ÉDITORIAL

Renforcer les systèmes de données pour promouvoir la santé et les droits sexuels et reproductifs en Afrique subsaharienne

DOI: 10.29063/ajrh2026/v30i11.1

Lorretta Favour Chizomam Ntoimo[1,2] et Friday Okonofua[3,4]

Editor, African Journal of Reproductive Health, Nigeria[1]; Department of Demography and Social Statistics, Faculty of Social Sciences, Federal University Oye-Ekiti, Nigeria[2]; Emeritus Professor of Obstetrics and Gynaecology, University of Benin,Nigeria[3] ; Editor in Chief, African Journal of Reproductive Health[4]

Pour toute correspondance**:** Courriel **:** *lorretta.ntoimo@fuoye.edu.ng*

Le développement de la santé et des droits sexuels et reproductifs (SDSR) en Afrique subsaharienne est fondamentalement entravé par la « pauvreté des données de santé »[1]. Si de nombreux pays à revenu élevé ont réalisé des progrès significatifs dans le renforcement de leurs systèmes de données de santé, l'Afrique subsaharienne continue de faire face à d'importantes lacunes[1–3]. Malgré le besoin crucial de pratiques fondées sur des données probantes, le paysage régional des données est caractérisé par une méconnaissance généralisée de la valeur intrinsèque de données exactes. De nombreux pays de la région ne disposent pas de recensements de population réguliers, de dossiers de santé fiables ni de systèmes fonctionnels d'état civil et de statistiques vitales.

L'exactitude des données est souvent compromise par une réticence profondément ancrée des populations à fournir des informations personnelles. Dans de nombreux contextes africains, les tabous culturels, les croyances religieuses et la méfiance envers les « étrangers » entraînent des taux de refus élevés lors des enquêtes menées auprès des ménages et dans les établissements de santé. Par exemple, une étude menée en Afrique du Sud a mis en évidence comment des femmes peuvent refuser de parler de santé reproductive en raison d'une opposition religieuse ou par crainte d'être jugées par les chercheurs[4]. Les données sont parfois sujettes à la falsification et au biais de désirabilité sociale. Les personnes interrogées « apprennent » souvent à répondre de manière à minimiser la longueur des questionnaires, par exemple en déclarant moins de partenaires sexuels pour éviter les questions complémentaires.[5]

Plus grave encore, la crainte de répercussions juridiques ou sociales conduit à la dissimulation active d'informations sensibles par les individus et les établissements de santé. Des personnes ont déclaré avoir menti sur leur statut sérologique ou sur les violences sexistes qu'elles ont subies par crainte d'une intervention policière ou de la stigmatisation sociale.[4]

Même lorsque des données sont disponibles, on observe une minimisation et une non-utilisation systématiques des informations factuelles pertinentes pour la prise de décision et la planification stratégique. L'institutionnalisation du suivi fondé sur les données demeure faible et les plans annuels sont souvent élaborés sans tenir compte des informations sanitaires courantes.[6] Dans de nombreux cas, la planification fondée sur des données probantes est supplantée par l'ingérence politique et le népotisme, où les intérêts politiques — plutôt que les données empiriques — déterminent quels programmes de santé sont mis en œuvre et qui est nommé pour les diriger.[7] Sans s'attaquer à ces barrières culturelles et structurelles, les systèmes de données continueront de produire des informations de mauvaise qualité qui ne permettront pas d'améliorer significativement les résultats en matière de santé sexuelle et reproductive dans la région.[1,8]

Depuis la Conférence internationale sur la population et le développement (CIPD) du Caire en 1994 et jusqu'aux Objectifs de développement durable (ODD) pour 2030, la santé sexuelle et reproductive est reconnue comme un droit humain fondamental.[9–11] Ce droit est désormais inscrit dans les politiques nationales de santé et les cadres juridiques de nombreux pays.

Le droit à la santé sexuelle et reproductive comprend l'accès à la contraception, aux soins de fertilité et d'infertilité, aux services de santé maternelle et périnatale, à la prévention et au traitement des infections sexuellement transmissibles, à la protection contre les violences sexuelles et sexistes, et à l'éducation à des relations saines et sans risque.[12] comprend également le droit à l'information et la capacité de faire des choix éclairés concernant sa vie reproductive.

Lorsque cet accès est retardé ou refusé, les conséquences peuvent être graves, notamment le décès, un handicap permanent et des difficultés socio-économiques. Pour que ces droits se concrétisent, les systèmes de santé ont besoin de systèmes de données robustes. Des données précises, actualisées et

REVIEW ARTICLE

Maternal health literacy programmes to improve self-care of pregnant women in Africa: A scoping review

DOI: 10.29063/ajrh2026/v30i12.12

Thabani M. Noncungu[*]*, Thandi Sibindi, Jennifer Chipps and Talitha Crowley*

School of Nursing, Faculty of Community and Health Sciences, University of the Western Cape, South Africa

***For Correspondence**: Email: *tnoncunga@uwc.ac.za;* Phone*:* +27 959 1710

Abstract

Midwives are uniquely positioned to implement health literacy programmes, yet there is limited synthesis of existing midwife-led health literacy programmes for pregnant women in Africa. This scoping review maps the evidence on health literacy programmes to improve the self-care of pregnant women in Africa. Eight articles, published between 2015 and 2025, were included across African countries from six electronic databases, such as MEDLINE and one search engine: Google Scholar. Maternal health literacy programmes varied in mode of delivery, duration, components, and outcomes. Most programmes used a group antenatal care model, a combination of face-to-face and digital health tools, and focused on improving functional, interactive, and critical health literacy. Maternal health literacy programmes in African countries seem to be under-researched. More research is needed to strengthen the outcomes of programmes such as usability and acceptability, knowledge and awareness, and clinical outcomes. In addition, longer-term research is necessary to assess the implementation and sustained impact of these programmes. *(Afr J Reprod Health 2026; 30 [12]: 115-135).*

Keywords: Pregnant women, maternal health literacy programme, self-care, scoping review, Africa

Résumé

Les sages-femmes sont particulièrement bien placées pour mettre en œuvre des programmes d'éducation à la santé. Pourtant, la synthèse des programmes existants menés par des sages-femmes et destinés aux femmes enceintes en Afrique reste limitée. Cette analyse exploratoire recense les données probantes sur les programmes d'éducation à la santé visant à améliorer l'autonomie des femmes enceintes en Afrique. Huit articles, publiés entre 2015 et 2025 et provenant de six bases de données électroniques (dont MEDLINE) et d'un moteur de recherche (Google Scholar), ont été inclus. Les programmes d'éducation à la santé maternelle varient en termes de modalités de mise en œuvre, de durée, de composantes et de résultats. La plupart des programmes utilisent un modèle de soins prénatals de groupe, une combinaison d'entretiens en présentiel et d'outils numériques, et se concentrent sur l'amélioration des compétences fonctionnelles, interactives et critiques en matière de santé. Les programmes d'éducation à la santé maternelle dans les pays africains semblent être insuffisamment étudiés. Des recherches supplémentaires sont nécessaires pour renforcer les résultats de ces programmes, notamment en termes d'utilisabilité et d'acceptabilité, de connaissances et de sensibilisation, et de résultats cliniques. De plus, des recherches à plus long terme sont indispensables pour évaluer la mise en œuvre et l'impact durable de ces programmes. *(Afr J Reprod Health 2026; 30 [12]: 115-135).*

Mots-clés: Femmes enceintes, programme d'alphabétisation en santé maternelle, autosoins, analyse exploratoire, Afrique

Introduction

Health-related information is essential for pregnant women to manage their pregnancy well and have a good pregnancy outcome.[1] However, the majority of pregnant women living in low-resource settings do not receive adequate pregnancy management and outcome information from reliable sources.[2] Healthcare system failures, poor accessibility to health information, and poverty are some of the main factors that prevent women from seeking or receiving proper care during pregnancy.[3] Consequently, globally, approximately 223 maternal deaths per 100,000 live births were reported in 2020, which translates to about 800 women dying daily.[4,5] Furthermore, this figure remains well above the United Nations Sustainable Development Goal target 3.1 to reduce the global MMR to less than 70 deaths per 100,000 live births by 2030.[5]

Self-care is defined as the ability of individuals, families, and communities to promote

and maintain health, prevent disease, and manage illness and disability with or without a health care provider.[6] Self-care during pregnancy includes principles and activities that help to maintain the health of the mother and foetus.[7, 8] These practices also help to reduce the risk of pregnancy complications and mortality during pregnancy, childbirth, and postpartum.

