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Playing it Safe: Legal and Clandestine Abortions Among Adolescents in Ethiopia

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A B S T R A C T

Purpose: The 2005 expansion of the Ethiopian abortion law provided minors access to legal abortions, yet little is known about abortion among adolescents. This paper estimates the incidence of legal and clandestine abortions and the severity of abortion-related complications among adolescent and nonadolescent women in Ethiopia in 2014.
Methods: This paper uses data from three surveys: a Health Facility Survey (n = 822) to collect data on legal abortions and postabortion complications, a Health Professionals Survey (n = 82) to estimate the share of clandestine abortions that resulted in treated complications, and a Prospective Data Survey (n = 5,604) to collect data on abortion care clients. An age-specific variant of the Abortion Incidence Complications Method was used to estimate abortions by age-group.
Results: Adolescents have the lowest abortion rate among all women below age 35 (19.6 per 1,000 women). After adjusting for lower levels of sexual activity among adolescents however, we find that adolescents have the highest abortion rate among all age-groups. Adolescents also have the highest proportion (64%) of legal abortions compared with other age-groups. We find no differences in the severity of abortion-related complications between adolescent and nonadolescent women.
Conclusions: We find no evidence that adolescents are more likely than older women to have clandestine abortions. However, the higher abortion and pregnancy rates among sexually active adolescents suggest that they face barriers in access to and use of contraceptive services. Further work is needed to address the persistence of clandestine abortions among adolescents in a context where safe and legal abortion is available.

IMPLICATIONS AND CONTRIBUTION

This assessment of legal and clandestine abortion among Ethiopian adolescents shows that adolescents have the highest proportion of legal abortions, suggesting a benefit to acknowledging adolescents in reproductive health policies. The high rate of abortion among sexually active adolescents indicates a need for promoting adolescent-targeted family planning services.

Abortion is one of the leading causes of maternal mortality worldwide [1,2]. The Government of Ethiopia has made considerable efforts to decrease abortion-related morbidity and mortality. In 2005, the abortion law was expanded to permit abortion in cases of rape, incest, and fetal impairment, to save the life of the woman, if the woman has a physical or mental disability, or if she is *under 18 years of age* [3]. Ethiopia is one of the few countries that explicitly acknowledge the difficulties young pregnant

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women face and the need to decrease barriers to accessing abortion services among this age-group. Minors seeking abortions need neither parental consent nor any proof of age [3]. In 2006, the Ethiopian government made further efforts to expand the provision of legal and safe abortion services by developing and disseminating national guidelines for the provision of abortion care [3]. Under the law, legal abortions have increased from 27% of all abortions in 2008 to 53% in 2014 [4,5].

Despite the change in the law and expansion of services, young women in Ethiopia report uncertainty about the legality of abortion [6–8], and explicit knowledge that abortion is legal for minors is low [8,9]. Beyond gaps in knowledge, concerns about cost, privacy, and judgment from providers may create barriers in adolescents' access to formalized services, leaving them particularly vulnerable to clandestine, and potentially unsafe, abortion [10,11]. Adolescents also confront the same barriers as older women to accessing safe abortion, including lack of information about location and availability of services, pressure from families and communities, poorly equipped facilities, absent providers, and a weak referral system [12,13]. Similar barriers have been identified as potentially limiting adolescents' access to family planning services [14–16]. One-fifth of married adolescents and 40% of unmarried adolescents had an unmet need for family planning in Ethiopia in 2016 [17].

Research conducted in Ethiopia and elsewhere indicates that when adolescents pursue abortions, they often resort to unsafe methods or seek out abortion services at later gestations [10,18,19]. A study of abortion patients in one hospital in Ethiopia found that women under the age of 19 were twice as likely to have a second trimester abortion than older women [19]. Obtaining abortions at later gestations, and using less safe methods, may result in more severe abortion-related morbidities among adolescents [10].

Ethiopian adolescents are unique compared with other young women in the region in that they have official avenues available for legal and safe abortion. This paper assesses whether adolescents in fact benefit from the legal and service environment established to provide them with access to safe abortion. We evaluate this through five research questions: (1) What is the incidence of abortion among adolescents in Ethiopia? (2) What percentage of abortions among adolescents is legal as compared with nonadolescent women? (3) What percentage of unintended pregnancies ends in abortion among adolescents? (4) Are abortion-related complications more severe among adolescents than among nonadolescent women? And (5) What is the demographic and social profile of adolescents receiving legal abortion services compared with adolescents receiving treatment for abortion complications? Understanding adolescents' use of legal abortion services under the current law is essential for determining how to reduce clandestine abortion and its health consequences among adolescents in Ethiopia.

