



Review Article

Models of Maternal Healthcare for African refugee women in High-Income Countries: A Systematic Review

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ABSTRACT

Objective: To explore models of maternal healthcare for African refugee women and their acceptability, cost and associated outcomes.

Design: A systematic review and content analysis

Setting: High-income countries

Participants: African refugee women

Review methods: Seven databases were searched to identify peer-reviewed literature using defined keywords and inclusion criteria. Two authors independently screened the search findings and the full texts of eligible studies. The quality of the included studies was appraised, and the findings were analysed using a template.

Results: Nine studies met the criteria. Four studies were qualitative, two quantitative and three studies used mixed methods. Four models of care were identified: midwifery-led care, hospital-based integrated care, primary care physician-led integrated care and a holistic refugee-specific primary healthcare model (one-stop shop). Issues affecting care delivery were identified as communication barriers, low health literacy, high transport costs and low engagement of refugee women in their care.

Key conclusions: The lack of evidence regarding the impact of care models on the maternal healthcare outcomes of African refugees highlights the need to improve care evaluations. These results reinforce the importance of education and interventions to build refugee women's health literacy and strength-based communication approaches supported by multidisciplinary, multilingual and highly trained teams of health professionals. There is also a need to involve African refugee women in shared decision making.

Implications for practice: The findings suggest the need for universal access to a woman-centred whole-of-system care approach for African refugees that emphasises culturally competent, safe, respectful and compassionate multi-professional care and greater economic security to cover costs.

Introduction

Africa hosts about 37% of the world's 19.6 million refugees, with sub-Saharan Africa hosting more than 6.6 million and the region of East Africa hosting one of the highest levels of refugees globally. The majority of refugees originate from four countries - South Sudan, Somalia, the Democratic Republic of Congo and Burundi (UNHCR, 2019a). A substantial proportion of these refugees have settled in high-income countries (HIC) (World Bank, 2018), mainly driven by inadequate human and economic development, political, social and environmental stress factors (Castelli, 2018; Flahaux, 2016; Hugo, 2009). For example, an estimated 33% of new refugees and asylum seekers admitted into the United States of America (USA) in 2017 comprised African refugees. In 2019, refugees from the Democratic Republic of Congo (DRC) and Eritrea in the USA far

outnumbered those from all other countries, accounting for nearly 70% (13,000) and 63% (1800) of refugees (Blizzard, 2019). In Australia, the number of African refugee arrivals increased from 7082 in 1997–98 to 17,735 in 2004–05. Almost three quarters (72.6%) of this population are from Southern and East Africa, while 22.9% are from North Africa and 4.5% from Central and West Africa (ABS, 2008; Hugo, 2009). Refugees are described as 'persons outside of their country of origin for reasons of feared persecution, conflict, generalised violence, or other circumstances that have seriously disturbed public order' (Riza et al., 2020; UNHCR, 2019b).

African refugees of different categories have resettled in high-income countries and each has experienced unique relocation processes, pre-migration, transitional migration and post-migration factors (Flahaux, 2016). This is especially true for female refugees from coun-

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tries where women, pregnant women, girls, children and unaccompanied minors have experienced violence. For example, pregnant women who have fled violence and persecution may be exposed to adverse health and social outcomes - arriving with limited economic resources, a lack of social networks and a poor understanding of their host country's language and culture. In addition, they may have existing health issues on arrival which differ from women in their host countries, myriad obstacles accessing appropriate healthcare services and stresses associated with MCH experiences during pregnancy, childbirth and postnatal services (Gibson-Helm et al., 2014; Mbanya et al., 2020; Pérez-Urdiales et al., 2019; Quintanilha et al., 2016; Stapleton et al., 2013). They may also have undergone female genital mutilation (FGM) that is associated with adverse obstetric, gynaecological, mental and sexual health effects (Abdalla, 2019; Berg, 2013; Mbanya et al., 2020). African refugee women may also experience significant challenges accessing healthcare services, including difficulties finding interpreters and translators (Brandenberger et al., 2019). These experiences, including barriers to service accessibility, may have serious implications on their mental health and wellbeing (Flahaux, 2016). The provision of high-quality, culturally diverse and safe maternal care is further complicated when healthcare professionals are unfamiliar with the socio-culture factors and complex needs of refugee women (Fair et al., 2020; Robertshaw et al., 2017; Rogers et al., 2020).

These barriers may also impact their health outcomes. Groups of African women refugees in HICs have been found to experience sub-optimal maternal and perinatal health outcomes than women born in HICs. For example, a meta-analysis found that sub-Saharan Africa migrants and refugees were at higher risk of preterm birth, foetal and infant mortality than women in host countries (Gagnon et al., 2009). In addition, birth amongst women from middle and East Africa was associated with gestational diabetes mellitus (OR_{adj} 3.5, 95% CI 1.8, 7.1) (Gibson-Helm et al., 2014). Another study found that compared with mothers born in Australia, East African migrants and refugees had elevated odds of perinatal mortality (OR_{adj} 1.83, 95% CI 1.47, 2.28) and preterm birth (OR_{adj} 1.55, 95% CI 1.27, 1.90) and their babies were smaller (OR_{adj} 1.59, 95% CI 1.46, 1.74) and had a lower birth weight (OR_{adj} 1.33, 95% CI 1.11, 1.58) (Belihu et al., 2016). However, in the USA between 2007 to 2016, African refugee women were found to have better perinatal outcomes than USA-born women. African refugee women had fewer pre-pregnancy health risks ($p < 0.001$), preterm births ($p < 0.001$), low birth weight infants ($p < 0.001$) and higher rates of vaginal deliveries ($p < 0.001$). These positive outcomes of African refugee women occurred despite later initiation of prenatal care ($p < 0.001$) and lower scores of prenatal care adequacy ($p < 0.001$) (Agbemenu et al., 2019). This result was unexpected, given the late initiation of prenatal care. Further research is needed.

Evidence-based tailored models of care are required to manage cross-cultural challenges, the complex system-level barriers to accessing care, and in some cases poorer perinatal health outcomes of African refugee women in HICs. (Au et al., 2019; Quintanilha et al., 2016). A 'model of care' is broadly defined as the way health services are organised and delivered, underlining the components of this care, structure for the implementation of care options, the workforce involved and the place of delivery (Davidson 2006, Agency for Clinical Innovation 2013, AIHW 2014). However, few studies have examined maternity care models for refugee women in HICs and none have focused on African populations. Although several reviews have identified healthcare barriers for refugees, including maternity care (Brandenberger et al., 2019; Heslehurst et al., 2018; Khanlou et al., 2017; Pangas et al., 2019; Parajuli, 2019), limited studies have examined elements that constitute effective models of care or how they are tailored to meet refugee women's needs. For example, Joshi et al. (2013) synthesised the core elements of acceptable and accessible primary health care models for refugees. These were culturally responsive care, continuity of care, effective communication, psychosocial and practical support to navigate systems and flexible and accessible services. One of the few reviews that examined maternity care

models for refugees identified several interventions which resulted in increased care satisfaction, including the provision of bilingual/bicultural workers, group antenatal care or health education and specialised clinics (Rogers et al., 2020). However, few studies have provided evidence of improved maternal health outcomes (Rogers et al., 2020).

