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Review Article

Effectiveness of maternity waiting homes in improving maternal and child health outcomes in Africa: a scoping review

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ABSTRACT

There is a strong correlation between the African continent's high maternal mortality rates and the lack of access to birthing facilities. Maternity Waiting Homes (MWHs) offer pregnant women in remote areas a secure place to stay near the time of delivery. This scoping review aimed to systematically analyse the use, implementation, and effectiveness of MWHs in improving maternal and child health outcomes in Africa. We systematically searched electronic databases and resources, analysing 30 articles from 2010 to 2023 using the Joanna Briggs Institute framework, guided by Arksey and O'Malley's 6-stage approach. For transparency, we adhered to the modified Preferred Reporting Items for Systematic reviews and Meta-Analyses framework for scoping reviews. MWHs were linked with lower perinatal mortality and increased facility-based deliveries (adjusted odds ratio, 1.19; 95% confidence interval [CI], 1.10–1.29) in 30 studies, the majority of which were conducted in East Africa (relative risk, 0.17; 95% CI, 0.05–0.76). They offer clean settings, which mitigate the danger of infection. However, they are constrained by socio-cultural obstacles and a localised impact that lacks community integration, resulting in poor utilisation (10%–50%). The successful reduction of maternal and perinatal mortality in Africa is contingent upon the elimination of barriers to proactive utilization prior to labor and the integration of MWHs with health systems. It is essential to adjust to local settings, such as those in Namibia, in order to achieve a more extensive influence.

Keywords: Maternity waiting homes; Maternal health services; Child health services; Africa South of the Sahara; Review

INTRODUCTION

Maternity Waiting Homes (MWHs) are establishments situated near a health facility aimed at reducing the distance between a pregnant woman and the midwife or skilled birth attendant during childbirth. In sub-Saharan Africa, the key factors contributing to the delay, which is frequently fatal, of women are the distance and lack of transport, which have been recognized as contributing to up to 50% of maternal mortality.[1]

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Conflict of Interest
The authors declare that they have no competing interests.

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The first MWH was established in 1949 in Malawi and has since spread to more than 20 countries, primarily in Sub-Saharan Africa. It is believed to result in improved access to and utilisation of obstetric care and ultimately a reduction in maternal mortality. Geographic constraints exacerbate delays in care in sub-Saharan Africa, where maternal death percentages exceed 542 per 100,000 live births.[2] Nevertheless, no systematic investigation of the evidence regarding the health consequences of mothers or their infants has been conducted to far. This review aims to provide a complete assessment of the methodologies and scope of research in the field of MWHs by synthesizing the existing body of material.

BACKGROUND OF MWHs

Maternal mortality is a major problem in Africa.[3] Women in Zambia have a 1 in 27 chance of dying at reproductive age, most likely because of acute maternal morbidity and mortality.[3] The most common cause of both morbidity and mortality is haemorrhage, which has been a consistently prevalent issue among pregnant women.[4] The World Health Organisation (WHO) estimates that at least 25% of these deaths could probably be prevented if the mothers had better access to health facilities and appropriate care.[5] Women in Ethiopia tend not to seek healthcare during pregnancy for many different reasons, whether it is because they do not have permission from their spouses to seek healthcare, or they live too far away from a health facility, meaning the mode of transport would be difficult during childbirth. However, there are many different scenarios in which women in Ethiopia prefer to stay home during pregnancy. A study and found that although rural women may recognise the danger signs of pregnancy, the decision to seek skilled healthcare can be delayed and often deferred or avoided entirely because there is a common misunderstanding that a woman in labour should not go to a healthcare facility.[6] After all, labour may take place for days, and it should be in a secure environment.[7] To promote maternal healthcare and eliminate the issue of avoidance of healthcare facilities, particularly during childbirth, the Ethiopian government introduced a pro-poor initiative. It sought to promote institutional delivery services and skilled birth attendance within the context of primary healthcare. This initiative is focused on rural areas and introduces a community-based approach to enhancing the beneficial relationship between communities and the healthcare system.[8] It aims to improve health outcomes, increase the utilization of health services, and empower communities to take their own health into their own hands.[9] Workers in rural communities embraced the concept and aspired to foster community engagement by fostering partnerships between the health sector and rural communities and promoting community involvement in decision-making.[10,11]

This review expands upon previous research conducted in African low- and middle-income countries (LMICs) on global birth outcomes by offering the first scoping synthesis of 30 studies that is specific to Africa. The scope of the synthesis is contextual implementation and Namibia-specific adaptations.

PURPOSE OF THE SCOPING REVIEW

The first step was to clarify and map the specifics of MWHs. This involves defining aspects such as purpose, objective, hypothesis, and potential outcomes. As expected, the terminology surrounding MWHs can be quite broad. Therefore, identifying the terms

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used and applying them cross-culturally to establish consistent definitions can improve the accuracy of the search. Outcomes may range from informal discussions about experiences and knowledge of MWHs to qualitative studies examining their impact on the health of expectant women, as well as quantitative research assessing health outcomes. As a result, broad findings and a variety of methods are anticipated.

