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## **Effectiveness of interventions to provide culturally-appropriate maternity care in increasing uptake of skilled maternity care: a systematic review**

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## **Abstract**

Addressing cultural factors that affect uptake of skilled maternity care is recognised as an important step in improving maternal and newborn health. This paper describes a systematic review to examine the evidence available on the effects of interventions to provide culturally-appropriate maternity care on the use of skilled maternity care during pregnancy, for birth or in the postpartum period. Items published in English, French and/or Spanish between 1 January 1990 and 31 March 2014 were considered. Fifteen studies describing a range of interventions met the inclusion criteria. Data were extracted on population and intervention characteristics; study design; definitions and data for relevant outcomes; and the contexts and conditions in which interventions occurred. Because most of the included studies focus on antenatal care outcomes, evidence of impact is particularly limited for care seeking for birth and after birth. Evidence in this review is clustered within a small number of countries, and evidence from low- and middle-income countries is notably lacking. Interventions largely had positive effects on uptake of skilled maternity care. Cultural factors are often not the sole factor affecting populations' use of maternity care services. Broader social, economic, geographical and political factors interacted with cultural factors to affect targeted populations' access to services in included studies. Programmes and policies should seek to establish an enabling environment and support respectful dialogue with communities to improve use of skilled maternity care. Whilst issues of culture are being recognised by programmes and researchers as being important, interventions that explicitly incorporate issues of culture are rarely evaluated.

## **Introduction**

Increasing the use of skilled maternity care services was a key objective under the Millennium Development Goals and continues to be a focus of the post-2015 development agenda (Langer et al. 2013; United Nations 2008; United Nations 2014). Minority groups across world regions frequently have poorer maternal and newborn health outcomes and may be less likely than other populations to use skilled maternity care services (Harris et al. 2010; Kildea & Van Wagner 2012; Wasserman et al. 2007). Studies have shown that cultural factors can affect uptake of maternity care services, and addressing them has been recognised as an important step in increasing the use of services (Bohren et al. 2014; Camacho et al. 2006; Castro 2012; Gabrysch & Campbell 2009; Thaddeus & Maine 1994; UNFPA 2005; WHO 2003).

There may be differences between the culture of maternity care services and the cultural practices and preferences of women and communities, in regards to childbirth settings, practices, attitudes towards illness and health, materials and/or language, for example. Perceived cultural insensitivity or poor intercultural competencies of professionals can also lead to discrimination of certain users by providers, resulting in a lack of trust in services and service providers (Gabrysch et al. 2009).

Cultural beliefs and practices are often framed as a “barrier” to the uptake of maternity care services, rather than a population characteristic which health systems need to consider in order to be responsive to communities’ needs. Providing care that takes people’s cultural preferences into account is an important component of quality of care (Tuncalp et al. 2015). The need for “culturally-appropriate” maternity care services is core to the World Health Organization’s (WHO) strategy for improving maternal and newborn health (WHO 2003) and ending preventable maternal mortality (WHO 2015a).

To provide programmes and materials that are culturally appropriate, health service managers must be able to identify and describe cultures and/or subcultures, understand their health behaviours,

and apply this knowledge in planning and development activities (Kreuter et al. 2003). In practice, however, culture is more often assumed than assessed (Kreuter et al. 2003), and culture is frequently used as a synonym for “traditional” or “backward” as opposed to “modern” by researchers, service providers and policymakers. A common approach in health interventions and their evaluations is to reduce culture to a static set of features. It is often the explicit and manifest components of culture (e.g., language, traditional dress, music) that are used as markers of culture (Fisher et al. 2007), the dangers of cultural stereotyping notwithstanding. Other dimensions such as shared values and assumptions may be more effective, yet much harder to incorporate. Such an approach is out of step with perspectives from contemporary anthropology in particular, and social science more generally, in which culture is understood as an outcome of multiple and on-going interactions within and between communities, their networks and their environment for an individual over their life course (Kirmayer 2012).