Antenatal care provided by midwives is particularly important because pregnant women receive information about how to prepare themselves and their partners for pregnancy, delivery, and the postpartum period, as well as self-care during pregnancy. Midwives play a vital role in the antenatal care services by providing personalised health education to pregnant women during antenatal care (ANC) visits to increase their health literacy and self-care.[9]

Health literacy is the ability of individuals to obtain, understand, evaluate, and use health information to make informed health decisions and take appropriate actions.[10] Midwife-led health literacy programmes have been shown to enhance health outcomes by addressing both clinical and social factors through tailored, patient-centred care.[9] A systematic review on the causes of maternal mortality in Iran found that half of the pregnant mothers had inadequate health literacy, which prevents proper understanding of health messages and information.[11]

Low levels of health literacy among women negatively impact their health knowledge, engagement in preventive behaviours, navigation of the healthcare system, use of preventive services, and the ability to look after their children.[12-14] Moreover, low health literacy is linked with poor health outcomes for women and their children, particularly in low- and middle-income populations.[15] As a result, the majority of maternal deaths globally occur in low- and middle-income countries (LMICs), with most recorded in sub-Saharan Africa.[16] Many women in South Africa, particularly in rural areas, have limited access to skilled birth attendants and maternal health information due to low education levels and socio-economic disparities.[17]

Although low health literacy has been associated with worse health outcomes, little is known about the effectiveness of health literacy interventions, particularly those designed to improve the decision-making and self-care of pregnant women.[18] A preliminary search of MEDLINE, the Cochrane Database of Systematic Reviews, and Joanna Briggs Institute (JBI) Evidence Synthesis was conducted, and no current or underway systematic reviews or scoping reviews on the effect of health literacy on self-care of pregnant women in Africa were identified. A systematic review conducted in low and middle income countries to determine strategies, interventions, and their effectiveness in improving health literacy among diverse populations found substantial gaps in research evidence of the effectiveness of health literacy interventions and their outcomes.[19]

In Africa, many countries and regions are overwhelmed by weak health systems, such as human and infrastructure resource capacities, sociocultural practices, high burden of infectious diseases, inadequate prevention and control measures, and other social determinants.[20] Focusing specifically on Africa allows for a more nuanced understanding of how midwife-led maternal health programmes operate within this region's distinct healthcare landscape.[21] The scoping review aims to synthesise and map current evidence on maternal health literacy programmes to improve the self-care of pregnant women receiving antenatal care at health establishments in Africa.

Review question

What maternal health literacy programmes have been implemented to improve self-care among pregnant women in Africa, and what are the key components, modes of delivery, and reported outcomes?

Sub-questions

1.What are the components of maternal health literacy programmes to improve self-care of pregnant women in Africa?
2.What is the mode of delivery of the maternal health literacy programmes to pregnant women in Africa?
3.What are the outcomes of the maternal health literacy programmes to improve the self-care of pregnant women in Africa?

Methods

A scoping review was conducted following the JBI methodology for scoping reviews[22] and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR) checklist.[23] The protocol was registered on Open Science Framework (www.osf.io) on 03 February 2025, before commencing with the full study: https://osf.io/s97a6/.

Inclusion criteria

Inclusion criteria were determined according to the participants, concept, and context (PCC) (Table 1).

Participants

Participants had to be pregnant women of reproductive age attending antenatal care at any time during pregnancy, regardless of parity and gestation of pregnancy. The focus on antenatal care was because health literacy has the potential to reduce maternal complications.[24]

Concept

A maternal health literacy programme is a midwife-led programme that uses various modes to deliver pregnancy-related topics to improve the self-care of pregnant women attending antenatal clinics in Africa.[25] We define a midwife-led maternal health literacy programme as a programme that delivers pregnancy-related topics focused on improving decision-making and self-care (empowerment) and can be delivered in a variety of ways, such as face-to-face, individual or group, facility-based, community-based, home-based, online or digital. These programmes include but are not limited to: community-based health education programmes, mobile health (mHealth) and SMS-based programmes, peer support and mother-to-mother groups, integration with antenatal care (ANC) services, and visual and low-literacy educational tools. All studies with or without a comparison group were included. Study outcomes included experiences, self-care behaviours and decision-making (such as promoting and maintaining maternal health, detecting and managing complications, and birth preparedness plans).[26]

Context

The review included studies conducted in Africa in all types of healthcare settings. Maternal mortality is still one of the leading causes of death among African women compared to other countries.[27] In addition to the PCC terms, we identified the evidence sources as all types of studies published in the English language, including randomised controlled trials, cohort studies, case studies, and qualitative studies. A ten-year timeframe (2015–March 2025) was chosen, aligning with the WHO's 2016 Shanghai Declaration, which highlighted health literacy as essential to achieving Sustainable Development Goal 3.[28]

Exclusion criteria

The scoping review excluded all the studies reporting on (1) non-pregnant women (2) non-African contexts (3) pregnant women who did not receive antenatal care, (4) maternal health literacy programmes for pregnant women that are not midwife-led, (5) pregnant women who attend labour ward and postnatal care clinics, (6) Studies that are non-English, (7) time periods outside of January 2015 - March 2025.

Searching for scientific studies

A literature search was conducted in seven electronic databases: Academic Search Ultimate, CINAHL, MEDLINE, Web of Science, Cochrane Library, PubMed, and search engine: Google Scholar. The scoping review focused on English articles conducted in Africa and published between 2015 – 2025. An information specialist quality assured the search strategy (Box 1).

Summary of electronic database search methods

Screening and selection of studies for inclusion

The search results of the seven databases were uploaded to Covidence.[29] Duplicates were

automatically removed. Two reviewers (T.N. and T.S.) independently screened the titles and abstracts to determine whether the study met the inclusion criteria. They rated each article as include, exclude, or unclear and retrieved the full texts of all articles classified as include or unclear for review. They then independently assessed the full reports of each potentially relevant study using the predetermined inclusion criteria. In the case of disagreements, a consensus meeting was held with the third reviewer (T.C), who made the final recommendation. The search results and study selection process are summarised in a PRISMA flow diagram (Figure 1)

Data charting and synthesis

The process of data extraction is referred to as 'charting of data' in scoping reviews[22]. A data extraction chart was developed and used to extract data. Two reviewers (T.N. and T.S.) extracted data independently from selected records. Information included the authors, year of publication, study design, aim of study, population (age), interventions (e.g., name of the program, duration of program, primary and secondary outcomes, and materials and content of the program).

The data were analysed descriptively to summarise the components of maternal health literacy programmes, mode of delivery, person delivering the program, and reported outcomes of the maternal health literacy programmes. In addition, the programmes were evaluated based on the specific components of health literacy they addressed, as outlined by Don Nutbeam.[30] Functional health literacy is defined as having sufficient basic skills in reading and writing needed to function effectively in everyday situations, i.e., measuring a patient's ability to perform basic reading and numerical tasks essential for functioning in the health care context.[31, 32]

In a health literacy programme, it means that participants are taught to read and understand basic health information. Interactive health literacy refers to more advanced literacy skills that allow people to extract health information and develop meaning from different forms of communication.[30, 31] Within a health literacy programme, participants gain skills in communicating effectively regarding health issues. Lastly, critical health literacy relates to the most advanced literacy skills that can be applied and is focused on critically analysing information from a wide range of sources and information, and a greater range of health determinants.[30, 32] Participants at this level demonstrate the ability to advocate for themselves and make informed decisions.The review findings are presented in tables, figures, and narrative form.

Ethical consideration

The study received ethical approval by the ethics committee of the University of the Western Cape (BM21/02/05) and was registered at OSF (https://osf.io/s97a6/). No human participants were involved in data collection as the study was a scoping review.

Results

Screening and selection of studies for inclusion

A total of 970 articles were identified from seven databases. Following the automatic removal of 231 duplicates in Covidence, 738 articles remained for title and abstract screening. Of these, 48 were selected for full-text review, and eight (n=8) studies met the inclusion criteria for data extraction. No additional studies were retrieved through hand searching (See Figure 1).

Characteristics of included studies

Of the eight (n=8) studies included, most of the studies were published between 2021 and 2025 (n=5). Three studies were conducted in Tanzania (n=3), one in Madagascar (n=1), one in Senegal (n=1), one in South Africa (n=1), one in Malawi (n=1), and one in Ghana (n=1) (Table 2). Three studies were randomised controlled trials (RCTs)[33-35], and two studies used a quasi-experimental design.[36,37] One study[38] used a pre- and post-test design, one study[39] was a cross-sectional study, and one study[40] employed a mixed-methods design (Table 3). A total of 3371 pregnant women were included across the eight studies, with sample sizes ranging from 24 to 1761 participants. Three studies also included health care workers and/or family members.[37, 40, 41]The studies had been conducted in project sites such as hospitals (n=1), clinics (n=2),

Table 1: Participants, concept, and context of the review

PCC	Inclusion	Exclusion
Participant	Pregnant women of all reproductive ages attending antenatal clinics at any gestational age and parity.	Pregnant women not attending antenatal clinics.
Concept	Midwife-led maternal health literacy programmes to improve the self-care of pregnant women.	Maternal health literacy programmes for pregnant women that are not midwife-led.
Context	All studies conducted in Africa in all types of healthcare settings between 2015 and March 2025 and published in English.	All the studies that are not conducted in Africa. Articles not reported in English.