Overview of the different types of care

We conducted a scoping review to inform this study that identified a range of maternity care models for all populations (Supplementary file 1). Models of maternity care vary according to whether the first point of contact is a primary care facility or a specialist service, a public or private service and the type and role of health professionals who deliver the care. Other aspects include whether the service provides universal or targeted health care and the degree to which training and research are embedded into the service model, combined with the level of collaboration with other providers and the philosophy underlying the service. The dominant models of maternity healthcare services involve a conventional medical model in either a public or private hospital setting (AIHW, 2014). In the public system, maternity healthcare services are generally offered through midwifery-based models or midwife-led units and delivery in birthing centres (Bryant, 2009). In addition, maternity healthcare services may be delivered by midwives and obstetricians - with obstetricians carrying the overall professional responsibility. In the private system, options for midwifery-focused models are limited (Bryant, 2009; Hanafin, 2016). In countries like New Zealand and the Netherlands, midwives are autonomous and only refer women to an obstetrician if complications arise (Hanafin, 2016; Wieggers, 2009). In Ireland, the predominant model is hospital-based, consultant-led care, with few midwife-led units (Hanafin, 2016). In the United Kingdom, most women have access to both an obstetric-led unit and a midwife-led unit within an hour's drive of their home. In the USA, maternity services are predominantly rendered by obstetricians, family and general practitioners and midwives (Backes, 2020). While in Canada, maternity care is predominantly led by obstetricians, and in Australia, it is mainly supervised by an obstetrician (Hanafin, 2016).

In the USA, most care is contracted to the private sector, including insurance companies, healthcare providers, hospital systems and independent providers, and funded via programs such as Medicare and Medicaid (DPE, 2016). In Canada, the publicly funded health system is mainly delivered by private enterprises or private corporations with partial or total government funding. Maternity healthcare is provided by the provincial and territory governments. About two-thirds of Canadians have private insurance (Government of Canada, 2019). Most western European countries, such as the Netherlands, also have private coverage and a thriving state-driven primary care that includes all people.

In South Korea, the private sector occupies the bulk of service provision. Approximately 90% of all medical institutions are private facilities. In the public sector, public health centres, subcentres and posts provide primary care (Chun et al., 2009). There is no payment for maternity services rendered in Sweden, with the public and private health care systems funded through taxation and a smaller private health care sector, or financed by county councils mainly in larger cities or regions (Anell et al., 2012). Australia's maternity healthcare is largely funded via public sources through Medicare. In addition, private health insurance and personal payments to contribute to the cost of attending public or private hospitals (Fox et al., 2019).

Despite the generic care models, maternity care is not well understood for vulnerable immigrant population groups, such as refugee women who have experienced violence and those from culturally and linguistically diverse backgrounds. Accessible, high-quality maternity services for various African refugee women are necessary to achieve equitable maternal and perinatal health outcomes. However, there is little understanding of ways in which maternity healthcare is organised and delivered to African refugee women during pregnancy, childbirth and postnatally and the acceptability and outcomes associated with these

service models. Insights into the maternity experiences and expectations of pregnant African refugees in HICs can improve the understanding of maternity care models required to address their specific needs.

We performed a systematic review to examine studies that described maternity care models for African refugee women in HIC.

Methods

Aim

The study aims to gain insight into their maternity care experiences and identify current maternity service delivery responses. Our review question was: “how is maternity care delivered to African refugee women and what are the associated outcomes?”

Design

We applied the United Nations (UN) definition of a refugee (United Nations, 2017). We recognise the different subgroups of refugees and their unique profile as part of a culturally, ethnically and linguistically diverse set of women from the African continent in HIC. Nevertheless, evidence shows some of the challenges they face post-settlement in the diaspora are shared. Therefore, we have chosen to focus broadly on their African diasporic identity as a group of vulnerable pregnant women living in the diaspora setting with specific needs and standard care solutions. It is not intended to generalise their diversity. Rather, we focused on understanding the refugee women’s care experiences, associated outcomes and expectations from their service delivery responses, using the perceptions of diverse groups of refugee women from peer-reviewed studies conducted in HIC. We note their countries of origin, characteristics, type of maternity care events, and feedback to gain insights on important considerations when working with diverse refugee populations. Additionally, the broad service delivery responses - grounded in evidence from peer-reviewed studies - are intended as a high-level view and opportunity for further research.

We further draw from healthcare access frameworks that demonstrate how demand and supply-side factors of accessibility and outcomes of maternity healthcare services are interlinked to offer a theoretically grounded explanation of accessibility and provision of care (Hulton et al., 2000; Levesque et al., 2013; WHO, 2016). Applying frameworks allows us to explore the needs and suitability of the responses for African refugees in the context of pregnancy, perinatal and postnatal care through the lens of accessibility. We focus on three of the dimensions: acceptability, cost and quality of care. Acceptability is a multifaceted construct used to identify how likeable and socially appropriate African refugee women and health professionals found the care model. For example, the sex of the provider during pregnancy may affect women’s experience positively or negatively. Hence, a woman’s satisfaction with care was used as a proxy measure for acceptability. Costs were defined as payments associated with the care model, such as ‘out-of-pocket’ payments or the provision of financial support to ensure the women can afford to spend on necessary resources and services for their health. Affordability, as reflected here, is dependant on available income and time to use appropriate services (Levesque et al., 2013). Finally, quality-of-care is defined as the extent to which maternity care services are provided in a culturally competent and inclusive manner and in line with the evidence-based model (WHO, 2016).

Search strategy and identification of studies

We identified key search terms through a scoping review of the literature and a search strategy and developed inclusion criteria. We performed a search of seven bibliographic databases: PubMed/MEDLINE, PsycINFO (EBSCO), ProQuest, Embase, CINAHL, SCOPUS and Web of Science. Additional searches were conducted using Google Scholar and hand searches of key journals. Subject headings or words and phrases

related to maternity care services including maternity, maternity care, maternity healthcare, maternity service delivery, obstetric care, pregnancy, antenatal, prenatal, perinatal, postnatal, maternal health, maternal and child health, women’s health, primary health care, package of care, model of care, approach to care, service package, health promotion and service use, were combined with those related to a refugee woman or a pregnant refugee woman from an African country living in a HIC.