The WHO Department of Maternal, Newborn, Child and Adolescent Health has assessed evidence on the effectiveness of a range of interventions in improving use of skilled care for birth (WHO 2015b). Interventions to address cultural factors are one focus area. In this paper, we report on a systematic review to examine evidence on the effects of interventions to provide culturally-appropriate maternity care services on the uptake of skilled care during pregnancy, for birth or in the postpartum period. Skilled maternity care is defined here as the care provided by an accredited health professional (e.g. doctor, midwife, or nurse) who has been educated and “trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth and the immediate postnatal period, and in the identification, management and referral of complications in women and newborns” (WHO 2004). This definition excludes traditional birth attendants, although countries are encouraged to work with TBAs to define new roles for them, and ensure good working relations between TBAs, skilled attendants and staff in referral facilities.

A previous systematic mapping of the literature describes interventions to address cultural factors affecting women's use of skilled maternity care (Coast et al. 2014). This mapping included 96 items from 35 countries across all world regions. It describes the scope of existing literature, including both the types and range of interventions and the types of documentation available, but does not report on intervention effectiveness (Coast et al. 2014).

In this systematic, review we focus on interventions in which providing culturally-appropriate care was a primary aim, and we assess the effectiveness of these interventions for the uptake of skilled maternity care. Improving understanding of how culture can be incorporated into generic quality improvement interventions is important (Fisher, Burnet et al. 2007). However, including such broad interventions would have prevented us from examining specific effects of providing culturally-appropriate care. As far as the research team is aware, this systematic review is the first to address this research question. Other review papers that address related questions informed the present review as relevant background literature (Anderson et al. 2003; Jongen et al. 2014; Kildea & Van Wagner 2012; Wasserman et al. 2007).

## **Materials and methods**

### *Inclusion and exclusion criteria*

This review focuses on studies examining the impact of interventions to provide culturally-appropriate maternity care on women's use of skilled maternity care before, during and after birth. Studies on any population in any world region were considered. Peer-reviewed journal articles and (non-peer-reviewed) grey literature, including reports, books or book chapters, whether available in print or online, were eligible for inclusion. Items published in English, French and/or Spanish between 1 January 1990 and 31 March 2014 were considered.

For inclusion, studies must have measured the impact of an implemented intervention to provide culturally-appropriate maternity care for ethno-linguistic or religious groups. Only items that describe an implemented intervention are included. Items that only identified cultural factors affecting the use of skilled maternal care, and items describing a recommended (but thus far non-implemented) intervention are excluded. A cultural group is defined broadly to include any form of group or social stratum that is (considered to be) marked by its own distinctive cultural characteristics (Helman 2000; Kreuter et al. 2003). A non-exhaustive list of sub-populations that may be marked by their own distinctive cultural characteristics include ethnic groups, groups defined by religion, language groups, indigenous groups, tribal communities and caste-based groups. Providing culturally-appropriate care must have been a primary aim of the intervention. To be included, an intervention had to be explicitly designed to accommodate a cultural group's shared norms, values and/or beliefs, behavioural customs, and/or spoken language/s. Interventions whose primary aims or strategies are not concerned with accommodating or addressing cultural factors are excluded (e.g., interventions that exclusively address economic or geographical access barriers for a defined cultural group). Generic interventions that consider and/or accommodate cultural factors explicitly or implicitly, but not as an explicit aim or strategy, are excluded. Complex packages of interventions to provide culturally-appropriate care were eligible for inclusion. Studies must have reported empirical data on an assessment of the outcome of an intervention and compared this with the outcome in a group that received no intervention or a different intervention. Studies comparing the same population before and after the intervention were considered only where data were collected for the same population at different time points.