Box 1: Search strategy of six databases and one search engine

Academic Search Complete
(health literacy OR patient education OR health empowerment) AND (pregnant woman OR prenatal OR expecting mothers OR maternal OR antenatal) AND (Africa OR low resource setting OR lower and middle income) AND (program* OR intervention OR strategy OR training OR initiative OR health promotion)

CINAHL
(health literacy OR patient education OR health empowerment) AND (pregnant woman OR prenatal OR expecting mothers OR maternal OR antenatal) AND (Africa OR low resource setting OR lower and middle income) AND (program* OR intervention OR strategy OR training OR initiative OR health promotion)

MEDLINE
(health literacy OR patient education OR health empowerment) AND (pregnant woman OR prenatal OR expecting mothers OR maternal OR antenatal) AND (Africa OR low resource setting OR lower and middle income) AND (program* OR intervention OR strategy OR training OR initiative OR health promotion)

Web of Science
(health literacy OR patient education OR health empowerment) AND (pregnant woman OR prenatal OR expecting mothers OR maternal OR antenatal) AND (Africa) AND (program*)

PubMed
(pregnant woman) OR (prenatal) OR (expecting mothers) OR (maternal) OR (antenatal) AND (health literacy) OR (patient education) OR (health empowerment) AND (Africa) AND (program*)

Cochrane Library
(pregnant woman OR prenatal OR expecting mothers OR maternal OR antenatal) AND (health literacy OR patient education OR health empowerment) AND (Africa) AND (program*)

Google Scholar
(health literacy OR patient education AND pregnant mothers or expectant mothers) AND (low resource setting)

and communities (n=1), with some studies conducted in multiple sites, such as a clinic and community, or a clinic and hospital (n=4) (Table 3).

A range of outcomes was assessed, encompassing both individual-level and clinical dimensions, thereby capturing the multifaceted impacts of health literacy interventions. One study only measured the usability and acceptability of a mobile health wallet.[40] Four studies evaluated various dimensions of maternal knowledge and satisfaction. Adam et al. (2023) assessed general maternal knowledge and satisfaction with care.[34] Shimpuku et al. (2018) examined maternal knowledge, birth preparedness, and awareness of the need for family support.[37] Ndiaye et al. (2021) investigated awareness of danger signs during pregnancy.[38] Two studies additionally examined pregnancy-related empowerment and self-care.

Summary of electronic database search methods

Search strategy	Database name	Date searched	# results retrieved
(health literacy OR patient education OR health empowerment) AND (pregnant woman OR prenatal OR expecting mothers OR maternal OR antenatal) AND (Africa OR low resource setting OR lower and middle income) AND (program* OR intervention OR strategy OR training OR initiative OR health promotion) Limit: Limit: 2015 -2025, English, Peer reviewed	Academic Search Ultimate	20-Feb-25	146
(health literacy OR patient education OR health empowerment) AND (pregnant woman OR prenatal OR expecting mothers OR maternal OR antenatal) AND (Africa OR low resource setting OR lower and middle income) AND (program* OR intervention OR strategy OR training OR initiative OR health promotion) Limit: Limit: 2015 -2025, English, Peer reviewed	CINAHL	20-Feb-25	51
(pregnant woman) OR (prenatal) OR (expecting mothers) OR (maternal) OR (antenatal) AND (health literacy) OR (patient education) OR (health empowerment) AND (Africa) AND (program) Limit: 2015 -2025, English, Peer reviewed	PubMed	20-Feb-25	314
(health literacy OR patient education OR health empowerment) AND (pregnant woman OR prenatal OR expecting mothers OR maternal OR antenatal) AND (Africa OR low resource setting OR lower and middle income) AND (program* OR intervention OR strategy OR training OR initiative OR health promotion) Limit: 2015 -2025, English, Peer reviewed	Medline	20-Feb-25	95
(health literacy OR patient education OR health empowerment) AND (pregnant woman OR prenatal OR expecting mothers OR maternal OR antenatal) AND (Africa) AND (program*) Limit: 2015 -2025, English, Peer reviewed	Web of Science	20-Feb-25	284
(pregnant woman OR prenatal OR expecting mothers OR maternal OR antenatal) AND (health literacy OR patient education OR health empowerment) AND (Africa) AND (program*) Limit: 2015 -2025, English, Peer reviewed	Cochrane Library	20-Feb-25	36
(health literacy OR patient education AND pregnant mothers or expectant mothers) AND (low resource setting) Limit: 2015 -2025, English, Peer reviewed	Google Scholar	20-Feb-25	44
Total	970		
Duplicates	231		

Patil *et al*. (2017) employed instruments to assess birth preparedness, decision-making ability, and maternal confidence.[33] Lori et al. (2024) utilised tools that evaluated dimensions of health literacy, including health-seeking behaviour, perceived competence and coping skills, and the ability to appraise health information.[35] Two studies evaluated clinical maternal and birth outcomes as indicators of intervention effectiveness and evaluated the incidence of eclampsia and pre-eclampsia (Table 3).[36, 41]

Programme characteristics

Programme description, materials and components: The health literacy programmes were heterogeneous in both structure and delivery (Table 4). While some interventions were implemented at the individual level, others were delivered in group contexts. Two studies were conducted at an individual level, namely the mobile health wallet intervention[40] and the Amandla Mama intervention.[34] Five studies implemented the interventions at the group level, focusing on various forms of antenatal education and care.

These included family-oriented antenatal group education programmes.[37,41], a prenatal group education programme[36], and group antenatal care models.[33,35] One study, the Better Maternal Health programme, implemented the intervention on both the individual and group level.[38]The programmes included a range of topics and materials, such as printed educational materials and visual aids, facilitated group learning and discussions, individual self-monitoring tools, and voucher and financial incentives.

Most programmes used printed or digital visual aids. Shimpuku et al. (2019) implemented a

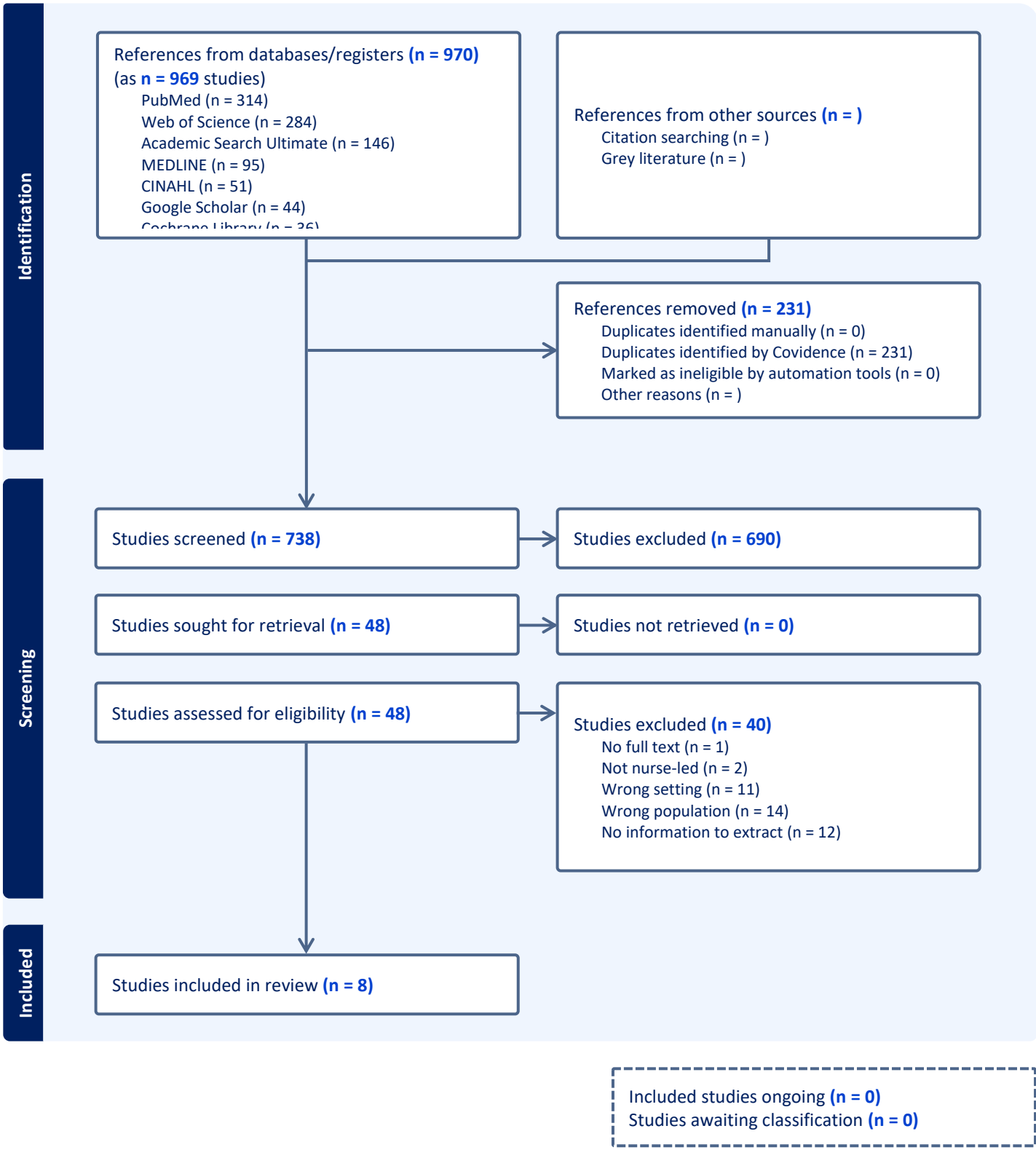

Figure 1: PRISMA flow diagram

Table 2: Distribution of studies by countries and year of publication

Variable	Country	Number of studies
African region and Country	Eastern Africa: Madagascar (1), Tanzania (3), Malawi (1) & Tanzania (1)	5
	Western Africa: Senegal (1), Ghana (1)	2
	Southern Africa: South Africa	1
Year	2015 - 2020	3
	2021 - 2025	5

picture drama depicting contrasting birth experiences, accompanied by Information, Education and Communication (IEC) materials, followed by discussion sessions led by midwives.[39] Similarly, Lori et al. (2024) provided picture cards to support learning and a "Take Action Card" booklet designed as a home-based reminder tool.[35] Adam et al. (2023) included 10 short, animated storytelling videos focused on critical perinatal health topics.[34] Furthermore, the videos were delivered through WhatsApp.

