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SYSTEMATIC REVIEW ON USE OF INTRAUTERINE BALLOON TAMPONADE IN MANAGEMENT OF POSTPARTUM HAEMORRHAGE

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ABSTRACT

In order to provide recommendations for a thorough and successful review on the use of intrauterine balloon tamponade (IUBT) in the management of postpartum hemorrhage (PPH) at all levels of healthcare, this systematic review will identify best practices and gaps in the management of postpartum hemorrhage (PPH).

In order to evaluate the current state of PPH and the use of Intrauterine Balloon Tamponade (IUBT) in the management of PPH, the review examined pertinent literature and data sources. The Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) Protocol served as the review's guide.

It began with a search of the literature for pertinent articles that addressed the management of postpartum hemorrhage. Selected abstracts were downloaded and initially checked for inclusion or exclusion criteria in the study after random and irrelevant results had been eliminated. A total of 32 papers were provisionally chosen from the preliminary screening based on the abstract. A total of 15 articles and papers that satisfy the inclusion requirements were chosen and given additional scrutiny after further screening.

Information about PPH demographics, a description of the program, and the degree of management success were taken from each of the qualifying studies. There was a report on the midwives' awareness of the use of IUBT in the management of PPH in all of the studies when uterine atony was the reason for the intervention.

All healthcare facilities must be prepared for early intervention in the prevention and management of postpartum hemorrhage, according to the review's findings, which show that the introduction of the IUBT device and package for the management of severe PPH was associated with a significant 15% decrease in the rate of a composite outcome of PPH-related maternal death and/or invasive procedures with an 85% success rate for hemorrhage control. Additionally, health workers need to have proper training on intrauterine balloon tamponade use in the management of PPH.

Keywords: Intrauterine balloon tamponade, Management, Postpartum haemorrhage

1.0 INTRODUCTION

Condom-catheter Intrauterine Balloon Tamponade (C-UBT) has been identified and proven as an effective and cheap intervention in the management of uncontrolled Postpartum haemorrhage (PPH) worldwide (Suarez et al., 2020), especially in developing countries where women with uncontrolled haemorrhage often die because of no/poor access to surgical interventions (WHO, 2020). Condom-catheter Intrauterine balloon tamponade commonly used in low resource

settings is currently recommended for arresting bleeding among women with Postpartum haemorrhage due to atony of the uterus that are not responsive to uterotonics and initial management to avoid invasive procedures such as arterial embolization, uterine compression sutures, pelvic vessel ligation, and hysterectomy (Suarez et al., 2020).
About 35% of maternal deaths worldwide are associated with Postpartum haemorrhage (PPH), and maternal deaths due to Postpartum hemorrhage account for 45 deaths per 100,000 live births (WHO 2021). PPH is a common complication and life-threatening obstetric emergency related with both vaginal and cesarean birth (Yul et al., 2020). Postpartum haemorrhage (PPH) is one of the leading causes of severe maternal morbidity, and the leading cause of immediate maternal deaths, accounting for 27% of global maternal deaths (Kassebaum et al; 2013, Althabe et al; 2020, UNICEF 2019).

Changede et al., 2021 defined Postpartum hemorrhage as vaginal bleeding of more than 500 ml within 24 hours after birth. It is a condition that can endanger life and health in the long term. This is a common problem in the genitals and birth area and is a risk factor for survival in emergency situations (Changede et al., 2021).
Approximately 529,000 women die each year from complications of pregnancy and childbirth; Worldwide, there are 400 maternal deaths per 100,000 live births; This shows that one woman dies every hour of every day (World Health Organization, 2022). Postpartum hemorrhage accounts for 25% of maternal deaths and one-third of all maternal deaths worldwide; making it the leading cause of maternal death and morbidity. Every year, more than 1.5 million women experience problems due to bleeding during pregnancy and after birth (World Health Organization, 2020). The prevalence of postpartum hemorrhage varies between 7% and 12% in high-income countries and can reach 25.7% in sub-Saharan Africa (Suarez, 2020). There is evidence that mortality from postpartum hemorrhage is underestimated and may be as high as 40% in some African countries, as well as Southeast Asia and Latin America (World Health Organization, 2020).

According to the World Health Organization, Nigeria's female mortality rate in 2018 was 814 deaths per 100,000 people (World Health Organization, 2020). PPH occurs in 12% of planned patients, while it is 88% in patients without an appointment and in planned patients who choose to give birth outside the hospital (World Health Organization, 2021). There are 576 maternal deaths per 100,000 births in Nigeria (UNICEF, 2022).

