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To cite this article: Yohannes Dibaba Wado, Sally Dijkerman, Tamara Fetters, Dereje Wondimu & Demeke Desta (2017): The effects of a community-based intervention on women's knowledge and attitudes about safe abortion in intervention and comparison towns in Oromia, Ethiopia, *Women & Health*, DOI: [10.1080/03630242.2017.1377799](https://doi.org/10.1080/03630242.2017.1377799)

To link to this article: <https://doi.org/10.1080/03630242.2017.1377799>



Accepted author version posted online: 07 Nov 2017.
Published online: 19 Dec 2017.



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The effects of a community-based intervention on women's knowledge and attitudes about safe abortion in intervention and comparison towns in Oromia, Ethiopia

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ABSTRACT

The aim of this post-intervention assessment was to measure the effects of community intervention on the knowledge and attitudes of women regarding safe abortion in Ethiopia. In 2014, following implementation of an educational intervention on sexual and reproductive health from December 2012 to December 2013, 800 women were interviewed about their knowledge, attitudes, and practices regarding abortion. Multivariate regression analyses of respondents' demographics, sources of abortion information, knowledge, and attitudes about safe abortion were conducted. More women in the intervention community knew safe abortion was available in the community (76 percent vs. 57 percent; $p < 0.001$). Women in the intervention community had greater odds of feeling that women should have access to safe abortion services (adjusted odds ratio [aOR]: 1.55, 95 percent confidence interval [CI]: 1.06, 2.28) after adjusting for socio-demographic characteristics. They had significantly greater odds of feeling comfortable and confident talking to a healthcare provider (aOR: 2.44, 95 percent CI: 1.55, 3.84) and/or her partner (aOR: 2.47, 95 percent CI: 1.58, 3.85) about abortion. Increased mobilization of community networks in disseminating sexual health and abortion information was followed by increased knowledge of abortion services in the intervention community and improved reproductive choices for women.

ARTICLE HISTORY

Received 26 September 2016
Revised 9 August 2017
Accepted 9 August 2017

KEYWORDS

Abortion; stigma;
community; intervention;
Ethiopia; contraception

Background

Unsafe abortion remains one of the major causes of maternal death in developing countries (Grimes et al. 2006; WHO, 2011). According to the World Health Organization (WHO, 2011), approximately 21.6 million abortions were performed unsafely every year, contributing to close to 13 percent of the global burden of maternal mortality in developing countries. An estimated 47,000 of these maternal deaths were due to unsafe abortion, 99 percent of which occurred in developing countries (WHO, 2011). In

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addition, a substantial proportion of women who survive unsafe abortions experience complications, such as infertility, chronic pelvic pain or reproductive tract infections (Grimes et al. 2006). In Ethiopia, where the ratio of maternal deaths is one of the highest in the world (412 deaths per 100,000 live births in 2016) (CSA & ICF 2016), unsafe abortion accounts for a substantial, albeit declining, proportion of maternal deaths (Abdela, 2010; Berhan and Berhan 2014).

To reduce maternal mortality and morbidity from unsafe abortion, and cognizant of the extent of unsafe abortion in Ethiopia, the Ethiopian government revised the penal code in 2005 to allow safe abortion under a number of conditions. This law includes exceptions that permit legal abortion: in cases of rape, incest, or fetal impairment; if pregnancy continuation or birth would endanger the health or life of the woman or fetus; if the woman has physical or mental disabilities; or if the woman is a minor (under age 18 years) who is physically or mentally unprepared for childbirth (MOH 2006). Since the revision of the law, the Federal Ministry of Health (FMOH) and its partners in reproductive health have worked to expand access to comprehensive abortion care in Ethiopia. To ensure that safe legal abortions are provided, the Ministry of Health produced technical and procedural guidelines to be applied in public and private health facilities that fulfill some of the standards. Based on the guidelines, health provider training on comprehensive abortion care (CAC) and fulfillment of the necessary equipment and supplies have been conducted. Ethiopia has also made significant progress in expanding access to family planning services. The prevalence of use of modern contraceptives increased from a mere 6 percent in 2000 to 35 percent in 2016 (CSA & ICF 2016).

