Professional Mission and Personal Beliefs: Ethiopian Midwives' Role in Expanding Access to Abortion Services in the Wake of Legal Reform

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Abstract
In 2005, Ethiopia enacted a rare reform, liberalizing abortion law as part of the overhaul of its Criminal Code. The reform's goal was to reduce the country's high levels of maternal mortality that are due in significant part to unsafe abortion. It also aimed to further broaden access to services through regulations authorizing mid-level providers, including midwives, to offer abortion services. This research explores one facet of what makes a reform 'real': midwives as frontline service providers have the potential to shape whether and how a policy is actually implemented. Similar socially contentious reforms in other culturally conservative countries have not resulted in women having increased access to services. Using a 2013 survey of midwives (n=188) and twelve in-depth interviews with third-year Midwifery students, this cross-sectional research examines the knowledge, attitudes and practices of midwives on abortion and abortion provision in order to understand what underlies their decisions about service provision post reform. A majority of midwives (72%) were willing or possibly willing to provide abortion services, and that willingness was negatively related to respondents' number of years as a midwife and frequency of religious service attendance, and positively related to their knowledge of the law, and past experience with provision of medical abortion. A relationship between concerns about abortion stigma and willingness to provide services was not found. Interview data suggest complex dynamics underlying this outcome, including conflict between strong professional norms and personal religious beliefs.

*This research was supported by a grant from the Society of Family Planning Research Fund and by the Rocca Dissertation Scholarship of the Center for African Studies, University of California, Berkeley.
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Introduction

What affects whether national reforms are actually implemented after being enacted, particularly social contentious policies related to reproductive health in Sub-Saharan Africa (SSA)? In most political systems, the enactment of a law is no guarantee of its implementation (Moe, 2005; Patashnik, 2003 and 2009). Leaving aside symbolic reform – reform enacted to please a particular constituency but lacking full commitment from its initiators (Edelman, 1985), or technically intractable problems (Sabatier and Mazamanian, 1983), theorists identify at least three broad types of barriers to policy implementation. Most concretely, the financial and human resources and capacities devoted to the task may be insufficient (Sabatier and Mazamanian, 1983). Alternatively, a government organization may fail to carry out policies not because it lacks staff or financial resources, but because it becomes the site of ongoing battle between policy supporters and persistent outside opponents (Pressman and Wildavsky, 1973; Moe, 1990). Even when the first two barriers are absent, those inside the organization/executive branch who are charged with directly implementing the policy can act as barriers to policy implementation (Lipsky, 1971).[1]- They not only cope with the day-to-day pressures of delivering services, but also have their own perspectives on policies. Their beliefs and attitudes can influence what they will and will not do, and thus have a significant impact on the overall shape of policy outcomes. Will the beliefs and attitudes of frontline providers enable the full implementation of a new policy? To explore this question, we examine the implementation of Ethiopia's 2005 reform of its law on abortion, and the related perspectives of the key implementers – midwives.

Resources, relatively speaking, have not been a rate-limiting constraint for policy implementation, given the Ethiopian government's explicit priority of reducing maternal mortality, and dramatic expansion of the numbers of midwives being trained. Nor does formal

[1] Theories of policy implementation can be crudely characterized as falling into either top-down or bottom-up orientations. While few adhere purely to the classical rationalistic (top down) planning approach to policy-making, those that favor it point to the importance of senior policy makers in implementing policy, taking into account prerequisites, including gaining support of key stakeholders (Sabatier and Mazamanian, 1979, among others). Conversely, rather than focusing on political and agency elites, other approaches emphasize the roles of frontline public service workers in shaping policy through their day-to-day interactions with the people they serve – Lipsky (1980) is the exemplar of this approach. As do many, we see policy outcomes as stemming from both, but concentrate here on the possible policy impacts of those at the fore of service provision.

outside opposition to the policy appear to be an issue, as the reform was not enacted on a partisan basis, and, after 2005, neither political parties nor NGOs voiced opposition. In addition, since enactment, the ruling party has had a super-majority in Parliament, a body that tends to closely follow the ruling party's lead. Thus, the views of frontline service providers promise to exert the most significant influence over whether and in what way the new policy is implemented.

Given the close involvement of leaders of the Ethiopian medical profession, including the founding leadership of the Ethiopian Midwives Association (EMA), in the design and passage of the law and regulation, one might expect implementation by the front line medical providers to be unproblematic. However, the experience elsewhere with reform of abortion law, as well as with the contention and stigma attached to abortion and abortion services, suggests that this assumption is questionable. Internationally, liberalization of laws on abortion has not reliably led to increased access to services, particularly in more culturally conservative settings where abortion is viewed as religiously prohibited and consequently where the views and actions of frontline health service providers can shape how and even whether a policy is fully implemented (Benson et al., 2011; Singh et al., 2012). Access has remained restricted despite enactment of more liberal laws in India (Hirve, 2004; Iyengar, 2005), in Ghana (Aniteye and Mayhew, 2013), and in South Africa, where access to and quality of care remain compromised due both to shortages of trained nurses and midwives as well as their resistance to providing abortion services (Harries et al., 2009; Jewkes et al., 1998; Althaus, 2000; Varkey, 2000; Mokgethi et al., 2006).

As we potentially expect that the beliefs of midwives, the designated personnel for maternal mortality prevention as well as provision of abortion services in Ethiopia, could be a barrier to policy implementation, we share background on the SSA and Ethiopian reproductive health contexts and the midwifery profession in Ethiopia. Sub-Saharan Africa has the world's most elevated levels of maternal mortality, much of it due to unsafe and illegal abortion (World Health Organization (WHO), 2010). In partial response, a few countries in the region have liberalized their laws on abortion – a globally rare phenomenon (Cook & Dickens 1988; Rahman et al., 1998; Cook et al., 1999; Boland & Katsive 2009). Internationally, safe abortion services are recognized to reduce maternal mortality (Freedman et al., 2007; Maine et al., 1987; Campbell et al., 2006; Grimes et al., 2006; Glasier et al., 2006; WHO, 2010), and liberalized laws on abortion

are associated with reduced mortality due to unsafe abortion (Singh et al., 2013; Guttmacher Institute, 2012; Benson et al., 2011; Chowdhury, 2007).[2] Even more than in the rest of SSA, maternal mortality remains persistently high in Ethiopia (676 deaths/100,000 live births or 21% of all deaths to women ages 15-49),[3] and unsafe abortion continues to be one of its top three causes (Kwast et al., 1986; Yoseph & Kifle, 1988; Berhan and Abdalla, 2004; Gaym 2009; Abdella, 2010; Singh et al., 2010; Ethiopian Demographic and Health Survey (EDHS) 2006, 2012; WHO, 2006 and 2007)).[4] Ethiopia faces multiple challenges in tackling this problem, including one of the world's most acute per capita shortages of trained modern medical professionals (World Bank, 2004) as well as a conservative cultural context that makes addressing the problem of unsafe abortion difficult - 67% of the population regards abortion as 'never justifiable' (World Values Survey, 2007).[5]

Nonetheless, Ethiopia has taken notable policy and programmatic steps toward addressing maternal mortality, including liberalizing its law on abortion and increasing service delivery by 'task-shifting' to expanded numbers of mid-level providers when medically appropriate. Ethiopia's 2005 liberalization of its Criminal Code with respect to abortion is a key policy change made to reduce maternal mortality, and as a result, to enable women to participate more fully in national development. The law's regulations further broaden access by newly authorizing mid-level providers, including midwives, to provide abortion services, and by recognizing a woman's statement that she has been raped as sufficient to qualify for legal services (Ministry of Health, 2006). Despite this reform, it is estimated that as yet nationally only 27% of induced

[2] There is now consensus on the medical appropriateness of mid-level providers offering first trimester abortion services (Jejeebhoy et al., 2011; Warriner et al., 2006; Weitz et al., 2013; WHO, 2003). World Health Organization 2003 guidelines recommend abortion service provision at the lowest medically appropriate level of a country's health care system, particularly in settings where there are shortages of more highly trained providers, and indicate that both aspiration abortion and medical abortion can be offered safely at the primary care level in the first trimester by mid-level providers. Mid-level health care providers are defined as midwives, nurse practitioners, clinical officers, and physician assistants, among others (WHO, 2010).

[3] Ethiopia's levels are high even when compared to Sub-Saharan Africa: 676 versus 640 out of every 100,000 women die from maternal mortality (Ethiopian Demographic and Health Survey (EDHS), 2012; WHO, 2006 and 2007).

[4] The World Health Organization defines unsafe abortion as ''a procedure for terminating an unwanted pregnancy either by persons lacking the necessary skills or in an environment lacking the minimal medical standards, or both'' (WHO, 1992).

[5] Authors' interviews with an Ethiopian Lutheran Church (Ethiopian Evangelical Church, Mekane Yesus, or EEC-MY) leader, transcripts from interviews with leaders of the Ethiopian Orthodox Tewahedo Church (EOTC) and the Supreme Council of Islamic Affairs (SCIA), press coverage of abortion law reform, as well as the responses of all interviewees indicate that all major religious groups view abortion as a sin and to be prohibited, except in a case of threat to the life of the woman.

abortions are performed in health facilities, and that half of procedures are provided by untrained individuals (Singh et al., 2010).

Ethiopia's government has also significantly expanded the numbers of mid-level providers in the national health workforce generally, identifying midwives as the health professionals key to achieving its commitment to reaching the Millenium Development Goal (MDG) of reducing maternal mortality. Midwives' professional mission centers squarely on women, reproduction and saving lives, and midwives are often the most highly trained medical professionals in the facility where they are based, particularly in rural areas. Ethiopia has set a goal of training 8,635 midwives by the year 2015 (Health Sector Development Plan IV, 2006), and has dramatically expanded the number of midwifery training institutions from five in 2000 to forty-six in 2012. Further, the government and the Ethiopian Midwives Association (EMA) are running nation-wide media campaigns targeting the public and health professionals about the central role of midwives in reducing maternal mortality (EMA, 2012). It is this very expansion of the size and scope of the midwives' profession that has offered policymakers and leaders in the health professions the chance to instill a set of norms (a core mission of maternal mortality prevention, including maternal mortality due to unsafe abortion) to the greater numbers of newly trained midwives, norms that will in turn increase the likelihood that midwives will implement the policy and provide legal abortion services.

This research aims to analyze the beliefs that might affect implementation of a liberalized law in Ethiopia, and more specifically to examine the readiness of midwives, the frontline providers, to take part in expansion of access to abortion services. In particular, it will add to the as-yet limited research on attitudes of midlevel providers in Sub-Saharan Africa such as midwives toward provision of abortion services in the wake of a legal reform. It describes the knowledge, attitudes and practices of Ethiopian midwives with respect to abortion, abortion law, and provision of abortion, and identifies factors associated with their willingness to provide services, and explores their significance. As we will describe further below, the empirical literature identifies personal characteristics and attitudes linked to provision or willingness to provide abortion services, but

focuses largely on obgyns and physicians rather than midwives or other mid-level providers.[6] This focus, as well as the fact that much of it has been done in affluent countries, make it less relevant for low-income SSA countries such as Ethiopia seeking to expand coverage by authorizing mid-level providers to provide services. Further, by operationalizing measures of stigma and of religiosity, this study can add to the as yet limited work to date assessing their relationships with willingness to provide services in low-income countries.