Maternal mortality index varies across Nigeria; The Northern part of the city has a higher maternal mortality rate (MMR) than other areas. From 2008 to 2013, the number increased from 620 to 709 per 100 live births in the North. Maternal mortality is lowest in the South; While it was 401 per 100,000 births in 2008, it increased to 365 per 100,000 births in 2013 (Meh et al., 2019).
Maternal mortality rate (MMR), as reported by the United Nations Children Emergency Fund, is

576 per 100,000 live births in Nigeria (UNICEF, 2022) with postpartum haemorrhage as the main cause, and Nigeria is far from reaching the Sustainable Development Goal 3 which is to reduce MMR below 70 per 100, 000 live births (WHO, 2021). This high MMR in Nigeria can be attributed to the three delays; delay of women to seek maternity care, delay to arrive in health care facilities and delay in receiving care from skilled health care professionals (Ajepe et al., 2020; & Galadanci et al., 2020).

According to Althabe et al., 2020, the most common cause of PPH is uterine atony, a condition in which the uterus fails to contract after the birth of the baby. According to Jayne & Maureen 2019, the causes of PPH can be divided into the following groups: There are four T's: tone, trauma, tissue and thrombin and are often accompanied by weak uterine contractions. Coagulopathy can cause poor blood clotting and increased blood clots. These represent a state of impaired hemostasis and may include congenital anomalies or abnormalities occurring during or after birth due to other problems (Jayne & Maureen, 2019). Causes of coagulopathy in severe bleeding include resuscitation-induced hyperfibrinolysis or dilutional coagulopathy. Consumption coagulopathy, characterized by activation of the coagulation cascade and resulting reduction in clotting factors and platelets, is rare in PPK but can cause serious bleeding. The occurrence and course of coagulopathy depends on the cause of PPH (Erez, 2021). The initial treatment for postpartum hemorrhage is uterotonic agents, but when bleeding is persistent, other methods may be used, including uterine balloon tamponade (UBT), non-inflatable anti-shock pants (NASG), and surgical uterine surgery if possible. Other interventions include arterial embolization, B-Lynch compression suture, and eventual hysterectomy. In resource-constrained settings with limited or no access to surgical services, women with uncontrolled bleeding often die.

Different commercial intrauterine balloon tamponade devices have been described, but they are often not available in rural communities, and where they exist, they are not affordable (Makinde et al., 2019). Evidence shows that C-UBT has a high success rate (86%) for treating severe postpartum hemorrhage, mainly due to uterine atony, with a low rhythm of complications (Thomas et al., 2022). Intrauterine tamponade is a less invasive method that is straightforward, does not require a big operation, takes less time, and often reduces or stops bleeding promptly (Sharma et al., 2021). As a result, laparotomy and hysterectomy may be avoided, as well as blood transfusions. This may also limit referral of patients.

IUBT works by placing a balloon in the uterus and allowing water to run in leading to increase in uterine pressure, the subsequent increase in intra-uterine pressure is expected to reduce blood flow and increase clotting in the uterine wall.. Intrauterine balloon tamponade devices can be made temporarily from off-the-shelf products (e.g., condoms, condoms, and Foley catheters), and specially designed IUBT products are commercially available (e.g., Sengstaken-Blakemore

or Bakri balloons) (Suarez et al., 2020). Until recently, IUBT materials were not available (WHO, 2020). Concerns are increasing about the use of balloon intrauterine tamponade (IUBT), a method recommended by the World Health Organization to solve these problems (WHO, 2020).

Products containing IUBT are very expensive and often require imaging procedures to confirm placement. Condom-catheter intrauterine tamponade (C-IUBT) is a low-investment procedure. A recent review and meta-analysis reported a high success rate (86%) of IUBT in the treatment of severe postpartum depression, mostly caused by uterine atony and placenta previa, with a variety of noted problems (Bakri et al., 2020).

Various studies have shown the use of intrauterine balloon tamponade (IUBT) as a technique to control postpartum hemorrhage (Jain & Maureen, 2019). However, there are few studies discussing the use of Intrauterine balloon tamponade to treat postpartum hemorrhage in women.
Studies have shown the use of Condom-catheter Intrauterine balloon tamponade (C-UBT) as a technique to control PPH in order to prevent and effectively manage PPH to prevent its progression to maternal death, this will help in reducing the burden of PPH leading to maternal mortality across the globe (Suarez et al., 2020). Therefore, researchers aimed to evaluate the effectiveness of intrauterine tamponade used in the management of PPH.

1.1 Objectives of the seminar

The general objective of the study is to evaluate the outcome of the use of tamponade in management of postpartum haemorrhage among midwives in Ekiti state, Nigeria.
The specific objectives of the study are to:

- identify the major cause of Postpartum haemorrhage
- highlight common ways of managing postpartum haemorrhage
- identify the success rate of the use of uterine balloon tamponade in the management of postpartum haemorrhage
- Identify barriers to the use of intrauterine balloon tamponade in the management of postpartum haemorrhage.