Despite changes in the penal code and a strong commitment to expanding access to comprehensive abortion care, results of surveys conducted on issues related to abortion and unwanted pregnancy in Ethiopia suggest that unwanted pregnancy and unsafe abortion remain among the main causes of maternal mortality in the country. Due to the existing high unmet need for family planning, close to one-third of pregnancies in Ethiopia are reported as unwanted or mistimed (CSA & ICF 2012). One study conducted in 2014 estimated that 13 percent of pregnancies to Ethiopian women ended in abortion, and 53 percent of these abortions were performed safely in a health facility (Moore et al. 2016).

The death and disability of women due to abortion-related causes is unacceptable because most of the causes are preventable. In most developing countries, restrictive laws and policies and poor access to quality reproductive health care force women to resort to unsafe abortions (Singh 2006). Moreover, multiple social and cultural factors influence women's abortion decision-making and healthcare-seeking behaviors. Results of studies from Ethiopia and other developing countries (India, Ghana, South Africa, Cambodia) have indicated that inadequate information about the abortion

law, lack of trained abortion providers, negative cultural and religious attitudes, and poor health infrastructure for the treatment of abortion-related complications prevent women from getting the care they want or need (Aniteye and Mayhew 2011; Banerjee et al. 2013; Ashford, Sedgh, and Singh 2012; Bleek 1981).

Abortion stigma also creates a situation that perpetuates the practice of unsafe abortion. Socially, pregnancy outside of marriage and abortions are both highly stigmatized (Bleek 1981; Shellenberg, Hessini, and Levandowski 2014; Webster 2013). Premarital sex and pregnancy are highly stigmatized in Ethiopia, leading to challenging moral dilemmas and decision-making when unplanned pregnancy occurs as a result of premarital sex (Kebede, Hilden, and Middlethorpe 2012). As a result, some women pay with their lives, choosing to terminate the pregnancy unsafely, even though they may have the right to a legal abortion under the Ethiopian Penal Code (MOH 2006). Some women seeking abortion go to great lengths to keep their abortions and their pregnancies secret because of this stigma.

Since the revision of the penal code, dissemination of information about the new abortion law and availability of safe abortion services at public and private health facilities has been low. This lack of information diffusion has contributed to the continued practice of unsafe abortion under clandestine situations. A 2011 study of female students at Wolaita Sodo University in Ethiopia found that knowledge of legal and safe abortion services was very poor, contributing to an abortion rate three times higher than the national abortion rate, with half of abortions taking place under unsafe circumstances (Gelaye, Taye, and Mekonen 2014). Although knowledge about the availability of legal safe abortion services is crucial in improving access to safe abortion services, little is known about the efficacy of community interventions at increasing knowledge and uptake of safe abortion and contraceptive services in Ethiopian communities; even less is known about communities' attitudes about these services.

Evaluations of interventions in Nigeria, Kenya, Nepal, Malawi, India, and Bangladesh have shown that participatory community mobilization is a cost-effective strategy, proven effective in disseminating important health information and increasing uptake of health services in a community, particularly in low resource and low literacy settings (Prata et al. 2012; Prost et al. 2013; Undie et al. 2014; Quayum et al. 2013). In Nigeria, an intervention using traditional birth attendants and community-oriented resource persons to disseminate information on the use of misoprostol for post-partum hemorrhage showed that community mobilization, particularly interpersonal communication, can have significant impact on the successful distribution and uptake of a health intervention (Prata et al. 2012). A community mobilization intervention in Kenya was found effective at increasing the community's knowledge of family planning and early pregnancy bleeding (Undie et al. 2014). Participatory

methods that involve community members in the dissemination of health information can be particularly effective in addressing stigmatizing and sensitive issues, such as safe abortion and contraception, and has been shown to increase women's confidence discussing such issues with their partners (Bingham et al. 2011).

Ipas, an international non-governmental organization working to reduce maternal morbidity and mortality from abortion by increasing access to CAC and family planning services, has been working in partnership with the FMOH since the revision of the law to ensure that women can access comprehensive reproductive health care and information, including access to safe abortion care. In addition to the health system capacity building, Ipas Ethiopia collaborates with community-based organizations (CBOs) to provide community based education on reproductive health and rights to improve women's access to reproductive health information and care, including CAC and family planning, in their own communities (Ipas Ethiopia, 2014). The primary objective of Ipas's partnerships with CBOs is to improve awareness in the CBOs' communities about the prevention of unwanted pregnancies, the dangers of unsafe abortion and the availability of safe legal abortion services in the community.

