design for women treated with NASG, measured blood loss after entry to the study was reduced from 78-33% and the NASG improved maternal survival by 40-67% Dumont et al. (2021).

However, it is also possible that adverse maternal outcomes could involve suboptimal application of the NASG. Unlike the pneumatic anti shock garment (PASG), the NASG has no manometer to determine how much pressure is being exerted and whether the device has been applied too loosely (resulting in ineffective vascular compression) or too tightly (resulting in ischaemia or compression syndrome). Since the NASG does not have a pressure gauge, it is not known how application pressure varies (i.e. between a strong applier and a weaker applier), although, providers are trained to test the tightness of their application by lifting up a part of an applied segment with one finger and letting it 'snap' back into place to ensure a level of tightness, though, this is unrealistic (Oyedele **et al.** 2020). This study therefore is a survey on the awareness and utilization of NASG in the management of PPH by midwives in UBTH.

METHODOLOGY

Research Design

A non-experimental, research design was used to elicit information on the awareness and utilization of anti-shock garment in the management of post-partum haemorrhage in University of Benin Teaching Hospital.

This research was carried out in the maternity unit of the obstetrics and gynaecology department of University of Benin Teaching Hospital, Benin City, Edo State, located in Ugbowo, along Benin Lagos express road. This unit is made up of antenatal clinic, maternity ward 1 and 2, and labour ward.

Target Population

The target population comprises of 200 midwives working in the maternity units of University of Benin Teaching Hospital.

Sampling (Size and Formula)

The sample size was determined using Taro Yamane (1967) formular for

$$n = \frac{N}{1 + N(e)^2}$$

Where; n = Sample size

N = Total target population

1 = Standard

e = Level of precision = 0.05

$$n = \frac{200}{1 + 200(0.05)^2}$$

$$n = \frac{200}{1 + 200 \times 0.0025}$$

$$n = \frac{200}{1 + 1}$$

$$n = \frac{200}{2}$$

$$N = 100$$

Sample size is 100

Sampling Technique

The non-probability sampling technique used for selection was used in the study. This was to enable the researcher to select the respondent comprised of 100 midwives in University of Benin Teaching Hospital.

Instrument for Data Collection

Structured questionnaire was used to collect data from respondents. The questionnaire divided into section A- E: It consist of 19 questions.

Section A: Demographic data

Section B: Knowledge/awareness of the use of non-pneumatic anti-shock garment.

Section C: Application of non-pneumatic anti-shock garment.

Section D: Assessing the level of utilization on the use of non-pneumatic anti-shock garment.

Section E: Factors that affect the use of anti-shock garment.

Validity of Instrument

Content validity was used to ensure that the research instruments answers the research questions after undergoing scrutiny by the research supervisor.

Reliability of Instrument

The reliability of instrument was ensured using the non-equivalent or parallel method, where the questionnaire was administered to the target population outside the research population similar to test-retest method and the numbering altered.

Method of Data Collection

Data was collected by self-administration to selected midwives in UBTH during the researcher's clinical posting. A total of 100 questionnaires was administered and was retrieved within four weeks.

Method of Data Analysis

Data was analysed using frequency tables, percentages, bar charts and pie chart.

Ethical Consideration

Respondents was duly informed that participation is voluntary and that the study was strictly for academic purpose. Consent was sort; respondents were assured of anonymity before administering the questionnaire.

Hence, they had a choice to participate, reject or withdraw participation at will.

Ethical approval was gotten from the research and ethics committee with reference number

RESULTS

Results is based on the analysis and interpretation of data collected in order to find a solution

to the problems stated. The results of the findings are presented in frequency distribution tables.