The search was conducted in October 2018 and was limited to studies published between 2008–2020 to ensure contemporary findings. Studies were included in the review if they were primary research studies that explicitly described the care for African refugee women in a HIC and were peer-reviewed papers in English. We considered all study types, designs and methodologies from peer-review journals if there was a clear methodology to assess quality.

The study was informed by preferred reporting items for systematic reviews and meta-analyses (PRISMA) guidelines (Moher et al., 2009) (see Fig. 1). A total of 619 records were identified in the initial search and were imported into the Covidence software (Veritas Health Innovation, 2019). Of these, 584 records were identified in seven databases and 35 records were found by hand searching. Thirty-five duplicate records were removed. Thus, 584 abstracts were independently screened for by SS and CN and from this, 262 articles were selected for full-text screening based on the inclusion criteria and nine papers were included for qualitative and quantitative synthesis.

Data extraction

A Microsoft Excel data extraction form was developed to capture the required data. Two independent reviewers [SS & CN] read the full text of the articles and extracted study characteristics such as the country of resettlement and country of origin, author, publication year, study period, study design, methodology, model/intervention descriptors and relevant findings. The extraction form was also used to identify critical details of each article’s maternal health service delivery approach, including their study’s processes/pathways, type of services, provider, location, coordination and access.

Assessment of quality of methods

The quality of the nine articles was assessed using validated tools (CASP, 2018; Hong et al., 2018) and each article given an overall rating as ‘strong’ (70% score), ‘moderate’ (55% score), or ‘weak’ (40% score). For articles with qualitative studies, we used the CASP checklist to assess ten subcategories: the clarity of their aims, methodologies, sampling and data collection strategies, the relationship between researcher and participants, ethical considerations, findings and the value of the research. We also used the mixed methods appraisal tool (MMAT) for articles with different study designs (Hong et al., 2018). This review aimed to identify appropriate health services responses to the maternal healthcare needs of African refugee women in HIC. All the articles included provided valuable data relevant to the review question and rated in the ‘moderate’ quality categories.

Data analysis

We employed a content analysis guided by the framework of access to healthcare (Levesque et al., 2013) to identify appropriate health service responses to the maternal healthcare needs of African refugee women in HIC. Content analysis involves identifying key characteristics of texts systematically and objectively to validate findings across studies (Bengtsson, 2016; Neuendorf, 2016). Accordingly, the first two authors read the articles multiple times and scrutinised the findings section to identify key outcomes of interest. An analytical template was used to organise the data. The portions of data relevant to the research question were extracted and examined for three dimensions of accessibility:

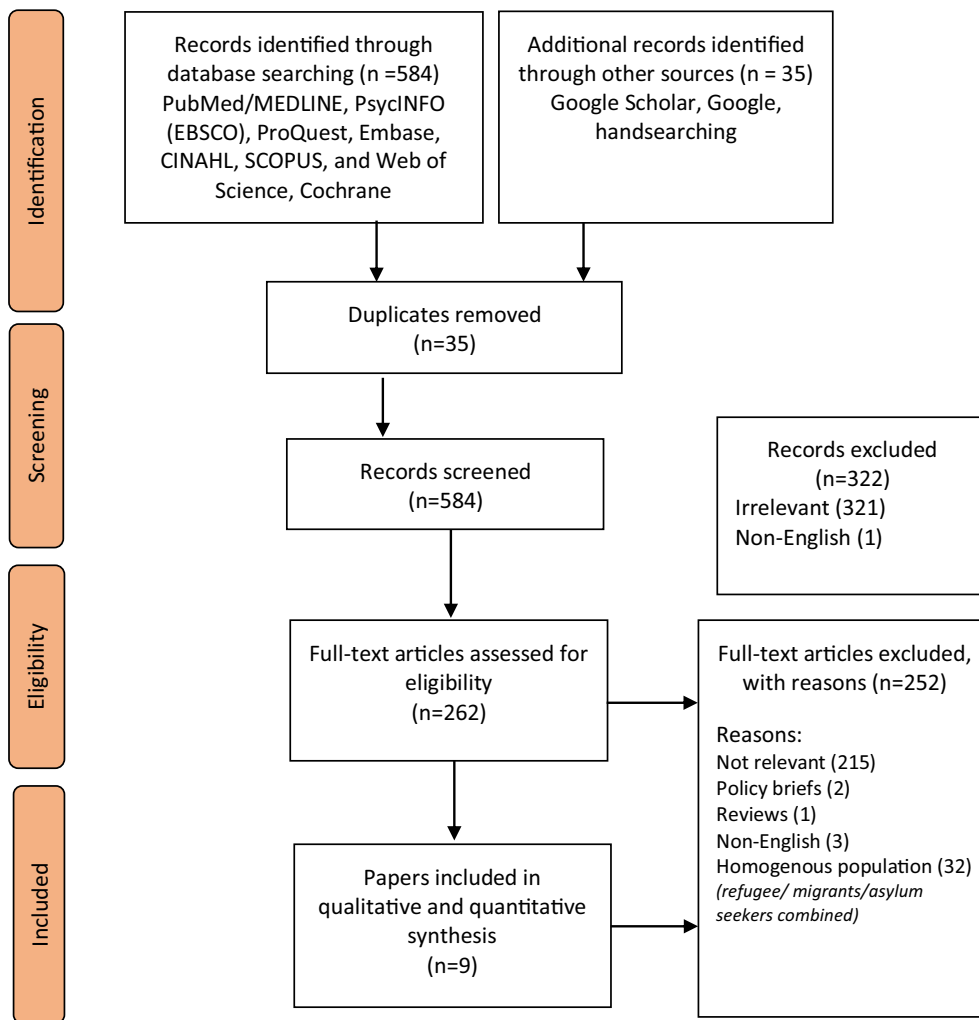


Fig. 1. PRISMA flow chart.

acceptability, cost and associated outcomes. The findings comprised direct quotes and quantitative data, which provided new insights, understandings, and, consequently, a guide for African refugee women's broad service delivery responses in HIC.

Results

Nine studies were included in the review. Four studies were qualitative, two quantitative, and three studies used mixed methods. In addition, the quality of the methods was assessed (see *Supplementary file 2*). Of the nine studies included in the review, five were conducted in the USA, one in Canada, one in Sweden, Australia and South Korea. About 600 women participated in the studies, amongst those listed include the USA (536), Canada (8), Sweden (9), Australia (23) and South Korea (6). Many of these women had received permanent residence visas, while some had newly arrived and were in the process of getting permanent residence.