The objective of this assessment was to measure the impact of CBO intervention efforts on the knowledge and attitudes of women concerning safe abortion and contraception in the areas where Ipas's CBO partners work. The present paper reports results of a post-test only evaluation of Ipas's community-based intervention in Asella town in Oromia region, comparing women's knowledge and attitudes concerning safe induced abortion with that of women from the non-intervention comparison community of Robe town.

Methods

Study design

The evaluation employed a post-intervention only comparison group design. A cross-sectional study design, using a structured questionnaire, was used to collect data via in-person interviews with women aged 15–49 years from 400 randomly selected households in each community about their knowledge and attitudes concerning contraceptive and abortion services in their communities. The study post-intervention was conducted from April to June 2014.

Description of intervention

In Asella town in the Oromia region, Ipas partnered with the CBO Action for Sustainable Development Association (ASDA) to provide community-based education on sexual and reproductive health (SRH) information and services in their communities and improve community knowledge and attitudes

about contraception and safe abortion services. The CBO implemented the intervention from December 2012 to December 2013. To commence the intervention, ASDA conducted a one-day sensitization workshop attended by relevant local government stakeholders, community leaders, women and youth groups, and other local authorities in positions to influence the local community positively for the successful implementation of the intervention. The workshop included an orientation on the intended community intervention as well as values clarification and attitude transformation (VCAT), which engaged stakeholders to examine personal values, attitudes, and actions related to SRH.

ASDA recruited and trained thirty community volunteers and peer educators to provide safe abortion and pregnancy prevention information to their fellow community members. The community volunteers attended a five-day training that covered the following topics: gender and sexuality, SRH, family planning and contraceptive methods, the revised abortion law, unwanted pregnancy and unsafe abortion. The trainees were also taught interpersonal communication skills, methods of facilitating group learning sessions and organization and facilitation of mass edutainment programs.

The community volunteers conducted community dialogues through group learning sessions, peer education sessions and home visits, using Information Education Communication (IEC) materials, traditional coffee ceremonies, community dramas and music to discuss and educate community members on prevention of unwanted pregnancy, family planning and the dangers of unsafe abortion. The education included teaching community members where safe abortion and family planning services were available in their community. The community volunteers reached 3,963 women through these outreach activities in eight kebeles (sub-districts) in Asella town.

Study sites

Study sites were selected purposively, based on the presence or absence of the Ipas-supported community-based intervention implemented by the partner CBO Action for Sustainable Development Association. Asella was chosen to be the intervention area, and Robe town was chosen as the comparison area. The comparison town of Robe was chosen due to its proximity to the Ipas country office for cost-effective data collection and because the demographic characteristics of the town, such as population size and religion, were thought to be similar and thus comparable to Asella. Although the town of Robe has a health facility that provides legal abortion care, no Ipas-supported community awareness-raising activities were available in this town or in the neighboring Arsi Zone. The kebeles of Arad and Chefe were randomly selected from Asella and Robe towns, respectively, for the post-intervention evaluation.

Sample size calculations

The sample size for the study was calculated using the population proportion formula with the following assumptions: 50 percent of women would have a favorable attitude toward safe abortion and contraceptive services, power of 80 percent, Z of 1.96, margin of error of 5 percent, and a non-response rate of 5 percent. With 80 percent power, difference between groups of 10 percent and a two-sided type I error, calculations resulted in an estimated desired number of 400 interviews needed in each community.

Sampling and data collection

A systematic sampling procedure was applied to identify eligible respondents. The first household in each selected kebele was identified using a lottery method. One consenting woman aged 15–49 years in each selected household was interviewed until the required number of women was reached in each community. In cases in which two or more such women were available in a household, one woman was randomly selected by a lottery method. A total of 800 women were invited to participate in the study, and a response rate of 100 percent was achieved by making repeated visits to households where a woman was selected for the study but was not in the sampled house and/or using sampling with replacement (used for about 2.5 percent of respondents in the selected sample). Ten data collectors, mostly nurses and midwives, were recruited for data collection and trained by Ipas field supervisors on study procedures, interviewing techniques, and informed consent procedures.

Study outcomes

The main outcomes of the study were women's knowledge and attitudes toward safe abortion services. Knowledge of safe abortion service was assessed by interviewing study participants about whether they knew sources of safe abortion services in their communities using a survey tool developed for this study. Attitudes toward abortion were measured with several questions that assessed women's feelings and perceptions on abortion and abortion services, including: feeling that abortion is bad or sinful; whether women should have access to safe abortion services or not; whether it is acceptable to talk about abortion in her community; and whether the woman felt confident talking to others (friends, health providers or her partner) about abortion.