1.2 Operational definition of terms

Management: Strategies provided to improve/ prevent maternal mortality related to postpartum haemorrhage.
Maternal mortality: This is the death of women due to complications from postpartum haemorrhage.
Intrauterine balloon tamponade: The use of balloons placed into uterus and inflated to mollify or block refractory hemorrhaging
Postpartum haemorrhage: Postpartum haemorrhage is an excessive bleeding from the genital tract at any time following the birth of a baby up to 6 weeks following birth.

METHODOLOGY

2.0 PROTOCOL

This systematic review was conducted in accordance with the Professional Guides for Systematic Reviews and Meta-Analyses (PRISMA) protocol (p. 2021) and was conducted between 2016 and 2022.

The review consists of five (5) main headings including: Introduction, Goals and Objectives, Process (e.g. tools and design), Results or Research, and Discussion.

Data from each study, including author names, year and place of publication, country, aim/objectives, study design, setting, model, methods such as measurement, and results and key findings.

2.1 Literature search

Filter studies using the following selection criteria:

Articles published in English between 2016 and 2022 using quantitative, qualitative and mixed methods in IUBT's peer-reviewed articles

br>Usage Search engines to search for electronic information for: PubMed/Medline, Mendeley, and Google Scholar and searches for key terms in data from 2016 to 2022. The ideas and key terms used in the research were "incidence, occult abdominal tamponade, management, pregnant" woman after giving birth." When using customized filters with high sensitivity and specificity, the sensitivity was 96.0% and the specificity was 99.96%, and the specified items were well

Table 1 below lists the search terms for this study.

MESH TERMS	SEARCH LIMITS
1. Use of intrauterine balloon tamponade	Publication type
2. Midwives	Publication year
3. Management	Language

4. C o n t r o l	Design
5. Postpartum haemorrhage management	

Table 1: Search terms

MESH TERMS	SEARCH LIMITS
1. Use of intrauterine balloon tamponade	Publication type
2. Midwives	Publication year
3. Management	Language
4. Control	Design
5. Postpartum haemorrhage management	

2.2 Inclusion Criteria

In this report, all major articles that were written on use of Intrauterine Balloon Tamponade in the management of PPH among midwives were reviewed for this publication. The articles selected were predominantly written on; management of PPH using IUBT or on knowledge on the use of IUBT. Journals/ Articles that did not fit into selection criteria were not used. The articles selected were between 2016 and 2022 With Qualitative, quantitative and mixed methods design and publications in English language.

2.3 **Exclusion Criteria**

Articles with the following criteria were excluded;

- Systematic or narrative review
- Poor or no data
- Case reporting
- Letter to the editor article
- Articles written in other languages than English.

2.4 **Data Screening**

Title and abstract review of all data identified by the search strategy was performed with reference to publication inclusion and exclusion. The main findings from each study were summarized and classified according to common features.

2.5 **Quality assessment and appraisal of retrieve articles**

Report that all products are effective and rigorous using the Technical Evaluation Form, focusing on design, sample size, data analysis, participant recruitment, evaluation and results. potential for bias and relevance of overall results to other existing studies.

Title and abstract screening of all papers identified by the search strategy were done with reference to the published inclusion and exclusion criteria. Key findings were compiled for each study and were grouped based on common traits.

The table 2 below presents the quality assessment indicator

Table 2: Quality appraisal indicator

No.	Quality Evaluation Standards
1	Are the goals and research questions crystal clear?
2.	Does the study or design make sense?
3	Does research offer security?
4	Have you ever chosen morally?
5	Are the standards applicable for countries/regions, domain names?
6	Are data collection methods properly and plainly described?
7	Is the term "data analysis" used correctly?
8	Were the research's conclusions and outcomes clearly explained?
9	Can research findings be extrapolated or applied to the general public?
10	How significant are these results for practice and policy?

2.6 Data Extraction

On the basis of the research topic and the abstract, 2,353 articles were chosen for review during the initial contact. Using the scoping review technique, 32 journals were reviewed based on their goals, methodologies, population selection criteria, and results in agreement with the research topic. During the course of the systematic review, the researcher thoroughly reviewed numerous journals to identify relevant articles on the topic on the use of IUBT in the management of PPH among midwives. While many of the journals reviewed were of high quality and covered a wide range of topics, the researcher carefully selected only 15 journals that met their specific inclusion criteria. These criteria focused primarily on the relevance of the articles to the study's objectives and the rigor of the research methods used. Any journals or articles that did not meet these criteria were excluded from the study.

2.7 Data synthesis

The results of this investigation were presented in the form of a narrative statement, a result table, and a discussion of the findings.

2.8 Framework used for this review

Following the identification of appropriate research, PRISMA-2022 guidelines and the SPIDER framework for systematic review were used to screen the papers that satisfied the selection criteria.