The outcome of interest was uptake of skilled maternity care during pregnancy, for birth or in the postpartum period. Studies must have measured at least one of these outcomes:

- Birth with a skilled attendant

- Birth in a health facility
- Care with a skilled attendant or at a facility in case of maternal complications or illness
- Use of antenatal care (ANC) (with a skilled attendant)
- Timing of first ANC visit
- Postpartum care visit (with a skilled attendant)

### *Searching and screening strategy*

A broad precursory systematic mapping (Coast et al. 2014) formed the first stage of the searching and screening for this systematic review. The search strategy involved systematic searches of ten electronic databases and two targeted websites. The search terms and their combinations (Table I) were adapted to the particulars (e.g., wildcards, truncations, capacity for complex searches, Medical Subject Headings (MeSH) facility) of each electronic database. The results were combined with references suggested by experts. This search generated a total of 33,227 items for screening in the first mapping phase. Items identified in the search were then screened for inclusion in the mapping, initially on the basis of title and abstract. The team screened the full text when inclusion or exclusion could not be determined on the basis of title and abstract. Quality assurance measures were incorporated into the screening process, as the process involved multiple team members. Prior to single-screening items generated by the search, the entire team independently screened the first 100 items, compared results and resolved any differences in understanding the inclusion/exclusion criteria. Any full text item that was considered problematic or borderline was double-screened, following which the team compared results and resolved any differences, with decisions made in favour of an inclusive approach where questions remained. A total of 96 items were included in the mapping.

At the systematic review stage we sought additional items through hand-searches of the reference lists of included studies and relevant reviews, as well as further items suggested by experts. As much

of the intervention activity related to cultural interventions, particularly in low- and middle-income countries (LMICs), is not (yet) peer-reviewed or published, expert suggestions were an important addition to the search for the systematic review. Searches and suggestions were further supplemented with items identified as potentially relevant from a separate systematic mapping of maternal health intervention studies conducted in LMICs between 2000 and 2012, described elsewhere (MASCOT Study Group 2014; MASCOT/MH-SAR 2013). Items identified through expert recommendations, hand-searches and this separate systematic mapping of maternal health intervention studies yielded a further 53 items, generating a total of 149 items for screening for the systematic review. EJ or SL determined eligibility of all items, and unclear items were discussed using a protocol that is available, upon request, from the lead author. When necessary, differences were resolved by discussion with EC and AP. See Figure I for a flow diagram of the searching and screening strategy.

#### *Data extraction, analysis and quality assessment*

SL or EJ extracted data from each included study. Data were extracted on population and intervention characteristics; study design; and definitions and data for relevant outcomes. Included studies were quality assessed in duplicate by SL, EC and/or EJ using the Effective Public Health Practice Project (EPHPP) quality assessment tool for quantitative studies (EPHPP 2010). Conducting a meta-analysis was not considered appropriate in view of the heterogeneity of interventions, populations and outcome measures within the evidence base. We present the results in a narrative format, accompanied by tables of included studies.

## **Results**

Fifteen papers met our inclusion criteria, evaluating the impact of 14 different interventions. All studies but two were conducted in high-income, OECD-member countries: Australia (n=6) (Jan et al. 2004; Kildea et al. 2012; Nel & Pashen 2003; NSW Health 2005; Panaretto et al. 2005; Panaretto et

al. 2007), the United States of America (USA) (n=4) (Jewell & Russell 2000; Julnes et al. 1994; Marsiglia et al. 2010; Thompson et al. 1998), the United Kingdom (UK) (n=2) (Mason 1990; Parsons & Day 1992), and Israel (n=1) (Bilenko et al. 2007). The two exceptions were conducted in Peru (Gabrysch et al. 2009; McQuestion & Velasquez 2006).