The women were of different ethnic compositions; they varied in terms of culture, race and religious considerations, with study participants originating from the countries: Somalia, Sudan (Correa-Velez, 2012), Eritrea (Correa-Velez, 2012; Floyd and Sakellariou, 2017), Ethiopia (Correa-Velez, 2012; Floyd and Sakellariou, 2017; Hjelm, 2018; Kim et al., 2017), Kenya (Correa-Velez, 2012), Sierra Leone (Correa-Velez, 2012) Algeria (Hjelm et al., 2018), Morocco (Hjelm et al., 2018), Burundi (Correa-Velez, 2012), Republic of Congo (Correa-Velez, 2012), Liberia (Correa-Velez, 2012; Floyd and Sakellariou, 2017; Kim et al., 2017), Cote d'Ivoire (Kim et al., 2017), Mali (Kim et al.,

2017), Rwanda (Correa-Velez, 2012), Tanzania (Correa-Velez, 2012) and The Gambia (Hjelm et al., 2018). Of these countries, Somalia, Eritrea, the Republic of Congo, Sudan and Liberia are classified as fragile and conflict-affected states (World Bank, 2020). Ethiopia is also currently experiencing unrest. Most (486) of the studies' participants are refugee women originating from Somalia, a country where 98% of women have undergone some type of FGM (Madeira et al., 2019). Most participants had basic to medium levels of education (Banke-Thomas, 2019; Kim et al., 2017; Odunukan et al., 2015). Table 1 summarises the characteristics of the included studies.

Table 2 provides an overview of the studies' outcomes according to the identified models of care. Four models emerged from the content analysis. The midwifery-led care model, hospital-based, integrated care model, primary care physician/GP-led fully integrated care model and a holistic refugee-specific health care model.

Midwifery-led care

A qualitative study (Madeira et al., 2019) at a health centre in an urban Midwestern setting in the USA described a midwifery-led care model for low-income prenatal women. Participants were primarily non-English speaking and from the Somali community in Eastern Africa. Somali has some of the highest numbers of refugees and internally displaced persons and about 98% of women experience female genital mutilation, with the severest forms of FGM, Types II (intermediate FGM or excision) and Type III (infibulation) practised. Pre- and post-intervention data were collected to assess the design and implementa-

Table 1
Summary of outcomes identified in the included studies.

Reference	Sample population (and Country)	Model of care	Provider	Details /characteristics of interventions	Findings
Ameresekere et al. (2011)	23 Somali women (USA)	Primary care physician-led integrated care supported by specialists	Physicians, healthcare professionals, Somali-speaking medical interpreter and community worker	<ul style="list-style-type: none"> - Care in a medical centre providing ANC services for Somali women who had undergone a caesarean delivery and FGM - Women face unique challenges due to high rates of FGM, including higher caesarean delivery rates than their non-Somali peers. - Examined perceptions of Somali refugee women regarding caesarean delivery and patient-provider communication about female genital mutilation and childbirth. 	<ul style="list-style-type: none"> - Women listened to advice from their physicians over friends and family. - Women reported that they would have a caesarean delivery if their physicians advised that it was in their best interest even if family and friends disagreed. - Women feel that labour is rushed in the USA, and physicians decide that a woman needs a caesarean too quickly. - Some felt pressured to undergo a caesarean delivery by physicians if they did not deliver within a specific time frame. - Women had little personal knowledge of caesarean delivery and had limited discussion with physicians about it during prenatal visits, the result of which many became fearful when they were told that they might need to have one. - Women wanted the procedure and the need for the process to be explained clearly. - Physicians infrequently discussed FGM. Fifteen of the 23 women reported that it was never mentioned; six said that their physician acknowledged their FGM but did not discuss it in the context of delivery. Five women indicated that they wished their physicians had discussed it.
Banke-Thomas et al. (2019)	427 Somali refugee reproductive-age women - Ages 18–49 years 390 (92%) had at least primary education, 32 (8%) had no formal education at all (USA)	Primary care physician-led integrated care supported by specialists	Primary care physicians, Specialists	<ul style="list-style-type: none"> - Provision of maternal and reproductive health across the entire continuum of care (prenatal care, intrapartum care, postnatal care, and family planning) - Study examined maternal and reproductive health (MRH) access of Somali refugees in the U.S. across four access dimensions (willingness to seek care, gaining entry to the health system, seeing a primary provider, and seeing a specialist) 	<ul style="list-style-type: none"> - Most Somali refugee women were married (68%), attained primary education (92%), employed (64%), and had undergone FGM (82%). - Young (OR 2.61, 95% CI 1.25–5.60), single (OR 1.78, 95% CI 1.15–2.78), and minors upon arrival (OR 2.36, 95% CI 1.44–3.90) were more willing to seek care. - Women who had been cut previously had almost 50% (CI 0.30–0.94) less odds of being willing to seek MRH than those who had never undergone FGM. - Women with the more severe FGC types felt even less willing [Type II (CI 0.17–0.83) and Type III (CI 0.32–0.98)], - Lack of insurance, limited language fluency, and having undergone FGM limited access to care across all dimensions.
Correa-Velez and Ryan (2012)	106 African-born women from the countries of Sudan, Somalia, Burundi, Liberia, Ethiopia, Eritrea, Democratic Republic of Congo, Kenya, Sierra Leone, Rwanda and Tanzania and, and 168 hospital staff members - Mean age (years) ± SD (range) 28.3 ± 6.3 (14–41) (Australia)	The hospital-based integrated care model	Midwives Nurses Doctors Allied health staff	<ul style="list-style-type: none"> - A large maternity centre in the public hospital providing tertiary services for women and babies, including obstetric medicine, perinatal outreach education, and midwifery group practice - multifaceted project cutting across clinic service delivery, allied health including social work and interpreting services -The study examined key elements that characterize the best practice model of hospital-based maternity care for African refugee women. 	<ul style="list-style-type: none"> - Women respondents felt that hospital staff were respectful and understanding of their cultural background - Multiple challenges encountered accessing maternity services, including the long waiting time to get hospital appointments due to limited availability of interpreters at the community general practitioners and in hospital - Lack of translated information prevented women from gaining a deeper understanding of issues - Adverse experiences during appointments with interpreters due to their age and gender, and competence in providing complete information and help to prepare for labour, birth, and the postnatal period - Use of technology during labour was distressing, compounded by a limited explanation from staff about the need and objectives of the technology

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Table 1 (continued)