Data quality assurance

The Questionnaire, originally developed in English, was translated into and administered in local languages, namely *afan oromo*, after being back translated to English by different experts proficient in both languages. Data collectors were trained for three days on study procedures, the interview questions, interviewing techniques, and informed consent procedures. Field supervisors were trained to supervise data collection, including checking questionnaires for completeness and consistency on a daily basis. The questionnaire was piloted and revised to clarify questions before data collection began.

Ethical considerations

Ethical approval for the study protocol was obtained from the Oromia Regional Health Bureau, and oral informed consent was obtained for all study participants. Interviews were conducted in a private location and questionnaires were stored in a secure location and kept confidential.

Data processing and analysis

Questionnaires were checked for consistency and entered into Epi Info 7. After cleaning and post-coding open-ended questions, data were analyzed in Stata Version 13. Respondents' demographic information, knowledge of safe abortion and contraception, and attitudes about abortion were analyzed descriptively by place of residence (intervention and comparison kebeles). Bivariate associations between respondents' place of residence and their knowledge and demographics were calculated using Chi-square tests. A significance level of 5 percent was used.

Socio-demographic variables were categorized and coded as follows. Marital status was coded as a binary variable, indicating whether the respondent was married (living together or married) or unmarried; unmarried included separated, divorced, and widowed. Age, religion, and education were categorical variables, and dummy variables for each category of these variables were included in the model to calculate the adjusted odds ratios for each category. Age had two categories, under 25 years and 25 years and older. Religion had three categories: Orthodox, Muslim, and Other Christian; Other Christian included Protestant and Catholic. Education had four categories: no formal education, some primary school, some secondary school, and some university or college.

Bivariate relationships between respondents' place of residence and their attitudes concerning abortion were analyzed by calculating crude odds ratios (OR) using logistic regression. Adjusted odds ratios (OR) and 95 percent confidence intervals (CI) were calculated using logistic regression, controlling for respondents' age, marital status, education level, and religion. Although

the analysis was not designed to provide a major predictive model, model fit of the adjusted model was checked using the Hosmer and Lemeshow (HL) test, with the final adjusted model having a higher HL chi-square and lower p -value than the unadjusted model, indicating better fit.

Results

Respondent demographics

A total of 800 women participated in the study, 400 from the intervention area, and 400 from the comparison area. Women from the intervention and comparison communities differed significantly in distributions of age, religious affiliation, and education levels (Table 1). The respondents in the comparison community from Robe were younger (27 percent under 25 years in Asella and 38 percent in Robe, $p = 0.001$). Despite being younger, more women in Robe were married and married at a younger age, although the difference in marital status was not significant. Ethiopian Orthodox was the most frequently reported religious affiliation in both communities (69 percent in Asella and 54 percent in Robe), yet significantly more women in Asella were orthodox ($p < 0.001$). Additionally, women in Robe were more often Muslim (33 percent in Robe vs. 19 percent in Asella, $p < 0.001$). Approximately two-thirds of women in Robe and three-quarters of women

Table 1. Respondent demographics by place of residence ($N = 800$).

	Asella Intervention ($n = 400$)		Robe Comparison ($n = 400$)		p Value ^a
	N	%	N	%	
Residence	400	50	400	50	
Age group, years					<0.01
≤24	107	27	152	38	
25+	285	73	246	62	
Relationship status					
Married or living as married	269	68	294	74	0.06
Unmarried	129	32	105	26	
Religion					<0.001
Orthodox	274	69	217	54	
Muslim	77	19	133	33	
Other Christian ^c	48	12	50	13	
Education					
No formal education	24	6	53	14	<0.001
Some primary school	141	36	119	30	
Some secondary school	191	48	150	38	
Some university or college	41	10	70	18	
Respondent has been pregnant 1 or more times	292	73	261	65	0.02

Note: Proportions limited to non-missing responses.

^a p -values are from Chi-square tests. Bolded p -values are significant at the 5% significance level.

^bIncludes separated, divorced and widowed.