All studies from Australia targeted Indigenous, Aboriginal and Torres Islander Strait women (Jan et al. 2004; Kildea et al. 2012; Nel & Pashen 2003; NSW Health 2005; Panaretto et al. 2005; Panaretto et al. 2007). Indigenous women were also the focus in one of the studies from Peru (Gabrysch et al. 2009), and the study in Israel targeted semi-nomadic Bedouin women (Bilenko et al. 2007). In contrast, studies from the USA and UK largely targeted migrant, ethnic minority groups, particularly Latina or Hispanic women in the USA (Jewell & Russell 2000; Julnes et al. 1994; Marsiglia et al. 2010; Thompson et al. 1998) and Asian women in the UK (Mason 1990; Parsons & Day 1992).

### *Interventions*

The papers summarise a diverse range of interventions designed to provide culturally-appropriate maternity care services (see Table II). Strategies included: using health care providers with shared cultural and/or linguistic background with service users (Bilenko et al. 2007; Jewell & Russell 2000; Nel & Pashen 2003; Panaretto et al. 2005; Panaretto et al. 2007; Thompson et al. 1998); providing cultural brokers, mediators or interpreters (Julnes et al. 1994; Kildea et al. 2012; Marsiglia et al. 2010; Mason 1990; Parsons & Day 1992); training staff to improve cultural awareness (Jan et al. 2004; NSW Health 2005); incorporating culturally-appropriate practices (McQuestion & Velasquez 2006); and adapting the setting within which the service is provided (Gabrysch et al. 2009).

Inevitably, interventions differed according to the population targeted and cultural factors affecting use of services. Interventions varied in comprehensiveness; some studies described adaptations to an otherwise standard model of care (e.g.: Jewell & Russell 2000; Julnes et al. 1994), while others described comprehensive interventions to provide distinct, culturally-tailored maternity care

services (e.g.: Bilenko et al. 2007; Gabrysch et al. 2009). Correspondingly, some interventions focused on a single strategy (e.g.: Mason 1990), while others adopted multiple strategies (e.g.: Nel & Pashen 2003; Thompson et al. 1998).

Strategies focusing on service providers were most common. In particular, cultural-appropriateness was sought via the use of staff who shared cultural and/or linguistic backgrounds with service users. These staff ranged from health professionals to intermediaries who bridged the cultural or linguistic gap between health professionals and service users. A smaller number of studies described training existing staff to improve cultural awareness. Community participation was a strategy explicitly described in multiple studies, albeit to varying extents. Approaches ranged from consulting communities in the design of intervention strategies to providing community-controlled health services. Further strategies included incorporating local birthing practices into service provision; adapting physical and social service settings for familiarity and comfort; and adapting educational materials. Since cultural factors interact with social and economic factors to affect these populations' access to maternity care services, they were frequently addressed jointly in interventions. For example, several interventions incorporated transportation, childcare and/or outreach care.

### *Outcome measures*

Among relevant outcomes, most studies focused on ANC with a skilled attendant, but measures were wide-ranging. Number of ANC visits was the most common measure (n=7). However, any ANC (Bilenko et al. 2007); three or more visits (Bilenko et al. 2007); six or more visits (Julnes et al. 1994); and non-attendance of appointments (Parsons & Day 1992) were also reported in some papers. Further, Thompson et al. (1998) included as a measure the adequacy of the total number of ANC visits, based on the Adequacy of Prenatal Care Utilization index (Kotelchuk 1994), in which the adequate number is dependent on the timing of initiation of care. Timing of initiation of ANC was

also a commonly reported outcome, with typical measures including first visit before a specified stage of pregnancy (n=5) or gestational age at first visit (n=4). Three papers – including the two from Peru – reported outcomes for care at birth, including birth with a skilled attendant (n=1) and birth at a health facility (n=3). Only one study reported outcomes related to postpartum care services (Marsiglia et al. 2010).

Only four studies mentioned outcomes related to cost and sustainability (Gabrysch et al. 2009; Jan et al. 2004; Julnes et al. 1994; Marsiglia et al. 2010). Details were rather limited in two studies with one paper praising the programme's "relatively low cost" (Julnes et al. 1994) and another paper noting that trained lay workers could easily replicate the "very cost-effective" intervention (Marsiglia et al. 2010).