Reference	Sample population (and Country)	Model of care	Provider	Details /characteristics of interventions	Findings
Destephano (2010)	22 Somali women (USA)	Primary care physician-led integrated care supported by specialists	Obstetricians, perinatal educators and public health nurses	<ul style="list-style-type: none"> - Obstetric care comprised of regularly scheduled prenatal appointments - Targeted Somali prenatal education videos used in a prenatal care clinical setting - Topics include preparation for pregnancy, nutrition and exercise, pregnancy myths/facts, the father's role, episiotomies, and caesarean sections - Surveys conducted with 22 Somali women attending prenatal care 	<ul style="list-style-type: none"> - Healthcare workers expressed the frustration of being unable to communicate with African women in a meaningful way due to the language barrier, even when using interpreters. - 38% of health workers believed that the time allowed for delivering care with an interpreter was insufficient, 34% reported being familiar with the effects of torture and trauma, 30% with FGM, and 10% with traditional birthing practices of African-born women. - Lack of home visits by hospital staff after discharge from hospital; continuity of care was identified as an essential factor for improving quality of care, trust and confidence, and overall satisfaction - The amount of information, clarity of messages, and helpfulness of videos viewed were rated highly. All clients "strongly recommended" and rated the videos as "appropriate for Somali clients," 57% indicated the information was "just the right amount," and 60% found the videos "extremely helpful." - Primary care physicians indicated that 24% of appointments were "more interactive," with 72% finding videos "somewhat" or "extremely helpful." - Video formats for prenatal education are acceptable to Somali women, with most clients preferring video health education materials presented in the Somali language. - Culturally tailored health education video series for Somali women appear helpful in facilitating client-provider communication in a clinic setting
Floyd & Sakellariou (2017)	Eight refugee women from sub-Saharan Africa countries of Somali, Liberian, Eritrean, and Ethiopian (Canada)	Holistic Refugee-specific primary health care model		<ul style="list-style-type: none"> - Health care access for African women with limited literacy - Newly arrived refugees receive a brief health assessment at a refugee-specific clinic and can continue to receive healthcare through this clinic for their first few years in the country. - They can also access care in local clinics. 	<ul style="list-style-type: none"> - The study established that the new arrivals face language barriers, literacy challenges, and challenges related to adaptation to their new environment, leaving most feeling isolated while accessing healthcare. - Access was further hindered because refugee clinics were only open during regular business hours, so the women had to use walk-in GP fee-based clinics or hospitals near their homes when they or their children were ill outside of these hours. - Where interpretation services were not provided, interaction with health professionals in the care process was further hindered.
Hjelm et al. (2018)	Nine refugee women born in African countries of Somalia, Algeria, Ethiopia, Gambia, and Morocco (Sweden)	Midwifery-led well-woman care model supported by specialist care	Midwives Outpatient specialists	<ul style="list-style-type: none"> -Management of complications in pregnancy, including gestational diabetes -A midwife does the screening for GDM at a healthcare centre in the 28th week or 12 weeks in the case of heredity of diabetes mellitus or previous GDM. -Women testing positive are referred to as an outpatient specialist diabetes clinic. -Clinics have a diabetes care team working with all kinds of diabetes. 	<ul style="list-style-type: none"> -Healthcare models were perceived as functioning well by the women, who reported that they got the help they needed. -Access to diabetes care and healthcare, in general, was described by most as unproblematic and easy throughout pregnancy and after delivery. -Health professionals were perceived as an essential source of information. -Communication and contact with healthcare staff: time provided for consultations with healthcare professionals reported as insufficient. -Professionals and relatives (husband) were used as interpreters if needed

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Table 1 (continued)

Reference	Sample population (and Country)	Model of care	Provider	Details /characteristics of interventions	Findings
Kim et al. (2017)	6 African refugee mothers from Liberia, Republic of Cote d'Ivoire, Mali, and Ethiopia - Ages 25–39 years Education ranges from no schooling to high school graduation (Korea) (Korea)	The hospital-based integrated care model	Healthcare professionals	<ul style="list-style-type: none"> - Studied immigrant women's access to care if they had no insurance. - Korean government provides a subrogation payment system for assistance in a medical emergency available to African refugees. Still, hospitals tend to be reluctant to use it due to its administrative complexity. 	<ul style="list-style-type: none"> - None of the study participants had health insurance at the time of childbirth. - Hospitals that charge fees were reluctant to care for patients who did not have health insurance. - Free or subsidized prenatal care was offered in only a few health centres, so the women spent large amounts of time travelling during pregnancy. - Access to healthcare was impeded by cultural differences, linguistically appropriate health information, limited access to translation services, and communication barrier between the women and healthcare professionals
Madeira et al. (2019)	14 Somali women in the Midwestern USA - Age range 23–35 years (USA)	Midwifery-led Group Prenatal and well-woman care model for women with low income	Nurse-midwife, medical assistant, women reproductive health care coordinator, doctor, interpreter, yoga instructor	<ul style="list-style-type: none"> - Certified nurse-midwife (CNM) provides all care to pregnant women -CNM did not provide intrapartum care; women chose to give birth at nearby urban hospitals - 151 (87%) of East African descent initiated prenatal care at the clinic - Pregnant Somali received prenatal care and participated in a Hooyo Group Prenatal Care (GPC) at the clinic explicitly designed for Somali women. - The women attended biweekly sessions, including individual assessment and education, exposure to integrative health therapies, and group discussion. 	<ul style="list-style-type: none"> - Seventeen Somali women participated in a median of two sessions (range = 1–7). - Satisfaction was high: 93% of women (13/14) preferred group to individual prenatal care - Care priorities for these women included stress management, individualized and personal care, education focus, and caring healthcare professionals. - Concerns included childcare and maintaining privacy. - Challenges of GPC included low attendance, women's hesitancy to ask questions during group discussions. - Common reasons for lack of attendance were preference for individual care, work hours, lack of transportation and childcare. - Self-reported overall knowledge was significantly higher compared with pre-Hooyo participation ($p < .001$): - Self-reported results for knowledge of safe exercise in pregnancy ($p=.02$), exclusive breastfeeding ($p=.04$), what happens in the hospital ($p=.02$), and stress management ($p=.03$) increased after GPC participation - Women cited awareness of personal health, stress reduction, building community, and sharing wisdom as examples of new knowledge gained through group education and peer-to-peer discussions
Odunukan et al. (2015)	50 Somali women - Age range 18–90 years Education: never attended school 14, primary school/some high school 25, high school graduate or higher 9 (USA)	Limit supported by specialists	Healthcare professionals (black, white) Somali-speaking medical interpreter (female, male)	<ul style="list-style-type: none"> - Access to medical care for Somali women in Primary Care Internal Medicine Clinics in the Midwest - Physical examination performed- genitalia/pelvic, breast, abdominal, chest/back, extremity, and head/neck examination - Support of Somali speaking interpreters - Survey of 50 Somali women's comfort with different components of the physical examination by primary care physicians and interpreters of different genders and races 	<ul style="list-style-type: none"> - Somali women's discomfort with patient-provider gender discordance may contribute to the known disparities in adherence to preventive health screening amongst Somali women, particularly for sensitive procedures (e.g., breast and cervical cancer screening). - Most of the participants in this study (49 of 50) reported "no problem" to each component of the physical examination being performed by a female provider - the majority said that the performance of genitalia/pelvic examination (82%), breast examination (81%), and abdominal examination (71%) by male providers was "definitely a problem." - According to the preference for conducting the physical examination, the majority of participants (78%) ranked all three female providers (white, black, Asian) higher than the two male providers (white, black). - Responses reflected significantly higher discomfort with the presence of a male Somali interpreter during the physical examination compared with a female ($P < .01$ for each).