Methods

Terminology

In this study, an adolescent is defined as someone between 15 and 19 years of age. We use the term legal abortion to refer to abortions that occur in health facilities, and clandestine for abortions outside of health facilities. Abortion safety is determined by the skills of the person performing the abortion and the medical standards of the environment, rather than the outcome of the abortion (such as whether the abortion resulted in complications) [20]. Three categories of abortion safety have been identified: (1) "safe" abortions, provided by health care workers with methods recommended by the World Health Organizations; (2) "less safe" abortions, performed by trained providers using nonrecommended methods or performed using recommended methods but without adequate information or support; and (3) "least safe" abortions, provided by untrained providers using dangerous methods [21]. A clandestine abortion can therefore be safe, less safe, or least safe depending on who performed the abortion and the method used. Legal abortions are mostly safe, with a small proportion being less safe with the use of nonrecommended methods. Complications may occur with both legal and clandestine abortions, but the largest share comes from clandestine procedures [20]. Still, clandestine abortions can be performed without complications, particularly with the availability of medical abortion outside of the formal health system [20]. We use the term abortion care to refer to both legal abortion and postabortion care (PAC) services.

Data

This paper estimates abortion incidence indirectly using the Abortion Incidence Complications Method (AICM) [22]. We use data from three surveys conducted in Ethiopia in 2014: a Health Facilities Survey (HFS) and a Prospective Data Survey (PDS), nationally representative surveys that provide data on the number of legal abortions and postabortion care (PAC) cases in health facilities; and a Health Professionals Survey (HPS), used to estimate the proportion of all abortions likely represented by PAC patients. The HFS was conducted in 822 public, private, and nongovernmental organization (NGO) facilities and the PDS took place in 594 facilities [5,23]. The HPS was conducted among 82 knowledgeable experts that were purposefully selected to ensure rural and urban representation across all regions [5]. The PDS also gathered information from providers on the characteristics and reproductive and clinical history of women obtaining abortion care. Detailed study protocols are described in Moore et al. and Gebrehiwot et al. [5,23]. Ethical approval was received for research on human subjects from the Ethiopian Ministry of Science and Technology and the Guttmacher Institute's institutional review board.

The PDS included data on the age of abortion care clients in public and private facilities. Additional age-distribution data were provided from the two NGOs providing abortion services in the country, which together provide services to 36% of women receiving facility-based postabortion care or legal abortions [23]. We calculated the age distributions for legal abortion clients and PAC patients separately, weighting the facility type age-distributions by the caseloads for each type of abortion service. For the NGO data, we weighted each NGO's caseloads separately by their own age-distribution data.

Abortion and pregnancy rates were calculated by dividing the estimated number of abortions and pregnancies by the number of women in each five-year age-group from 15–49 using data from the Central Statistical Agency's population prospects [24]. We used age-specific fertility rates [25] to calculate the number of live births in 2014 within each age-group.