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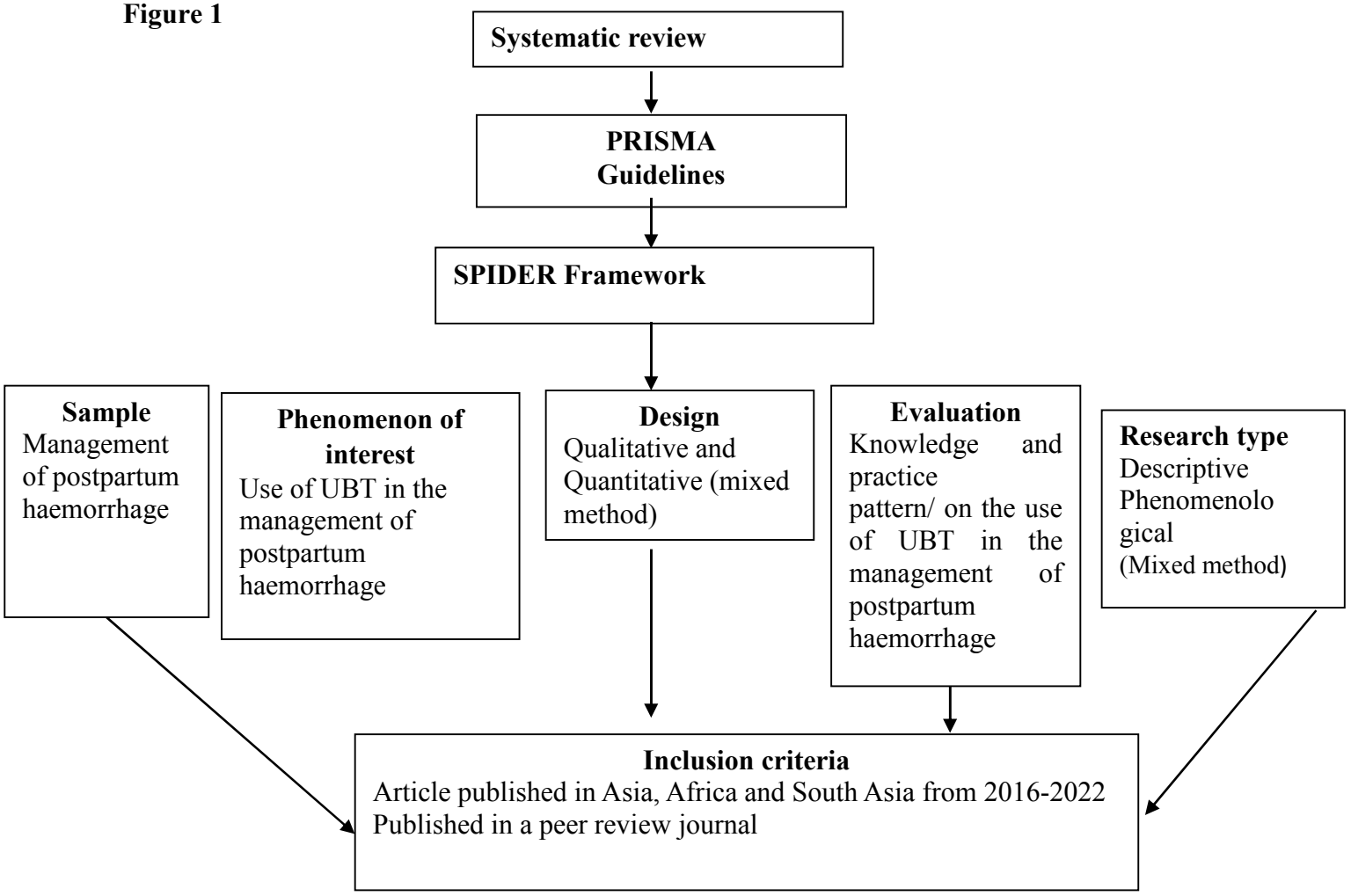
PI stands for phenomena of interest, S for sample, D for design, E for evaluation, and R for research type.

Additionally, the following ideas served as the basis for the inclusion criteria for the PICO framework for systematic review: Final inclusion criteria for the review are provided by Population (P), Intervention (I), Comparison (C), and Outcome (O), as indicated in Figure I

Figure 1



2.9 Article Selection Criteria

During first contact, a selected number of articles**,** 1753 number of articles were reviewed based on the research topic, and the abstract. These were further reviewed to 152 journals based on their general abstracts, objectives, methodology (design type or instrument used), population and results in correspondence with the researchers' topic after PRISMA quality assessment and appraisal. Finally, 15 articles met the eligibility criteria and 15 were finally used for the review as shown in Table 3

Table 3**: Article selection criteria.**

Identification	• Articles identified through Database search (N = 1,753) • Records after duplicatesremoved (N = 332)
Screening	• Articles screened based on the Title and Abstract (N = 152) • Articles between 2016 and 2022 (N= 71)
Eligibility	• Fully assessed articles forEligibility (N = 16)
Inclusion	• Articles included in this study (N= 15)

Record excluded (N = 55)
Reason for exclusion:
Article in other languages (7)
Systematic/narrative review (7)
No appropriate methodology (31)
Non-empirical/no data (3)
Qualitative design = 7

LIST OF AUTHORS, ARTICLES AND JORNALS

The table 4 below represents the 15 journals that were selected for this review. The name of the authors, title of the work and journals names were mentioned. Every of the journal listed below is centered on the use of IUBT in the management of PPH among midwives.