Table 2
Overview of the outcomes (all studies).

References	Midwifery-led care model		Hospital-based, integrated care model		Primary care physician/GP-led fully integrated care model supported by specialist services		Holistic refugee-specific model (one-stop shop)	
	cost	acceptability	cost	acceptability	cost	acceptability	cost	acceptability
Ameresekere et al. (2011)						✓		
Banke-Thomas et al. (2019)					✓	✓		
Correa-Velez and Ryan (2012)				✓				
Destephano (2010)						✓		
Floyd & Sakellariou (2017)								✓
Hjelm et al. (2018)				✓				
Kim et al. (2017)			✓	✓				
Madeira et al. (2019)		✓						
Odunukan et al. (2015)						✓		

tion of the Hooyo group prenatal care (GPC) model for Somali women receiving prenatal care at the clinic and evaluate participants' satisfaction, knowledge and engagement. Care priorities included an educational focus on stress management and individual care. As a result, self-reported knowledge of safe exercise in pregnancy ($p=.02$), breastfeeding ($p=.04$), hospital experience ($p=.02$) and stress management ($p=.03$) increased after GPC participation. In addition, satisfaction was high, with 93% of women (13/14) preferring group prenatal care. This satisfaction is corroborated in interviews: "[Hooyo] educates women about stress, about labour, about how to relax. It also helps them get together with other women ... it just gives the attention to mamas" (Mother of five).

While GPC was seen as an educational and social space to share wisdom on pregnancy, labour and the postpartum period, challenges included low attendance and women's hesitancy to ask questions during group discussions. Common reasons for lack of attendance included a preference for individual care, work hours and a lack of transportation or childcare.

Hospital-based integrated care

Three studies (Correa-Velez, 2012; Hjelm et al., 2018; Kim et al., 2017) described a hospital-based care model where African refugee women had their maternal healthcare managed.

Correa-Velez and Ryan (2012) used a multi-method study to investigate key elements characterising African refugee women in Australian hospital-based maternity care. A maternity chart audit describing 83 women's hospital use between 2004 and 2007 and their obstetric outcomes identified complex medical and social histories, including anaemia (23%), female circumcision (11%), hepatitis B (11%), thrombocytopenia (11%), hypertension/preeclampsia (5%), and barriers to access antenatal care (10%). The rates of caesarean sections with complications (5% to 13%) and obstetric complications (12% to 16%) increased over time. A total of 23 women and 168 hospital staff participated in interviews. Most respondents felt that the staff were respectful and understood their cultural background (Correa-Velez, 2012). Effective engagement and care continuity were identified as important requirements to improve care quality, trust and overall satisfaction. One woman said:

"The same person will know exactly where and how you are progressing, and it builds trust and confidence. I love the way they follow up things and the care provided to me and my baby" (Pg.18).

Several challenges were identified including difficulties making appointments due to the limited availability of appropriate interpreters and lack of translated informative materials. Some women felt the interpreters' information during appointments was inadequate to prepare for labour and the postnatal period. A woman said:

"Information was partial. For example, I did not know what to take with me for labour until I inquired myself".

The capacity of interpreters was reported to impact women's well-being negatively:

"I was provided with a young girl interpreter; she was unfamiliar with women's problems."

Another woman reported:

"I was unhappy when a male interpreter was called when I had a miscarriage, I didn't like it and it took me a while to forget" (Pg.16).

These negative experiences were reported as distressing and undermined trust in providers (Correa-Velez, 2012). Healthcare workers also cited difficulties communicating with African women, even with an interpreter present, describing challenges such as the lack of familiarity with torture and trauma effects, FGM, traditional African birthing practices and insufficient time with a woman and the interpreter. Only a third of health professionals reported confidence when working with African-born women, highlighting the need for education and professional development on cultural issues and appropriate communication methods. One provider noted:

"In-services are appreciated and can have a spreading effect on staff knowledge and practices. If we are going to deliver holistic care to these women and families, then all staff need an [training] overview" (Correa-Velez, 2012) (Pg.19).

In a qualitative study, Hjelm et al. (2018) explored information and experiences of pregnant African women receiving maternity healthcare in Sweden before/after childbirth as well as the women's health beliefs and illnesses. The study also explored the healthcare of pregnant women affected by gestational diabetes mellitus (GDM). GDM was one of the top pregnancy-related severe problems for women of African origin and was associated with an increased risk of poor pregnancy outcomes. The women were screened for GDM at 28 weeks' gestation or the 12th week in the case of hereditary mellitus or previous history of GDM. Women with GDM were referred to an outpatient specialist diabetes clinic, where a care team of specialist nurses and physicians (including endocrinologists) cared for them.

Nine women from the countries of Algeria (1), Ethiopia (1), Gambia (1), Morocco (2), and Somalia (4) were interviewed. Women were satisfied with the communication between themselves, midwives and staff at the outpatient specialist diabetes clinic. Healthcare professionals were seen as valuable sources of knowledge of GDM for pregnant women and credited with providing help and support which was calming and allayed fears throughout pregnancy and after childbirth, as illustrated: *"I felt worried and sad, I went home to cry...that was before I met the physician who said: 'it is easy to prevent and it will possibly disappear after delivery'"* (R33, antenatal). For women who received information and regular follow-up after childbirth, the emphasis of the service was lifestyle transitions and described as empathetic, accessible and available: *"I haven't had any problems. If I want to see a particular person, I get an appointment when I call ... I get help"* (R 55, antenatal).

A qualitative study by Kim et al. (2017) described services in a Korean government-supported antenatal care (ANC) for refugee women. The researchers interviewed six African refugee women from Liberia (2), Cote d'Ivoire (2), Mali (1) and Ethiopia (1) who received ANC in selected health centres. The women and providers describe challenges

faced in navigating the delivery system. The women had mixed feelings, with some reporting 'high' satisfaction with the maternal health services:

"Every time when I went for antenatal care, the service was good. I think in Korea, the doctors think life first, more especially when it comes to baby and mother. [So] They give them good care and attention" (Woman D).

Although the women were generally optimistic about the support provided to access free or subsidised government services, the complexity of navigating the process was daunting. These women described communication barriers, long wait times for appointments and distance to government-supported health facilities as factors impeding access and use of maternal care services. One woman stated: *"To visit a free hospital for [a] perinatal check-up, which was far from here, I should take a bus. Sometimes, hospitals refused to check in because the process was too complex, especially during [the] night-time"* (Woman C). The hospital staff described low health literacy and cultural differences as barriers and expressed reluctance to use the reimbursement system given the administrative complexity of the process. Overall, the women expressed a strong desire to have health insurance to expand and ease their access to free public healthcare (Kim et al., 2017).