^cIncludes Protestant and Catholic.

in Asella reported having been pregnant one or more times. Women in the Asella intervention group had higher levels of basic education, with fewer women never having been to school (6 percent in Asella vs. 14 percent in Robe, $p < 0.001$). However, more women in Robe had attended some university or college (Table 1).

Knowledge of abortion and contraception

Illustrative of the magnitude of unsafe abortion even where the service was becoming increasingly available, 24 percent of respondents in Asella and 15 percent in Robe reported knowing someone in their community who had become seriously ill or died of complications from an unsafe abortion. Significantly more women in the intervention than comparison community knew safe abortion was available in the community (76 percent in Asella vs. 57 percent in Robe; $p < 0.001$), although more than half of those interviewed also knew this in the comparison community where no CBO activities had been occurring (Table 2). Almost three-quarters of women interviewed in the intervention community could name one or more LARC methods, compared to only 58 percent of those interviewed in Robe ($p < 0.001$).

Friends and family members were the most frequently reported sources of safe abortion information in both communities (56 percent in Asella and 49 percent in Robe), illustrating the importance of social networks in transferring abortion-related information. Over half (53 percent) of

Table 2. Knowledge of safe abortion and long-acting and reversible contraception by place of residence ($N = 800$).

	Asella Intervention ($n = 400$)		Robe Comparison ($n = 400$)		p Value ^a
	n	%	n	%	
Respondent knew safe abortion was available in her community	304	76	226	57	<0.001
Respondent had heard of one or more LARC methods	294	74	232	58	<0.001
Among women who knew abortion was available, they knew this from ^b :					
Friend/family member	171	56	113	49	0.09
Health facilities	163	53	64	28	<0.001
Television	137	45	73	31	<0.01
Radio	89	29	34	15	<0.01
Health extension worker	59	19	26	11	0.01
Newspaper	18	6	10	4	0.42
Poster/billboard/wall paintings/pamphlets	13	4	11	5	0.79
Women's association/NGO/peer educators and volunteers	34	11	38	16	0.08
Pharmacy/drug store	9	3	6	3	0.80
Respondent knew at least one community member who became seriously ill or died of complications of an unsafe abortion	94	24	61	15	<0.01

Note: Proportions limited to non-missing responses.

^a p -values are from Chi-square tests. Bolded p -values are significant at the 5% significance level.

^bOpen-ended; multiple responses allowed.

women in the intervention community learned about the abortion care provided in their communities from someone at a health facility. Health facilities, media (including television and radio), and health extension workers (HEWs) were all more frequently reported as sources of abortion information in the intervention community. Women in both communities reported limited exposure to abortion information through newspapers, informational materials, pharmacies, peer educators, women's groups, and non-governmental organizations (less than 10 percent for each discrete source in both communities), with no significant difference between the two communities (Table 2).

Attitudes about abortion

The majority of women in both communities felt that women should have access to safe abortion services (83 percent in Asella and 74 percent in Robe), yet women in the intervention community of Asella had greater adjusted odds of feeling this way (adjusted OR: 1.55, 95 percent CI: 1.06, 2.28) (Table 3). Women in Asella had significantly greater adjusted odds of feeling comfortable and confident talking to a healthcare provider or her partner about abortion, yet surprisingly had lower adjusted odds of feeling this way with their friends (adjusted OR: 0.52, 95 percent CI: 0.36, 0.73). Women in Asella also more frequently reported feeling that it was not acceptable to talk about abortion in her community (adjusted OR: 2.45, 95 percent CI: 1.78, 3.67), possibly indicating a high level of abortion stigma in the community that may have contributed to their discomfort in speaking with friends about abortion. This was again reflected in women's feelings that if she wanted an abortion, her friends and relatives would isolate or reject her, a feeling that was more often reported in the intervention community (32 percent in Asella vs. 24 percent in Robe; adjusted OR: 1.72, 95 percent CI: 1.21, 2.44).

Overall, abortions among married women were considered sinful (72 percent in Asella and 87 percent in Robe) by more women in both communities than abortions among unmarried women (67 percent in Asella and 72 percent in Robe) (Table 3). However, women in the intervention community had lower adjusted odds of feeling that abortions are sinful among married women (adjusted OR: 0.38; 95 percent CI: 0.26, 0.56). Approximately 9–10 percent of women in both communities felt that women in their community would still rather go to a traditional healer to terminate a pregnancy than a health facility, although no significant difference was observed in this finding between the intervention and comparison groups. Finally, slightly less than one-fifth of respondents said they would try to disgrace a woman if they found out she had received an abortion. This response was less frequent in the intervention area (17 percent in Asella vs. 21 percent in Robe), although the difference was not statistically significant (Table 3).