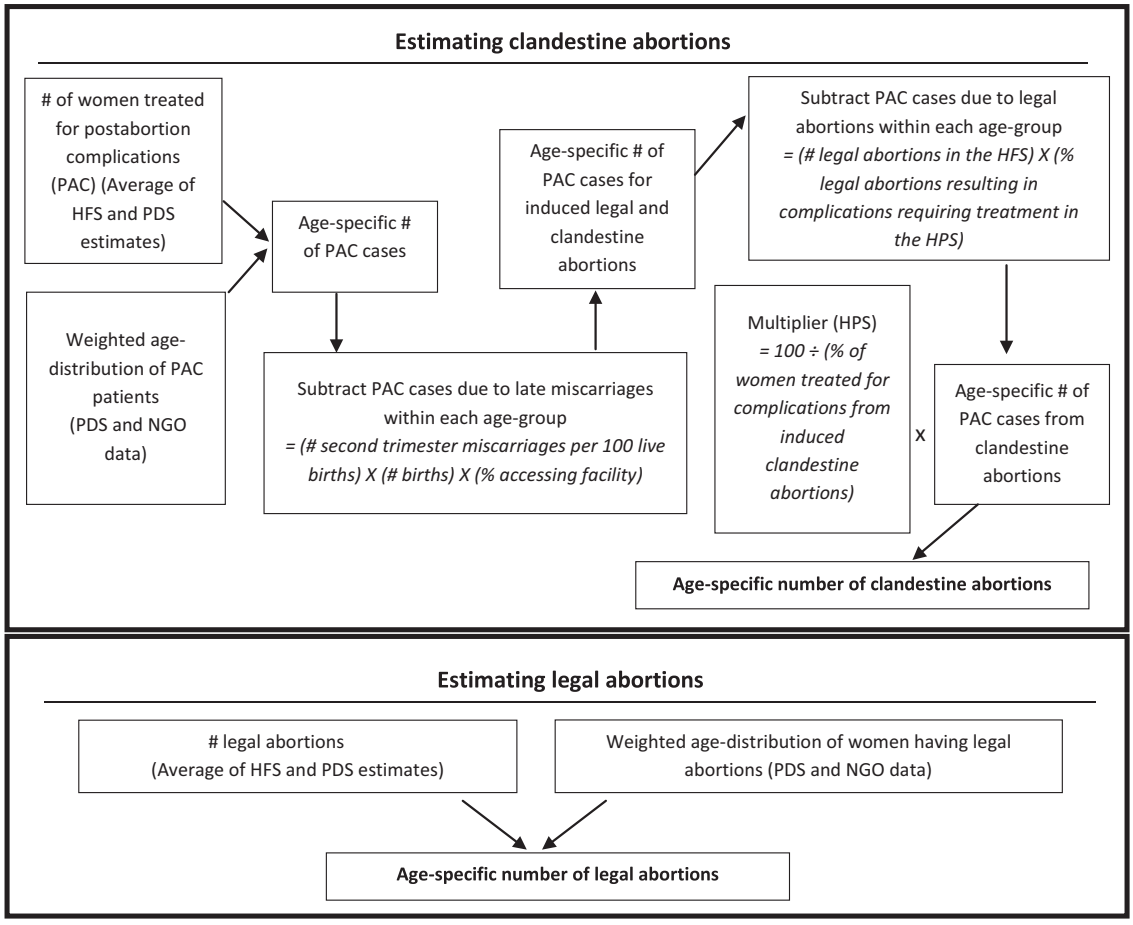


Figure 1. Methodology for estimating legal and clandestine abortions by age-group.

Age-specific abortions and pregnancies

An age-specific variant of the AICM was used to estimate the number of legal and clandestine abortions by age-group in Ethiopia in 2014. The AICM is one of the most common methods for measuring abortion in settings without reliable administrative records, and has been applied in over 20 countries [26]. We separately estimated the age-specific number of legal and clandestine abortions, and summed them to estimate the total abortions. Medium, low, and high abortion rates were estimated using the average, and the 95% confidence interval of the number of abortion complications and legal abortions [5]. Figure 1 details the method and data inputs. Further calculations are provided in mathematical Appendix A, which can be found in the online version of this article.

Age-specific legal abortions were calculated by taking the average of the HFS and PDS estimates, and applying the age-distribution of legal abortion clients. Clandestine abortions were estimated indirectly from PAC caseloads. PAC patients by age were estimated using the age-distribution of PAC patients and the average of the PDS and HFS estimates of the annual PAC caseload. We then estimated the number of induced abortion PAC cases by removing the estimated number of PAC cases due to miscarriage. The AICM assumes that only women with late miscarriages (13–22 weeks gestation) will go to a facility for postabortion care. However, the risk of miscarriage varies by age [27,28]. Harlap et al. provided clinical data on the number of miscarriages and rate of miscarriage by age-group and gestational week [29]. These data were used to compute age-specific life tables to determine the risk of late miscarriage (Appendix B, found online).

Not all women who have late miscarriages will seek care. We, therefore, adjusted the estimated number of late miscarriages by the age-specific proportion likely to receive treatment. This proportion is assumed to be equal to the proportion of women who delivered in a health facility plus the proportion of women who did not deliver in a health facility because they deemed it unnecessary [25].

We subtracted the estimated number of treated late miscarriages from the PAC caseload to calculate the number of induced abortion PAC patients by age-group. From this, we further subtract the number of PAC patients who had legal abortions; an estimated 5% of legal abortions result in complications, compared with 40% of clandestine abortions [5]. To calculate the total number of clandestine abortions, we applied a multiplier calculated from the HPS [5]. The multiplier indicates how many women were likely to have had clandestine abortions for every one woman who received treatment in a facility. Applying the multiplier to the age-specific number of PAC cases from clandestine abortions results in an age-specific estimate of all clandestine abortions in Ethiopia.

As not all adolescents are sexually active, we also computed two alternative abortion rates: the abortion rate among women who have ever been sexually active, and the abortion rate among women who were sexually active in the past 12 months. Sexual activity data come from the 2011 Ethiopian Demographic and Health Survey [30], and the percentages were applied to the projected population in 2014.