Table 4: showing the list of articles, authors, the journals and year of publication.

S/N	AUTHOR	YEAR	ARTICLES	JOURNALS
1	Thomas *et al*	2022	The development of a low- cost uterine balloon tamponade (ESMUBT) device for treating severe postpartum hemorrhage in India is the subject of a before-and-after comparison study.	International journal of Gynaecology & Obstetrics

2	Sharvari & Anuja	2022	Nagpur Introduces a New Method for Treating Postpartum Hemorrhage: Uterine Balloon Tamponade Based on Condoms	Journal of South Asian Federation of Obstetrics & Gynaecology
3	Aparna *et al*	2018	The safety of the condom uterine balloon tamponade (ESM-UBT) device for uncontrolled primary postpartum hemorrhage has been evaluated in facilities in Kenya and Sierra Leone.	BMC Pregnancy and Childbirth Journal
4	Anger *et al*	2019	In secondary level hospitals in Uganda, Egypt, and Senegal, a stepped wedge, cluster-randomized trial investigated the effectiveness and safety of condom-catheter uterine balloon tamponade administration for postpartum hemorrhage.	International journal of Gynaecology & Obstetrics
5	Kong and Williams	2018	Treatment of severe postpartum hemorrhage with an intrauterine balloon tamponade: Prognostic factors	International journal of Gynaecology & Obstetrics
6	Guangna *et al*	2021	Effects of intrauterine Bakri balloon tamponade and ascending uterine artery ligation on postpartum haemorrhage	American Journal of Translational Research
7	Elsaye *et al*	2022	To stop atonic postpartum bleeding after a caesarean section, the uterus is stuffed with gauze and a Bakri balloon.	Egyptian Journal of Hospital Medicine
8	Alexandre *et al*	2017	Uterine balloon tamponade and misoprostol were compared in a randomized controlled trial in Benin and Mali for the treatment of uncontrolled postpartum bleeding.	British Medical Association
9	Ramya *et al*	2018	Information about using condom tamponade to treat atonic postpartum hemorrhage	International Journal of Reproduction, Contraception, Obstetrics and Gynecology

10	Ji Eun *et al*	2019	Factors Related to the Failure of Bakri Balloon Tamponade for Postpartum Haemorrhage Management. The association between the amount of the intrauterine balloon tamponade and the outcomes of postpartum hemorrhage. Comprehensive analysis and case study.	International journal of Gynaecology & Obstetrics
11	Francisco *et al*	2021.	Using uterine balloon tamponade (UBT) devices to treat postpartum hemorrhage, a meta-synthesis of qualitative research on the experiences of medical personnel was conducted.	Multidisciplinary Digital Publishing Institute
12	Kenneth *et al*	2021	In an instance of bicornuate uterus, balloon tamponade postpartum hemorrhage therapy was effective.	Public Library of Science
13	Erum and Ayesha	2018	SiInia rural mission hospital in Ebonyi State, Southeast Nigeria, uterine balloon tamponade was utilized to manage postpartum bleeding using a Foley catether.	Journal of Indexing and Metrics
14	Mamah *et al*	2021	Using a Foley catheter, uterine balloon tamponade was used to control postpartum hemorrhage in a rural mission hospital in Ebonyi State, Southeast Nigeria.	International Journal of Clinical Medicine
15	Matthew *et al*	2016	In free state district hospitals, physicians and midwives are skilled in the management of postpartum hemorrhage.	Africa Journal of Nursing and Midwifery.

3.0 OBJECTIVES, METHODOLOGY AND RESULTS

The articles are agreeable to some or all the review description based on the objectives. Different research designs, instruments and methods were used among the journal, the quantitative research method was most widely used. Questionnaires, Interviews, Cohort studies, Retrospective and Prospective studies were also used to demonstrate their research objectives.

According to this study, PPH is treated using balloon tamponade, and 31% of maternal deaths in Asia, 21% in Latin America and the Caribbean, and 34% of maternal deaths in Africa are caused by obstetric complications (Erum & Ayesha 2018). According to a 2018 study by Aparna et al, using the IUBT device in women with uncontrolled postpartum hemorrhage appears to be safe.

According to Sharvari and Anuja (2022), ESM-UBT alone has an 85% success rate, but when paired with other interventions like acceleration and high stitching, the success rate can reach 96.15%.