Table 3. Unadjusted^a and adjusted^{a,b} odds ratios (OR) and 95% confidence intervals (CI) comparing attitudes about abortion by location of residence (*N* = 800).

	Asella Intervention (<i>n</i> = 400)		Robe Comparison (<i>n</i> = 400)		Crude OR ^a (95% CI)	Adjusted OR ^{a,b} (95% CI)
	<i>n</i>	%	<i>N</i>	%		
Woman feels abortions among unmarried women are bad or sinful	264	67	286	72	0.77 (0.57, 1.05)	0.82 (0.59, 1.13)
Woman feels abortions among married women are bad or sinful	283	72	346	87	0.38 (0.26, 0.54)	0.38 (0.26, 0.56)
Woman feels people would rather go to a traditional healer for an abortion than a health facility in her community	39	10	34	9	1.22 (0.75, 1.97)	1.38 (0.82, 2.32)
Woman feels women should have access to safe abortion services	314	83	279	74	1.69 (1.19, 2.41)	1.55 (1.06, 2.28)
Woman feels it is not acceptable to talk about abortion in her community	237	65	167	44	2.38 (1.77, 3.21)	2.45 (1.78, 3.67)
Woman feels if she wanted an abortion, her friends and relatives would isolate or reject her	114	32	89	24	1.48 (1.07, 2.06)	1.72 (1.21, 2.44)
Women feels she can confidently talk to a health care provider about abortion	356	91	298	77	2.99 (1.97, 4.53)	2.44 (1.55, 3.84)
Women feels she can easily talk to her friends about abortion	263	68	310	78	0.59 (0.43, 0.81)	0.52 (0.36, 0.73)
Women feels she can easily talk to her partner about abortion	332	90	311	80	2.28 (1.50, 3.45)	2.47 (1.58, 3.85)
Women feels she would try to disgrace a woman in her community if she found out she had an abortion	65	17	80	21	0.79 (0.55, 1.14)	0.96 (0.65, 1.42)

Note: Proportions limited to non-missing responses.

^aBolded ORs are significant at the 5% significance level.

^bORs adjusted for age category (reference = 25+), education (reference = some primary school), religion category (reference = Orthodox), & whether married (binary variable).

Discussion and conclusions

Women in the intervention community had significantly greater knowledge of LARC and abortion services available in their communities, a necessary but not sufficient precedent for use of abortion and contraceptive services should they need it. Despite the greater efficacy of LARC methods, a study in Northwest Ethiopia found that myths and misconceptions regarding LARC methods were negatively associated with demand for LARC (Yalew, Zeleke, and Teferra 2015); thus, the greater knowledge of LARC in the intervention community is a positive first step in combatting negative myths and misconceptions, presumably leading to increasing demand for LARC methods. Greater knowledge of abortion services in the intervention community was presumably due to the increased mobilization of their community networks in disseminating this information.

While women in the intervention area had greater exposure to safe abortion knowledge through health facilities, television, radio, and HEWs, the community mobilization efforts in the CBO intervention, which included IEC materials, peer educators, volunteers and organizations, were the least frequently reported sources of abortion information. The diffusion of reproductive health information through these groups may have been unsuccessful at reaching the majority of sampled women in the intervention community. Alternatively, these interpersonal communication techniques may require more time, more varied channels of outreach, and/or a higher “dosage” or level of activity to spread through social networks in the community more thoroughly and leave their imprint on the community.

Mass media, HEWs, and providers from health facilities reached more women than the CBO intervention activities in both communities. Because abortion is not often discussed in a positive or neutral way in Ethiopian communities, demonstrated by this study’s findings that 44–65 percent of women did not feel it was acceptable to discuss abortion in their communities, the presence of mass media providing information on safe abortion in both communities is an encouraging sign of at least be an increasing level of openness or comfort with this topic in the community. While mass media is not attributable to the CBO or Ipas’s work, information through health facility providers and HEWs is likely a result of Ipas’s CAC interventions at health facilities in and/or nearby both communities. Asella town’s closer proximity to the capital city Addis Ababa likely accounts for their increased exposure to information through mass media. The content and source of the mass media information was not known, and it is therefore difficult to conclude the nature of its effect on women’s knowledge and attitudes about abortion and contraception services in their communities. Even so, it seems that the greater variety of SRH information sources in the intervention community was associated with greater knowledge and more positive attitudes about SRH. This conclusion was echoed by Banerjee and colleagues, who, using findings from a 2010 evaluation of a behavior change intervention in India, concluded that multiple approaches should be used when attempting to improve knowledge and perceptions about stigmatized health issues such as abortion (Banerjee, Anderson & Warvadeker et al, 2013).