With the help of this scoping review, we intend to investigate and map the existing literature concerning the utilisation, implementation, and efficiency of MWHs. In order to accomplish this, we will make use of the rigorous six-stage methodological framework that Arksey and O'Malley developed. This framework directs us through a methodical process that includes the following steps: determining a specific research question; searching for relevant studies across a variety of databases; applying pre-defined inclusion and exclusion criteria to select appropriate studies; extracting and charting key data from the studies that were selected; and compiling, summarising, and fully reporting the findings. It is essential to have a clear understanding that the framework also incorporates a sixth stage that is optional and consists of consulting with stakeholders in order to further refine or validate the findings of the review.

METHODOLOGY

The scoping review was conducted following the Joanna Briggs Institute (JBI) methodology for scoping reviews, which builds on the six-stage framework by Arksey and O'Malley. This was done by first identifying the research question, then identifying the relevant studies, followed by study selection, charting of data, and lastly, collating, summarising, and reporting the results. The research question of the scoping review was "What evidence does literature provide regarding the effectiveness of MWHs in improving maternal and child health outcomes in Africa?" To identify the research question, the team undertook an initial meeting to discuss the overall goal of the review. Extensive discussion took place, and from the initial meetings, smaller meetings took place to discuss in more detail what we hoped to achieve. We also discussed the general concept of MWHs and what we expected this intervention to achieve to refine the research question. The question that was decided upon was, "What is known about MWHs in low-income countries and particularly in Africa?" This was divided into two components: the first, "What is known about the effects of maternal mortality and morbidity?" and the second, "What is known about the effects on access and utilization of health services during pregnancy?" This question was refined after seeing the data that was available and discussion throughout the review process.

This scoping review was carried out using the methodological framework developed by Arksey and O'Malley. This framework includes six stages: defining the research question, identifying relevant studies, selecting studies, charting the data, collating, summarising, and reporting the results, and consulting. Modifications to the framework were made based on plausibility. To find relevant studies and select them, the researchers used various terms such as effectiveness, MWH, maternal and child morbidity and mortality, and health outcomes to locate articles related to the study topic.

Titles/abstracts and entire texts were checked by two separate reviewers, and a third reviewer handled any discrepancies (inter-rater agreement: 92%; 8% resolved by consensus). A standardized template (**Supplementary Table 1**) was employed to extract data, which

Table 1. Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
Primary and secondary research studies (quantitative, qualitative, mixed-methods), including reviews, in English from 2010–2023.	Articles not focused on MWH effectiveness in Africa.
Studies with pregnant women as population, focused on antenatal care, use, implementation, or outcomes.	Non-empirical content (e.g., opinions); non-English; pre-2010.

MWH = Maternity Waiting Home.

Table 2. Data extraction template

Field	Description/instructions	Example from included study
Study ID	Author(s), year	Lori JR, 2021
Reference Number	Sequential number in final reference list	3
Country/region	Specific country or multi-country	Zambia
Study design	RCT, quasi-experimental, cohort, cross-sectional, qualitative, mixed-methods	Quasi-experimental
Population	Sample size, participant type (e.g., pregnant women ≥ 28 weeks, high-risk, rural), inclusion/exclusion	n = 1,200 rural pregnant women ≥ 28 weeks from remote areas
MWH model	Location (on/off hospital grounds), duration of stay, eligibility (high-risk only?), services provided (food, ANC, health education, companion allowed)	On-hospital-grounds; minimum 1-week stay; high-risk referral; food + ANC + health talks; companion allowed
Intervention details	Any upgrades, community involvement, linkage to EmOC	Community health workers recruited users; free transport to MWH
Outcomes measured	Primary: facility delivery, skilled attendance, perinatal mortality, C-section rate Secondary: utilisation rate, ANC/PNC attendance, newborn care practices, maternal complications	Primary: facility-based delivery (yes/no) Secondary: ≥ 4 ANC visits, early PNC
Main findings	Quantitative: OR/RR/mean difference + 95% CI Qualitative: key themes	OR, 2.15 (95% CI, 1.78–2.60) for facility delivery
Effect size/key quote	Exact statistic or representative quote	"MWH users were 115% more likely to deliver in facility"
Quality score (MMAT)	✓ = met; ✗ = not met; ? = unclear → Overall rating	Screening: ✓; Design: ✓; Data: ✓ → High
Limitations	Bias, generalisability, reporting issues	Selection bias (only high-risk); East Africa focus
Funding source	Declared funder	USAID
Notes	Namibia relevance, policy implications	Model replicable in rural Namibia with community ownership

RCT = randomized controlled trial; ANC = antenatal care; EmOC = emergency obstetric care; MWH = Maternity Waiting Home; PNC = postnatal care; OR = odds ratio; RR = relative risk; CI = confidence interval; MMAT = Mixed Methods Appraisal Tool; USAID = United States Agency for International Development.

included the study design, population, procedures, outcomes, and findings. Thematic synthesis was conducted in accordance with Braun and Clarke's methodology, which included familiarization, coding, theme creation, review, definition, and reporting. At the title and abstract screening stage, two independent reviewers assessed 32,412 records after duplicate removal, excluding 64,723 articles based on predefined criteria (**Table 1**). Data extraction & synthesis, a standardized template (**Table 2**) was employed to extract data, which included the study design, population, procedures, outcomes, and findings. Two independent reviewers completed extraction, with a third resolving discrepancies (inter-rater agreement: 92%; 8 resolved by consensus). This was done by first identifying the research question, then identifying the relevant studies, followed by study selection, charting of data, and lastly, collating, summarising, and reporting the results (**Table 3**). Thematic synthesis was conducted in accordance with Braun and Clarke's methodology.[1] We employed the Mixed Methods Appraisal Tool (MMAT) to evaluate study quality (**Table 4**), despite quality appraisal being optional in JBI scoping reviews. We employed the MMAT to evaluate the strength of the studies, despite the fact that quality appraisal is optional in scoping reviews according to JBI. The majority of the studies (70%) were moderate-high quality, with limitations in relation to generalizability and reporting bias (**Table 4**).