Through interviews and survey data, we examine midwives' perspectives on whether to provide abortion services, and hypothesize that their willingness to provide is related to their length of tenure as a midwife, their attitudes toward abortion, past clinical experience with abortion, knowledge of the law, and views on whether abortion service provision is stigmatized by their peers. We further explore how their decision emerges out of the encounter between their commitment to their professional mission of saving women's lives and their personal beliefs about abortion, and by implication, how this decision can affect the shape and extent of service delivery at the facility level.

After reviewing the Ethiopian context, we move now to highlight two theoretical strands that can help us better understand the decision-making of midwives, and then go on to examine the empirical literature on provider attitudes on abortion and abortion service provision from which our hypotheses emerge.

Theoretical grounding

The sociological literature of the professions and the psychology literature on stigma point to two diametrically opposed influences on midwives' decision-making with respect to maternal mortality, unsafe abortion and abortion service provision. The first suggests we look to the collective (as opposed to self-interested) over-arching mission of medical professions, in our case midwives, as conditioning individual provider behavior. This orientation manifests as an explicit professional commitment to prioritize patient well-being over personal gain (Parsons, 1951), and entails creation of a professional culture and mission. [In the Ethiopian context, this has exhibited as an over-arching professional commitment for midwives to prevent maternal

[6] Recognition from international standard setting organizations such as the WHO that midwives and other mid level providers can equally safely offer abortion services has only come in the past decade (WHO, 2004). In most countries, physicians are still the only providers legally authorized to provide abortion services.

mortality.] The literature on stigma highlights a countervailing force acting on midwives: the impacts of stigma on midwives' willingness to provide services. Stigma can operate within the individual as well as through organizational and societal interactions and structures. A particular condition or behavior is identified and characterized as abnormal and immoral, and applied to individuals, leaving them with diminished social standing in relationships and even potentially for life opportunities (Goffman, 1963; Link & Phelan, 2006; Yang et al., 2006). Medical providers and others performing socially frowned upon work can suffer loss of status, discrimination and psychological distress (Goffman, 1963; Major & O'Brien, 1999). Abortion care is a stigmatized medical service, both in low-income and more affluent countries (Martin et al., 2013; Kumar et al., 2006; Webb, 2000). In many settings, medical professionals who do provide abortion services have both their professional technical competencies called into question as well as their personal or financial motivations (Martin et al., 2011; Hall, 1971; Grimes, 1992). Negative abortion-related attitudes can thus discourage trained providers from offering stigmatized but life-saving care (Major & Gramzow, 1999; Norris et al., 2011; Kumar et al., 2009; Martin et al., 2013; Aniteye and Mayhew, 2013). In their review of the literature, Chavkin et al. (2013) suggest that conscientious refusal to provide stigmatized reproductive health services, particularly abortion, is present throughout the world, although they describe the difficulties of calculating its prevalence.[7] Stigma from abortion has been found to reduce physicians' willingness to obtain related training in Ghana (Aniteye and Mayhew, 2013; Martin et al., 2011; Lithur, 2004). While medical professionals' refusal to provide services can be on religious or philosophical grounds or due to stigma and concern about the reaction of others, the outcome is the same – decreased or more difficult access to services for women.

Empirical literature on medical professionals' willingness to provide abortion services

As we have pointed to the importance of midwives' beliefs in shaping whether or not a policy will be implemented, this next section lays out what is known from the empirical literature. Much of the empirical research on medical professionals' willingness to offer abortion services has been conducted in more affluent (OECD) countries, focusing on obstetrician-gynecologists and physicians – those legally eligible to provide services. More relevant to midwives in

[7] Individual provider ability to refuse to offer services is also clearly shaped by the structure of the health system, i.e. the degree of centralization or public/private sector breakdown of services. In Ethiopia's public health system, where the vast majority of health care is still provided, health providers are government employees and thus more obligated to provide services than would be the case for private sector providers. Further, Shellenberg suggests that health system structure and regulation have an impact on the degree of stigma association with abortion (2011).

Ethiopia is the growing body of research in SSA countries liberalizing or contemplating liberalizing their law in the past two decades (e.g., South Africa, Ghana, Nigeria). This empirical research shows significant associations between medical professionals' and students' willingness to provide abortion services (intention to provide and actual provision) and their personal attitudes and attributes. We note research on midwives' and nurses' perspectives where available. Table 14 summarizes findings on medical providers' intention to provide services or actual provision of services in selected low-income countries with more and less restrictive policies.

Unsurprisingly, attitude toward abortion generally is most often found to be associated with willingness to provide services (Fischer, 1979; Abdi & Gebremariam, 2011; Fischer et al., 2005; Faundes et al., 2004; Stewart, 1978; Weisman et al., 1986; Wheeler et al., 2012). Willingness to provide services is also generally greater when the woman has physical and mental health reasons for abortion rather than socio-economic or other personal reasons, among physicians and nurses in the UK and US (Pratt et al., 1976; Aiyer et al., 1999; Fischer, 1979; Lipp, 2008; Marek, 2005; Webb, 1985), as well as among nurses and midwives in South Africa and Ghana (Harries et al., 2009; Mokgethi et al., 2006 and Aniteye & Mayhew 2012, based on in-depth interviews), and also at earlier stages of pregnancy, for nurses and/or midwives in the UK, US and Israel (Gallagher et al., 2010; Lipp, 2008; Marek, 2004; Ben Natan and Melitz, 2011).

Religious affiliation and frequency of religious attendance are perhaps the two most common personal characteristics studied in relation to willingness to provide services. As there are high levels of both in Ethiopia generally and among providers, they merit special attention. Significant relationships between religious affiliation and willingness to provide services have been found in the UK and the US among nurses and physicians (Marshall, 1994; Rosen et al., 1974; Hendershot & Grimm, 1974; Aiyer et al., 1999) as well as in Nigeria (Okunofua et al., 2005; Etuk et al., 2003). In in-depth interviews in Ghana and South Africa, midwives and nurses also articulate a religious rationale for not providing abortion services (Aniteye and Mayhew 2013; Mokgethi et al., 2006; Harries et al., 2009). Religiosity, or extent of religious service attendance, is similarly linked for midwives, nurses and obgyns in more affluent countries (Hammerstedt et al., 2005; Fonnest et al., 2000; Aiyer et al., 1999; Lipp 2009; Musgrave & Soudry, 2000) and in Brazil (Faundes et al., 2004). There is relatively little research on the

relationship of religiosity on willingness to provide services in low-income countries. However, it is difficult to distinguish effects of religion from those of religiosity in these studies. In the U.S., religious service attendance has been associated with less support for legal abortion, even controlling for religious affiliation (Sullins 1999; Cook, et. al, 1992; Emerson, 1996).

Gender has been significantly related to willingness to provide, although there are some interesting anomalies. Female physicians are found *more* willing to provide abortions in the US (Miller et al., 1998; Weisman et al., 1986), and *less* willing in many lower-income countries (physicians in Mexico; Lisker et al., 2006; and male paramedical workers in India were more willing to participate in clinical abortion training: Patel et al., 2005, although females in the overall sample of medical providers in India had higher odds of providing abortion services than did males, but lower odds than males of providing medical abortions (Creanga et al., 2008)).[8] Studies in Brazil (Faundes et al., 2004) and in the US (Rosenblatt et al., 1999) found a positive association between age and willingness to provide. In low-income countries, there is some evidence from small purposive samples that knowledge of the country's abortion law is linked with greater willingness to provide (among all providers in Ethiopia: Abdi & Gebremariam, 2011; in Ghana, related to midwives' willingness to teach only Voetagbe et al., 2010).

In more affluent countries, physician willingness to offer abortion services is significantly associated with previous clinical training and experience providing abortion services (Miller et al., 1998; Aiyer et al., 1999; Fischer et al., 2005; Steinauer et al., 2003 and 2008; in the US; and in Sweden for obgyns and midwives: Hammarstedt et al., 2005; Lindstrom et al., 2007). Relatedly, in-depth interviews and surveys from SSA show providers reluctant to teach about abortion, in Ghana (Voetagbe et al., 2010), or offer services, in South Africa (Wheeler et al., 2012) because of lack of training. However, the causal relationship here is not obvious, as those more willing to provide services may also be more likely to seek out training. The nationally representative findings of Steinauer et al. in the US are an exception: training in residency and residency experience providing abortions are each significantly associated with obstetricians' subsequent provision of abortion services, even after controlling for pre-residency intentions and personal beliefs (2008). However, there are contradictory findings on the influence of workplace

[8] There have been few studies of the role of gender and nurses' and midwives' attitudes in the US and UK, as historically there have been few men in these professions, unlike in Ethiopia where nationally the proportion of male midwives is 22% and growing (Ethiopian Midwives Association, 2012).

exposure to abortion services; they have a negative relationship with willingness to provide for nurses in the UK (Marshall et al., 1994) and a positive one for midwives in Denmark and Sweden (Fonnest et al., 2000, Hammarstedt et al., 2005). Unfortunately, we lack related findings on this issue in SSA.

Further, medical professions with more extensive formal training are generally associated with higher support for liberalized abortion access (e.g., obgyns versus midwives in Sweden: Hammarstedt et al., 2005; Lindstrom et al., 2007; physicians versus nurses in Ethiopia: Abdi, 2008). Literature on socialization in the physician and nursing professions describes a process by which an individual gains knowledge and skills and develops an identity as a member of that profession and incorporates them into her sense of self and her behavior (Becker et al., 1961; Cohen, 1981). Those with lengthier training (e.g., physicians or obgyns) have more time for socialization to occur (Becker, 1961). Similarly, there is some evidence that students are more conservative than are practicing health professionals with respect to abortion. In South Africa, medical students later in their training were more willing to provide services than were those at earlier stages (Wheeler et al., 2012) and nurses in Israel were more accepting of late abortion than were nursing students (Ben Natan & Melitz, 2011).

Unsurprisingly, the legal status of abortion has been found to be related to medical professionals' willingness to provide services. A study in Mexico finds increased willingness to provide abortion services after a legal reform both among both obgyns and physicians working in Mexico City (where the law was liberalized) and also elsewhere, although the increase was greater in Mexico City (Dayananda et al., 2011).

There are two important sources of Ethiopia-specific evidence on provider attitudes toward abortion and abortion service provision. First, a nationally representative survey of healthcare providers in 2000, prior to legal reform, revealed provider consensus that maternal mortality related to unsafe abortion was a 'big problem' (98% agreeing), and on the need for reform of the law (78%), and showed that nurses (a category that included midwives) were only slightly less likely than were obgyns to be supportive of legal liberalization (79% versus 89%). However, nurses and midwives were far less likely to view the prior law as too restrictive (44% versus 80%) (Ethiopian Society of Obstetrician Gynecologists (ESOG), 2002). A survey of health

provider opinion in Addis Ababa after the 2005 legal reform, however, found low (50%) willingness to provide services among all providers, as well as lower levels of support for legal abortion among midwives and nurses specifically (41%) (Abdi, 2008). Further, while providers overall had a clear sense that availability of safe legal abortion could reduce maternal mortality due to unsafe abortion (76% agreeing), a majority (61%) felt that abortion was a sinful act, and few (18%) felt comfortable in a facility where abortion was being provided. Please see Table 11 for a comparison of the survey data analyzed here with data from 2000 and 2008. If this lukewarm attitude toward abortion and abortion services among midwives translates into reluctance to provide care, it could have adverse consequences for the availability and/or quality of services.