SECTION A:

Table 1: Demographic data of presentations

Variable		Frequency	Percentage %
Age in years	20-27	30	30
	30-39	50	50
	40 and above	20	20
	Total	100	100

Qualification		Frequency	Percentage %
	RN	0	0
	RN/M	60	60
	BNSC	20	20
	Others	20	20
	Total	100	100

Rank		Frequency	Percentage %
	CNO	10	10
	ACNO	10	10
	PNO	20	20
	SNO	20	20
	NO I	30	30
	NO II	10	10
	Total	100	100
Years of Service		Frequency	Percentage %
	1-9	40	40
	10-19	30	30

	20-29	20	20
	30-34	10	10
	Total	100	100

The above statistics show that 50% of respondents are between the ages of 30-39 years, 30% are 20-29 years while 20% are 40 years and above.

Also 60% of respondents had RNM, 20% BNSC and 20% other certificate.

Moreover 30% of the respondents were NO I, 20% PNO's, 20% SNO's, 10% CNO's and 10% NO II.

In addition 40% of respondents had been in service between 1-9 years and 10% have served between 30-34 years.

SECTION B: Respondent's awareness on the use of non-pneumatic anti-shock garment (NASG)

Table 2: Percentage distribution of respondents who have heard about anti-shock garment

Variable	Frequency	Percentage %
Yes	96	96
No	4	4
Total	100	100

The above table shows that 96% of respondent have heard of anti-shock garment while 4% have not.

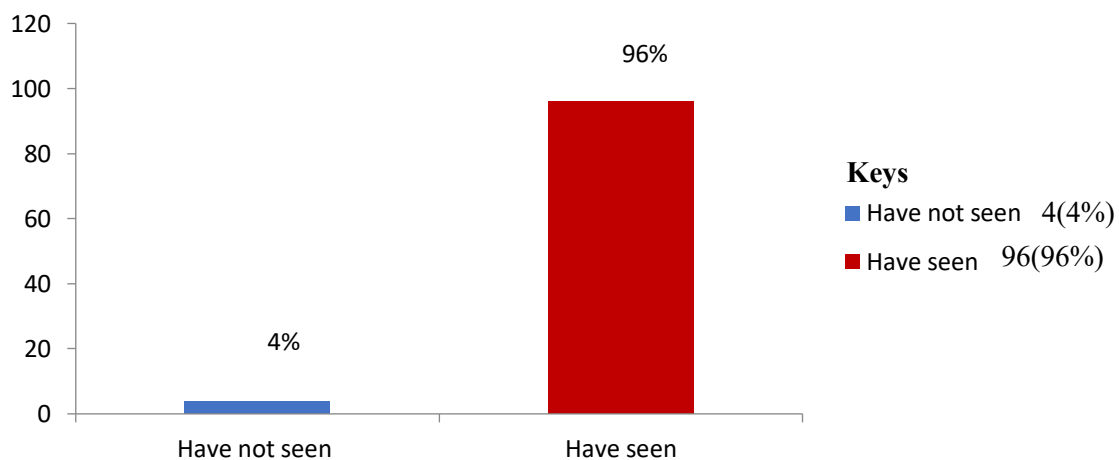


Figure 1: Bar chart showing whether respondents have seen anti-shock garment

The above shows that 96 respondents (96%) have seen and 4(4%) have not seen

Table 3: Percentage distribution on how respondents know the garment

Variable	Frequency	Percentage %
At work	21	21
In school	31	31
Seminars/workshop	21	21
Book/articles/journals	15	15
Internet	12	12
Total	100	100

The above distribution shows that 31% of respondent knew about anti-shock in school, 21% at work, 21% in seminars/workshops, 15% from books/articles/journals and 12% from the internet.

Table 4: Respondent's view on what anti-shock garment is used for

Variable	Frequency	Percentage %
To prevent shock	60	60
To arrest haemorrhage	30	30
To decrease blood flow	10	10
Total	100	100

The above table shows that 60% ticked to prevent shock, 30% to arrest haemorrhage and 10% to decrease blood flow.

Table 5: Respondent's view on the contra-indication to the use of anti-shock garment.

Variable	Frequency	Percentage %
Presence of a viable foetus	40	40
Congestive cardiac failure	23	23
Road traffic accident	25	25
Children below 5 years	13	13
Total	100	100

This distribution shows that 40% of respondents viewed that anti-shock garment is contra-

indicated in the presence of viable foetus, 25% for road traffic accident, 23% for congestive cardiac failure and 13% for children below 5 years.