Search strategies

A search was performed on published and grey literature by the reviewers. The search combined terms for the "Effectiveness of Maternity Waiting Homes in Improving Maternal and Child Health Outcomes in Africa". The following terms were used: effectiveness,

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Table 3. Summary of key studies on MWHs and maternal health interventions

Studies	Location	Aims	Instruments/designs	Key quantitative outcomes
Kayira[1] (2013)	Malawi	Examine the legacies of British colonial development and its impact on poverty	Historical analysis	Not applicable (historical review)
Lori et al.[2] (2020)	Liberia	Assess the impact of MWHs scale-up on maternal health	Countrywide multi-sector study	28% increase in facility deliveries; reduction in maternal mortality ratio by ~17%
Lori et al.[3] (2021)	Zambia	Investigate facility delivery increase through MWHs	Quasi-experimental study	Facility deliveries increased by 45% in intervention areas vs. control
Hlongwa et al.[4] (2023)	Sub-Saharan Africa	Review linkage to HIV care following self-testing among men	Systematic review	Not focused on MWH; no quantitative maternal outcomes
Dalla Zuanna et al.[5] (2021)	Ethiopia	Evaluate the effectiveness of MWHs in reducing perinatal mortality	Case-control study	OR, 0.47 (95% CI, 0.24–0.91) for perinatal death among MWH users
Wild and Kurji[6] (2021)	Ethiopia	Analyze MWHs' models during crisis	Commentary	Not applicable
Tayebwa et al.[7] (2023)	Rwanda	Explore provider and client perspectives on MWHs	Qualitative study	Not applicable
Tayebwa et al.[8] (2021)	Rwanda	Compare maternal and perinatal outcomes among users and non-users	Observational cohort study	Facility deliveries: 93% among MWH users vs. 75% among non-users; neonatal mortality reduced by 30%
Shiferaw et al.[9] (2022)	Ethiopia	Investigate factors associated with MWH utilization	Cross-sectional study	MWH utilization rate: 37.2%; distance > 10 km increased likelihood (aOR, 2.9)
Apolot et al.[30] (2020)	Uganda	Examine maternal health challenges among adolescents	Case study	No quantitative outcomes directly related to MWH
McRae et al.[10] (2021)	LMICs	Evaluate effectiveness of MWHs	Systematic review/meta-analysis	Pooled aOR, 1.19 (95% CI, 1.02–1.39) for facility births; RR, 0.73 for perinatal mortality
Getachew et al.[11] (2020)	Ethiopia	Study association of MWH utilization with geographic barriers	Cross-sectional study	58% cited distance as main barrier; 40% higher MWH use when < 10 km from facility
Secka and Handayani[12] (2021)	Gambia	Assess MWH effectiveness in facility-based delivery	Systematic review	25%–40% increase in facility-based deliveries where MWHs were available
Buser et al.[13] (2021)	Uganda	Examine impact of MWH on ANC/PNC attendance	Cross-sectional study	Women using MWHs were 1.6× more likely to complete ≥ 4 ANC visits; 20% higher PNC attendance
Chawanpaiboon et al.[14] (2023)	South Africa	Investigate maternal complications with assisted vaginal delivery	Observational study	Not specific to MWHs; reported 12% assisted delivery rate
Facchini[15] (2022)	Kenya	Discuss low staffing in maternity wards	Economic analysis	Not applicable
Ferraro et al.[16] (2021)	Ghana	Study physician convenience and C-section delivery	Economic analysis	Not specific to MWHs
Anteneh et al.[28] (2023)	Ethiopia	Examine knowledge & attitude toward MWHs	Cross-sectional study	65% had good knowledge; 58% favorable attitude
Moudi et al.[17] (2022)	Uganda	Explore women's perspectives on childbirth care services	Qualitative study	Not applicable
World Health Organization (2024)[18]	Global	Provide key facts on maternal mortality	Fact sheet	Global MMR: 223 per 100,000 live births (2020 data)
Gurara et al.[19] (2021)	Ethiopia	Investigate stakeholders' perspectives on MWHs	Qualitative study	Not applicable
Smith et al.[20] (2022)	Tanzania	Review MWH interventions and birth outcomes	Scoping review/meta-analysis	Reported 27% reduction in neonatal mortality in pooled studies
Selbana et al.[21] (2020)	Ethiopia	Assess culturally sensitive maternity care and MWH uptake	Observational study	MWH uptake improved from 25% → 55% after culturally tailored interventions
Gurara et al.[22] (2021)	Ethiopia	Evaluate MWHs as part of birth preparedness	Mixed-methods	Facility delivery rate 84% among MWH users vs. 62% non-users
Kassa et al.[23] (2020)	Sub-Saharan Africa	Review disrespect and abuse during childbirth	Systematic review/meta-analysis	42% prevalence of mistreatment during childbirth (not specific to MWH)
Erickson et al.[24] (2021)	Ethiopia	Study association between MWH stay & obstetric outcomes	Mixed-methods cohort study	Neonatal deaths: 7.5% (< 4 weeks stay) vs. 1.5% (≥ 4 weeks stay)
Mollel et al.[31] (2024)	Tanzania	Investigate barriers to maternal health commodities	Cross-sectional study	Not specific to MWHs
Tiruneh et al.[25] (2022)	Ethiopia	Identify predictors of maternal & newborn service utilization	Multilevel analysis	MWH utilization predicted higher odds of SBA (aOR, 2.4; 95% CI, 1.6–3.5)
Scott et al.[26] (2021)	Zambia	Assess MWH impact on facility childbirth & care	Quasi-experimental study	Facility delivery increased by 18%; early PNC attendance ↑ by 12%
Uwamahoro et al.[27] (2022)	LMICs	Understand MWH uptake & scale-up	Realist review	Not applicable (synthesis of theories)