Sakurai et al. (2025) utilised a combination of PowerPoint presentations, an audio story booklet, a quiz game for review, and a pictorial take-home card illustrating danger signs and emergency procedures.[36]

Patil *et al.* included health data records for self-monitoring, pre-arranged group discussions, and private health assessments.[33] Lacroze *et al*. integrated a mobile money platform, electronic vouchers for maternal services, a toll-free information hotline, and community sensitisation materials.[40] Finally, one programme was community-based involving facilitators and project assistants who conducted IEC activities, village talks, and home visits to raise awareness on maternal health, gender equity, and male involvement.[38] Furthermore, radio broadcasts addressing reproductive health and medical insurance were utilised as a strategy to reach wider audiences and enhance community-level engagement.

The studies addressed various health literacy components, such as functional, interactive, and critical health literacy. Three studies addressed only functional and interactive health literacy.[34, 36, 39] Five studies addressed functional, interactive, and critical health literacy.[33, 35, 37, 38, 40]

Mode of delivery: The maternal health literacy programmes were delivered either face to face in person (n=4), via an online platform (n=1), or mixed - face to face and online (n=3) (Table 4). All the maternal health literacy programmes were delivered by nurses or midwives.

Intervention duration: The duration of the health literacy programmes varied substantially, ranging from brief, single-session interventions to extended, multi-month initiatives. The family-oriented antenatal group programme was implemented over 12 months[41], while a similar programme by the same authors was delivered in a single 2-hour session.[37] The prenatal group education programme was conducted as a single 60-minute session[36], whereas the Amandla Mama intervention was a brief, 22-minute session.[34] The Better Maternal Health programme extended over 24 months[38], and the Mobile Maternal Health Wallet (MMHW) intervention was delivered over a 2-month period.[40] Group antenatal care interventions ranged in duration, with one study reporting a 3-month programme[33] and another implementing the intervention over 6 to 12 weeks.[35]

Reported outcomes

Usability and acceptability: One study investigating the usability and acceptability of a mobile health wallet reported that a significant proportion of respondents identified assistance from facility-based health workers (FBHWs) and community health workers (CHWs) as a key motivating factor for using the platform. Specifically, 57.9% of participants (44 out of 76; 95% CI: 46.8–69.0) cited support from FBHWs, while 84.6% (44 out of 52; 95% CI: 74.8–94.4) highlighted the role of CHWs in encouraging

Table 3: Characteristics of the included studies (n=8)

Author/year/Title	Aim	Country and project site	Design	Study population	Outcomes
1.Lacroze *et al*. 2023 Usability and acceptance of a mobile health wallet (MMHW) for pregnancy-related healthcare: A mixed methods study on stakeholders' perceptions in central Madagascar	To determine the enabling and limiting factors related to the usability and acceptance of the MMHW during the implementation of the pilot intervention	Madagascar, Clinic	Mixed methods	314 pregnant women, 76 Facility-Based health workers, and 52 community health workers	Usability and acceptability of a mobile health wallet
2.Shimpuku *et al*. 2019 A family-oriented antenatal education program to improve birth preparedness and maternal-infant birth outcomes: A cross-sectional evaluation study	To evaluate an antenatal group education program among pregnant women and their families concerning birth preparedness and maternal and infant outcomes in rural villages of Tanzania	Tanzania, Community	Cross-sectional evaluation study	24 pregnant women and 170 families (50 Intervention, 144 control group)	Birth preparedness and maternal-infant birth outcomes
3.Sakurai *et al*. 2025 Effects of a Tanzanian prenatal group education program about preeclampsia/eclampsia: A quasi-experimental study	To examine the development and effect of a program focused on preeclampsia/eclampsia in Tanzania	Tanzania, Hospital	Quasi-experimental	98 pregnant women (48 intervention & 47 control group)	Primary outcome: Knowledge score about preeclampsia, secondary outcomes: satisfaction, behavioural intention, pregnancy-related empowerment, incidence of preeclampsia/eclampsia
4.Ndiaye *et al*. 2022 The Effects of the Maternal Health Improvement Project in the Louga Region of Senegal	To confirm the effectiveness of the information, education, and communication activities as part of the Plan International Senegal project implemented to reduce maternal and child mortality in the Louga region of Senegal, and to identify related factors that can improve maternal and child health	Senegal, Clinic & Community	One-group pre-test-post-test design	660 women of reproductive age	Awareness of the danger signs of pregnancy, husbands accompanying their wives during ANC visits, and women's empowerment

5.Adam *et al*. 2023 Effect of Short, Animated Video Storytelling on Maternal Knowledge and Satisfaction in the Perinatal Period in South Africa: Randomised Controlled Trial	(1) to measure the effect of watching the Amandla Mama SAS video series on knowledge of maternal and neonatal health, and (2) to measure user satisfaction associated with the Amandla Mama SAS video series	South Africa, Clinic	Randomised controlled trial	204 pregnant women	Maternal knowledge and satisfaction
6.Shimpuku *et al*. 2018 Evaluation of a family-oriented antenatal group educational program in rural Tanzania: a pre-test/post-test study	To develop, implement, and evaluate a family-oriented antenatal group educational program to promote healthy pregnancy and family involvement in rural Tanzania.	Tanzania, Clinic & Community	Quasi-experimental	42 pregnant women, 96 family members	Knowledge, birth preparedness, and awareness of the need for family support
7.Patil *et al*. 2017 Randomised controlled pilot of a group antenatal care (ANC) model and the sociodemographic factors associated with pregnancy-related empowerment in sub-Saharan Africa	To compare pregnancy-related empowerment, as measured by Pregnancy-Related Empowerment Scale scores, for women who attended individual ANC (usual care) vs Cantering pregnancy-based group ANC at clinics in Malawi and Tanzania	Malawi & Tanzania, Clinic & Hospital	Randomised controlled trial	212 pregnant women	Pregnancy-related empowerment in late pregnancy measured by the Pregnancy-Related Empowerment Scale
8.Lori *et al*. 2024 Improving health literacy through group antenatal care: results from a cluster randomised controlled trial in Ghana	To quantify the effect of the Group-ANC model in improving maternal health literacy among pregnant women in Ghana, using a validated health literacy assessment tool	Ghana, Clinic & Hospital	Randomised controlled trial	1761 pregnant women (877 in G-ANC and 844 in I-ANC)	Aspects of health literacy: health-seeking behaviour, competence and coping skills, and the appraisal of health information

Table 4: Characteristics of the program

Name of the program	Components (s) of health literacy addressed	Description of the program	Mode of delivery and duration	Material	Key Results
1.Mobile Maternal Health Wallet (MMHW) intervention[40]	Functional and interactive	MMHW allows expectant mothers to save, pay, and receive mobile money and electronic vouchers for maternal health services, with support provided through community sensitisation and a toll-free hotline.	Individual Face to face & online 2 Months	Mobile money platform (MMHW software) Electronic vouchers for maternal services Toll-free information hotline Community sensitisation materials (used by Community Health Workers and Facility-Based Health Workers)	Facility-Based Health Workers (57.9%; 44/76, 95% CI 46.8–69.0) & Community Health Workers (84.6%; 44/52, 95% CI 74.8–94.4) were to able pregnant women to save money towards delivery. Delay in payments affected the acceptance of the (MMHW) intervention. The three factors that affected the usability of the (MMHW) intervention among pregnant women were 1) access to a mobile phone, 2) relationship with health workers, and 3) trust in the intervention.
2.Family-oriented antenatal group education program[39]	Functional, interactive, and critical	Family-oriented antenatal education program promotes birth preparedness, complication readiness (BPCR), and family involvement. It uses a picture drama to show the contrasting outcomes of women with and without proper birth preparation, emphasizing the importance of antenatal care, family support, and skilled birth attendants.	Group Face to face 12 Months	Picture Drama: Illustrates two pregnancy stories with different outcomes. Discussion: Facilitated by a midwife to engage participants.	The participants were more likely to know a health centre or a hospital in case of emergency (OR: 3.11, 95% CI: 1.39–6.97, p=0.006), were more likely to arrange someone to accompany them to go to a health centre or a hospital for birth or emergency (OR: 2.56, 95% CI: 1.17–5.60, p=0.019), were more likely to decide their birth place (OR: 3.11, 95% CI: 1.44–6.70, p =0.004), and attended an
3.Prenatal group education program[36]	Functional, interactive, and critical	The programme included a PowerPoint lecture on preeclampsia, antenatal care, and self-care; a group discussion using an audio story booklet on birth preparedness and complication readiness; and a quiz game to	Group Face to face & online 60 Minutes	PowerPoint presentation (translated into Kiswahili) Audio story booklet "Nne na Tano" Quiz game format for review	Knowledge Intervention: M=0.8, SD=3.6 VS control: M=0.8, SD=3.1; p<.001). Satisfaction (1month post-test) Intervention: M=4.9, SD=0.6 VS control: M=4.6, SD=0.6; p = .032). Pre-eclampsia