SECTION C: Assessing the level of utilization of non-pneumatic anti-shock garment

Table 6: Respondents view on the application of anti-shock garment correctly

Variable	Frequency	Percentage %
Yes	63	63
No	10	10
Not really	27	27
Total	100	100

The above distribution shows that 63% can apply anti-shock garment correctly, 27% are not sure they can apply it correctly and 10% cannot apply the garment correctly.

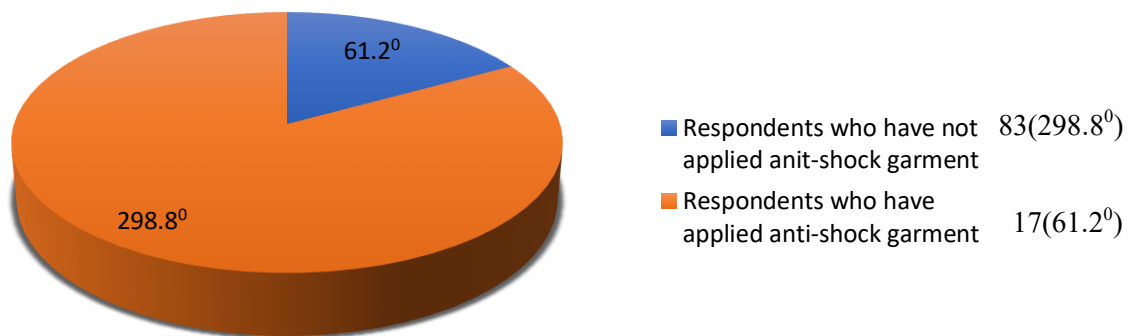


Figure 2: Pie chart showing whether respondents have applied anti-shock garment on a patient.

83(298.8) respondents have applied anti-shock garment while 17(61.2) have not

SECTION D: Assessing Midwives knowledge on the use of Non-Pneumatic Anti-Shock Garment (NASG)

Table 7: Respondents view on the number of segments anti-shock garment has

Variable	Frequency	Percentage %
1-2	-	-
3-4	20	20

5-6	65	65
7 and above	15	15
Total	100	100

From the above 65% respondent choose segment 5-6, 20% for segment 3-4, and 15% for segment 7 and above.

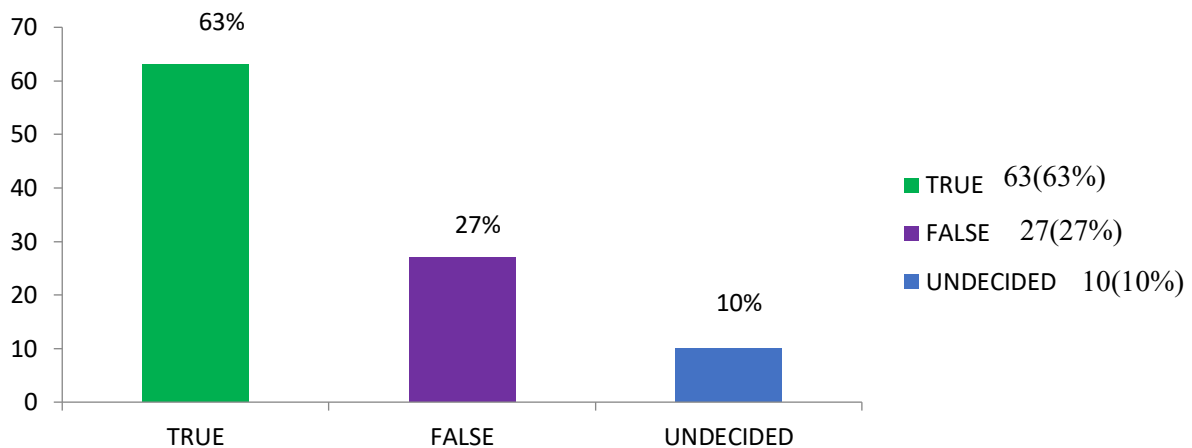


Figure 3: Shows respondents' view on whether segment 4, 5, and 6 should be applied by a single person

63% agreed that segment 4, 5 and 6 should be applied by a single person 27% disagreed and the remaining 10% are undecided.