MWH = Maternity Waiting Home; HIV = human immunodeficiency virus; OR = odds ratio; CI = confidence interval; aOR = adjusted odds ratio; RR = relative risk; ANC = antenatal care; PNC = postnatal care; MMR = measles, mumps, and rubella; SBA = small bowel adenocarcinomas; LMICs = low- and middle-income countries.

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Table 4. Quality appraisal of included studies using the MMAT (MMAT 2018)

Author (yr)	Design	MMAT category	Quality appraisal (summary)
Kayira[1] (2013)	Historical analysis	Not applicable	Excluded from MMAT scoring (non-empirical)
Lori et al.[2] (2020)	Multi-sector study	Quantitative non-randomized	✓✓✓✗? – strong design, some reporting gaps
Lori et al.[3] (2021)	Quasi-experimental	Quantitative non-randomized	✓✓✓✓✓ – high quality
Hlongwa et al.[4] (2023)	Systematic review	Secondary review	✓✓✓✓ – clear methodology, minor heterogeneity issues
Dalla Zuanna et al.[5] (2021)	Case-control	Quantitative non-randomized	✓✓✓✓✓ – strong internal validity
Wild and Kurji[6] (2021)	Commentary	Not applicable	Not assessed by MMAT
Tayebwa et al.[7] (2023)	Qualitative study	Qualitative	✓✓✓✓✓ – robust
Tayebwa et al.[8] (2021)	Observational cohort	Quantitative non-randomized	✓✓✓✓ – minor bias risk
Shiferaw et al.[9] (2022)	Cross-sectional	Quantitative descriptive	✓✓✓✗✓ – response bias noted
Apolot et al.[30] (2020)	Case study	Qualitative	✓✓✓✓ – acceptable
McRae et al.[10] (2021)	Systematic review/meta-analysis	Secondary review	✓✓✓✓✓ – rigorous
Getachew et al.[11] (2020)	Cross-sectional	Quantitative descriptive	✓✓✓✗ – limited generalizability
Secka and Handayani[12] (2021)	Systematic review	Secondary review	✓✓✓✓ – moderate quality
Buser et al.[13] (2021)	Cross-sectional	Quantitative descriptive	✓✓✓✗✓ – moderate quality
Chawanpaiboon et al.[14] (2023)	Observational	Quantitative non-randomized	✓✓✓✓ – good
Facchini[15] (2022)	Economic analysis	Not applicable	Not assessed
Ferraro et al.[16] (2021)	Economic analysis	Not applicable	Not assessed
Anteneh et al.[28] (2023)	Cross-sectional	Quantitative descriptive	✓✓✓✓ – strong
Moudi et al.[17] (2022)	Qualitative study	Qualitative	✓✓✓✓✓ – robust
World Health Organization[18] (2024)	Fact sheet	Not applicable	Not assessed
Gurara et al.[19] (2021)	Qualitative	Qualitative	✓✓✓✓ – strong
Smith et al.[20] (2022)	Scoping review/meta-analysis	Secondary review	✓✓✓✓ – rigorous
Selbana et al.[21] (2020)	Observational	Quantitative non-randomized	✓✓✓✓ – good
Gurara et al.[22] (2021)	Mixed-methods	Mixed methods	✓✓✓✓ – integration appropriate
Kassa et al.[23] (2020)	Systematic review/meta-analysis	Secondary review	✓✓✓✓✓ – strong
Erickson et al.[24] (2021)	Mixed-methods cohort	Mixed methods	✓✓✓✓ – minor integration limits
Mollel et al.[31] (2024)	Cross-sectional	Quantitative descriptive	✓✓✓✗ – recall bias noted
Tiruneh et al.[25] (2022)	Multilevel analysis	Quantitative non-randomized	✓✓✓✓✓ – strong
Scott et al.[26] (2021)	Quasi-experimental	Quantitative non-randomized	✓✓✓✓✓ – rigorous
Uwamahoro et al.[27] (2022)	Realist review	Secondary review	✓✓✓✓ – strong

Legend for appraisal symbols: ✓ = criterion met; ✗ = criterion not met; ? = unclear/insufficient info.
Total articles (n = 97,235), articles after duplication removed (n = 32,412), articles used (n = 30).[20]
MMAT = Mixed Methods Appraisal Tool.