		review danger signs. Participants received a pictorial card with key messages to take home.		Pictorial take-home card with danger signs and emergency preparedness (double-sided)	Intervention: 0 vs Control (2, 4.3%), p=.50)
4.Better Maternal Health[38]	Functional, and interactive, critical	A community-based programme with facilitators and project assistants conducted IEC campaigns, village talks, and home visits to raise awareness on maternal health, gender equity, and male involvement. It included radio shows on reproductive health and medical insurance to reach wider audiences.	Individual and group Face to face & online 24 Months	Village-based informal talks and a radio program IEC materials (for education during campaigns and talks) Radio program content on reproductive health and medical insurance	Awareness of at least 3 pregnancy danger signs increased ↑from 14.2% in 2018 to 20.9% in 2019 (p=0.029). Husbands/partners' accompaniment ↑ a (22.3% in 2019 vs. 14.7% in 2018, p=.010). Partner support during their last pregnancy (99.1% in 2019 vs. 97.6% in 2018), with no significant difference. Women's empowerment (making their own health decisions) ↑18.2% in 2019 vs 8.3% in 2018 (p<0.001).
5.Amandla Mama intervention[34]	Functional and interactive	Amandla Mama intervention is a collection of 10 short, animated storytelling videos focused on critical perinatal health topics	Individual Online 22 Minutes	Videos delivered through WhatsApp	<u>Knowledge</u> ↑ 0.28 (95% UI: –0.58 to 1.16). Satisfaction Maternal satisfaction was high, with a pooled average score of 4.71 on a 5-point Likert scale.
6.Family-oriented antenatal group education program[37]	Functional, and interactive, critical	Family-oriented antenatal education program focuses on the importance of birth preparedness and family involvement to ensure safe childbirth. The program emphasizes the need for antenatal care, support from family, and delivery with a skilled birth attendant (SBA).	Group Face to face 02 Hours	Picture Drama: Depicts two contrasting birth experiences (one with preparation, one without). Discussion: Facilitated by a Tanzanian midwife to encourage participant engagement.	Knowledge scores significantly increased post-test ($p = 0.001$) for both pregnant women ($p = 0.011$) and family members ($p = 0.020$). Family support was positively associated with preparation of money and food ($r = 0.41$, $p = 0.000$) and preference for skilled birth attendance ($r = 0.26$, $p = 0.003$), and negatively with avoidance of medical intervention ($r = -0.27$, $p = 0.002$). Avoidance of medical intervention was negatively linked to preparation ($r = -0.25$, $p = 0.003$), while preparation was positively linked to preference for skilled birth attendance ($r = 0.31$, $p = 0.000$).
7.Group antenatal care[33]	Functional, and interactive, Critical	Group ANC involves 12 women receiving 2 hours of care, education, and support in each session. They measure their weight	Group Face to face	Health data records for self-monitoring. Pre-arranged discussion activities.	In Malawi, women in group ANC scored higher on average than those in individual care, while in Tanzania, the difference was smaller and not significant. Among Muslim women, group ANC

		and vital signs, then have a private assessment with the midwife. Afterwards, they engage in group discussions on relevant topics, with room for additional concerns.	3 Months	Private health assessments.	was associated with higher Pregnancy-Related Empowerment scores (mean [SD]: 51.3 [7.3] vs. 47.1 [3.5]; Wilcoxon = 421.5, p = 0.0153), but no significant difference was found among Christian women (51.7 [7.0] vs. 52.2 [7.4]; Wilcoxon = 651.0, p = 0.9921).
8.Group antenatal care[35]	Functional, interactive, and critical	The G-ANC model includes one individual meeting and eight group sessions. Women in groups of 10-14 attend sessions where they receive care, education, and peer support. The midwife facilitates interactive discussions using storytelling, role-plays, and picture cards. Women also receive a "Take Action Card" Booklet for home use.	Group Face to face 6 – 12 Weeks	Picture cards to support learning. "Take Action Card" Booklet for home reminders.	Overall, women in both individual and group ANC improved their composite health literacy scores from baseline to post-birth (p < 0.0001). The intervention group showed a greater increase, from 9.6 at T0 to 11.3 at T2 out of 12 (p < 0.0001). Additionally, women in the intervention group were significantly more likely to attend eight or more ANC visits than those in the control group (81.9% vs. 64.6%, p < 0.0001).

pregnant women to save money in preparation for childbirth.[40] However, delays in the disbursement of payments negatively impacted the acceptance of the mobile maternal health wallet (MMHW) intervention. Three key factors influenced its usability among pregnant women: access to a mobile phone, the quality of their relationship with FBHWs, and the level of trust in the intervention itself.

Knowledge and awareness: Two studies reported on knowledge and awareness of danger signs of pregnancy and knowledge about preeclampsia. A study conducted by Shimpuku et al. (2018) assessed knowledge, birth preparedness, and awareness of the need for family support and found a significant increase in knowledge scores from pre- to post-test ($p = 0.001$) for both pregnant women ($p = 0.011$) and their family members ($p = 0.020$).[37] Family support was positively correlated with the preparation of money and food ($r = 0.41$, $p < 0.001$) as well as with the preference for skilled birth attendance ($r = 0.26$, $p = 0.003$). Conversely, family support was negatively associated with avoidance of medical intervention ($r = -0.27$, $p = 0.002$). Furthermore, avoidance of medical intervention was negatively correlated with preparation ($r = -0.25$, $p = 0.003$), while preparation was positively correlated with preference for skilled birth attendance ($r = 0.31$, $p < 0.001$).[37] A study by Adam et al (2023) indicated that the viewing of the short educational videos resulted in a modest increase in participants' overall knowledge scores.[34] Notably, individuals with secondary or higher education scored significantly higher than those with only primary education, with a mean difference of 2.24 points (95% uncertainty interval: 0.76–4.01).[34, 37]

Self-care and empowerment: Three studies evaluated self-care and empowerment. Patil et al. (2017) discovered that in Malawi, women receiving group antenatal care (ANC) demonstrated higher Pregnancy-Related Empowerment scores compared to those receiving individual care.[33] Conversely, in Tanzania, the difference between group and individual care was smaller and did not reach statistical significance. Among Muslim women, participation in group ANC was associated with significantly higher Pregnancy-Related Empowerment scores (51.3 [7.3] versus 47.1 [3.5]; Wilcoxon = 42.1, $p = 0.0153$). In contrast, no significant difference in empowerment scores was observed among Christian women (51.7 [7.0] versus 52.2 [7.4]; Wilcoxon = 651.0, $p = 0.9921$).

Another study conducted by Ndiaye et al. (2021) at the individual and group level of antenatal care reported a significant increase in participants' awareness of at least three pregnancy danger signs, improving from 14.2% in 2018 to 20.9% in 2019 ($\boldsymbol{p} = 0.029$).[38] Additionally, the proportion of spouses accompanying their wives to antenatal care (ANC) visits increased significantly from 14.7% in 2018 to 22.3% in 2019 ($\boldsymbol{p} = 0.010$). Although nearly all women reported receiving partner support during their most recent pregnancy (99.1% in 2019 vs. 97.6% in 2018), this difference was not statistically significant.

Lori *et al*. (2024) showed women in both individual and group ANC improved their composite health literacy scores from baseline to post-birth ($p < 0.001$).[35] The intervention group showed a greater increase. Additionally, women in the intervention group were significantly more likely to attend eight or more ANC visits than those in the control group (81.9% vs. 64.6%, $p < 0.0001$).

Clinical outcomes: Two studies reported on clinical outcomes, including birth preparedness and maternal-infant birth outcomes. Shimpuku et al. (2019) found that participants in the intervention group were less likely to experience complications such as bleeding or seizures during labour and birth (OR: 0.28, 95% CI: 0.13–0.58, p=0.001), undergo a Caesarean section (OR: 0.16, 95% CI: 0.07–0.36, p=0.000), or have babies with complications (OR: 0.28, 95% CI: 0.13–0.60, p=0.001).[41] However, there was no significant difference in health facility births (OR: 1.98, 95% CI: 0.95–4.15, p=0.064).
Sakurai et al. (2025) identified knowledge about preeclampsia as the primary outcome, with secondary outcomes including satisfaction, behavioural intention, pregnancy-related empowerment, and the incidence of preeclampsia or eclampsia.[36] There was no significant improvement in knowledge scores from the pre-test to the one-month post-test, with the intervention group demonstrating the same scores compared to the control group (intervention: M = 0.8, SD = 3.6; control: M = 0.8, SD = 3.1; $p < 0.001$). Additionally, satisfaction scores at the one-month

post-test were significantly higher in the intervention group than in the control group (***p*** = 0.032). Although two cases of preeclampsia (4.3%) were reported in the control group and none in the intervention group, this difference was not statistically significant (***p*** = 0.05).