#### *Study design and quality*

Table II presents a summary of study designs and quality. Only one study used an experimental design (Marsiglia et al. 2010). All others used various forms of observational designs. By far the most common type of design was a comparison of outcomes between women who received the intervention and controls, largely using retrospective data from birth certificates or service/clinical records. Controls in these studies included target populations before the intervention (NSW Health 2005; Panaretto et al. 2005; Panaretto et al. 2007; Parsons & Day 1992; Thompson et al. 1998) or contemporary controls matched on certain characteristics, who received standard services (Jan et al. 2004; Jewell & Russell 2000; Julnes et al. 1994; Kildea et al. 2012). The latter were essentially types of retrospective cohort studies. Overall the quality of evidence for determining impact was weak. Four studies were assessed to be of moderate quality and all others of weak quality.

#### *Intervention impact*

Table II presents a summary of intervention effects on uptake of skilled maternity care services. Eight of 12 studies reported improvements in use and/or timing of initiation of ANC (Bilenko et al. 2007; Jan et al. 2004; Jewell & Russell 2000; Julnes et al. 1994; Nel & Pashen 2003; NSW Health 2005; Panaretto et al. 2005; Panaretto et al. 2007). One of three studies reported increases in birth at a health facility (Gabrysch et al. 2009; Julnes et al. 1994; McQuestion & Velasquez 2006). The one study that considered postpartum care reported a positive effect (Marsiglia et al. 2010). Two studies that reported improvements did not report significance tests (Gabrysch et al. 2009; Nel & Pashen 2003). Only two studies that reported positive effects were assessed to be of moderate quality (Marsiglia et al. 2010; Panaretto et al. 2005).

Studies reporting positive effects encompassed four of five interventions with Aboriginal populations in Australia, all of which reported greater use and/or earlier initiation of ANC in the intervention group (Jan et al. 2004; Nel & Pashen 2003; NSW Health 2005; Panaretto et al. 2005; Panaretto et al. 2007). These interventions were often delivered through separate, tailored services, and combined multiple strategies. Core strategies included Indigenous staff; community control and/or participation; a community setting and/or outreach; and a culturally-friendly setting and service.

Three of four interventions in the USA also reported positive effects: two on use and timing of ANC and the other on use of postpartum care (Jewell & Russell 2000; Julnes et al. 1994; Marsiglia et al. 2010). All three used lay or para-professional staff who shared cultural characteristics and/or language with the target population and who provided a range of educational and support services within an outreach model. In various ways, they acted as a link between service providers and users. An intervention in Israel to establish a local maternal and child health clinic in a desert area, staffed by an Arabic-speaking Bedouin public health nurse increased the percentage of women receiving ANC but did not lead to earlier initiation of care (Bilenko et al. 2007). Finally, a new model for care at birth in Peru saw a substantial increase in facility birth (Gabrysch et al. 2009).

Four studies reported no significant effects on care utilisation (Mason 1990; McQuestion & Velasquez 2006; Parsons & Day 1992; Thompson et al. 1998), of which two were assessed to be of moderate quality (Parsons & Day 1992; Thompson et al. 1998). One study in Australia also reported a negative effect on number of ANC visits, albeit positive effects on other maternal and newborn outcomes not addressed in this review (Kildea et al. 2012). Two early interventions from the UK that showed no impact on ANC outcomes used link-workers (Mason 1990) or health advocates (Parsons & Day 1992) to interpret and mediate between service providers and users. A programme in the USA that used a bilingual, bicultural outreach worker showed no effect on adequacy of ANC despite sharing characteristics with other interventions from the USA that demonstrated positive effects (Thompson et al. 1998). An intervention in Peru that sought to make emergency obstetric care services culturally-acceptable showed no effect on facility birth, but little specific detail was provided on the service adaptations that took place (McQuestion & Velasquez 2006). Across these studies, authors highlighted study design issues and low statistical power as potential explanations for finding no impact. They also highlighted that interventions may not have surmounted all factors affecting uptake, such as poor communication; mistrust and negative attitudes between service providers and users (Mason 1990; McQuestion & Velasquez 2006; Thompson et al. 1998); poor communication between hospital and community-based providers (Kildea et al. 2012); and financial and transport barriers (Thompson et al. 1998).