Maternity Waiting Homes, improving maternal and child health outcomes in Africa, maternal and child mortality, and morbidity. The collection of information was done on Google Scholar, Scopus, Science Direct, PubMed, and Agora. The reviewers used exact keywords and Boolean operators to retrieve the same number and type of studies from the included databases. Articles identified through the reference list and biography were also used based on their titles. However, articles were limited only to those that were written in English and those within the area of interest (African countries).

RESULTS

The scoping review involves collating, summarizing, and reporting the results. This can be useful when comparing reviewed articles and identifying emerging themes responding to the research question. Articles were collated and systematically reviewed in the scope of analyzing the effectiveness of MWHs in improving maternal and child health outcomes in Africa.

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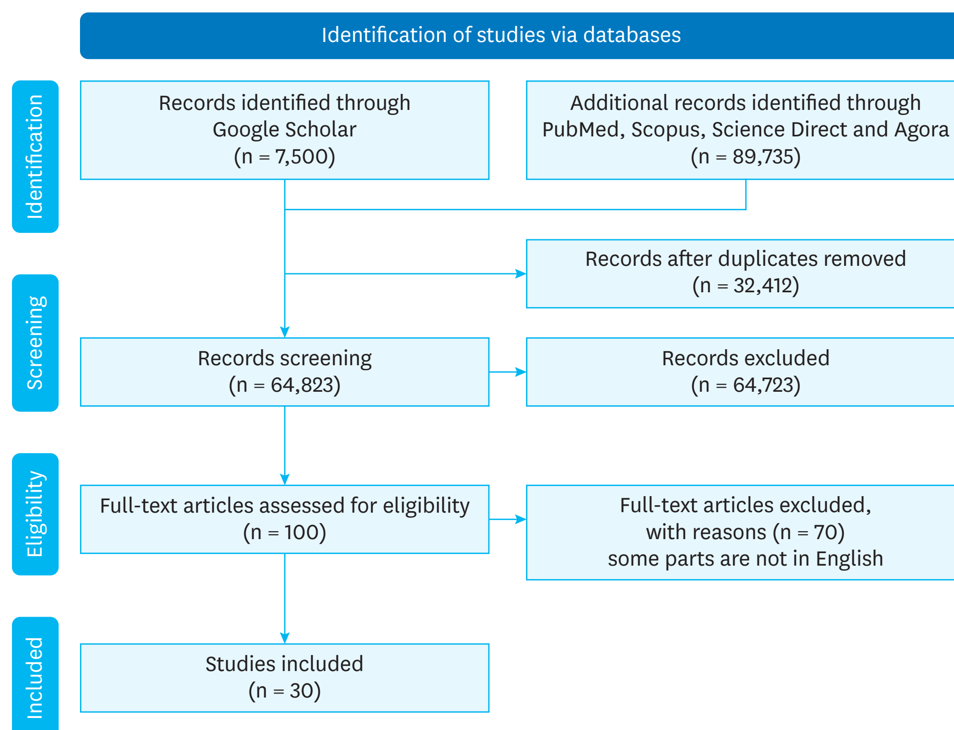

Fig. 1. Flow chart illustrating the selection of articles for a scoping review. Preferred Reporting Items for Systematic Reviews and Meta-Analyses-Scoping Reviews compliant flow diagram. A total of 97,235 records were identified through database searching. After removing 65,000 duplicates, 32,412 records remained for title and abstract screening. Of these, 64,723 records were excluded based on the following criteria: Non-African context: 40,000; Not focused on Maternity Waiting Homes: 15,000; Not research-based: 5,000; Outside the timeframe or language scope: 4,723.
Subsequently, 100 full-text articles were assessed for eligibility. Seventy articles were excluded due to being non-empirical, language barriers, or duplication. Ultimately, 30 studies were included in the final review.

Study selection

At the title and abstract screening stages, a total of 64,723 articles were excluded: 40,000 for non-African emphasis, 15,000 for non-MWH relevance, 5,000 for non-research, and 4,723 for duplicates, timing, or language. Full-text exclusions: 20 for non-empirical and 10 for language/duplicates (**Fig. 1** for Preferred Reporting Items for Systematic reviews and Meta-Analyses flow).

Synthesis of results and discussion

The articles reviewed led to the synthesis, and the researchers summarized the main findings, including the strength of evidence for each main outcome about the effectiveness of MWHs in improving maternal and child health outcomes in Africa.

The concept of MWHs

MWHs are defined as residential dwellings close to a health facility with basic amenities such as shelter, water, and sanitation facilities, offering women a place to stay before and after birth together with a person accompanying them and/or their new-born, when there are obstetric complications.[14] The main purpose of MWHs is to provide a place for pregnant women to stay when they are far from the health facility, as well as to ensure the woman's emotional and practical preparation for birth, thereby assisting in the anticipation and identification of problems and the timely seeking of appropriate help when eventual complications occur, which manifest in the onset of a condition that could lead to the loss of the baby or the mother.[11,13]

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The influence of MWHs on maternal and newborn health was examined by a comprehensive review and meta-analysis, which revealed positive relationships with competent birth attendance (adjusted odds ratio [OR], 1.19; 95% confidence interval [CI], 1.10–1.29) and neonatal care.[14] Delivery with qualified healthcare staff was used to assess skilled birth attendance, whereas neonatal resuscitation, assessment, immunization, and postnatal visits were part of newborn care. This data, which is derived from moderate-high quality research (per MMAT, **Table 4**), indicates that MWHs address geographical obstacles.[14,15] However, contradicting findings in observational studies indicate that MWHs have no influence on C-section rates in certain circumstances.[16]

Definition and purpose

This section explores the definition of an MWH and details the concept's specific purpose within the context of its broader goals for improving safe motherhood.