Nonetheless, Ethiopia's strategy of maternal mortality prevention through deployment of midwives and liberalization of the law on abortion is potentially promising for the many Sub-Saharan African countries confronting shortages of health providers and high levels of abortion-related maternal mortality. However, as noted above, policies made by elite policy makers can be derailed or diluted by those on the frontlines who are responsible for implementing them (Lipsky, 1973; Hirschman, 1970). The eventual shape and success of Ethiopia's reform rest on the extent that mid-level providers, midwives in particular, work to make the expanded legal access a reality. Deviation from original intent is all the more possible for a policy that asks midwives to provide a service that is explicitly proscribed in all of Ethiopia's religious traditions. Accordingly, examination of the relationship between midwives' attitudes and experience and potential sources of stigma with their willingness to provide abortion care can shed light on roles midwives play now and can play in the future in meeting Ethiopian women's needs and reducing maternal morbidity and mortality – as well as suggest issues to consider for implementation of similar policies in low-income countries facing high levels of maternal mortality due to unsafe abortion.

Data and Research Methods

This cross-sectional study uses both survey and interview data. We fielded a self-administered paper survey at the May 2013 Meeting of the Ethiopian Midwives Association (EMA) in Addis Ababa and collected completed surveys from 188 of the 218 midwives attending the meeting, yielding an 86% response rate. The questionnaire included sections on knowledge of the law,

attitudes toward abortion and abortion service provision, training and clinical experience related to abortion, questions on willingness to provide services, as well as an open-ended question on respondents' views of midwives' responsibilities regarding maternal mortality and abortion. Survey data was prepared and analyzed using EpiInfo7 and STATA 13, with descriptive statistics on midwives' characteristics and logistic regression models to identify factors associated with midwives' willingness to provide abortion services.

Three chief categories of midwife are currently being trained in Ethiopia: Bachelor's Degree Midwives, with four years of post-secondary training; Diploma Midwives, with ten years of primary and secondary education and three years of specialized midwifery training; and the new category of Accelerated Midwives, with ten years of primary and secondary education, three years of nursing training and one year of Midwifery training.[9] The first Accelerated Midwives will graduate in 2014. A notable feature of the midwifery profession in Ethiopia is the high and growing proportion who are male midwives (22%) due to new recruitment procedures (EMA, 2012).[10] Globally, in contrast, midwives are almost invariably female. Midwives attending the EMA meeting hail from each region of the country and are selected in consultation with the Regional Health Bureaus and the EMA regional branch offices on the basis of EMA membership and volunteering activities in the region. Attendees thus are likely to be more proactive and engaged with EMA (EMA communication, 2014). Further, midwives, particularly those working outside the capital, view travel and participation in the meeting as a coveted opportunity.

To understand the thinking behind midwives' survey responses, we also conducted in-depth interviews with twelve third-year Bachelor's degree midwifery students from Addis Ababa University, 14% of the third-year class. They were selected on the basis of their availability on the day of interview. Interviews were conducted by the first author and a research assistant; both were not previously known to interviewees. While only ten of the survey respondents were midwifery students, we chose to interview third-year students because they are an accessible population, because, given the expansion of the profession, students currently make up an

[9] There is an important fourth category of midwives, those with two years of Master's level studies, but they are as yet a small proportion of the practicing midwives in Ethiopia. The English language is a course in school up through the 10th grade, and thereafter, for the last two years of secondary school and in technical schools and universities, English is the language of instruction. Thus Diploma Midwives, who leave secondary school after the 10th grade, may experience greater challenges learning in English.

[10] Since 2010, students have been selected for Midwifery education on the basis of their national examination scores, not their preferences. This has resulted in more males being assigned to midwifery training.

unprecedentedly large proportion of it, and because they are at a key stage of professional acculturation. Midwifery school is perhaps the key time when midwives' professional culture and norms are transmitted, and third year students, at the close of the year, have thus had substantial exposure to training. The interviews were conducted using a structured interview guide with six questions on students' views on the midwifery profession, maternal mortality in Ethiopia, and on their willingness to provide abortion services (Appendix A). All twelve interviews were digitally recorded, eight were transcribed verbatim, four were written up from notes post-interview due to poor recording quality. We used *HyperResearch* to analyze the interview data, with codes based on the hypotheses as well as on themes emerging from the data. Interview data, as well as the survey open-ended question on key points related to midwives' provision of abortion services, were used to better understand the survey response on willingness to provide services.

All participants provided written informed consent, and confidentiality and anonymity of data were ensured. Ethical approval was obtained from the Institutional Review Board of Addis Ababa University (AAU) and from the Committee to Protect Human Subjects of the University of California, Berkeley (Protocol ID: 2011-03-3010). The Ethiopian Midwives Association and the AAU School of Nursing provided further support in conducting the study.

For our outcome variables, we selected the fourth of four questions on respondents' willingness to provide abortion services as the dependent variable, as it was the most individually specific ("Would you be willing to provide abortion services in the facility *where you work*?"), and its placement near the end of the survey could allow a more considered response. This dummy variable resulted from collapsing the four categories into two ('No' and 'Am not allowed' to 'No'; and 'Yes' and 'Maybe' to 'Willing or possibly willing'). Please see Table 2 for the four variables from which the final outcome variable was chosen.

We test five hypotheses on midwives' willingness to provide abortion services. The first four hypotheses are that midwives with more years of work experience, less religious service attendance, more clinical experience with abortion, or better knowledge of the law will be more likely to be willing to provide services. The fifth hypothesis is that those midwives viewing abortion services as a stigmatized activity will be less willing to provide services.

For our principal independent variables, we first have one indicating how many years the respondent has worked as a Midwife. We then constructed three indices of variables to measure attitudes on abortion, clinical experience, and knowledge of the law. The internal consistency of each of the three indices was relatively strong: Cronbach's alphas for reliability were .73, .84 and .83, respectively. The attitudes index variable is comprised of four questions on conditions when abortion should be legal (socio-economic need; contraceptive failure; when needed; as a right). Responses for general attitudes were transformed from a five to a two-point scale ("neither agree nor disagree", "disagree" and "disagree strongly" coded as '0'; "agree strongly" and "agree" coded as '1') and then summed. The variable values range from 0 to 4, and indicate how expansive respondents' attitudes are toward when abortion should be legally provided (less to more). The abortion law knowledge index variable includes three questions on respondents' knowledge of the law's evidentiary requirements for legal abortion in case of rape, and indicates whether they knew the correct response to none, one, two or three of the questions. Our third index variable is composed of three questions on respondent's clinical experience (very experienced, somewhat experienced, not experienced) with abortion (manual vacuum aspiration, misoprostol alone, misoprostol and mifepristone), valued from 0 to 3, depending on how many techniques for which the respondent regards herself as 'very experienced'. As another measure of clinical experience, we included a dummy variable for whether the respondent had ever recommended medical abortion, with 'no' as the base category. Finally, to assess whether respondents view abortion provision as leading to stigmatization by their peers, we use a question asking whether they agree that peers will judge them negatively if they provide abortion services (with no as the base value).

We then controlled for five individual demographic variables shown in the literature to be related to willingness to provide services. We included gender, a three-category variable for religious affiliation (Ethiopian Orthodox Christian, the base category; Muslim; Evangelical Christian/ Protestant), a dummy variable for religiosity (attendance of religious services more than once a week versus attendance once a week or less), type of midwife (Diploma versus Bachelor's midwife) and a three-category variable to represent the geographic origin of the patient population served by the respondent (rural, urban and peri-urban areas). The rationale for including this last variable was those serving more rural patients might be the only provider serving them and thus have a clear sense of the likely impacts of not providing services.

We used complete case analysis with 148 of the 188 cases, and our estimation sample was generally comparable to the survey sample. Clinical experience was the only variable that was significantly different, with Midwives in our estimation sample more experienced than those in the full sample. However, as described further below, and as shown in Table 10, comparison with the *2012 National Census of Midwives* showed that the estimation sample differed from the national population of midwives.

Two-way cross tabulations for each categorical variable and the outcome variable (willingness to provide services) revealed in all instances but one that there were at least 10 observations per cell, meaning that there should not be a sparseness limitation when estimating logistic regression models. Religious affiliation was the only variable for which this was not true – out of the 27 Muslim midwives, only five were unwilling to provide services. We also tested for whether missingness was completely at random, multicollinearity, and appropriateness of model fit.

To present results, we use marginal effects or adjusted percentages. Marginal effects produce a single number that expresses the effect of a given independent variable on the probability of the outcome shifting from 0 to 1 (e.g., between the two outcome categories – 'unwilling' versus 'willing or possibly willing'). To better understand the impacts of individual variables, we calculated their marginal effects at representative values of the other independent variables: all dichotomous (two category) variables are set at their base value, age was set in five-year increments, and the continuous index variables are set at their means.

Findings and Analysis

This survey is not nationally representative, however, we gain a sense of the direction of its bias by contrasting it with the 2012 national census of midwives conducted for the Ethiopian Midwives Association (EMA). This comparison shows our sample to be more educated, more male, with disproportionate representation from the capital city (Addis Ababa), and with a greater proportion of Bachelor's degree level (as opposed to two-year Diploma) midwives.[11] As

[11] While only 59% of our estimation sample was made up of Diploma midwives (with ten years of secondary school and three years of medical training) as opposed to Bachelor's Degree midwives (twelve years of secondary school plus a Bachelor's degree), nationally 91% of midwives are Diploma midwives. Further, males are a greater proportion of our sample than is the case nationally (33% versus 23%). Additionally, a larger percentage of our

noted above, these differences shows our sample to have features – being male (in lower-income country settings), being more educated, and with more training - found in prior research to be associated with more liberal positions on abortion and, to a lesser degree, with greater willingness to provide services. Thus the survey responses generally and in response to the attitudinal questions are likely to be biased toward more liberal positions on abortion and abortion service provision. Please see Table 10 to further contrast characteristics of our estimation sample with those of midwives nationally (*National Census of Midwives*, 2012).

Midwives revealed high levels of religious identification and practice: half attended a religious service more than once a week, and half agreed that 'health care providers should carry their religious values into their professional life and behavior.' While there may be some over reporting due to a wish to provide the more socially desirable answer of higher religious service attendance, this is less likely to be the case in traditional cultural settings than in more affluent countries (Inglehart and Baker, 2007).

Midwives had near complete consensus about the seriousness of the problem of unsafe abortion in Ethiopia: 93% agreed that 'unsafe abortion was a serious problem in Ethiopia', and 84% agreed that 'without legal abortion, too many women would die from unsafe abortions'. This consensus was even stronger than found in 2000 or 2008, as shown in Table 11. Respondents also had high levels of clinical exposure to abortion and abortion-related mortality and morbidity: 90% have encountered a patient with an incomplete abortion, 71% have had a patient ask them for information about how to terminate a pregnancy, and 46% have had a patient who has died from an unsafe abortion. In addition, a majority of midwives had previously provided abortion care, particularly medical abortion: 62% had already recommended medical abortion to legally terminate a pregnancy, even higher than the percentage indicating that they had received relevant training (48%). Respondents were also quite interested in receiving further training (78%), far greater proportion than the 40% of Lusaka providers surveyed by Kamanga (2012). Please see Tables 6 and 8 for further detail on midwives' clinical experience with abortion.

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sample also had master's level degrees in either midwifery or related fields (5%) as compared with the overall population of midwives (2%). Fewer of the midwives in our sample worked in health centers than is the case for midwives nationally (41% versus 55%). This is related to the fact that Diploma midwives, and particularly Accelerated Midwifery Program midwives, are more likely to be assigned to health centers and to serve more rural populations than are Bachelor's level midwives – and Diploma midwives in our estimation sample are underrepresented when compared with the national population of Diploma midwives.