Primary care physician-led integrated primary care

Five studies from the USA (Ameresekere et al., 2011; Banke-Thomas, 2019; DeStephano et al., 2010; Morrison et al., 2013; Odunukan et al., 2015) described primary care physicians as the first point of contact during maternal healthcare and referral for African refugee women.

Ameresekere et al. (2011) conducted a qualitative study to explore the ANC perceptions and experiences of 23 Somali women with FGM in a medical centre. Five of these women had also experienced a caesarean delivery. Women had little knowledge of caesarean sections at delivery time and limited discussions with physicians during antenatal visits. Many women were fearful of caesarean sections and concerned that their body would never return to normal after the operation:

"You have to be careful with everything when you have surgery. You can't do things that you are supposed to do; you can't lift weights... With a c-section, you are not normal for the rest of your life". (37 years old, 6 children, 8 years in USA, no previous caesareans).

Women feared dying and were concerned that physicians might rush their labour: *"If [the] baby doesn't come, they don't wait; they want you to have c-section. Back home when its time [for labour] you call [the] midwife and she doesn't push you"* (36 years old, 9 children, 8 years in USA, 2 previous caesareans). The obstetric care providers infrequently discussed FGM during care encounters. Healthcare professionals mentioned difficulties discussing FGM in the context of delivery and the associated obstetric complications (Ameresekere et al., 2011).

Banke-Thomas et al. (2019) examined four access dimensions - willingness to seek care, gain entry to the health system, see a primary care physician and see a specialist - amongst 427 Somali refugee women accessing maternal and reproductive health (MRH) care in the USA. Most Somali refugee women were married (68%), attained primary education (92%), employed (64%), and have undergone FGM (82%). Young (OR 2.61, 95% CI 1.25–5.60), single (OR 1.78, 95% CI 1.15–2.78) and minors upon arrival (OR 2.36, 95% CI 1.44–3.90) were more willing to seek care than those who arrived as adults. Lack of insurance, limited English language skills and having undergone FGM limited the women's access to care.

Odunukan et al. (2015) conducted a pictorial survey with 50 Somali women in a large primary care practice to understand the level of women's comfort during breast and cervical cancer physical examinations in the presence of interpreters of different genders and ethnic backgrounds. Most women (49 of 50) reported: *"no problem"* to each component of the physical examination being performed by a female physician, while an examination by a male physician was said to be *"definitely a problem"* (genitalia/pelvic examination (82%), breast exam-

ination (81%), and abdominal examination (71%)) (Odunukan et al., 2015).

DeStephano et al. (2010) described the co-creation of a health education program for Somali women attending antenatal care in a GP-clinical setting. Using a post-test design, the study team evaluated the use of videos with 22 Somali women who could not read conventional materials. The videos covered several topics, including preparing for pregnancy and birth, nutrition and exercise, pregnancy myths, the father's role as well as interventions in labour such as episiotomies and caesarean sections, and why they may be required. Women appreciated the information as it improved their understanding of caesarean sections:

"I was scared of caesarean sections, but now I'm not as scared... I was told that doctors want to cut people open, but I don't think that after this video [understanding caesarean sections]".

The women strongly recommended videos presented in the Somali language as an appropriate and valuable clinical health education medium to dispel fears and misinformation about labour and birth with the community (DeStephano et al., 2010).

Holistic refugee-specific primary health care (one-stop-shop)

A qualitative study by Floyd and Sakellariou (Floyd, 2017) examined eight women's healthcare experiences (3 Somali, 2 Liberian, 2 Eritrean, and 1 Ethiopian). The women received care from a state-run specialist refugee clinic in Canada that provided access to a wide range of essential primary and specialised antenatal and obstetric care. Women were satisfied with the health checks, appointment reminders, the interpreters, the timing for consultations, free health education and language classes, support for referrals and social services. The women recognised their lack of education and were determined to improve the basic literacy and health literacy skills required to gain independence. The women took pride in the advances they made after several years in language classes: *"Sometimes I go to [the] hospital. People say, 'Do you know your birthday? Do you know what time you come [in]?' When people ask me now, I say yes. I explain."* (P-1).

Although considered popular, the refugee-specific clinic model operated only within regular business hours (9am–5 pm). Women described how they sought care in walk-in fee-based general practice clinics or hospitals that were near their homes, specifically when they or their children were ill outside business hours (evenings and during the night). In the GP clinics, they had no interpreter services and often relied on neighbours, friends or their children to interpret.

Discussion

This review explored maternity care models in primary and tertiary service settings delivered to refugee women from Africa by midwives, primary care physicians (equivalent to general practitioners in the UK or Australia) and specialist medical and allied health professionals. The review identified their experiences receiving maternal care and their reported healthcare needs and broadly presented a variety of service care responses. The participants of the review studies originate from nine countries with distinctive cultures, languages and religious values, which may play an important role in their maternity care (Reitmanova, 2008). The women also represent a vulnerable population group who have experienced violence. The practices, conflicts and violence may expose them to unique health issues, such as low levels of contraceptive use, unsafe motherhood and an extremely high prevalence of female genital cutting (Gele AA, 2019; Madeira et al., 2019; UNICEF, 2019).

Given this background, the evidence shows that most women in the nine studies were satisfied with their care when they felt appreciated and respected. The women valued social support, language classes, accessible information, education, and communication (IEC) materials. The women were receptive to participating in group-based health

education that was in their language and incorporated multimedia. This is similar to a study amongst immigrants in a prenatal education program whereby women were satisfied with the care they received in a group setting (Coley, 2012). Another study describes a model of care for immigrant women, which adopts a holistic approach and considers women's social, emotional, psychological and physical needs (Owens et al., 2016). Consistent with other studies (Byrskog et al., 2015; Higginbottom et al., 2016; Owens et al., 2016), the African women preferred female providers and valued extended consultations, competent interpreters and health staff continuity of care. These factors have been reported in other studies to improve women's trust and confidence in care (Byrskog et al., 2015; Coley, 2012), including the use of culturally diverse female interpreters to ensure effective communication and a culturally safe care environment (Nithianandan et al., 2016).

While findings show that the women had positive experiences of tailored maternity care models, communication barriers, the complexity of navigating the care process, travel costs and other out-of-pocket costs associated with care were concerns that affected equity-centred models of maternity care. Out-of-pocket spending has been reported as a financial burden that migrant and refugee women bear to access necessary care during pregnancy, follow-up or to obtain some prescribed medicines as not all services are covered under existing health insurance (Higginbottom et al., 2016). These women also noted that these costs and the lengthy administrative procedures involved to seek a claim refund prohibited them from getting their prescriptions filled and increased the workload for providers issuing them, also noted in other studies (Higginbottom et al., 2016). Nevertheless, health insurance was seen as a viable option for refugee women to access care anywhere, with this funding model noted in Portugal (Almeida et al., 2014) and Italy (Chiavarini et al., 2016).