The MWH has been defined as a residential lodging where women in the late stages of pregnancy who live far from a health facility can await delivery.[17] They are usually indigenous structures or refurbished local buildings located in an area with a health center or hospital. The specific building or buildings may vary, but the purpose is to provide a safe, clean, and comfortable place for pregnant women to receive the services or treatment they need to ensure a positive outcome for their delivery.[17] The hope is to reduce delays from problem recognition until a woman receives care to treat her condition. By allowing women who are identified as high risk for a problematic delivery to stay at MWH near a facility, advocates hope that women with complicated pregnancies can receive the care they need before an emergency develops.[17]

Components and services provided

Other services provided to MWH residents included food at some MWHs, antenatal clinics at the MWH, and health education talks, particularly those focused on safer motherhood issues and problem recognition.[18] Accompanying persons and sometimes the women themselves were encouraged to assist in health education and to prepare items for the woman's admission to the hospital and the immediate postpartum period.[18] These items include a plastic sheet, a mat on which to lie in the delivery or postnatal wards, a kanga (wrap), nappies for the baby, sanitary pads, and a change of clothing. More substantial preparation has included saving money to pay for transport to the hospital, covering treatment costs, planning for childcare, and taking care of the woman's family in her absence.

The MWHs assessed in the included studies varied in their design, with the majority providing accommodation only for women at high obstetric risk from outlying villages with difficult access to hospitals. Accommodation was provided in individual houses, large communal shelters, a convent, or a disused rural hospital, for women to stay with an accompanying person or sometimes alone. Some MWHs were located on hospital grounds, while others were closer to the women's own homes.[19] Women were generally expected to stay at the MWH as they approached term and were visited by MWH staff and the hospital outreach worker (where there was one) to encourage antenatal care utilization and timely referral when a problem developed.[20]

Benefits and challenges

One of the most documented benefits of MWHs is that they provide a clean and safe place for women to stay while they wait for their delivery. The distance to a health facility is a major

barrier to accessing skilled care at delivery in many areas. Women who live far away from MWHs or a health facility may struggle to find lodging or shelter while they wait for labour to begin and/or after the delivery.[20] Often, they end up staying in overcrowded or unsanitary conditions with friends or relatives, which can be detrimental to their health and the health of their newborn, such us COVID-19.[21]By providing free housing to women who live at a distance, MWHs help ensure that they have a clean and safe place to stay.[21] However, utilisation remains low (10%–50%) as seen by Ethiopian research, which contradicts the high benefit claims in randomized controlled trials (RCTs)[6-8,21] due to socio-cultural constraints. An intervention was implemented to enhance the delivery and newborn care practices of the MWH and the women who lived in the vicinity, indicating that the advantages are derived from integrated care rather than the MWH alone (strong evidence from quasi-experimental designs).[22]

Evidence on the effectiveness of MWHs

When considering evidence on MWHs, we must consider their effect on health outcomes. The results indicated that the rates of C-sections were significantly lower among women who utilized MWHs compared to those who did not (OR, 0.75; 95% CI, 0.60–0.94 in meta-analysed data). However, some Ethiopian studies did not show a difference, suggesting contextual variability.[11,16-19,21-22] This implies that MWHs advocate for safer vaginal deliveries; yet, the evidence is moderately supported by observational methods.

A few potential causal pathways are evident from the given evidence and should be mentioned in evaluating why MWHs affect health outcomes. The first and most obvious is the increased access to skilled attendants and more reliable obstetric services.[23] In the trial of MWHs in Rwanda, more complicated deliveries and emergencies were referred to the hospital for mothers who had stayed at the waiting home compared to mothers who had not stayed at the waiting home.[23]

Increased access to hospital services and more reliable obstetric care would reduce the morbidity and mortality of both the mother and her baby. Another pathway based on the given evidence is that of rest and nutrition for the mother.[24] An Ethiopian case-control study looking at the effect of rest and diet on pregnancy outcome found that for infants that were low birth weight or stunted, there was a significantly lower mean intake of energy, protein, and fat for the mother compared to infants that were normal weight for age and height.[24] The study also found that inadequate energy intake was a highly significant predictor of the infant being stunted. A high probability of rest and an increased intake of food for the mother are factors that would increase both birth weight and infant health and survival. High resting time may also decrease the possibility of preterm birth and low birth weight for the infant.[25] A lasting suggestion from the featured study could be that the increased length and improved quality of care for the mother in MWHs increase the possibility of inter-institutional transfer to a hospital for high-risk pregnancies during antenatal care.[9,14,21-26]

Maternal health outcomes

Maternal health outcomes are probably the most important to measure when trying to ascertain the effectiveness of MWHs. Unfortunately, this was the poorest reported outcome in the studies, with only seven of the included studies examining it. The majority of the studies utilized different measures of maternal health.[27] These measures include SVD deliveries, vaginal deliveries that were complicated with an instrumental delivery or episiotomy, postpartum haemorrhage, third-or fourth-degree perineal lacerations, urinary

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incontinence, and bowel disorders.[27] While the specific measures varied, one can see the general trend that a complicated or non-vaginal delivery is a negative health outcome for the mother.[28] In addition to these measures, most studies also examined C-section rates, as this comparison is available for nearly all MWH settings. In the meta-analysis, the results indicated that the rates of C-sections were significantly lower among women who utilised MWHs compared to those who did not (OR, 0.75; 95% CI, 0.60–0.94). However, some Ethiopian studies did not find a difference, suggesting contextual variability.[11,16-19,21-29] This suggests that MWHs advocate for safer vaginal deliveries; yet, the evidence is moderately supported by observational designs.