Discussion

This scoping review sought to map the evidence on maternal health literacy programmes aimed at enhancing self-care practices among pregnant women in Africa. Previous scoping reviews had addressed various topics that focused on the measurement instruments of maternal health literacy[42, 43], health numeracy conceptualisations in public health[44], Maternal health literacy (MHL) for improved maternal and child outcomes[45], health literacy in African countries[46], and parental educational practices.[47]

Hence, this review contributes to the body of knowledge by presenting the components of maternal health literacy programmes, modes of delivery, and outcomes in the African context. The number of studies included in this review indicates that there is a paucity of research on maternal health literacy in Africa, although there has been an increased number of studies published in the last five years. Further, of the eight studies included, less than half were randomised controlled trials, and most studies reported on short-term outcomes, indicating that more rigorous long-term research is needed in this area.

Components of maternal health literacy programmes

Our review identified the components, content, and materials utilised in maternal health literacy programmes. While most studies aimed to incorporate elements of functional, interactive, and critical health literacy, these domains were often not explicitly defined or labelled as such in the programme descriptions. The three domains of health literacy, namely functional, communicative, and critical, are essential in equipping individuals with the foundational skills required to comprehend basic health information, such as medication instructions, appointment schedules, and health brochures.[48] Additionally, they enable individuals to actively engage with healthcare providers, express concerns, ask questions, and effectively apply health-related information. Furthermore, critical health literacy empowers individuals to evaluate health information critically and to address broader social, economic, and environmental determinants of health.[49,50] Incorporating the domains of functional, interactive, and critical health literacy in the delivery of maternal health literacy programmes is essential for ensuring comprehensive and meaningful engagement with maternal health information.[51,52] Each domain contributes uniquely to empowering pregnant women to make informed decisions, effectively navigate healthcare systems, and advocate for their health and that of their new-borns.[32]

Mode of delivery and duration of the maternal health literacy programme

Intervention modalities varied from individual to group-based and face-to-face to blended or completely digital. The results of this review support the utilisation of group antenatal care models, which proved more effective than the individual care model in enhancing maternal health outcomes and reducing the risk of labour, birth, and Caesarean-related complications. The group-based interventions in this review utilised a group antenatal care model to promote improvements in the early initiation of antenatal visits, enhance maternal knowledge of danger signs and pregnancy-related complications, and strengthen maternal empowerment. The findings of this review are consistent with a systematic review and other randomised control trials on the effect of the group antenatal care model, which is associated with increased facility-based deliveries, improved antenatal care attendance, reduced maternal stress, and a decline in adverse birth outcomes.[53-55] The combination of virtual and face-to-face delivery methods is a useful solution to increase participation in programme preparation classes for pregnant women who cannot participate in face-to-face classes.[56, 57] Only one study in the review reported on the use of online sessions to deliver a maternal health literacy program. Digital health education integrated within maternal health programmes holds substantial potential to enhance health knowledge, particularly among populations

in rural settings of low- and middle-income countries.[58]

Many interventions used contextually appropriate strategies to engage participants that were tailored to their literacy level, such as picture dramas, picture or action cards, and PowerPoint. Such health literacy tools have been shown to improve birth preparedness, knowledge of danger signs, and recall of essential care steps.[59-62]

Intervention duration ranged from the shortest intervention lasting 60 minutes to the longest extending over 24 months. In order for health literacy to be effective, it requires continuous assessment/longer duration.[63] Health literacy interventions of longer duration are more likely to produce sustained improvements in knowledge, behaviour, and self-efficacy, as they allow for reinforcement, repeated exposure, and skill-building over time.[50, 64]

Outcomes of the maternal health literacy programmes

The outcomes of the studies were grouped into four domains: usability and acceptability, knowledge and awareness, self-care and empowerment, and clinical outcomes. Overall, the studies in the review reported a notable increase in knowledge among both pregnant women and their family members. When expectant mothers and families are well informed, it creates a supportive environment that can contribute to better decision-making, adherence to health recommendations, and improved health outcomes[65]. One study in the review concluded that pregnant women with secondary education or higher demonstrated significantly higher maternal health knowledge scores.[34] Education enhances cognitive skills such as comprehension, critical thinking, and the ability to seek, process, and apply health information effectively. Although this was the only study in the review to demonstrate the influence of secondary education on health literacy, other studies suggest that women with at least a secondary education are more likely to understand health education[66], recognize the importance of antenatal care[67], identify danger signs during pregnancy[68], and make informed decisions regarding their own and their baby's health.[69] This improved knowledge base may lead to better adherence to health recommendations, increased utilisation of healthcare services, and a stronger capacity for early detection of complications.[70, 71]

The findings of this review indicate that health literacy interventions, especially those with a group component, may improve self-care and empowerment of pregnant women. This aligns with findings from a tailored educational intervention in Uganda, where group antenatal care significantly improved maternal health knowledge and increased antenatal care attendance among pregnant women.[72] Moreover, empowerment was associated with increased confidence in making informed decisions regarding maternal care and overall pregnancy experience.[73] In addition, pregnant women who participated in the group antenatal care (GANC) intervention were significantly more likely to complete the recommended number of antenatal care (ANC) visits. This finding suggests that the intervention effectively empowered women by enhancing their engagement with maternal health services and reinforcing the importance of consistent prenatal care throughout pregnancy.[71] The current review found that group antenatal care (GANC) improved pregnant women's awareness of danger signs during pregnancy, suggesting enhanced health literacy and the potential for increased self-care practices.[74]

From the included studies, it is indicative that health literacy interventions may improve clinical outcomes such as birth preparedness and maternal-infant birth outcomes, although this was not observed in all studies. Our results show that most pregnant women in the intervention experienced significantly fewer labour rand birth complications (e.g., bleeding, seizures), fewer caesarean sections, and fewer neonatal complications. The significant reduction in labour and birth complications among women in the intervention group reinforces the effectiveness of the intervention in promoting safer pregnancy outcomes.[75]One study included in the review reported that there was no statistically significant improvement in pregnant women's knowledge scores regarding preeclampsia between the pre-test and post-test assessments.[36] This indicates that even when knowledge gains are minimal, targeted interventions can produce a measurable educational benefit, particularly when compared to standard

care or no intervention. Overall, maternal health literacy programmes can lead to improved clinical outcomes and birth preparedness, even if gains in knowledge retention are sometimes limited. These findings support the continued integration of such programmes into maternal care strategies, while also highlighting the need for sustained or reinforced education to maintain knowledge over time.

One study in the review conducted in Madagascar reported on the usability and acceptability of the Mobile Maternal Health Wallet intervention.[40] The intervention showed that the majority of pregnant women were able to successfully save money in preparation for childbirth. This finding aligns with previous studies conducted in Uganda and Madagascar, which similarly demonstrated that pregnant women were willing to save money specifically for transport costs associated with accessing maternal health services.[76] Notably, only one study reported on usability and acceptability. This is a cause for concern, as assessing usability and acceptability is crucial to ensure that health literacy interventions are appropriate and effective within specific contexts.

Strengths, limitation and practical implication

The study may have some potential limitations. The studies included only represent those published in scientific journals and thus may have missed important interventions described in grey literature. This scoping review did not assess the quality of evidence, which limits the ability to conclude the effectiveness of the identified interventions. The authors limited the publication years between 2015 – 2025 in studies conducted in Africa. Moreover, the review was limited to published midwife-led maternal health literacy programmes and may have omitted other types of maternal health literacy programmes. A key strength of this review is the application of the JBI methodology for scoping reviews and the use of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR) checklist to guide the reporting process. The use of these established frameworks enhances the consistency, transparency, and replicability of the review across all stages. The practical implications of the review highlight the need to implement group antenatal care that address functional, communicative and critical health literacy. Further, programmes should be consistent in the duration and delivery and have clear monitoring and evaluation frameworks.

Conclusion

Maternal health literacy in African countries seems to be under-researched, which is supported by the relatively low number of studies identified and included in this scoping review. Hence, additional research is needed to develop and evaluate midwife-led maternal health literacy programmes in African countries. We suggest that functional, interactive, and critical health literacy components should be clearly and explicitly integrated into future maternal health literacy programmes. Further, programmes need to be conducted with a longer duration to assess the effectiveness of maternal health literacy programmes for improving the self-care of pregnant women. Additionally, we recommend that future maternal health literacy programmes should report on usability and accessibility, knowledge and awareness, self-care and empowerment, and clinical outcomes.

Acknowledgements

The authors gratefully acknowledge the support provided by Mrs. Vuyokazi Kiva-Johnson, the faculty librarian, during the article search process.

Conflict of interest

The authors declare no potential conflict of interest relating to the research, authorship, and/or publication of this article. This study was performed as part of a PHD degree for T.M.N

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Data availability

No data were handled, as this was a review that was conducted using published articles from journals.