The publicly articulated rationale for reform of Ethiopia's law was to prevent maternal mortality, particularly of young girls; the debate was not couched in terms of women's rights. Perhaps reflecting this, Ethiopian midwives were not particularly supportive of a woman's right to have an abortion: only 49% agreed that there was a right, while 41% disagreed. Nonetheless, midwives were largely supportive of girls' or women's autonomy to decide about abortion *vis-à-vis* the authority of others. Approximately two thirds of respondents disagreed with requiring parental consent (63%) or with requiring the male partner's consent (67%) for an abortion.[12] There were also small majorities for permitting abortion in cases of contraceptive failure (52%) and on socio-economic grounds (56%), as shown in Table 4.

In examining descriptive statistics, we found relatively little evidence of stigma attached to provision of abortion services, in contrast to previous qualitative findings among nurses in South Africa or among physicians in the US. Most midwives (81%) felt that health professionals deserved respect for provision of abortion services, and relatively few feared the condemnation of colleagues (62% did not versus 22% who did). There was also strong support for permitting midwives to provide abortion services and to participate in relevant training (83% and 89%). A slight majority (56%) felt that health professionals should be required to provide abortion services, even if this contravened their personal beliefs. While their responses did not reveal stigmatizing attitudes toward health professional provision of care, at the same time almost half of midwives (49%) expressed the contradictory view that providers should have a right to refuse to provide services, and over half (56%) felt that providers should carry their religious beliefs into their professional work. Further, fewer than half of respondents (42%) had a strong sense there would be administrative repercussions for refusal to provide abortion services (see Table 5). Finally, respondents had significant gaps in their knowledge of the law, with only 28% correctly identifying the legal eligibility criteria for abortion in case of rape – they were less informed about the law than were the Addis-Ababa-based providers (physicians, nurses and midwives) surveyed by Abdi in 2008, as shown in Tables 9 and 11.

Overall, 72% of midwives reported that they were willing, or possibly willing, to provide

[12] This may in part be due to public recognition in Ethiopia of the high incidence of rape and of forced early marriage (marriage by abduction), the latter sometimes with the acquiescence of the parents (Lexow et al., 2008).

abortion services in the facility where they worked (see Tables 1 and 2). Cross-tabulations of this outcome with demographic characteristics are found in Table 3. In the final logistic regression (Table 12), five variables are significantly associated with (potential) willingness to provide abortion services: number of years worked as a Midwife, frequency of religious attendance, serving patients from peri-urban areas, knowledge of the law on abortion, and experience with recommending medical abortion. We thus found support for three of our five hypotheses about the factors associated with willingness to provide abortion care. Midwives with more clinical experience with abortion, with better knowledge of the law, and with less frequent religious service attendance had significantly greater willingness to provide services. However, in contrast to our expectations as well as the literature, midwives with more years of work experience were less rather than more willing to provide services. We also found no significant support for the hypothesis that abortion-related stigma was linked with unwillingness to provide abortion services. Although we made no related predictions, we found that midwives caring primarily for patients from peri-urban areas (rather than rural areas) were significantly less likely to be willing to offer abortion services.

Marginal effects statistics {in Table 13 and Figures 2 & 3) help clarify these results. For midwives who have worked the average (6.8) number of years, all other factors held constant, their willingness to provide abortion services decreases by one percent for each additional year worked. With respect to religious attendance, midwives' willingness to provide increases by 14% if they are a less frequent rather than very frequent attender of religious services. Knowing one more eligibility criteria for legal abortion is associated with a 6% increase in willingness to provide services. Finally, and unsurprisingly, having ever recommended medical abortion to a patient (a proxy for clinical experience) is associated with a 16% increase in willingness to provide abortion services. Although being Muslim rather than Protestant or Ethiopian Orthodox Christian is significantly associated with being more willing to provide services, this result should be disregarded due to sample size limitations.

The finding that midwives with more work experience are less likely to be willing to provide abortion services runs counter to our prediction. We had hypothesized that those who had been midwives longer would have had more experience with the morbidity and mortality associated with unsafe abortion, and would thus be more willing to provide services. An alternative

explanation for this result is that newer midwives (those with less than seven years of work experience) have only practiced under the reformed law on abortion (post 2006), and thus may be more likely accept the law as a normal and expected part of their work environment. They have also entered the profession at a time when the government has dramatically increased its public commitment to reducing maternal mortality through reliance on midwives, after the government has instituted a national maternal mortality sentinel surveillance system, and when national midwifery curricula have heightened emphasis on maternal mortality prevention and safe abortion. Finally, new midwives, early on in establishing their professional identity, may also be more susceptible to the nation-wide public education campaigns on the maternal mortality prevention and the mission of midwifery. In addition, midwives practicing before the legal reform may have resented the additional workload created by the reform. During post-reform sensitization workshops, midwives expressed this complaint, as well as the concern that their training had not covered the necessary clinical competencies (authors' experience). Midwives starting practice after the reform of the Criminal Code on abortion are now over half of Ethiopia's midwives, as well as of the midwives in our sample, please see Table 7 for further detail.

The absence of significant support for the hypothesis that stigma attached to abortion provision affects midwives' willingness to provide care, was also unexpected, although the effect was in the predicted direction and the confidence interval was wide. Given the strong predictions from theory, empirical findings in other countries of the effects of stigma on health professionals, and the generally negative religious views on abortion in Ethiopia, it is premature to rule out the influence of stigma on care provision. Possible explanations for why we found no relationship could be that midwives feel great loyalty to their peers, and recent national campaigns have emphasized maternal mortality prevention as a core responsibility for midwives, leading midwives to view abortion services as a difficult but necessary responsibility of midwives in order to prevent maternal mortality. Further, this finding could be due to the fact that midwives working in periurban (and urban) areas have likely encountered more women (in both their professional and private capacities) who have had abortions, and are thus less affected by stigma. The particularly low total fertility rates in Ethiopia's capital and other urban areas are posited to be due to abortion, particularly among unmarried women, as well as more recently to the increasing levels of contraceptive use (Sibanda et al., 2003; Kinfu, 2000; Lindstrom and

Berhanu, 1999).

In-depth interviews and responses to the open-ended questions on the survey shed further light on the meaning of these survey results, and on the types of values, beliefs and views underlie the readiness (or lack thereof) of midwives to implement a new and socially contentious policy. Midwives had a clear sense of their profession's mission, and a deep pride and sense of fulfillment in being midwives. They showed strong professional and personal commitment to saving individual women's lives. Almost all of the interviews, and many of the open-ended responses on the survey, mentioned preventing maternal deaths as a primary, if not the primary, task for midwives. In many, particularly more affluent, countries, midwives' focus is more on a healthy birthing process, and less centrally on mortality prevention. This sense of professional mission also had a national flavor, as midwives connected their work with national development and advancing the good of the country.

> The main thing that distinguishes this department from other departments, and what I like most about it, is that Midwifery teaches you to live not only for yourself but for others, too. I have developed a strong sense that *my country needs me* … mothers need me… women need me … babies need me … so I know that I have to be responsible and get focused on helping these people who place their hope on me. The satisfaction that I get from helping mothers and babies is priceless for me. This honorable profession really makes me feel proud of myself. This is what I like about this profession. *(Male Midwifery Student, 3)*

> It is clear…. so many mothers and babies are dying every day in this country due to pregnancy related causes. As a man, *I consider myself very lucky to be able to help my country reduce the mortality rate in general; and saving as many mothers' life as I can in particular.* This profession is more than just a career and to be a midwife is a great opportunity to me. *(Male Midwifery Student 2)*

Midwives' emphasis on advancing national development through their work is in keeping with the ruling party's long emphasis on Ethiopia as a 'developmental state' that prioritizes social and economic development, particularly for rural populations (Mkandawire, 1999).

They also expressed a sense of the injustice of women (or mothers) dying in childbirth.

> Reducing the rate of maternal mortality must be the most important issue to be considered. Mothers should be helped in delivering a baby, mothers should not die while delivering a baby. The mother's life should come first ….Safe abortion for the sake of the mother's life is fair. In this regard, we midwives should play a significant role since we are aware of this bitter fact. *(Female Midwifery Student 5)*

The midwives' emphasis on professional mission, and ability to articulate it so clearly, are understandable not only because of its presence in their formal education, but also likely due to the national focus on maternal mortality prevention. Further, national ad campaigns and the goal of the midwives' professional association ("to contribute towards the reduction of maternal and child mortality and morbidity in Ethiopia"), have heightened the salience of midwives' role in maternal mortality prevention has been made acute.

In the interviews and open-ended survey question responses, midwives conveyed a firm sense that offering abortion services should not be the first line of effort. They emphasized the need for prevention education, and more extensive provision of family planning services. They also stressed the need for limitations on when abortion should be legal.

> In my opinion there must be some restrictions on abortion services because we Ethiopians are negligent. For us, (we should) instead work on family planning services more. Abortion should be legal for rape, family planning method failure and for those medically legal (indications). *(Open-ended survey question response)*

When Midwifery students discussed whether they themselves would be willing to provide abortion services, there was a range of reactions. There were some midwives who were ready and prepared to provide abortion services.

> Definitely, I am ready to offer abortion services whenever it is needed. *(Male Midwifery Student 2)*
> I will provide. If I refuse, then she will use her cultural beliefs (to induce an abortion). *(Male Midwifery Student 9)*

Others spoke of the specific conditions under which they would be willing to provide abortion services, often mentioning indications such as rape or incest, despite the prohibitions of their faith. Several spoke pragmatically of the likelihood that a woman seeking an abortion would go to obtain services from an unsafe provider if she could not get formal health services, and focused on the need to prevent maternal mortality. They described providing abortion as a necessary choice of the lesser of two evils for midwives.

> It depends on the situation. Indeed, my religion never allows me to perform the procedure. But in the cases of rape, or incest, or any other conditions that put the life of the woman in danger, I would probably perform the procedure legally. *(Female Midwifery Student 4)*

> Personally, I don't want to do abortion, but if a woman came in to me to have an abortion, according to the legal exceptions which make abortion legal, I would do it.

> Even if it is killing the baby, but she came being pregnant from her father or brother, it is hard to live with that. Even having a baby from father or brother is not legal. So, this is a sin, and performing an abortion is also a sin. But I think that when I weigh it, performing an abortion for her is I think much better for her rather than letting her live with that baby. And even if I say I will not perform an abortion, I know that this will not stop this lady from her from aborting it. She will go to other places which are not safe. *(Female Midwifery Student 10)*

Others expressed very divided feelings and internal conflict between providing a service they didn't like and saving women's lives.

> I don't think I can even if it is legal. I am not sure ….. I don't know what to do…..If the situation forced me to do…maybe I will do it to save the mother's life. Anyway, it is very hard for me. If I have the right to say "No, I don't do it", I would prefer not to do it. But if I must do it, I will do it. (*Female Midwifery Student 1)*

Several were very clear about their religious faith and its prohibition of abortion and their decision not to provide abortion services.

> Deep down in my soul there is something telling me that abortion is killing….do you understand me?…. Abortion means nothing but stopping someone's growth by killing. In my religion, the unborn baby is considered as a person starting from conception… it has a life since the fertilization of the egg. So it is a sin to take the life of the embryo. I know my religion never allows me to offer abortion services. We have been teaching in the church every Sunday that abortion is a great sin; it is horrible to see a picture of women who committed abortion. As a midwife, I just want to do other activities other than abortion.
> Q: Could you tell me what your religion is?
> A: It is Protestant…. I am Protestant. I don't believe I would have peace of mind if I performed the procedure because of my religion. (*Female Midwifery Student 1*)

However, even in the cases where midwives indicated that they would not provide services, most said that they would refer patients to colleagues who would.