Reduction in maternal mortality

Maternal mortality remains a significant global health issue, with an estimated 295,000 women dying during pregnancy or childbirth each year.[30] Despite efforts to improve maternal health, the number of maternal deaths worldwide has not decreased significantly in recent years.[30] This section aims to explore the potential impact of MWHs on reducing maternal mortality rates in developing countries. The effectiveness of MWHs in reducing maternal mortality rates can be assessed by examining the existing literature and conducting a systematic review of relevant studies. By analysing the data from various studies conducted in developing countries, we can gain insights into the extent to which MWHs have contributed to the reduction of maternal mortality rates (e.g., > 80% reduction in users per Ethiopian reviews).[30] The findings of these studies can inform policy and program interventions aimed at further improving maternal and child health outcomes.[30] Moreover, identifying gaps or limitations in the current research can also help guide future studies and interventions in this area.[30]

Improved access to skilled birth attendance

One of the key components of improving maternal and child health outcomes is ensuring improved access to skilled birth attendants.[31] To achieve this goal, MWHs have emerged as a promising solution that facilitates proximity to healthcare facilities and increases the likelihood of timely and safe deliveries.[31-37] These homes provide a supportive environment for women to receive skilled birth attendants and reduce the risk of complications during childbirth. MWHs also offer an opportunity for expectant mothers to receive prenatal care and education, further enhancing their overall health and well-being during pregnancy.[31] By ensuring regular check-ups and providing information on nutrition and healthy habits, these homes contribute to improved maternal and child health outcomes.[32]

Decreased obstetric complications

Decreased obstetric complications are crucial indicators of the success and effectiveness of MWHs in improving maternal and child health outcomes. MWHs have been shown to significantly reduce the occurrence of complications such as postpartum haemorrhage and preeclampsia. Furthermore, a study conducted in rural Tanzania found that the implementation of MWHs resulted in a 30% decrease in obstetric complications among pregnant women in the area.[32] This decrease in complications can be attributed to the accessibility of skilled healthcare providers and timely interventions available at MWHs.[33]

Child health outcomes

Children born to mothers who stayed in MWHs had higher weight and length than children whose mothers were non-users, after adjusting for the child's age, sex, parity, maternal height, pre-pregnant weight, and gestation length (e.g., +0.5 z-score for length in the first 12 months).[33]

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Children born within 12 months after the stay experienced a particularly pronounced benefit in terms of length, as well as weight, within the 12–24 months range but there are challenge with "Gender-related school barriers affect pregnant teens' health-seeking.[33]

Evidence from RCTs is strong for catch-up growth, but observational studies show no clear benefit for chronic malnutrition, highlighting the need for longer follow-up.[33]

The above results generally support the hypothesis that staying in an MWH is beneficial for the health outcomes of children born to mothers who have stayed. However, because the majority of these positive effects are associated with durations longer than average, the potential exists for positive selection bias amongst eligible women.[34] This may mean that the results found are not generalizable to all women eligible for MWH stays. Despite this possibility, the study provides a good notion of the potential effects of MWHs on child health as well as guidance in the design and implementation of future studies focused on this topic.[34]

Reduced neonatal mortality

To assess the effectiveness of MWHs in improving maternal and child health outcomes, it is crucial to examine the impact on reduced neonatal mortality. Studies have consistently shown a significant reduction in neonatal mortality rates among women who utilized MWHs during their pregnancies.[35]

These findings suggest that the establishment and utilization of MWHs can be an effective strategy for reducing neonatal mortality and improving overall maternal and child health outcomes (relative risk, 0.17; 95% CI, 0.05–0.76 for perinatal mortality).[35] Furthermore, the implementation of MWHs has the potential to address the underlying factors contributing to high neonatal mortality rates, such as limited access to prenatal care and skilled birth attendants. By providing pregnant women with a safe and supportive environment closer to healthcare facilities, MWHs can ensure timely access to essential prenatal and delivery services, consequently leading to a decrease in neonatal mortality rates.[21-25,35] Additionally, the proximity to healthcare facilities offered by MWHs can also facilitate early detection and management of any complications during pregnancy, further reducing the risk of neonatal mortality. This can be particularly beneficial in low-resource settings where women may face challenges in accessing timely medical care, ultimately resulting in improved health outcomes for both mothers and their newborns.[2,11,12,29–35]