Table 8: Respondents' view on how long it will take before removing each segment of the garment

Variable	Frequency	Percentage %
30 seconds	10	10
5 minutes	10	10
15 minutes	60	60
30 minutes	20	20
Total	100	100

The above statistics shows that 60% agreed on 15 minutes, 20% on 30 minutes, 10% on 5 minutes, while the remaining 10% on 30 seconds

Table 9: Respondents views on how often, anti-shock garment is used in obstetric emergencies in the maternity unit

Variable	Frequency	Percentage %
----------	-----------	--------------

Rarely	80	80
Very often	20	20
Total	100	100

The above table reveals that majority of respondents 80% says anti-shock garment is rarely used while 20% says very often.

Table 10: Respondents view on what they think are factors affecting the use of anti-shock garment

Variable	Frequency	Percentage %
Lack of knowledge on the use and benefit of the garment	20	20
Obstetrician are not readily available in the maternity unit	50	50
Anti-shock garment is not always available in the unit	30	30
Total	100	100

The above table shows that 50% choose obstetrician are not readily available in the maternity unit, 30% anti-shock garment is not always available while 20% choose lack of knowledge on the use and benefit of the garment.

Table 11: Respondents view on way they think they can improve the use of anti-shock garment by midwives in the department.

Variable	Frequency	Percentage %
Training and re-training of midwives on its use	40	40
Availability of the garment	60	60
Total	100	100

The above statistics shows that 60% agreed with availability of the garment while 40% agreed with training and re-training of midwives on its use

DISCUSSION

The study assessed the awareness and utilization of the Non-Pneumatic Anti-Shock Garment (NASG) in the management of postpartum haemorrhage (PPH) among midwives at the University of Benin Teaching Hospital (UBTH).

A non-probability census survey was adopted, and data were collected from 100 respondents. Findings were analyzed using frequency tables, bar charts, and pie charts. The discussion below interprets the findings in relation to existing literature and clinical realities.

The findings revealed a high level of awareness of the NASG among midwives in UBTH, as 96% of respondents indicated that they had heard of or seen the garment. This is consistent with the findings of Akingbohunge **et al. (2021)** in their study among midwives in South-west Nigeria, which reported 83% awareness of the NASG and its life-saving potential in PPH management. Similarly, Onosoga *et al.*,(2015) revealed more than half (93.7%) of the respondents (midwives) were aware of the use of anti-shock garment.

The main source of information about NASG among respondents in this study was through formal education in nursing schools, followed by workshops and seminars. This aligns with Ohaeri **et al. (2017)** who noted that midwives' knowledge of NASG was primarily acquired during pre-service training rather than in-service education. It suggests that while theoretical exposure exists, there may be limited opportunities for hands-on training and continuous professional development. Therefore, organizing regular seminars, simulation sessions, and clinical demonstrations is crucial to enhance practical competence and confidence in NASG use. Although awareness was high, utilization was relatively low. Only 20% of respondents reported that NASG was "often used," while 80% stated it was "rarely used." This finding agrees with Akingbohunge **et al. (2021)** who found that although 92% reported they have been trained on the usage of NASG, there are still gaps in their knowledge even as 31% reported that they were not using it because they do not know about it. Similarly, Oparaocha, E., & Chiejina, E. N. (2025) reported that implementation gaps, logistics challenges, and low institutional support contribute to the under-utilization of NASG in many low-resource settings.