Many of the midwifery students voiced their struggle over what they would personally prefer to do and what their professional training and the rules of the health system recommend or require. We hear them expressing their internal conflict over the benefits of adopting a harm reduction approach to maternal mortality from unsafe abortion by providing safe, legal abortion (what they have learned through their professional training), and their own deep-seated religious opposition to the procedure (MacCoun, 2013). In the interviews, the midwives are clearly negotiating their position and working out what they will or will not do. They recognize that government policy mandates the service, and that it can reduce maternal mortality. They grapple with whether they

will provide abortion services, and what they will do if they do not provide. Those who indicate they will not provide services do say that they will emphasize prevention and contraception and if necessary, will refer patients to other providers they know will. Their presentation of their internal struggles reveals a process of coming up with fallback positions for themselves in the context of their facility and of the national health system policy.

Limitations

There are limitations to this research. By combining survey and interview data we have tried to obtain both a broad, as well as an in-depth view of midwives' values and attitudes. However, the survey was from a purposive rather than a random sample, limiting generalizability. At the same time, comparison of the estimation sample with the 2012 Ethiopian midwives' Census suggests that results of this survey are likely biased toward more 'liberal' or expansive views on abortion and abortion service provision. Although not nationally representative, we suggest that results better reflect the perspectives of midwives who have or are likely to take on greater leadership responsibilities. Second, recall and social acceptability bias are likely to influence interview and survey responses.[13] However, this bias may be mitigated by the fact that clinical events related to abortion are less easily ignored, the survey was not administered face to face, and because findings elsewhere suggest that people tend to have opinions on abortion, and these opinions tend to be stable and not easily swayed (Jelen & Wilcox 2003; Norrander & Wilcox, 1989; Mooney et al., 1995). Another potential limitation is that our interviews were with third-year Midwifery students rather than with practicing professionals. Further, we draw on open-ended survey question responses that are from the full estimation sample. As with any survey, measurement bias is possible. Finally and most seriously, as with much non-randomized research, problems of reverse causation may be present. For example, people who are already inclined to provide abortion services might then be more motivated to learn the law's requirements, rather than the opposite relationship postulated in our model.

[13] Midwifery student interviewees are likely to be subject to social desirability bias. They likely know that the norms of their profession, as well as the perspective of their interviewer, are favorable to midwives' provision of abortion services. If this bias does exist, it can be interpreted as a sign of the strength of the awareness and/or adoption of these norms – although it is not possible here to tease apart whether they themselves have internalized these perspectives or are merely being compliant to what they are aware of as the expectation for their profession (Abrams, 1992, p.72, 1996; Tajfel, 1979). Several descriptive studies of socialization in nursing find a phenomenon of 'fitting in' (Melia, 1987; Howkins and Evans, 1999), although others refer to personal transformation (DuToit, 1995).

Conclusions and Recommendations

The rationale for this research is based in the understanding that successful policymaking takes place not only at the adoption stage, but also during implementation, in the case here with midwives who are the frontline policy implementers. Their attitudes can contribute to expanding or restricting access. We find here that a substantial majority (72%) of midwives are willing or possibly willing to provide abortion services, likely more than is the case nationally due to our more educated and male survey sample. Midwives' willingness to provide services is associated with fewer years of work as midwives; less frequent attendance at religious services; greater knowledge of the law's requirements for abortion eligibility; and past experience providing medical abortion. However, this is not an unequivocal willingness. The in-depth interviews reveal that underneath this expressed willingness are frequently struggles between midwives' self-described sense of professional duty and mission and clear knowledge of the realities of maternal mortality related to unsafe abortion, and their personal religious beliefs proscribing and stigmatizing abortion. Although we did not find a significant negative relationship between abortion-related stigma and willingness to provide services, one should not be ruled out.

While the proportion of midwives willing or possibly to provide abortion care (72%) is higher than found in many other countries, only 56% expressed certainty that they were willing to provide. Further, 26% of midwives directly stated they would not provide services, despite working in the government health facilities where legal abortion provision is the clear policy. Even if these providers are willing to refer patients seeking abortion services, women's access is compromised. In rural Health Centers, facilities that serve the overwhelming majority of Ethiopia's population, midwives are often the highest trained medical professional available. If they refuse to provide, women are deprived of access.

These findings can inform Ethiopian educators' ongoing efforts to strengthen and fully implement Midwifery education curricula at the Bachelor's, Diploma and Accelerated program levels, including equipping graduates to prevent maternal mortality through provision of legal abortion services. A substantial proportion of midwives lack knowledge of the current law and have not received clinical training on comprehensive abortion care. The association between knowledge of the law and clinical experience and increased willingness to provide abortion services, although not causal, suggests that these areas, already included in pre-service curricula

for Bachelor's, Diploma and Accelerated midwives, should be fully implemented. Clinical expertise is also obviously a prerequisite for quality service provision. Currently more midwives are providing abortion than have been trained to do so. Midwifery instructors should be equipped to provide this training. While the pre-service curriculum for midwives in Ethiopia is already quite full, competency in post-abortion and comprehensive abortion care (especially post-abortion family planning) is critical for midwives. Pre-service training is less expensive and logistically more simple than in-service training, and sets in place long-lived patterns of practice.

Findings also show that midwives have a strong commitment to the profession's mission of maternal mortality prevention, and to prevention through provision of family planning services, in large part to help women avoid unwanted pregnancies, unsafe abortions, and maternal mortality and morbidity. Family planning should continue to be an important component of midwives' pre-service training.

At a minimum, countries and national health systems embarking on similar such reforms will want to proactively address the perspective of providers on the frontlines of implementing them, and to make clear that maternal mortality prevention, including abortion provision, is central to the professional mission of midwives. At an individual level, these findings can help midwives better live up to the codes and standards of their profession that emphasize facilitating women's informed decision-making about their reproductive health and avoiding depriving women of services by refusing to provide care (*International Code Of Ethics For Midwives*, 2008).

As implementation of Ethiopia's law continues, future research should examine the incidence of refusal to provide services or referrals. Do midwives refuse to provide abortion services, and if so, how frequently and in which types of health facilities? Does the practice of midwives who are the senior medical providers at their facilities (e.g., at health centers) differ from those at larger institutions where there are other midwives and physicians? Moving forward, the resistance to service provision could decrease, as new cohorts of midwives trained and acculturated in the profession in Ethiopia's liberalized legal environment make up greater and greater proportions of the population of midwives. Midwife population. However, if contraceptive use continues to increase and maternal morbidity and mortality related to unsafe abortion decrease, as is to be fervently hope for, policy makers and administrators should be alert

to any repercussions for midwives' continued willingness to provide, as these were identified in the in-depth interviews as the central rationale for service provision,

This study suggests the utility of further comparative research on the influence of legal context on providers' willingness to provide is needed. Further, as the empirical research says little about the nature of any association between medical professionals' and students' willingness to provide abortion services and the health system structure or the legal status of abortion in the country, this is another promising area of study.[14]

[14] An exception is Weisman et al. (1986), who in the US context examined effects of health delivery setting and found that the type of medical practice was a significant predictor of whether a US obstetrician-gynecologist provided abortion services. Earlier, however, their colleagues Nathanson and Becker (1980) found that provider attitudes toward abortion were significantly linked with provision of abortion services at the facility where they work, independent of hospital size, type and community need for abortion.

Tables and Figures

Table 1: Comparison of Estimation Sample with Survey Sample

ESTIMATION SAMPLE

Variable Mean	Mean/ Proportion	Std. Dev.	Min	Max	Obs
Willingness to Provide Abortion Services			0	1	***148***
Not willing	**0.28**				
Willing or Perhaps Willing	**0.72**				
Gender			0	1	***148***
Female	**0.66**				
Male	**0.34**				
Years as a Midwife	**6.80**	5.75	0	29	***148***
Marital status					***148***
never married	**0.5**				
ever married	**0.5**				
Religious Affiliation					***148***
Ethiopian Orthodox Christian	**0.68**				
Muslim	**0.15**		0	1	
Evangelical/Protestant	**0.17**		0	1	
Frequency of attendance at religious services (high to low)	**0.50**		0	1	***148***
More than once a week	**0.50**				
Once a week or less	**0.50**				
Type of Midwife					143
Diploma Midwife	**0.57**				
BSc. Midwife	**0.43**				
Origin of patients served					***148***
rural patients	**0.41**				
urban patients	**0.45**		0	1	
periurban patients	**0.14**		0	1	
Attitudes toward when abortion should be legally available (less to more progressive)	**2.03**	1.40	0	4	***148***
Knowledge of eligibility conditions for legal abortion (less to more)	**1.13**	1.31	0	3	***148***
Clinical experience with abortion* (less to	**0.77**	0.99	0	3	***148***

FULL SAMPLE

Variable	Mean/ Proportion	Std. Dev.	Min	Max	Obs
Willingness to Provide Abortion Services			0	1	181
Not willing	**0.30**				
Willing or Perhaps Willing	**0.70**				
Gender			0	1	186
Female	**0.65**				
Male	**0.35**				
Years as a Midwife	**6.60**	6.07	0	29	185
Marital status			0	1	184
never married	**0.52**				
ever married	**0.48**				
Religious affiliation			1	3	187
Ethiopian Orthodox Christian	**0.67**				
Muslim	**0.15**				
Evangelical/Protestant	**0.18**				
Frequency of attendance at religious services (high to low)			0	1	187
More than once a week	**0.49**	0.49			
Once a week or less	**0.51**	0.51			
Type of Midwife					173
Diploma Midwife	**0.54**				
BSc. Midwife	**0.46**				
Origin of patients served			1	3	164
rural patients	**0.40**	0.4			
urban patients	**0.46**	0.46			
periurban patients	**0.14**	0.14			
Attitudes toward when abortion should be legally available (less to more progressive)	**1.97**	1.39	0	4	188
Knowledge of eligibility conditions for legal abortion (less to more)	**1.16**	1.29	0	3	188
Clinical experience with abortion (less to	**0.70**	0.96	0	3	188

more)					
Whether ever recommended medical abortion			0	1	***148***
No	**0.37**				
Yes	**0.63**				
Perception that colleagues will not respect one if offers abortion services (stigma)			0	1	148
No	**0.63**				
Yes	**0.37**				
Variables not in logit models					
Age	**29**	7.24	19	58	137
Years in current job	**5.47**	5.52	0	36	145
Facility type			0	1	146
Health Center	**0.40**				
Hospital, Clinic or other	**0.60**				
Attitudes toward abortion (less to more expansive)	**14.00**	3.58	3	21	148

more)					
Whether ever recommended medical abortion			0	1	184
No	**0.42**				
Yes	**0.58**				
Perception that colleagues will not respect one if offers abortion services (stigma)			0	1	188
No	**0.63**	0.37			
Yes	**0.37**				
Variables not in logit models					
Age	**29.14**	7.98	19	58	175
Years in current job	**5.13**	5.41	0	36	183
Facility type			0	1	183
Health Center	**0.38**				
Hospital, Clinic or other	**0.62**				
Attitudes toward abortion (less to more expansive)	**13.74**	3.76	2	21	188

**Statistically different from the full sample at p < .05.*

Table 2: Candidate Outcome Variables from the EMA 2013 Survey

(in order of appearance on survey)

	Full Sample			*Est. Sample*	
	freq	**%**		**freq**	**%**
Health care providers should never provide abortion services.					
Disagree Strongly	21	11%		12	8%
Disagree	12	6%	18%	10	7%
Unsure	19	10%		15	10%
Agree	61	33%		48	33%
Agree Strongly	74	40%	72%	62	42%
	187			**147**	
I will provide abortion services during my career.					
Disagree Strongly	48	26%		37	25%
Disagree	52	28%		38	26%
Unsure	23	12%		21	14%
Agree	39	21%		34	23%
Agree Strongly	26	14%		18	12%
	188			**148**	
Are you willing to provide pregnancy terminations (legal abortion services)?					
Yes	75	41%		63	43%
No	56	30%		41	28%
Maybe	40	22%		32	22%
Am not allowed	13	7%		10	7%
	184			**146**	
Would you be willing to provide abortion services in the facility where you work?					
Yes	96	53%		82	55%
No	51	28%		39	26%
Maybe	30	17%		24	16%
Am not allowed	4	2%		3	2%
	181			**148**	

Collapsed versions of last two variables:

Are you willing to provide pregnancy terminations (legal abortion services)?				
Not willing	69	*38%*	51	*35%*
Willing or possibly willing	115	*63%*	95	*65%*
	184		**146**	
Would you be willing to provide abortion services in the facility where you work?				
Not willing	55	30%	42	28%
Willing or possibly willing	126	70%	106	72%
	181		148	

Using a Chi Square goodness of fit test for these variables, there were no statistically significant differences between the estimation and full samples. Each of the individual variables were significantly different from each other.