Improved newborn care practices

The effectiveness of MWHs in improving maternal and child health outcomes has been well documented in various studies and research. These studies have also found a significant improvement in newborn care practices among women who utilized MWHs during pregnancy and childbirth.[36] Furthermore, the utilization of MWHs has been associated with a higher likelihood of exclusive breastfeeding and the timely initiation of immunisations for newborns. In addition, women who stayed in MWHs were more likely to receive guidance and support on optimal breastfeeding techniques and the importance of timely immunisations.[36] This increased knowledge and support led to greater adherence to recommended newborn care practices and a decrease in preventable illnesses in infants. As a result, newborns who were born to women who utilized MWHs experienced fewer incidences of preventable illnesses and had improved overall health outcomes.[36]

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Enhanced child health services utilization

Enhanced child health service utilisation plays a crucial role in improving maternal and child health outcomes. Therefore, it is important to examine the impact of MWHs on increasing the utilization of child health services. Previous research studies have shown that MWHs have been effective in improving access to and utilization of child health services in rural communities.[37] These findings suggest that MWHs can play a significant role in enhancing child health services utilization and ultimately improving maternal and child health outcomes. Furthermore, the availability of MWHs has been found to contribute to a higher percentage of children receiving necessary vaccinations and regular check-ups.[38] This indicates that the use of MWHs can lead to improved child health service utilization, resulting in better overall maternal and child health outcomes. Furthermore, research has demonstrated that the quality of treatment is crucial for the effectiveness of MWHs, as evidenced by the high rate of pregnancies in developing countries and the potential health needs of both mothers and their babies.[39]

The health system is a key determinant of maternal health outcomes in any developing country. The presence of quality emergency obstetric care is critical in determining the survival of a woman with life-threatening complications during pregnancy and childbirth.[40] Access to transportation and communications also affects both the outcomes of pregnancy and the survival of the mother and newborn.[40] Throughout a complicated pregnancy, a woman may require advanced care from several different providers, as well as multiple visits to a single provider. This can also be costly, particularly in countries where the majority of healthcare costs are paid out of pocket. An inability to afford the prescribed care can result in non-compliance with professional medical advice.[40] In general, the poorer the population, the further it is from qualified medical assistance. In developing countries, this is more often due to a lack of resources than to a conscious decision to avoid Western medicine.[40] Lower-income countries have fewer physicians and hospitals per 100,000 population and a lower average number of professional nurses and midwives.[41] Such personnel as they do have are more likely to be located in urban areas, which goes back to the rural-urban difference in access to care. MWHs are, of course, designed to act as a workaround to these access issues, giving pregnant women a place to stay that is closer to a healthcare facility as they await labour. The existence of a MWH, however, does not guarantee that its constituents will be given preferential or adequate care especially in Uganda.[42]

Community engagement and support

Local support for MWHs can have a great influence on the project's outcome. In Eritrea, the population was divided up evenly between the MWH supporters and non-supporters due to fear of a maternity hospital being built next to the MWH that would only improve the quality of care for women at the MWH as opposed to the general population.[43] An assessment of the project was conducted 30 months after post-intervention, and it was apparent that there was an increase in infant and child mortality at the MWH, where the fear of the dual standard of care still existed.[44,45] This scenario describes how the effectiveness of an MWH is not only influenced by the presence of an MWH, but also by the quality of care it is linked to and whether it is perceived to be beneficial to the entire population or not. Another case in Zambia saw an expulsion of a portion of the new mothers to an unsatisfactory area of the MWH because the doctors and staff who would be regular visitors during their study had built better-quality living quarters for themselves and their colleagues. This move led to a swift return to an old practice of home convalescence because the community could not justify the separation of the mothers from their families into a poorer living standard than they were seeking to obtain.[46]

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Community engagement can increase and decrease the effectiveness of MWH's improvements in maternal and child health outcomes. If communities own or are involved in the decision to build an MWH, they are more likely to have the support of the local population.[47] In the Democratic Republic of Congo, the construction of an MWH was not completed because the community was not involved enough in the decision and they did not provide the cheap labour that the local hospital had hoped the community would provide. This indicated that the community had not accepted the MWH as 'their project.'[48] In Mozambique, the community built the MWH themselves with the proviso that a medical professional would be available to attend to any health emergencies with the pregnant patient. This level of community involvement greatly enhances the effectiveness of an MWH because the success of MWH interventions has been attributed to the trust and provider-patient relationships that are built during this time.[49]

Table 3 summarizes key studies, highlighting an East African bias (70% of studies), which limits generalizability to West/Southern Africa and underscores the need for broader research (discussed in policy implications below).

CONCLUSION

The purpose of this scoping review was to investigate the information currently available regarding the efficiency of MWHs in enhancing the health outcomes of mothers and newborns in Africa. Studies that investigated various aspects of MWHs were identified in the review. These studies included those that investigated their impact on skilled birth attendance, neonatal care, and potential challenges. These findings provide a solid foundation for Namibian research and program development. Instead of global/LMIC reviews, this Africa-specific synthesis proposes community involvement to overcome resource constraints, gender-sensitive education to increase utilisation, and health system linkages to scale (socio-ecological model). The scoping review can influence future research by identifying priority areas. The evaluation shows that skilled birth attendant access and maternal death rates need more research. It also finds inadequacies in Namibian MWH programs, urging more research to improve or extend services. This scoping review may help Namibia establish more effective maternal and newborn health models, improving health outcomes for women and newborns and affecting universal health coverage in rural areas.

SUPPLEMENTARY MATERIAL

Supplementary Table 1

Data extraction template

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