Discussing and acting upon decisions to seek an abortion still challenges women in both communities despite interventions that attempt to ease and support reproductive decision-making. Women perceived high levels of abortion stigma in both communities, with a higher underlying presence of perceived stigma in the intervention community of Asella, as indicated by women’s frequent perceptions that discussing abortion is unacceptable in their community and their friends and relatives would reject or isolate them should they discuss or want an abortion. The greater presence of perceived stigma in Asella may have been due to religious differences from Robe, but

conclusions were varied. Women in Asella expressed greater challenges in discussing abortion with their friends and family members, fearing isolation and rejection, but they found it easier to speak to their health providers and partners, the most important actors in their decision-making. The facilitation of community dialogues through group learning sessions in Asella may have produced this result, a conclusion which would parallel Bingham and colleagues' findings in Nepal that group dialogues sessions increase women's ability to discuss and negotiate sensitive issues with the people closest to them (Bingham et al. 2011).

Women in the intervention community also exhibited more positive attitudes toward abortion – a primary objective of the intervention – more often believing that women should be able to access safe abortion care and less often believing that abortion is sinful. These findings suggest that greater exposure to safe abortion information may mitigate the negative impact of abortion stigma on women's attitudes about abortion and increase women's self-confidence speaking about abortion with their partners and health providers.

This study had several limitations. First, the data potentially suffered from recall bias and social desirability bias. Second, the data collection instrument was developed for the study and was not a standard one, which may have produced results that are not be comparable to studies that have used standard instruments. Third, although the two communities were selected because they were thought to be similar, the women surveyed were found to be significantly different demographically, including differences in distributions for education, age, religion, and reproductive history. These differences may have been a reflection of demographic differences in the community; alternatively, the sample may not have been representative of the two communities because only one kebele per town was sampled. These issues limit their comparability for the purposes of evaluating the CBO intervention. Finally, the post-intervention only nature of this evaluation limits inferences because pre- to post-intervention changes in attitudes were not assessed, and thus differences between the communities cannot be directly attributed to the intervention. Yet much can still be learned from the results of this study about the diffusion of information and the eradication of abortion stigma because statistical adjustments were made for the demographic differences.

Several important lessons can be learned from this evaluation of an educational intervention for future similar community interventions. First, community mobilization efforts should capitalize on other interventions occurring in the community by involving HEWS, providers and other health facility staff as change agents whenever possible. Second, increased frequency and length of educational activities such as those used in this intervention may be necessary to see the impact of interpersonal communication and participatory interventions at the community level. Third, the use of mass media to disseminate information may augment

interventions using interpersonal communication by reaching a much wider audience and providing a quick, easily digestible reminder of the key information provided during interpersonal communication activities. Finally, although knowledge of safe abortion and contraception is the first step to creating demand for these services, further research is required to determine whether increased knowledge of safe abortion and contraception services in these communities results in changes in behavior and increased uptake of these services.

Acknowledgments

We are thankful for the work of Action for Sustainable Development Association for implementing the community-based intervention in Asella, the Asella community members and stakeholders who participated, and to the Regional Health Bureau of Oromia for permitting the present intervention and evaluation. We also extend thanks to our data collectors and the staff at Ipas Ethiopia, particularly Lechisa Assefa, Wondimageghn Berhanu and Elias Senbetu, for the technical support provided during the implementation of this work.

Funding

We extend our great appreciation to the UK Department for International Development (DFID) for their financial support in implementing this community intervention and subsequent evaluation.

Authors' contributions

YD participated in interpretation of data and drafting and revising the manuscript. SD participated in data analysis and interpretation and drafting and revising the manuscript. TF contributed to study conception and design, data analysis and interpretation, and drafting and revising the manuscript. DW and DD contributed to the study conception and design, data collection and interpretation, and revising the manuscript. All authors participated in giving final approval of the version to be published.

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