The use of abdominal tamponade apparatus and equipment for the treatment of severe postpartum bleeding during hospitalization improved the outcome of maternal mortality caused by postpartum hemorrhage, according to a study by Thomas et al. published in 2022. 15% fewer invasive and/or interventional blood control procedures performed in hospitals that use the ESM-UBT protocol. Comparing this to the period before to the introduction of the ESM-UBT package, the cumulative impact has been reduced by 71%. This agrees with Sharvari and Anuja's findings from 2022, who noted an 85% success rate for ESM-UBT alone.

Table 5 below describes the aim/objectives, methodology and results of the 15 publications used in this systematic review

S/N	AUTHOR	ARTICLE	JOURNALS	OBJECTIVES	METHODOLOGY	RESULTS
1	Thomas et al (2022)	A before-and-after comparison research examines the effects of the introduction of a low-cost uterine balloon tamponade (ESM-UBT) device for treating severe postpartum hemorrhage in India.	International journal of Gynaecology & Obstetrics	To assess the effects of using an ESM-UBT device to tamponade the uterus in order to treat severe postpartum hemorrhage (PPH), which is mostly caused by uterine atony	A quasi-experimental study	The incidence of first event was lower in affected areas (21.0 to 11.4 per 10,000 births; odds ratio 9.6, 95% confidence interval 14.0 to 5.4).
2	Sharvari & Anuja (2022)	Condom-based Uterine Balloon Tamponade: An Innovation in the Management of Postpartum Hemorrhage in Nagpur	Journal of South Asian Federation of Obstetrics & Gynaecology	This study's objective is to evaluate the efficacy of intrauterine balloon tamponade (IUBT) in PPH cases that don't respond to	A prospective case–control study	The incidence of primary outcomes did not vary significantly between control centers (11.7–17.2 per 10,000 births; odds ratio 5.4, 95% confidence interval: 3.9 to 14.9).

				medical therapy.		
3	Aparna et al (2018)	Safety of a condom intrauterine balloon tamponade (IUBT) device for uncontrolled primary postpartum hemorrhage among facilities in Kenya and Sierra Leone	BMC Pregnancy and Childbirth Journal	To assess the safety of an extremely affordable intrauterine balloon tamponade package (referred to as IUBT) for the management of uncontrolled postpartum hemorrhage in facilities.	A prospective cohort study	The success rate ofi IUBT alone is 85%, but when combined with other techniques such as growth factor and compression stitching, the success rate reaches 96.15%.
4	Anger et al (2019)	The effectiveness and safety of introducing condom-catheter uterine balloon tamponade for postpartum haemorrhage at secondary level hospitals in Uganda, Egypt and Senegal: a stepped wedge, cluster-randomised trial.	International journal of Gynaecology & Obstetrics	To determine whether the use of condom-catheter IUBT for postpartum hemorrhage (PPH) management in low-and middle-income settings is efficacious.	A stepped wedge, cluster-randomisedtrial	It was not possible to The relationship between IUBT device use and the incidence of 1 death, 3 perineali injuries, and 1 endometritisi could not be fully evaluated. Our experts concluded that a link between these injuries and the IUBT device waunlikely.
5	Kong and Williams (2018)	Prognostic factors for the use of intrauterine balloon tamponade in the management of severe postpartum hemorrhage	International journal of Gynaecology & Obstetrics	To determine the prognostic variables linked to effective intrauterine balloon tamponade (IUBT) therapy of severe postpartum hemorrhage	Retrospectiv e review of all cases of severe PPH with blood loss greater than 1 L in a tertiary unit in Hong Kong from July 1,	During the study period, 1.4% (n = 311) of 22,860 infants developed severe postpartum hemorrhage, of which 26.0% (n = 81) had IUBT. The overall hysterectomy avoidance rate was 86.4% (n = 70) and

				(PPH).	2012, to June 30, 2017.	the successful hemostasis rate with IUBT alone was 72.8% (n = 59).
6	Guangna et al (2021)	Efficacy of intrauterine Bakri balloon tamponade combined with ascending uterine artery ligation on postpartum hemorrhage	American Journal of Translational Research	To evaluate the effectiveness of combining ascending uterine artery ligation (AUAL) with intrauterine Bakri balloon tamponade (IBBT) for the management of postpartum hemorrhage	A prospective cohort study	After ascending uterine artery ligation and intrauterine Bakri balloon tamponade, vaginal bleeding is less than 30ml/hour uterine contraction is good, and bleeding stops quickly. Average reaction: Vaginal bleeding after treatment is 30-50ml/hour, uterine contraction quality is satisfactory, and blood volume gradually decreases.
7	Elsayed et al (2022)	Uterine packing with gauze with Bakri balloon for arresting atonic postpartum haemorrhage after caesarean section	Egyptian Journal of Hospital Medicine	To evaluate the uterine packing with gauze versus the Bakri balloon tamponade for the treatment of atonic PPH following a caesarean section in terms of safety, effectiveness, and acceptability	A prospective observational study	While bleeding was stopped in 90.4% of the patients who received uterine tamponade, this rate was 75% in the patients who underwent Bakri balloon ($p < 0.05$).