## **Discussion**

The studies reviewed suggest that interventions to provide culturally-appropriate maternity care services largely have positive effects on use of skilled maternity care. Limitations of the evidence currently available, however, prevent definitive conclusions on modes of delivery of similar interventions and on what works during pregnancy, for birth or in the postpartum period with different types of cultural groups in different contexts.

A substantial number of interventions has been implemented across world regions to address cultural factors affecting use of maternity care services (Coast et al. 2014), but few have been evaluated with designs that can demonstrate their impact on use of services. Evidence in this review is clustered within a small number of countries. Evidence from LMICs is notably lacking. Although we found 54 items from LMICs in the precursory mapping (Coast et al. 2014), only two of the 14 intervention studies that met inclusion criteria for this review were conducted in LMICs. In particular, despite much recent work in Latin America to develop intercultural approaches to improve Indigenous populations' access to maternity care services, we identified only two studies with designs to measure impact. While studies of intercultural approaches have provided useful lessons for their further development (Nurena 2009; Tucker et al. 2013; van Dijk et al. 2013), future studies should also use designs that allow evaluation of their impact. Even studies on high-income countries (HICs) were clustered predominantly in Australia and the USA, with a focus on specific populations in these countries. Given the urgency of relatively poor maternal and newborn health outcomes among many minority and migrant groups in HICs (Karl-Trummer et al. 2006; Wasserman et al. 2007), the current lack of intervention studies deserves urgent attention.

Because most of the included studies focus on ANC outcomes, evidence of impact is particularly limited for care at birth and after birth. It is unclear why the focus is largely on pregnancy. There is also no measure or discussion of whether the increase in ANC use leads to increased use of skilled care at birth or if women are satisfied with the service. The limited focus on postpartum care is noteworthy given that low uptake of postpartum care is a widespread problem. In sum, the scope of the evidence on impact across the continuum of maternity care is currently limited.

The EPHPP tool for quantitative studies looks at different domains to assess the quality of a study, including selection bias, study design, confounders, blinding, data collection methods, withdrawals and drop-outs. Most studies were determined to be of low quality, and we are aware of the potential biases arising from the study designs. In order to determine the effectiveness of interventions in terms of their contribution to achieving the desired outcomes, future studies should seek to employ more robust designs and reduce biases through randomisation and/or more robust control of confounding factors. Several evaluations were done retrospectively, taking advantage of local databases, clinical records and registers. However, designing evaluations into the intervention from the outset provides more control in achieving optimal study designs.

Interventions to provide culturally-appropriate maternity services are by nature context-specific. Yet there are certainly elements that would benefit from better definition and standardisation so that they contribute to a body of evidence rather than a disparate collection of studies. This would help to determine the effectiveness of these interventions. It seems that bodies of evidence are developing for interventions with specific populations in some countries or world regions, notably Australia and parts of Latin America (Castro 2012; Jongen et al. 2014; Kildea & Van Wagner 2012; Wasserman et al. 2007). Yet, intervention studies from many other countries that have documented the impact of cultural factors on use of care are disconnected. This is perhaps unsurprising given the challenging process of collating papers on interventions that have addressed cultural factors in maternity care services (Coast et al. 2014). This review, as well as other recent reviews for interventions in specific contexts (Jongen et al. 2014; Kildea & Van Wagner 2012), provides a starting point for such efforts. Researchers should be clear on the research question, determine an optimal study design, seek to define the intervention and its context carefully, standardise outcome measurements while allowing local contextualisation, and document important process issues (WHO 2015b).