Table 3: Demographic characteristics by willingness to provide abortion services

CHARACTERISTICS	WILLINGNESS TO PROVIDE No	(%)	Yes	(%)	Total
Gender					148
Female	33	34%	65	**66%**	66%
Male	9	18%	41	**82%**	34%
	28%		72%		
Marital status					145
Never married	18	25%	54	**75%**	50%
ever married	22	30%	51	**70%**	50%
	28%		72%		
Religious Affiliation					148
Ethiopian Orthodox Christian	28	28%	73	**72%**	**68%**
Muslim	2	9%	20	**91%**	**15%**
Evangelical/Protestant	12	48%	13	**52%**	**17%**
	28%		72%		
Frequency of attendance at religious services (high to low)					148
More than once a week	27	36%	47	**64%**	50%
Once a week or less	15	20%	59	**80%**	50%
	28%		72%		
Type of Midwife					148
Diploma Midwife	22	26%	63	**74%**	57%
BSc. Midwife	20	32%	43	**68%**	43%
	28%		72%		
Origin of patients served					148
rural patients	12	20%	48	**80%**	41%
urban patients	19	28%	48	**72%**	45%
periurban patients	11	52%	10	**48%**	14%
	28%		72%		
Facility type					146
Health Center	12	20%	47	**80%**	40%
Hospital, Clinic or other	28	32%	59	**68%**	60%
	27%		73%		
Ever recommend medical abortion					148
No	21	24%	34	**76%**	63%
Yes	21	36%	72	**64%**	37%
	28%		72%		
Believe colleagues look down on those who offer abortion services					148
No	22	24%	71	**76%**	*63%*
Yes	20	36%	35	**64%**	*37%*
	28%		*72%*		

Table 4: Attitudes on abortion prevalence, impacts and conditions for eligibility

	Disagree Strongly	Disagree	Unsure	Agree	Agree Strongly	Total
Unsafe abortion is a big problem in Ethiopia.	2	1	5	32	108	*148*
	1%	*1%*	*3%*	*22%*	*73%*	
If there is not legal safe abortion, too many women will die of unsafe self-induced abortions.	8	5	8	41	86	*148*
	5%	*3%*	*5%*	*28%*	*58%*	
Abortion services should be legally available for women when contraception didn't work or wasn't used properly.	26	32	12	44	33	*147*
	18%	*22%*	*8%*	*30%*	*22%*	
A woman has the right to terminate her pregnancy if she wishes.	37	25	14	34	38	*148*
	25%	*17%*	*9%*	*23%*	*26%*	
Abortion should be legally available in Ethiopia for any woman who needs the procedure.	36	34	9	31	38	*148*
	24%	*23%*	*6%*	*21%*	*26%*	
Social and economic problems are good enough reasons for requesting an abortion.	22	27	15	43	40	*148*
	15%	*18%*	*10%*	*29%*	*27%*	
If an adolescent comes for an abortion alone, I would ask them to go home and return with a parent.	47	46	15	25	15	*148*
	32%	*31%*	*10%*	*17%*	*10%*	
A woman should not be allowed to have an abortion unless the father of the baby gives his consent.	52	46	18	14	18	*148*
	35%	*31%*	*12%*	*9%*	*12%*	

Table 5: Attitudes on abortion service provision and provider responsibilities

Attitudes on Abortion Service Provision	Disagree Strongly	Disagree	Unsure	Agree	Agree Strongly	Total
Health professionals who provide abortion services deserve respect for the work that they do.	10	9	9	43	74	*145*
	7%	6%	6%	30%	51%	
My health care provider colleagues would not respect me if I provided abortion services.	41	52	22	14	19	*148*
	28%	35%	15%	9%	13%	
Health care providers should try hard to carry their religious beliefs into their professional life and behavior.	15	29	18	50	31	*143*
	10%	20%	13%	35%	22%	
Health care providers should be entitled to refuse to provide any procedure for which they have a moral or religious disagreement.	20	31	23	37	34	*145*
	14%	21%	16%	26%	23%	
Midwives and doctors should be required to provide abortion services to women even if it goes against their personal beliefs.	23	38	9	41	36	*150*
	15%	25%	6%	27%	24%	
There are serious consequences for Ethiopian health care providers who do not provide abortion services according to government health system regulations and protocols.	22	28	35	37	24	*146*
	15%	19%	24%	25%	16%	
Midwives should be allowed to provide surgical abortion services (*using manual vacuum aspiration or MVA to evacuate the uterus*) in the first trimester.	10	8	6	53	71	*148*
	7%	5%	4%	36%	48%	
Midwives should be trained to offer abortion services in the first trimester.	8	5	3	56	74	*146*
	5%	3%	2%	38%	51%	
Health Extension Workers should be allowed to provide medical abortion services.	70	48	6	17	6	*147*
	48%	33%	4%	12%	4%	

Table 6 **Midwives' Clinical Experience with Abortion**

Have you ever talked with colleagues about unsafe abortion?			
	Yes	123	87%
	No	18	13%
	Total	*141*	
Have you ever had a patient with an unplanned pregnancy			
	Yes	115	79%
	No	31	21%
	Total	146	
In the public health facility where you work, has anyone ever asked you for information about how to terminate an unwanted pregnancy or about abortion services?			
	Yes	103	72%
	No	40	28%
	Total	*143*	
Have you ever encountered a patient with an incomplete abortion?			
	Yes	132	91%
	No	13	9%
	Total	*145*	
Have you ever had a patient who has died due to an unsafe abortion?			
	Yes	68	46%
	No	80	54%
	Total	*148*	
Have you ever recommended medication to legally terminate an unwanted pregnancy (provide legal abortion services)?			
	Yes	93	63%
	No	55	37%
	Total	*148*	
Have you ever had training on first trimester abortion?			
	Yes	73	49%
	No	75	51%
	Total	148	
Would you be interested in participating in a training event on comprehensive abortion care services in the near future?			
	Yes	114	78%
	No	32	22%
	Total	146	
Would you be willing to teach about abortion?			
	Yes	112	77%
	No	34	23%
	Total	146	

(A chi-square goodness of fit test revealed no significant differences between variables in the estimation and full samples.)

Table 7 Clinical experience of midwives trained before and after the reform

		Trained pre-reform	Trained post-reform	n
Are you willing to provide abortion services in the facility where you work?				148
	Yes	66%	81%	
	No	34%	19%	
Have you ever talked with colleagues about unsafe abortion?				141
	Yes	90%	83%	
	No	10%	17%	
Have you ever had a patient with an unplanned pregnancy?				146
	Yes	79%	79%	
	No	21%	21%	
In the public health facility where you work, has anyone ever asked you for information about how to terminate an unwanted pregnancy or about abortion services?				143
	Yes	77%	63%	
	No	23%	37%	
Have you ever encountered a patient with an incomplete abortion?				145
	Yes	91%	91%	
	No	9%	9%	
Have you ever had a patient who has died due to an unsafe abortion?				148
	Yes	45%	47%	
	No	55%	53%	
Have you ever recommended medication to legally terminate an unwanted pregnancy (provide legal abortion services)?				148
	Yes	66%	57%	
	No	34%	43%	
Have you ever had clinical training on first trimester abortion?				148
	Yes	54%	42%	
	No	46%	58%	
Would you be interested in participating in a training event on comprehensive abortion care services in the near future?				146
	Yes	72%	88%	
	No	28%	12%	
Would you be willing to teach about abortion?				146
	Yes	80%	75%	
	No	20%	25%	
Perception that colleagues will not respect one if offers abortion services.				148
	Yes	57%	66%	
	No	43%	34%	

**Statistically different willingness to provide among midwives (those whose entire training occurred AFTER the 2005 reform (after 2007) versus those trained previously).*

Table 8: Clinical experience with abortion by willingness to provide abortion services

CLINICAL EXPERIENCE		WILLINGNESS TO PROVIDE No	(%)	Yes	(%)	Total
Have talked with colleague about abortion						141
	No	6	4%	12	9%	*13%*
	Yes	31	22%	92	65%	*85%*
Have had a patient with an unplanned pregnancy						146
	No	11	8%	20	14%	*21%*
	Yes	30	21%	85	58%	*77%*
Have had a patient request an abortion						143
	No	12	8%	28	20%	*28%*
	Yes	27	19%	76	53%	*72%*
Have had a patient with an incomplete abortion						145
	No	3	2%	10	7%	*9%*
	Yes	37	26%	95	66%	*91%*
Have had a patient die from an unsafe abortion						148
	No	25	17%	55	37%	*54%*
	Yes	17	11%	51	34%	*46%*
Have had 1st trimester abortion training						148
	No	21	14%	54	36%	*51%*
	Yes	21	14%	52	35%	*49%*
Have recommended medical abortion						148
	No	21	14%	34	23%	*37%*
	Yes	21	14%	72	49%	*63%*
Willing to participate in training						146
	No	21	14%	11	8%	*22%*
	Yes	21	14%	93	64%	*78%*

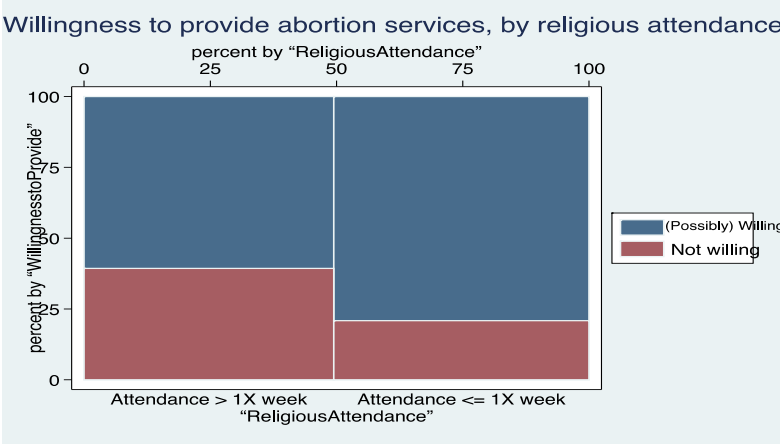
(A chi-square goodness of fit test revealed no significant differences between variables in the estimation and full samples.)