8	Alexandre et al (2017)	Uterine balloon tamponade as an adjunct to misoprostol for the treatment of uncontrolled postpartum haemorrhage: a randomised controlled trial in Benin and Mali	British Medical Association	To evaluate the efficacy of low-cost uterine tamponade as a supplement to misoprostol for the management of uncontrolled postpartum hemorrhage (PPH) in settings with limited resources.	A Randomised controlled trial	There was no significant difference in the primary outcome between the packaging group (16%; 9/57) and the secondary treatment group (7%; 4/59); the relative risk was 2.33 (95% CI: 0.76 - 7.14 p = 0.238).
9	Ramya et al (2018)	Condom tamponade in the management of atonic postpartum hemorrhage Citationimetadata	International Journal of Reproduction, Contraception, Obstetrics and Gynecology	To research the effectiveness of condom tamponade to stop bleeding in cases of atonic PPH that are not responsive to uterotonics	A prospective study	Tamponade with misoprostol significantly increased the proportion of women whose total blood loss exceeded 1000 mL comparedto misoprostol alone: relative risk 1.52 (95% CI 1.15 to 2.00, p=0.01).
10	Ji Eun et al (2019)	The association between intrauterine balloon tamponade volume and postpartum hemorrhage outcomes	International journal of Gynaecology & Obstetrics	To ascertain how the volume of the intrauterine balloon tamponade (IUBT) affects postpartum haemorrhage (PPH) outcomes and to look into the clinical variables linked to poor PPH outcomes.	A retrospectiv e cohort study	Tamponade group case fatality rate was greater (10%; 6/57) than control group case fatality rate (2%; 1/59) (p=0.059).
11	Francisco et al (2021)	Factors Associated with Failure of Bakri Balloon	Multidisciplin ary Digital Publishing Institute	To identify the independent risk factors for BBT	A large single-centre cohort study	IBBT was successful in 123 of the patients, or 81.3% of them.

		Tamponade for the Management of Postpartum Haemorrhage.		failure:		.
12	Kenneth et al (2021)	Healthcare Providers experiences of using intrauterine balloon tamponade (IUBT) devices for the treatment of post-partum haemorrhage: A meta-synthesis of qualitative studies	Public Library of Science	To determine, evaluate, and combine the evidence that is currently available regarding the opinions and experiences of medical professionals using IUBT to treat PPH	A qualitative research: A retrospectiv e study	IUBTs were regarded by respondents who have used them before to be efficient, practical, simple to assemble, and reasonably priced.
13	Erum and Ayesha (2018)	Successful use of intrauterine balloon tamponade in the management of postpartum hemorrhage in a bicornuate uterus	Journal of Indexing and Metrics	To describe how intrauterine balloon tamponade works as a good way to stop postpartum bleeding brought on by uterine abnormalities.	A prospective observationa l study	The non-surgical method involves placing a balloon in the uterine cavity and gently applying pressure to the uterus with the tamponade effect of the fluid inside the balloon. In this way, bleeding is controlled and the patient is protected from these problems and risks. With surgery, as our patients clearly show.
14	Mamah et al (2021)	Control of Postpartum Haemorrhage with Uterine Balloon Tamponade Using Foley Catheter in a Rural Mission Hospital in	International Journal of Clinical Medicine	To describe the successful use of Foley catheters to tamponade the uterus during a postpartum hemorrhage.	A prospective study	For women with refractory postpartum hemorrhage, intrauterine balloon tamponade using a Foley catheter is

		Ebonyi State, Southeast Nigeria				affordable, stops the bleeding, and prevents clinical deterioration.
15	Matthew et al (2016)	Knowledge of the management Of postpartum haemorrhage by Doctors and midwives working in free state district hospitals, Steinberg.	Africa Journal of Nursing and Midwifery.	To assess the postpartum hemorrhage management expertise of physicians and midwives working in Free State district hospitals' maternity units.	A cross-sectional study	Performance greatly improved as a result of the training (p=0.0045). The inability to practically demonstrate acquired theoretical knowledge was one of the problems mentioned, as was a general lack of theoretical understanding. Doctors' assessments of their own surgical proficiency in relation to obstetrics demonstrated a lack of experience. There is little general theoretical understanding of the use of IUBT among physicians and midwives working in the maternity units of Free State district hospitals.