Disclaimer

The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors or the publisher

Authors' contributions

T.M.N., T.C, and J.C wrote the protocol of the study. T.M.N. and T.S screened and extracted the data. T.M.N., T.C, and J.C analysed the data. T.M.N., T.C, and J.C contributed to the write-up and final approval of the manuscript.

References

1. Rezaei Z, Yazdanpanahi Z, Asadollahi A, Karimi M and Ghahremani L. Evaluating the impact of an educational self-care intervention on the empowerment of primigravida pregnant women covered by family medicine program in the Estahban City—an application of the Pender's health promotion model. BMC Pregnancy and Childbirth. 2025;25(1):308.
2. Javanmardi M, Noroozi M, Mostafavi F and Ashrafi-Rizi H. Challenges to access health information during pregnancy in Iran: a qualitative study from the perspective of pregnant women, midwives and obstetricians. Reproductive health. 2019;16:1-7.
3. WHO. World health statistics 2023 – Monitoring health for the SDGs 2023 [cited 2025 11/7/2025]. Available from: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://cdn.who.int/media/docs/default-source/gho-documents/world-health-statistic-reports/2023/world-health-statistics-2023_20230519_.pdf.
4. Souza JP, Day LT, Rezende-Gomes AC, Zhang J, Mori R, Baguiya A, Jayaratne K, Osoti A, Vogel JP and Campbell O. A global analysis of the determinants of maternal health and transitions in maternal mortality. The Lancet Global Health. 2024;12(2):e306-e16.
5. Khalil A, Samara A, O'Brien P, Coutinho CM, Quintana SM and Ladhani SN. A call to action: the global failure to effectively tackle maternal mortality rates. The Lancet Global Health. 2023;11(8):e1165-e7.
6. Godfrey CM, Harrison MB, Lysaght R, Lamb M, Graham ID and Oakley P. Care of self–care by other–care of other: The meaning of self-care from research, practice, policy and industry perspectives. International Journal of Evidence-Based Healthcare. 2011;9(1):3-24.
7. Gomora A, Mukona D, Zvinavashe M and Dhaka A. The relationship between prenatal self care and adverse birth outcomes in young women aged 16 to 24 years. Journal of Nursing and Health Science. 2015;4(1):72-80.
8. Mottola MF, Davenport MH, Ruchat S-M, Davies GA, Poitras VJ, Gray CE, Garcia AJ, Barrowman N, Adamo KB and Duggan M. 2019 Canadian guideline for physical activity throughout pregnancy. British journal of sports medicine. 2018;52(21):1339-46.
9. WHO. WHO recommendations on antenatal care for a positive pregnancy experience 2022 [cited 2025 11/06/2025]. Available from: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://iris.who.int/bitstream/handle/10665/250796/9789241549912-eng.pdf?sequence=1.
10. WHO. Health literacy 2024 [cited 2025 11/07/2025]. Available from:https://www.who.int/news-room/fact-sheets/detail/health-literacy?utm_source=chatgpt.com.
11. Dadipoor S, Mehraban M, Ziapour A and Safari-Moradabadi A. Causes of maternal mortality in Iran: a systematic review. International journal of pediatrics. 2017;5(12):6757-5770.
12. Bello C, Esan D, Akerele S and Fadare R. Maternal health literacy, utilisation of maternal healthcare services and pregnancy outcomes among newly delivered mothers: A cross-sectional study in Nigeria. Public Health in Practice. 2022;3:100266.
13. GATIMU W. Constraints facing promotion of health literacy among women in Kenya. East African Journal of Information Science. 2018.
14. Ickes SB, Hurst TE and Flax VL. Maternal literacy, facility birth, and education are positively associated with better infant and young child feeding practices and nutritional status among Ugandan children. The Journal of nutrition. 2015;145(11):2578-86.
15. Phommachanh S, Essink DR, Wright PE, Broerse JE and Mayxay M. Maternal health literacy on mother and child health care: A community cluster survey in two southern provinces in Laos. Plos one. 2021;16(3):e0244181.
16. Madaj B, Smith H, Mathai M, Roos N and Van Den Broek N. Developing global indicators for quality of maternal and newborn care: a feasibility assessment. Bulletin of the World Health Organization. 2017;95(6):445.
17. Zegeye B, Adjei NK, Idriss-Wheeler D and Yaya S. Individual and community-level determinants of knowledge of ovulatory cycle among women of reproductive age in 29 African countries: a multilevel analysis. BMC Women's Health. 2022;22(1):1-12.
18. Zibellini J, Muscat DM, Kizirian N and Gordon A. Effect of health literacy interventions on pregnancy outcomes: A systematic review. Women and Birth. 2021;34(2):180-6.
19. Meherali S, Punjani NS and Mevawala A. Health literacy interventions to improve health outcomes in low-and middle-income countries. HLRP: Health Literacy Research and Practice. 2020;4(4):e251-e66.
20. Essack S, Desta A, Abotsi R and Agoba E. Antimicrobial resistance in the WHO African region: current status and roadmap for action. Journal of public health. 2017;39(1):8-13.

21. Fox-Harding C. Maternal Health Considerations: Highlighting and advancing opportunities for improved maternal health. SAGE Publications Sage UK: London, England; 2024. p. 17455057241253931.
22. Hadie SNH. ABC of a scoping review: a simplified JBI scoping review guideline. Education in Medicine Journal. 2024;16(2).
23. Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, Moher D, Peters MD, Horsley T and Weeks L. PRISMA extension for scoping reviews (PRISMA-ScR): checklist and explanation. Annals of internal medicine. 2018;169(7):467-73.
24. Obeagu EI. An update on utilisation of antenatal care among pregnant Women in Nigeria. Int J Curr Res Chem Pharm Sci. 2022;9(9):21-6.
25. Somji A, Ramsey K, Dryer S, Makokha F, Ambasa C, Aryeh B, Booth K, Xueref S, Moore S and Mwenesi R. "Taking care of your pregnancy": a mixed-methods study of group antenatal care in Kakamega County, Kenya. BMC health services research. 2022;22(1):969.
26. Khresheh R, Almalik M, Owies A and Barclay L. Implementation of a childbirth preparation program in the maternal and child health centres in Jordan. Midwifery. 2018;61:1-7.
27. Onambele L, Ortega-Leon W, Guillen-Aguinaga S, Forjaz MJ, Yoseph A, Guillen-Aguinaga L, Alas-Brun R, Arnedo-Pena A, Aguinaga-Ontoso I and Guillen-Grima F. Maternal mortality in Africa: Regional trends (2000–2017). International journal of environmental research and public health. 2022;19(20):13146.
28. WHO. Promoting health in the SDGs: report on the 9th Global conference for health promotion, Shanghai, China, 21–24 November 2016: all for health, health for all 2016 [cited 2025 11/07/2025]. Available from: https://www.who.int/publications/i/item/promoting-health-in-the-sdgs.
29. Convidence. Your reviews 2025 [cited 2025 20/02/2025]. Available from: https://app.covidence.org/reviews/active.
30. Nutbeam D and Lloyd JE. Understanding and responding to health literacy as a social determinant of health. Annual review of public health. 2021;42(1):159-73.
31. Essam N, Khafagy MA and Alemam DS. Health literacy of pregnant women attending antenatal care clinics in Mansoura district, Egypt. Journal of the Egyptian Public Health Association. 2022;97(1):24.
32. Meldgaard M, Gamborg M and Maindal HT. Health literacy levels among women in the prenatal period: A systematic review. Sexual & Reproductive Healthcare. 2022;34:100796.
33. Patil CL, Klima CS, Leshabari SC, Steffen AD, Pauls H, McGown M and Norr KF. Randomized controlled pilot of a group antenatal care model and the sociodemographic factors associated with pregnancy-related empowerment in sub-Saharan Africa. BMC pregnancy and childbirth. 2017;17(Suppl 2):336.
34. Adam M, Kwinda Z, Dronavalli M, Leonard E, Nguyễn VK, Tshivhase V, Bärnighausen T and Pillay Y. Effect of short, animated video storytelling on maternal knowledge and satisfaction in the perinatal period in South Africa: randomised controlled trial. Journal of Medical Internet Research. 2023;25(1):e47266.
35. Lori JR, Kukula VA, Liu L, Apetorgbor VE, Ghosh B, Awini E, Lockhart N, Amankwah G, Zielinski R and Moyer CA. Improving health literacy through group antenatal care: results from a cluster randomised controlled trial in Ghana. BMC Pregnancy and Childbirth. 2024;24(1):37.
36. Sakurai S, Mwilike B, Horiuchi S and Mushy SE. Effects of a Tanzanian prenatal group education program about preeclampsia/eclampsia: A quasi-experimental study. Japan Journal of Nursing Science. 2025;22(2):e12652.
37. Shimpuku Y, Madeni FE, Horiuchi S, Kubota K and Leshabari SC. Evaluation of a family-oriented antenatal group educational program in rural Tanzania: a pre-test/post-test study. Reproductive Health. 2018;15(1):117.
38. Ndiaye B, Thiam L, Ham G, Choi Y, Lee E, Kang K and Yang Y. The effects of the maternal health improvement project in the Louga Region of Senegal. International Journal of Environmental Research and Public Health. 2021;19(1):396.
39. Shimpuku Y, Madeni FE, Horiuchi S, Kubota K and Leshabari SC. A family-oriented antenatal education program to improve birth preparedness and maternal-infant birth outcomes: A cross sectional evaluation study. Reprod Health. 2019;16(1):107.
40. Lacroze E, Frühauf A, Nordmann K, Rampanjato Z, Muller N, De Neve J-W, Andriamampianina R, Rajemison E, Bärnighausen T and Knauss S. Usability and acceptance of a mobile health wallet for pregnancy-related healthcare: A mixed methods study on stakeholders' perceptions in central Madagascar. Plos one. 2023;18(1):e0279880.
41. Shimpuku Y, Madeni FE, Horiuchi S, Kubota K and Leshabari SC. A family-oriented antenatal education program to improve birth preparedness and maternal-infant birth outcomes: A cross sectional evaluation study. Reproductive Health. 2019;16(1):107.
42. Chen S, Yue W, Liu N, Han X and Yang M. The progression on the measurement instruments of maternal health literacy: a scoping review. Midwifery. 2022;109:103308.
43. Putri AP, AM AI and Lu YY. Development of Maternal Health Literacy Measurements: A Scoping Review. International Journal of Nursing and Health Services (IJNHS). 2023;6(2):154-64.
44. Khajeei D, Neufeld H, Donelle L, Meyer SB, Neiterman E, Ike NA and Li JZ. Maternal health literacy and health numeracy conceptualisations in public health: A scoping review. Health & Social Care in the Community. 2022;30(6):e3534-e46.
45. Chandrakar A, Ramasamy S, Galhotra A and Shenoy MS. Maternal Health Literacy (MHL) for Improved