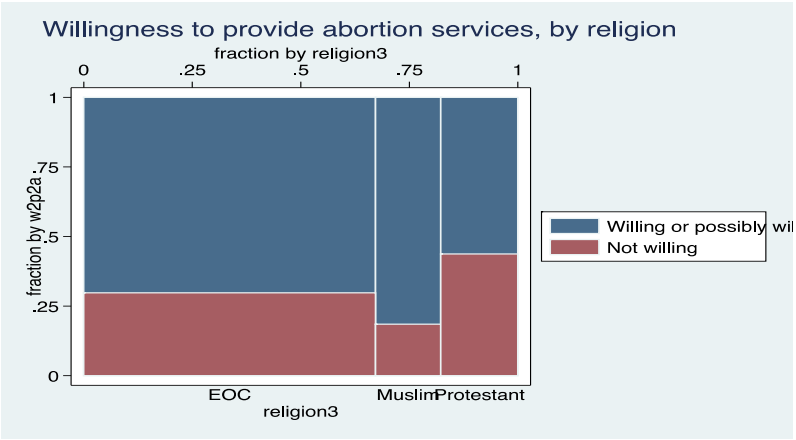
Table 8 **Knowledge of the law (evidence required for legal abortion)**

	#	(%)	Cum %	Total
Knowledge of Evidence Required for Abortion Eligibility (index)				148
know 0/3	75	51%	51%	
know 1/3	21	14%	65%	
know 2/3	10	7%	72%	
know 3/3	42	28%	100%	

	Correct	(%)	Incorrect	148
Knowledge of Evidence Required for Eligibility for Legal Abortion				
Women's Testimony Only	94	64%	54	36%
Testimony of 3 Witnesses *(not required)*	66	45%	84	57%
Police Evidence *(not required)*	56	38%	92	62%
Physician Assessment *(not required)*	45	30%	105	71%

Figure 1 **Willingness to provide abortion services by religious affiliation and religious attendance**





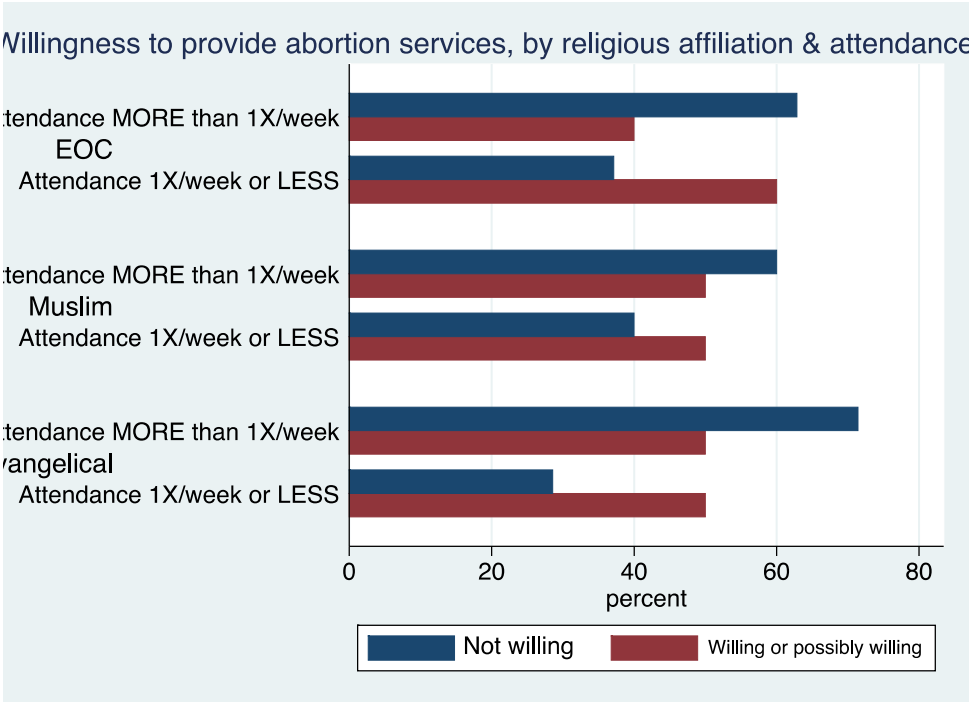


Table 9 **Contrasting Midwife demographic characteristics from 2012 National Census and 2012 EMA Survey**

	2012 Midwife Census		EMA 2013 Survey	
VARIABLE	**freq**	**percent**	**freq**	**percent**
Gender				
Female	3662	*78%*	98	*66%*
Male	1063	*22%*	50	*34%*
Total	4725		**148**	
Category of Midwife (2)				
Diploma Midwife	4300	*91%*	85	*57%*
Bachelor's Midwife	425	*9%*	63	*43%*
Total	4725	*100*	**148**	100
Facility location of respondent (2)				
Health Center	677	55%	59	*40%*
Hospital (or urban clinic)	543	45%	87	*60%*
Total	**1220**		**146**	
Region of Workplace				
Tigray	364	*8%*	11	*8%*
Afar	53	*1%*	3	*2%*
Amhara	802	*17%*	18	*13%*
Oromia	1649	*35%*	20	*14%*
Somali	371	*8%*	7	*5%*
B-Gumuz	79	*2%*	1	*1%*
SNNPR	770	*16%*	19	*14%*
Gambella	83	*2%*	2	*1%*
Harari	167	*4%*	2	*1%*
Addis Ababa	387	*8%*	55	*40%*
Total	**4725**		**138**	

Table 10 Contrasting abortion attitude data from 2000, 2008, 2013*

	ESOG (2000)	Abdi[@] (2008)	EMA (2013)
	Percent Agreeing		
Abortion related mortality and morbidity is a significant public health problem	98%	97%	95%
Access to safe abortion would reduce maternal death/If abortion is illegal, women will die of unsafe abortions	-	82%	86%
Support liberalization of the law to accommodate termination of pregnancy on certain conditions			
Obgyns	89%	-	-
nurses (including midwives)	79%	-	-
Pre-2005 law is too restrictive			
Obgyns	80%	-	-
nurses (including midwives)	44%	-	-
Abortion should be legally permitted for economic reasons			
Obgyns	78	-	-
nurses (including midwives)	51	-	56%
Abortion should be legally permitted to prevent interruption of schooling			
Obgyns	77	-	-
nurses (including midwives)	44%	-	-
A woman has the right to terminate her pregnancy if she wishes.	-	41%	49%
Midlevel providers are able to provide surgical abortions/ midwives should be allowed to provide surgical abortion services in the first trimester	-	30%	84%
Ever had abortion training?/Ever had training in first trimester abortion	-	29%	49%
Ever terminated a pregnancy?/Ever recommended medical abortion	-	30%	63%
Willing to provide MVA abortion/Definitely willing to provide abortion	-	37%	55%
Views self as familiar with the law/(very or somewhat)	-	68%	80%
Correctly understand that only the woman's word is required	-	67%	64%
Mistakenly understand that police evidence is required	-	13%	47%
Mistakenly understand that evidence from 3 witnesses is required	-	18%	39%
Feel comfortable working in a site abortion is performed	-	18%	-
Termination of unwanted pregnancy is a sinful act	-	61%	

**2000 data is nationally representative; 2008 data is from facilities in Addis. Unless otherwise noted, Abdi's (2008) respondents are of <u>all</u> provider types.*

Table 11 **Logistic Regression Models** (odds ratios)

[Possible] Willingness to Provide Abortion Services

	Model 1	Model 2	Full Model
Gender (base is female)	2.193*	2.251	1.86
	(0.993)	(1.171)	(1.066)
Years as a Midwife	0.951*	0.973	0.927*
	(0.028)	(0.036)	(0.038)
Religion (base is Ethiopian Orthodox)			
Muslim	1.299	3.504	4.623*
	(0.785)	(2.991)	(3.764)
Protestant/Evangelical	0.539	0.515	0.708
	(0.229)	(0.262)	(0.347)
Religious attendance (base is more than 1X/week)	2.422**	2.171*	2.491*
	(0.884)	(0.885)	(1.197)
Type of Midwife (base is Diploma Midwife)	0.682	0.939	1.329
	(0.254)	(0.399)	(0.681)
Patient origin (base is rural)			
Patients from urban areas		0.814	1.087
		(0.362)	(0.570)
Patients from peri-urban areas		0.300**	0.349*
		(0.181)	(0.211)
Attitudes on conditions when abortion should be legal (less to more expansive)			1.336
			(0.238)
Knowledge of law on abortion			1.443**
			(0.235)
Clinical experience with abortion			1.077
			(0.208)
Ever having recommended medical abortion			2.694**
			(1.244)
Perception that colleagues will not respect one if offers abortion services (stigma)			0.716
			(0.310)
Constant	2.245*	2.373*	0.524
	(1.001)	(1.239)	(0.417)
Observations	168	149	148
log likelihood	-93.61	-76.9	-69.07
df_m	6	8	13
chi2	17.17	17.76	34.69

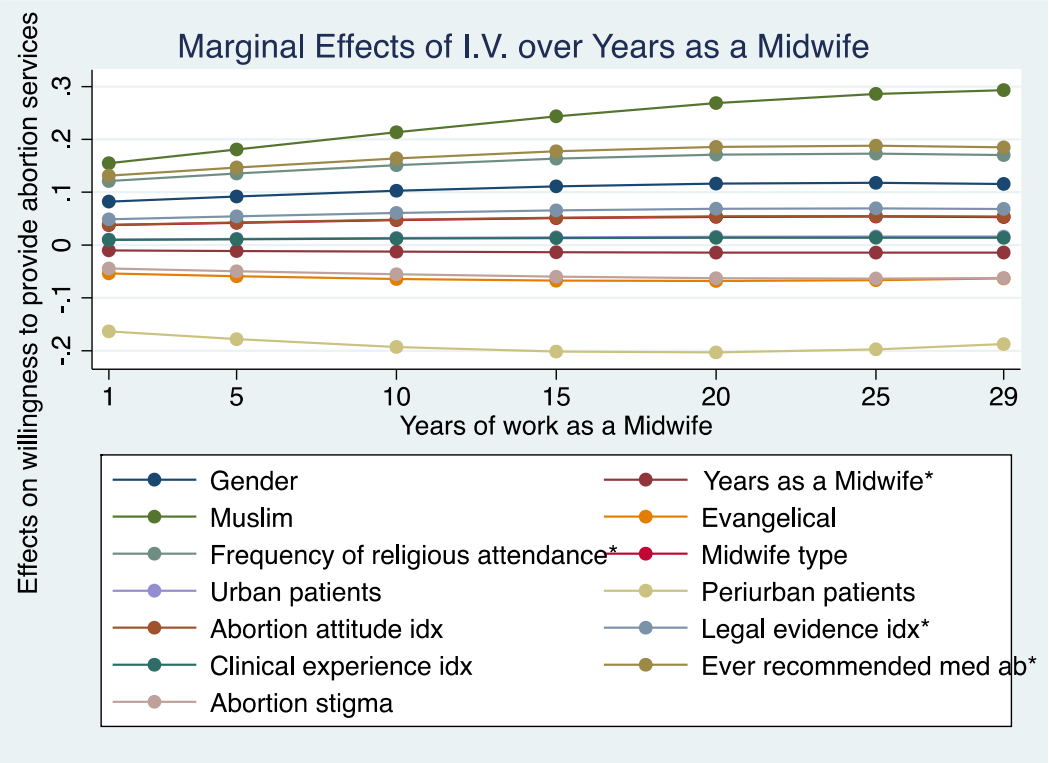
*** p<0.01, ** p<0.05, * p<0.1

Table 12 **Marginal Effects/adjusted percentages** *(with years as a Midwife at mean)*

	dy/dx	Std. Err.	P>z	[95% C.I.]	
Gender (base is female)	0.096	0.086	0.263	-0.072	0.263
Years as a Midwife	-0.012	0.006	0.065	-0.024	0.001
Religion (base is Ethiopian Orthodox)					
Muslim	0.192	0.080	0.017	0.035	0.349
Evangelical	-0.061	0.088	0.49	-0.234	0.112
Religious attendance (base > 1X/wk)	0.141	0.068	0.038	0.008	0.274
Type of Midwife	0.044	0.078	0.575	-0.110	0.198
Patient origin (base is rural)					
Patients from urban areas	0.012	0.078	0.874	-0.141	0.165
Patients from peri-urban areas	-0.184	0.106	0.083	-0.391	0.024
Attitudes on conditions when abortion should be legal	0.045	0.026	0.082	-0.006	0.095
Knowledge of law on abortion	0.057	0.026	0.032	0.005	0.108
Clinical experience with abortion	0.011	0.030	0.705	-0.048	0.070
Ever having recommended medical abortion	0.153	0.067	0.022	0.022	0.284
Perception that colleagues will not respect a provider offering abortion services (stigma)	-0.052	0.066	0.437	-0.181	0.078

Note: dy/dx for factor levels is the discrete change from the base level.