3.1 JOURNAL FREQUENCY

In Table 6 below, all journal publications appeared as singletons except the BMC Pregnancy Childbirth Journal' which appeared more than twice

S/N	JOURNAL	FREQUENCY
1	International journal of Gynaecology & Obstetrics	4
2	Journal of South Asian Federation of Obstetrics & Gynaecology	1
3	BMC Pregnancy and Childbirth Journal	1
4	American Journal of Translational Research	1

5	Egyptian Journal of Hospital Medicine	1
6	British Medical Association	1
7	International Journal of Reproduction, Contraception, Obstetrics and Gynecology	1
8	Multidisciplinary Digital Publishing Institute	1
9	Public Library of Science	1
10	Journal of Indexing and Metrics	1
11	International Journal of Clinical Medicine	1
12	Africa Journal of Nursing and Midwifery	1

4.0 DISCUSSION, CONCLUSION AND RECOMMENDATIONS

4.1 DISCUSSION

15 publications were examined, of which 3 (20%) were quantitative studies, 6 (40% were qualitative), and 6 (40% were mixed).

Device and Package for the Treatment of Severe Postpartum Hemorrhage Introduced by IUBT Coupled maternal death and/or surgery owing to postpartum hemorrhage, hemorrhage control considerably 15% reduced incidence compared to hospitals not using the IUBT protocol 85% of projects succeed (Thomas and others, 2017). This is supported by Sharvari and Anuja's study from 2022, which found that UBT had an 85% success rate.

IUBT in the management of PPH

Of the 201 women who received treatment with the ESM-UBT device in 2018, 189 (94.0%) survived, 184 (97.4%), and 6 had safety data, according to Aparna et al. 156 individuals were monitored weekly (82.5%). In the postpartum period, there were 12 (6.0%) deaths, 3 (1.6%) perineal or cervical injuries, and 1 (0.5%) hysterectomy among adverse hospital outcomes and complications. He said it was important to take antibiotics into account.

According to Anger et al., 2019, the study's IUBT survival rate for women was high (92.7%), which is comparable to the IUBT survival rate of 94.5–97.4 in the prior case. low- and middle-income nations The website publishes percentages. Liao and co. He claimed in 2019 largely based on research that IUBT and ascending uterine artery ligation (AUAL) together resulted in reduced surgical bleeding, a shorter hospital stay, and cheaper costs. As can be observed, IUBT in combination with AUAL can lessen surgical bleeding caused by uterine atony in diabetic patients, speed up physical recovery, cut down on hospital stays, and produce positive outcomes.

IUBT is more efficient, less expensive, and simpler than the Bakri balloon, however it may take longer to insert the uterine lining, according to Elsayed et al.'s (2022) research. According to Ramya et al. (2018), hydrostatic condom tamponade successfully and promptly stops postpartum bleeding. It is easy, affordable, useful, and life-saving. The use of straightforward IUBT devices, according to Kenneth et all., 2018 paper, is also seen to be a useful and affordable method for

treating uncontrolled postpartum hemorrhage, particularly when uterotonic drugs are ineffective, unavailable, or unsuitable at the time of operation.

Inadequate training in the administration of the device and a lack of integration with other techniques used to manage/control diabetes after birth are limitations to the use of IUBTs in the management of PPH.

Maternal mortality can be decreased with ongoing follow-up after discharge, thorough knowledge of early postpartum hemorrhage detection, and instruction in the use/application of IUBT.

4.2 CONCLUSION

Uterine atony is the main cause of postpartum hemorrhage (PPH), an obstetric emergency that can occur after a vaginal or caesarean delivery. Use of the IUBT device in females with uncontrolled PPH seems to be safe. In circumstances when uterotonics are ineffective or unavailable or if access to surgery is not possible, health care experts may also recommend the use of a straightforward IUBT device that is available, rather simple to use, and could be a life-saving treatment.

4.3 GAPS IDENTIFIED

- Majority of the identified studies only determined the use of IUBT in the management of PPH, but failed to do follow up.
- The cause of PPH are not identified on time, with little or no knowledge on the use of Intrauterine Balloon Tamponade, thus leading to late or no usage of IUBT.
- Only a journal reviewed the knowledge of midwives on the use of IUBT in the management of PPH.
- There is dearth of studies (research) on the use of intrauterine balloon tamponade in the management of postpartum haemorrhage among midwives in Nigeria

4.4 IMPLICATIONS OF THE STUDY TO NURSING

Nursing Education

- It will enhance the knowledge of midwife educators about teaching and learning outcomes of the students through research work.

Nursing Practice

- It enhances evidence – based clinical practice and identify new practice based on the available evidence.
- It enhances quality of care and makes the management of PPH more effective and efficient and address any variation that exists among existing practice.

Nursing Research

- More studies are needed

- Teaching guidelines on the use of IUBT for the management of PPH in women during childbirth are essential to prevent maternal mortality.

4.5 RECOMMENDATIONS

1. Urgent action must be taken for the training and retraining of personnel of private, public (primary, secondary and tertiary) health facilities, as well as the community birth attendants on the prevention, recognition and timely usage of uterine balloon tamponade in the management of Postpartum haemorrhage.
2. All health care facilities must be ready for early intervention in the prevention and management of postpartum haemorrhage.
3. Midwives should be adequately educated on the use of Uterine Balloon Tamponade

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