Maternal and Child Outcomes: A Scoping Review. Indian Journal of Community Medicine. 2025:10.4103.
46. Ramos NNV, Kielmann K, Martins MdRO and Fronteira I. Health literacy in African countries: a scoping review. 2023.
47. Araújo I, Junior IBN, Rodrigues Peixoto Quaresma F, Pontes-Silva A and Maciel EdS. A scoping review on health literacy in parental educational practices: What do we know about it? Health Education. 2025;125(1):85-90.
48. Beasant B, Anderson K, Lee G, Lotfaliany M, Tembo M, McCoombe S, Vaughan V, Pasco JA and Hosking SM. Health Literacy and Primary Prevention of Cardiovascular Disease: A Scoping Review. Public Health Reports®. 2025:00333549251322649.
49. Chen S, Bai Q, Zhu J and Liu G. Impact of functional, communicative, critical and distributed health literacy on self-management behaviors in chronic disease patients across socioeconomic groups. BMC Public Health. 2025;25(1):1776.
50. Nutbeam D. Improving health literacy: how to succeed. Public health research & practice. 2023;33(1):1-3.
51. Dlamini TM and Dlamini S. Perspectives of pregnant women on maternal health information handouts at KwaZulu-Natal sub-district. African journal of primary health care & family medicine. 2024;16(1):4158.
52. Pipio G, Sanyare FN and Tampah-Naah AM. Perspectives of women on opportunities and challenges on maternal health literacy in Ghana: a facility-based study. Cogent Public Health. 2024;11(1):2446098.
53. Sharma J, O'Connor M and Rima Jolivet R. Group antenatal care models in low-and middle-income countries: a systematic evidence synthesis. Reproductive health. 2018;15:1-12.
54. Tessema M, Abera M and Birhanu Z. Improving postnatal social support using antenatal group-based psychoeducation: a cluster randomised controlled trial. Frontiers in Global Women's Health. 2025;6:1510725.
55. Kukula VA, Awini E, Ghosh B, Apetorgbor V, Zielinski R, Amankwah G, Ofosu WK, James K, Williams JE and Lori JR. Effect of group antenatal care versus individualised antenatal care on birth preparedness and complication readiness: a cluster randomised controlled study among pregnant women in Eastern Region of Ghana. BMC Pregnancy and Childbirth. 2024;24(1):546.
56. Yang X, Li L, Zhou R, Xia J, Li M, Zhang C and Guo H. Effects of the online and offline hybrid continuous group care on maternal and infant health: a randomised controlled trial. BMC Pregnancy and Childbirth. 2023;23(1):629.
57. Cheraghalizadeh H, Adib-Rad H, Pasha H, Chehrazi M, Nasiri-Amiri F and Omidvar S. Effectiveness of face to face and virtual education to promote breast self-examination based on the theory of planned behavior: a randomised controlled trial study. BMC cancer. 2025;25(1):548.
58. Holst C, Stelzle D, Diep LM, Sukums F, Ngowi B, Noll J and Winkler AS. Improving health knowledge through provision of free digital health education to rural communities in Iringa, Tanzania: nonrandomised intervention study. Journal of Medical Internet Research. 2022;24(7):e37666.
59. Ali SER, Abdraboo R, Abdelati I and Shalaby N. Effect of an Educational Program on Modifying Lifestyle among Pregnant Women with Mild Preeclampsia. Scholars International Journal of Obstetrics and Gynecology (Sch Int J Obstet Gynec). 2021;4(8):316-20.
60. Apriani A, Wijayanti W, Widyastuti DE, Andhikatias YR and Mareta MY. The Effect of Health Education with Videos and Flash Cards on Knowledge and Skills of Fetal Stimulation in Pregnant Women. Gaster. 2022;20(2):185-94.
61. Abd Rahman R, Idris IB, Md Isa Z and Abd Rahman R. The effectiveness of a theory-based intervention program for pregnant women with anemia: A randomised control trial. PloS one. 2022;17(12):e0278192.
62. Ogundairo YO, Thomas AO and Olufunmilola OA. Use of drama for improving breastfeeding initiation, exclusive breastfeeding and breastfeeding self-efficacy among rural pregnant women from selected communities in two Local Government Areas (LGAs) in Ibadan, Nigeria. Plos one. 2024;19(8):e0290130.
63. Shao Y, Hu H, Liang Y, Hong Y, Yu Y, Liu C and Xu Y. Health literacy interventions among patients with chronic diseases: A meta-analysis of randomised controlled trials. Patient Education and Counseling. 2023;114:107829.
64. Nutbeam D and Lloyd JE. Understanding and responding to health literacy as a social determinant of health. Annual review of public health. 2021;42(2021):159-73.
65. Sekarini NNAD, Yanti L and Pratiwi PI, editors. Knowledge and attitude factors as determinants of pregnant women's participation in triple elimination program in North Bali. BIO Web of Conferences; 2025: EDP Sciences.
66. Tavananezhad N, Bolbanabad AM, Ghelichkhani F, Effati-Daryani F and Mirghafourv and M. The relationship between health literacy and empowerment in pregnant women: a cross-sectional study. BMC Pregnancy and Childbirth. 2022;22(1):351.
67. Amwonya D, Kigosa N and Kizza J. Female education and maternal health care utilisation: evidence from Uganda. Reproductive Health. 2022;19(1):142.
68. Vallely L, Emori R, Gouda H, Phuanukoonnon S, Homer C and Vallely A. Women's knowledge of maternal danger signs during pregnancy: Findings from a cross-sectional survey in Papua New Guinea. Midwifery. 2019;72:7-13.
69. Kazeem K, Ishola A and Raji M. An Analytical Study of the Relationship Between Perceived Quality of Health, Health Expectations, and Health-Seeking Behaviour of Health Workers. Journal of

International Health Sciences and Management. 2025;11(21):25-33.
70. Elia EF and Ayungo J. Socio-demographic influence on the pregnant women's comprehension of maternal health information in Tanzania. Heliyon. 2023;9(12).
71. Barman B, Saha J and Chouhan P. Impact of education on the utilisation of maternal health care services: An investigation from National Family Health Survey (2015–16) in India. Children and Youth Services Review. 2020;108:104642.
72. Lee S, Kasibante S, Eminai A, Wani S, Opii DJ, Levine LD and Kanyike AM. Effectiveness of a community health worker-led education intervention on knowledge, attitude, and antenatal care attendance among pregnant women in Eastern Uganda. Journal of Health, Population, and Nutrition. 2025;44:232.
73. Agbi FA, Lulin Z and Asamoah EO. Quality of communication between healthcare providers and pregnant women: impact on maternal satisfaction, health outcomes, and shared decision-making. UJOG. 2023;2(1):3-10.
74. Timsin N and Wangpitipanit S. The effects of a health literacy promotion program for prevention of preterm birth among pregnant women who received antenatal care services in the hospital-based. Women and Children Nursing. 2025.
75. Yoseph A, Teklesilasie W, Guillen-Grima F and Astatkie A. Effect of community health education on mothers' knowledge of obstetric danger signs and birth preparedness and complication readiness practices in southern Ethiopia: A cluster randomised controlled trial. PloS one. 2024;19(11):e0312267.
76. Muluya KM, Aremu AB and Rashid N, editors. Effectiveness of the Box Savings Initiative for Transport Costs on Health Facility-Based Deliveries: A Case Study of the Franchisor-Franchisee Transport Model in Busoga Region. Gynecol Reprod Health. 2025; 9 (2): 1-9. Correspondence: Kharim Mwebaza Muluya, Department of Research and Innovations, Busoga Health Forum, Jinja, Uganda Received; 2025.