UBTH, being a tertiary referral center, receives numerous emergency cases from peripheral facilities daily, including PPH cases. Many referring facilities may not have the NASG available, which often delays stabilization and increases maternal risk during transfer. This finding echoes Oparaocha, E., & Chiejina, E. N. (2025) who highlighted that NASG use at the primary and referral levels significantly reduces delays in care and improves survival rates for women with PPH and hypovolemic shock. The study also revealed that most midwives could correctly identify and apply the segments of the NASG. About 65% knew the correct order of application, and 63% understood that segments 4, 5, and 6 should be applied by a single person. This aligns with findings from Oyedele **et al. (2020)** who reported that Nigerian midwives demonstrated good theoretical knowledge but limited practical application experience. This suggests a gap between knowledge and practice that can be bridged through continuous clinical drills and simulation-based learning.

Respondents identified the dominance of obstetricians in treatment decision-making as a barrier to NASG use, as many procedures are categorized as “doctor’s procedures.” This observation supports Sowunmi **et al. (2019)** who found that institutional hierarchy and restrictive policies often hinder nurses and midwives from initiating NASG application independently.

Additionally, standard treatment protocols for PPH such as uterotonics, bimanual compression, and surgical interventions are often prioritized over the NASG, despite its simplicity and cost-effectiveness. **FIGO (2022)** emphasizes that NASG should be part of the first-line response for PPH stabilization before definitive treatment. Therefore, revising facility-based obstetric emergency protocols to include midwife-initiated NASG use is essential.

Conclusion

From the research findings, midwives in the University of Benin Teaching Hospital (UBTH) are aware of the use of anti-shock garment, though some could not apply it properly. But a greater percentage are knowledgeable on its use and benefits but do rarely apply it on patients due to its unavailability and hospital protocols.

Recommendations

Based on the findings of the research, the following recommendations are made.

- Since UBTH is a referral centre and most of the postpartum haemorrhage cases are referred here, there is need for training and retraining of private, state and local government health

personnel, as well as the traditional birth attendants (TBAs) on the applications as well as maternal death before getting the woman to the referral hospital.

- In-service education unit UBTH, Benin should regularly organize workshops and monitor the use of the NASG by midwives and all health personnel and the hospital authority should make NASG abundantly available for use.
- As survival of patient is the utmost goal of any facility, midwives in UBTH should be given free hand to carry out some life-saving procedures like the application of NASG, amongst others as they are static holders in Midwifery matters. This should not be limited to resident doctors and consultant obstetricians and gynaecologist alone.
- All health facilities should include in their policy the use of anti-shock garment as management protocol for postpartum haemorrhage.

REFERENCES

- Addakano, B.U. (2016). A project work on the perceived efficacy of NASG in the management of postpartum haemorrhage in tertiary hospitals in Northern Nigeria.
- Akingbohunge, O., Ojewale, L. Y., Akingbade, O., & Adejumo, P. O. (2021). Knowledge and utilisation of anti-shock garment among midwives of Adeoyo Maternity Teaching Hospital, Ibadan, Nigeria. *Midwifery*, 4(5), 26-37.
- Bree, S.C. Hensleigh, R.A. Miller, S. & Pelligra R. (2018). A non-inflatable anti shock garment for obstetric haemorrhage. *Int. J. gynaecol Obstet* 87 (2): 119 – 24.
- Dumont, A., Bodin, C., Hounkpatin, B., & Gaye, A. (2021). Efficacy of uterine balloon tamponade for uncontrolled postpartum haemorrhage: A multicentre prospective cohort study. *BJOG: An International Journal of Obstetrics & Gynaecology*, 128(3), 503-510. <https://doi.org/10.1111/1471-0528.16472>
- Figo/ICM (2018). Joint statement on management of 3rd stage of labour to prevent post-partum haemorrhage/content express.
- Funso, T.A. (2016). A guide to primary health care practice in developing countries. Rotimi excess production, Akure, Ondo state. Nigeria.
- Gabrysch, S. & Campbell, O.M (2016). Still too far to walk: literature review of the determinants of delivery service use BMC pregnancy, child birth 2018 9:34 available at <http://google.com/www.researchwork.com>
- Hensleigh, P.A. (2017). Anti-shock garment provides resuscitation and haemostasis for obstetric haemorrhage. . *Int. J. gynaecol Obstet* 87 (2): 119 – 22.
- Kolade, O.A, Tijam, W.A., Oladeji, M.O. & Ajibade, B.L. (2019). IOSR Journal of nursing and health science (IOSR – JNHS) Volume 3 pp 09 – 16 available at <http://google.com/www.Losr Journals. Org>. Retrieved on 8th April, 2018.
- Lester, F., Sternson. A., Meyer, C., Morris, J., Vargas, J. & Miller, S. (2017). Impact of the non-pneumatic anti shock garment on pelvic blood flow in healthy post-partum women, *AMJ. Obstet. Gynecol* 204:1
- Miller, S., Ojengbede, O., Turan, J.M., Morhason, V.N., Bello, I.O., Martin, H.B. & Nsima, D. (2017). A comparative study of the non-pneumatic anti shock garment for the treatment of obstetric haemorrhage in Nigeria. *Int. J. Gyanaecol obstet* 107:121- 5.
- Miller, S., Turan, J.M. & Ojengbede, A. (2017). The pilot student of the non-pneumatic anti shock garment in women with severe, obstetric haemorrhage, combined result from Egypt and Nigeria. *Int. J. Cyneco/ Obstet* 94: 543 – 4.