Figure 2 **Marginal Effects, all variables**



**Variables marked with asterisks are significant.*

Figure 3 **Marginal Effects, significant variables (with confidence intervals)**

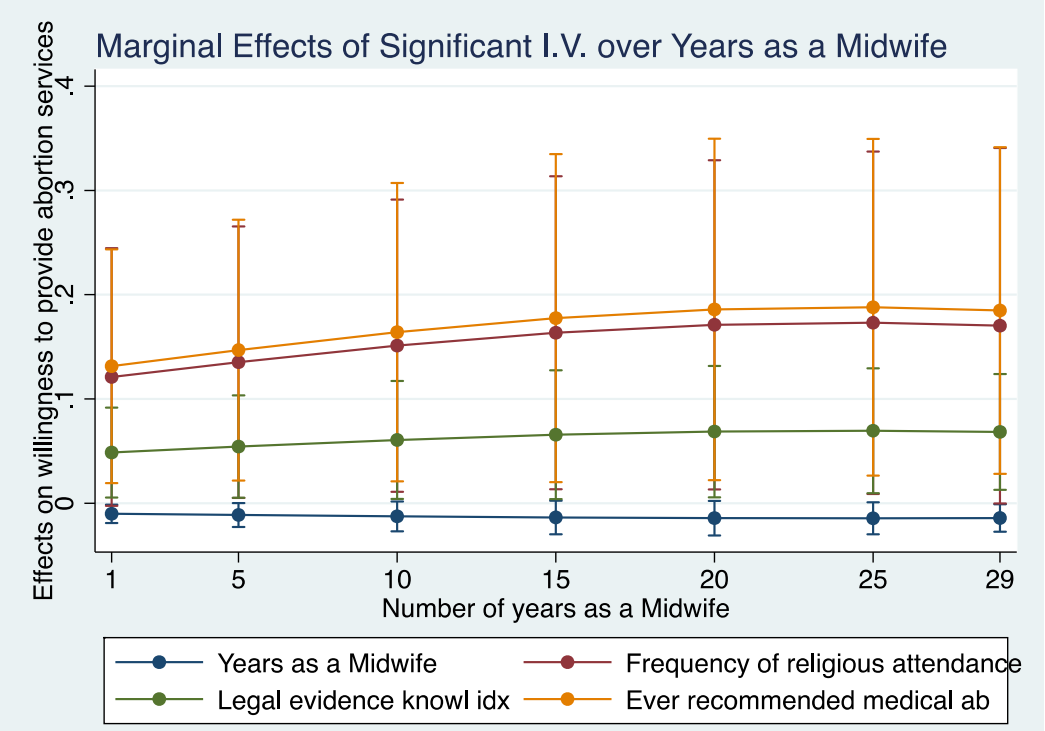


Table 14: Medical professionals' intent to provide or actual provision of abortion services

Authors	Study site	Provider type	Intend to provide/Willing to provide	Actual provision	Sample
Less legally restrictive settings (lower income countries)					
Abdi, 2008	Addis Ababa, Ethiopia	Physicians, midwives & nurses (54%), others	**37%**	**30%**	n=419 providers; 33 health facilities in Addis; rr=97%
Aboagye et al., 2007	Ghana	All providers	**43%** (if receive training)	**15%**	n=513; from health facilities in 10 most populous districts; rr between 80 and 85%
Creanga et al., 2008	Bihar and Jharkhand, India	Western and traditional physicians; trained midwives; pharmacy workers	**24%** (intent to provide medical abortion)	**8%** (performing or assisting with provision of induced abortions)	n=2039, rr=92%; representative sample of providers at all health facilities in 2 states (public & private)
Dayananda et al., 2011	D.F., Mexico	Obstetrician-gynecologists, physicians	-	**21%**	n=418 (376 obgyns); rr=21%
Miya, 2008	South Africa	Midwives	**>50%** for S-E reasons	-	n=19, Lower Mfolozi
Patel et al., 2009	Bihar and Jharkhand, India	Auxiliary nurse midwives (ANMs), lady health visitors (LHVs), male health workers (MHWs), nurses and paramedics		**55%** (provision or help with provision); **12%** (medical abortion)	n=263 public sector; rr=84%
Wheeler et al., 2012	South Africa	Medical students	**23%**		n=1308, 2 medical schools
More legally restrictive settings (lower income countries)					
Aguirre and Billings, 2001	Mexico City	Obstetrician-gynecologist residents	**5%** would perform; **28%** refer		n=121; no response rate
Etuk et al., 2003	Calabar, Nigeria	Physicians (private)	-	**23%**	n=48; rr=79%
Faundes et al., 2004	Brazil	Obstetrician-Gynecologists	-	**36%**	n=4261, rr=30%; nationally representative sample
Fletcher et al., 2011	Kingston, Jamaica	Physicians and obgyns	-	**51%** (GPs) **71%** (obgyns)	35 of 52 practicing obgyns; 228 physicians; rr=93%
Kamanga, 2012	Lusaka, Zambia	Midwives (33%), physicians	-	**3%**	n=141, rr= 68% (5 clinics)

Okonofua et al., 2005	Nigeria (3 states: Edo, Delta, Kaduna)	Private sector physicians	-	**25%** routinely; **45%** have used MVA	n=323, private sector; rr=90%
Okonofua et al., 2011	Nigeria (5 northern states)	Private sector physicians	-	**22%**	n=122, private sector; rr= 87%
More affluent countries (less legally restrictive)					
Fischer et al., 2005	Philadelphia, U.S.	Obstetrician-Gynecologist residents	**82%** for a lethal anomaly; **41%** for an elective 1 tri ab	-	n=148; rr=48%
Francome, 1997	Ireland*	General practitioners	**87%** referred	potentially **4%** provided	n=154 physicians; rr=84%
Hammarstedt et al, 2006	Sweden	Obstetrician-Gynecologists	-	**79%**	nationally representative sample of 228 obgyns (85% RR)
Hammarstedt et al., 2005	Sweden	Obgyns and midwives	-	**76%** (midwives); **79%** (all) (in past year)	n=216 midwives n=228 gynecologists rr=84%; nationally representative sample
Hwang et al., 2005	California	Midwives	-	**10% (**midwives assisting with MA)	n=1176; n=72 MW. RR = 49%
Lindstrom et al., 2007	Sweden	Midwives	-	**65%**	n=216, rr=84%
McKee and Adams, 1991	U.S.	Nurse Midwives	**24%** would incorporate into practice; **19%** would provide	**-**	n=1208, rr=71% (ACNM)
Miller et al., 1998	U.S.	Physicians	**42%** (medical abortion)	**2%**	n=668; rr=71% (SAM)
Rosenblatt et al., 1999	Washington state, U.S.	Medical students	**27%** (1 tri, most circumstances)	**-**	n=219, rr=77%
Rosenblatt et al., 1995	Idaho, U.S.	Physicians	**26%** (interest in offering MA)	**4%**	n=138, rr=65% (all physicians in Idaho)
Seelig et al., 2006	U.S.	Physicians and obgyns	**23%** (interest in offering MA)	**5%** (MA)	n=790; nationally representative: rr=58% (physicians), rr=61% (obgyns), rr=53% (PCPs)
Steinauer et al., 2008	U.S.	Obstetrician-Gynecologists	-	**22%**	n=2419, rr=43%; nationally representative of obgyns

Shotorbani et al., 2010	Washington state, US	Nurse practitioners & nurse midwives	**48%** intend to provide MA; **45%** will offer 1 tri regardless of woman's rationale	-	n=29; rr=86% (1 medical school)

**Ireland is a more legally restrictive setting.*

APPENDIX A

Interview Guide Questions 5/24/2013

Hi, my name is ___, and I am doing a research project with Dr. Amsale, Sister Aster Berhe and Sarah Jane Holcombe on the knowledge, attitudes and experience of Midwives in Ethiopia with regard to abortion and provision of abortion services. As you know, there are high levels of maternal mortality in Ethiopia, and unsafe abortion is one of the top three causes of maternal mortality in the country. We are interested in the views of Midwives, because Midwives are on the front lines of preventing maternal mortality. Would you be willing to participate and to mark this consent form?

Before we start, I want to emphasize that your name and all the answers that you give during this interview will be kept strictly confidential. No-one other than me will hear your name, and I am not writing it down. With your permission, I will be recording the interview. If at any time you wish me to stop recording, I will do so. I assume that your answers will be based on your experience as a Midwifery student and as an Ethiopian. There are no wrong answers to the questions I am about to ask you - we are looking for your ideas and perspectives. I want most of all to learn about what you think about the questions.

Thank you for taking the time to participate in this interview and to share your knowledge, opinions and ideas!

Background

1. Could you start off by telling me a little about you and your background (where you are from), and how you came to study to be a midwife?
    - *[What do you like about the midwifery profession?]*

Maternal mortality in Ethiopia and health services

2. From your understanding, what are the causes of maternal mortality in Ethiopia?
    - In either your clinical training or your experience in life, have you ever come across or heard of a patient who died of maternal mortality related causes?
    - In either your clinical training or your experience in life, have you ever come across or heard of a patient who had an unsafe abortion? Who died from an unsafe abortion? *[If yes, can you tell me about what happened? Why you think it happened?]*
    - *[If you answered yes to either of the above questions, has this experience affected you in deciding what types of health services you will provide?]*
3. What do you think Midwives can do to prevent maternal mortality, especially maternal mortality due to unsafe abortion?

4. Do you know of any healthcare providers (midwives, MDs, nurses) who offer abortion services?
    - If yes, why do you think they do this? *[What are your feelings about this?]* What do you think other medical professionals think of medical professionals who offer abortion services? Why?
5. What are the duties (professional responsibilities) of Midwives with respect to abortion services? **Do you think that you would ever offer abortion services?** *[If no, can you think of any case where you might be willing to provide abortion services?]*
    - Could you tell me about why you would or would not?
6. **For you, what is the most important issue to consider with respect to Midwives providing abortion services?**
7. Do you have any other comments?

Thank you for sharing your opinions and ideas!

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