Limitations of this review are acknowledged. In brief, culture is a complex, elusive concept that is inconsistently defined in the literature, and is susceptible to over-generalisation. This issue is compounded by poor reporting, where authors do not always describe carefully what they seek to address or how they address it (Coast et al. 2014). Both issues posed challenges during the screening process. Second, publication bias is a possibility. Third, it is possible that we missed some relevant literature, most likely grey or non-English-language literature, despite extensive efforts to uncover such evidence through expert recommendations. Literature reviews of interventions in Australia (Kildea & Van Wagner 2012) indicate that evaluations of such interventions may sometimes be documented only within in-service or programme reports that are less likely to be uncovered by database searches or even expert suggestions. Our global focus meant that we were unable to follow-up on such avenues in each country to the extent possible in more context-focused reviews, such as Kildea et al.'s (2012). Further, while we included eligible French and Spanish items that we found, and employed a variety of search methods, the possibility that we missed some relevant non-English literature is higher. Although we included items in Spanish, it is possible that some relevant work from Latin America was not uncovered because of biases in database and online inclusion.

In sum, the combination of overall weak evidence for determining impact; diverse interventions with multiple measures; and heterogeneous but limited coverage of populations and settings constrains our ability to conclude what interventions – or elements of them – work (or not). Nevertheless, this review reveals that most studies of interventions to provide culturally-appropriate maternity care services have demonstrated positive effects. Moreover, they lend tentative support to some intervention elements that have been highlighted fairly consistently within the current evidence base. In particular, the review and the broader literature confirm that cultural factors are often not the sole factor affecting minority populations' use of maternity care services. Broader social, economic, geographical and political factors interacted with cultural factors to affect targeted populations' access to services in included studies (Bohren et al. 2014). These factors should be

considered and, where appropriate or possible, addressed within and/or alongside interventions to provide culturally-appropriate services. As Jan et al. (2004) stated, 'With a service of this nature, it is often not possible to provide care in isolation from the social problems in which many of the women live'. The depth of context-specific information included in the fifteen studies was highly variable, but across a range of settings, lack of transport (Israel, Australia, USA), financing (USA, Peru) and need for support for childcare (Israel, Australia) are highlighted by authors to explain additional barriers to use of skilled maternity care. Language, and the implications for woman-provider communication, was an almost universal issue across the studies, with the exception of studies from Australia.

The highly constrained evidence base on the effectiveness of interventions in LMICs, particularly outside of Latin America, reflects that whilst issues of culture are being recognised by programmes and researchers as being important, interventions that explicitly incorporate issues of culture are not being evaluated. We surmise that in settings where minimum standards of skilled maternity care are unavailable, the evidence base emphasis continues to focus on the supply side of technical care provision. Demand-side interventions tend to focus on more easily measurable socio-demographic characteristics such as education, age or wealth. Without evidence that demonstrates the centrality of culture to women's demand for, and use of skilled maternity care, the policy and provision gap will persist.

Finally, it is notable that principles espoused in these studies of interventions to make services culturally-appropriate share many characteristics with recent shifts in maternal health policy discourse more generally. Woman- and family-friendly environments, respect for culture, and emphasis on respectful interpersonal interaction overlap in many ways with the principles of respectful and humanised care that should be available universally to all women (Langer et al. 2013; Windau-Melmer 2013).

## Abbreviations

ANC	antenatal care
EmOC	emergency obstetric care
EPHPP	Effective Public Health Practice Project
HICs	high-income countries
LGA	local government areas
LMICs	low- and middle-income countries
MeSH	Medical Subject Headings
NSW	New South Wales
TAIHS	Townsville Aboriginal and Islander Health Service
TBAs	traditional birth attendants
UK	United Kingdom
USA	United States of America
WHO	World Health Organization

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