- Miller, S. & Hensleigh P. (2017). Non- pneumatic anti-shock garment for obstetric haemorrhage. *Int. J.Gynaecol Obst*,10:132-3.
- Mourad-Yousiff, M., Ojengbede, O.A., Mayer, C.D., Fathatha, M. & Morhoson-Bello I.O. (2017): can the non-pneumatic anti-shock garment reduce adverse maternal outcomes from post-partum haemorrhage? Evidence from Nigeria and Egypt reproductive health 7:24.
- Ogbeye, G. B. Ohaeri, B. M. &Olatubi, M. I (2015). Midwives knowledge and Attitude towards the use of anti-shock garment in the control of post partum haemorrhage in selected hospitals in Ondo State. *International Journal of Health Sciences & Research*,5(9)
- Ohaeri, B. M., & Ogbeye, G. B. (2017). Assessment of utilisation of non-pneumatic anti shock garment (NASG) in the control of post-partum haemorrhage among midwives in selected hospitals in Ondo-State, Nigeria. *International Journal of Caring Sciences*, 10(1), 327.
- 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 complication of post- partum haemorrhage in selected health care facilities in Bayelsa state, Nigeria. *International journal of reproduction, contraception, obstetrics and gynaecology* 4(4), 977-981.
- Oparaocha, E., & Chiejina, E. N. (2025). Availability of non-pneumatic anti-shock garment for control of postpartum hemorrhage by midwives in government hospitals in imo state nigeria. *Medical and Health Sciences European Journal*, 9(1), 99-110.
- Oyedele, M., Dada, S., & Aina, D. (2020). Knowledge and utilization of non-pneumatic anti-shock garment for the management of postpartum hemorrhage among Midwives in government hospitals in Ogun State, Nigeria. *Babcock University Medical Journal*, 3(1), 59-66.
- Sowunmi, C. O., Iwaola, O. M., & Ogbeye, G. B. (2019). Midwives' skills in the application of non-pneumatic anti-shock garment for the management of postpartum haemorrhage in Ondo State, Nigeria. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, 8(1), 210
- Pathfinder International (2016). Nigeria feature stones: new blood bank named for Dr. Habib Sadanki, 18 March 2016. Available at <http://tinyurd.com/cy49tz> .
- Summary of life saving skills (2018). A training manual/programme for midwives held at BMH Portharcourt .
- United Nations Children's Fund (2017). Information by country and programme. Statistics: women's health. Available at www.unicef.org/info by country/index.html.
- Van-Rhunan, P.J. & Brabin, B.J. (2016). Anti-shock garment for obstetric haemorrhage.

Current women's health review 3:3-11.

World Health Organization (2018). Managing complication in pregnancy and childbirth: A guide for midwives and doctors, integrated management of pregnancy and childbirth (IMPAC) WHO department of reproductive health and research geneva. Available at: <http://www.WHO.int/reproductive health/impact> accessed 14 Ma