Other studies have found that language and communication issues with health care providers affect women's satisfaction with care. For example, Banke-Thomas et al. (2019) found that low levels of English health literacy led to poor quality medical consultations for refugees and migrants. Mumtaz et al. (2014) observed that language barriers limit refugee and migrant's opportunities to express their feelings, articulate their situation and understand the medical terms used in care interactions. Consistent with the results of other studies, culturally tailored communication and education information has been proposed to promote health literacy and secure continuity of maternity care for women (Banke-Thomas et al., 2017; Owens et al., 2016). As Banke-Thomas et al. (2017) suggests, motivation, logistic and language support from partners, community members, and trained health advocates are critical drivers to improve women's ability to communicate with maternity care providers and attend appointments.

The use of culturally tailored resources - including short videos and other electronic resources - can improve African women's health literacy and build confidence in their ability to access care and effectively communicate their needs. For example, access to internet-enabled phones, targeted text messages and computers with health content and libraries of health videos are promising opportunities to improve health literacy and support access to maternal healthcare for refugee communities (WHO, 2019). Studies have found that text messages are successful at promoting patient-physician communication, preventive screening or HIV testing. They are also capable of tracking and delivering appointment and consultation schedules, in-kind aid and facilitating cash assistance programs (Cole-Lewis, 2010; UNHCR, 2020). Therefore, more creative and inclusive approaches are necessary to improve health literacy using digital tools (UNHCR, 2020; WHO, 2019).

Other studies have also noted the limited availability of formally trained interpreters and interpreters skilled in the language required by women. These shortages are likely to have led to family members acting as interpreters (Higginbottom et al., 2016; Straiton and Myhre, 2017). The use of family members as interpreters or those without formal qualifications can breach patient confidentiality, affect the communication of essential information or lead to miscommunication (Krupic et al.,

2016; Vanpraag et al., 2018). This review highlights the need to increase the availability and appropriate use of culturally literate and socially competent interpreters working in maternity care services as well as the time available for such consultations (Floyd and Sakellariou, 2017; Joshi et al., 2013; Krupic et al., 2016). In a study of women from culturally and linguistically diverse (CaLD) backgrounds, the women described the value of bicultural workers, services under one roof, information materials in their own language, continuity of care, and longer consultation time as beneficial, allowing women to ask questions and better understand their pregnancy (Owens et al., 2016).

This review identified the need for culturally competent healthcare interactions to improve trust and repeat care visits. Mistrust may lead women to withdraw from care (Ussher et al., 2017). Gaps in providing culturally safe and competent care have also been found to increase a woman's anxiety and feelings of being judged or undervalued (Agbemeni et al., 2019; Thomas et al., 2010). Some studies described specialised and holistic community-based programs for refugee populations as being culturally competent as they provide a "one-stop shop offering, amongst other things, language skills training and interpretation services and have readily available multilingual highly trained staff" (Kentoffio et al., 2016; Stapleton et al., 2013). Communication and skills-building programs for health professionals are equally important at all maternal healthcare services serving women from culturally and linguistically diverse refugee backgrounds. These capacity responses will allow care teams to better understand the refugee women's values and cultural practices, allocate sufficient time to listen to the women, advance equity and empower women to make informed care decisions. The implementation of strengths-based, cross-culturally informed and responsive approaches to maternity care and social support for African women can optimise healthcare interactions and increase care satisfaction, thereby improving continuity of care, referrals and maternal health outcomes (Owens et al., 2016; Pangas et al., 2019; Rogers et al., 2020).

This review did not identify any research that examined collaborative, multi-sectoral approaches that linked community, primary and tertiary hospital-based maternity care models to ensure continuity of care. However, recent research shows that the success of compassionate, woman-centred healthcare models often draw upon primary prevention and community resources to provide women with respectful care that often depends on healthcare professionals across the care continuum. This includes the involvement of primary care teams and frontline maternal care providers to deliver critical follow-up and sustained actions within the community (Amarashingham et al., 2018; CARE). Concerted multifaceted implementation efforts are, therefore, required to provide seamless transitional care across settings; from the point of care at the facility to the community's point of need to ensure adequate information on care continuity and referrals to appropriate services for refugees and migrants (Amarashingham et al., 2018). The WHO guidance on refugee and migrant health recommends inter-collaborations across all silos of the care continuum to avoid duplication and ensure people-centred, culturally safe maternal care approaches that are inclusive, comprehensive and holistic (WHO, 2018). The Ottawa Charter framework is fundamental to reorient maternal healthcare services towards comprehensive approaches and guide service delivery systems to work collaboratively.

This review has several limitations. First, few studies met the inclusion criteria, and those included had limited participant samples and mainly described women's satisfaction with care. Second, we had great variability of participants from diverse countries in Africa. However, since different categories of refugees may judge quality differently and the participants were of diverse ethnic and cultural compositions, these challenges may limit our ability to generalise findings to all African refugee women living in HICs. Nonetheless, the results showing broad maternity service delivery responses based on participants' experiences provide a valuable point for research and conversations to better understand specific needs, outcomes and models of care for diverse, vulnerable groups of African refugee women in HIC. There is also limited evidence of women seeking care with husbands or partners and how this

improves understanding and satisfaction with maternal care services. Finally, there is limited evidence on the effectiveness of interventions targeting maternal health for pregnant and postnatal well-being amongst African women of refugee backgrounds. As a result, we could not draw conclusions concerning health outcomes.

Implications and conclusions

While there is limited evidence of tailored service models for African refugee women accessing pregnancy, childbirth and postnatal services, available research shows gaps in communication due to language barriers and low health literacy. Improving these constraints can maximise women's potential to engage in decision-making to address their maternity needs and concerns. These findings reinforce the importance of communication training for maternity healthcare professionals, the use of multimedia educational resources, health literacy interventions and strength-based communication to break down barriers faced by women during pregnancy, childbirth and the postnatal period. Review findings suggest that a universal woman-centred whole-of-system care approach that draws on all stakeholders' experiences can deliver integrated maternity care for African refugee women. Key elements of innovative models of maternity care will require a clear definition of the refugees, maternity care pathways and service responses that are affordable, culturally safe, respectful, compassionate and developed in partnership with refugee women, community services and critical frontline staff.

Contributions

Conceptualization of study: CN and AD; Data search, data extraction, and review of articles: CN and SS; Manuscript preparation: CN; Reviewing manuscript: AD, SS, and CN. All authors approved the final version of the manuscript.

Declaration of Competing Interest

The authors declare they have no competing interests.

Ethical Approval

Not required.

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Supplementary materials

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