In addition to calculating the number and rate of legal and clandestine adolescent abortions, we estimated the share of pregnancies among adolescents that are unintended, the proportion that end in abortion, and the unintended pregnancy rate. Births were estimated by applying the age-specific fertility rates [25] to the estimated number of women in each age-group from the Central Statistical Agency [24]. We estimated unplanned births by applying the age-specific proportion of unplanned births in the 2014 Demographic and Health Survey [25] to the number of births in each age-group. Miscarriages are estimated to be 20% of all live births and 10% of abortions [31], a common estimation in the absence of reliable survey estimates [32]. Unintended pregnancies were calculated by summing the estimated number of unplanned births, unintended pregnancies ending in miscarriage, and induced abortions (Appendix A, found online).

Characteristics of adolescents with abortion complications

To assess the relative safety of clandestine abortions among adolescents compared with older women, we compared the severity of abortion complications among adolescent and nonadolescent women presenting for PAC. Severity was calculated using the PDS clinical data captured at the time of admission to a public or private facility. Women were classified with low severity abortion complications if they had no signs of infection, organ failure, or suspicious findings during uterine evacuation; moderate severity cases were identified by early signs of peritonitis or sepsis, including an elevated temperature or offensive products of conception upon evacuation; and high severity cases were identified by one or more of the signs of unsafe abortion morbidity (generalized peritonitis, tetanus, a pulse rate >119 bpm, organ failure, temperature >37.9°C, evidence of a foreign body or injury to the cervix/uterine area, shock, or death) [33,34]. This severity classification was applied in previous studies using the Ethiopian PDS [23].

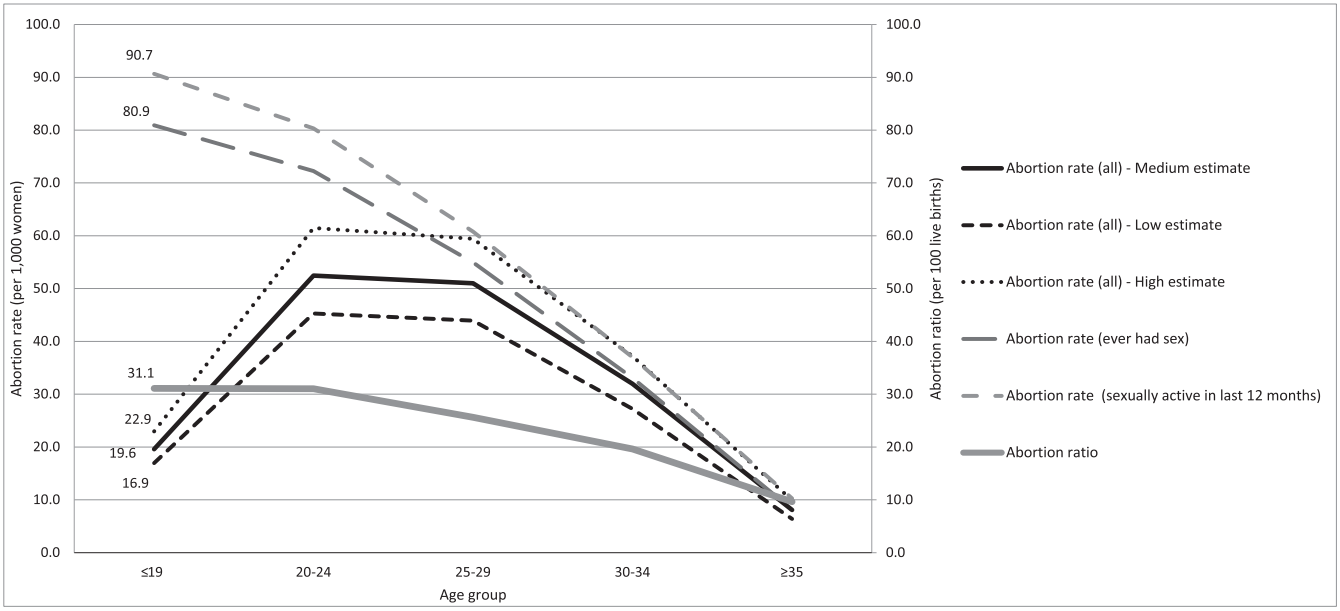
To determine how adolescents accessing legal abortions differ from peers receiving PAC, we compared the sociodemographic characteristics of adolescent legal abortion clients and adolescent PAC patients. Legal abortion clients have all had induced abortions, but PAC patients include women seeking care for complications from induced abortions and miscarriages. To ensure we compared only adolescents with *induced* abortions, we constructed a measure for PAC patients that have likely had an induced abortion: PAC patients were considered to have likely had an induced abortion if they reported using family planning at the time of the pregnancy, reported interfering with their pregnancy, or had high severity PAC complications [35]. Results are not sensitive to the exclusion of any of the criteria.

Results

Incidence of abortion

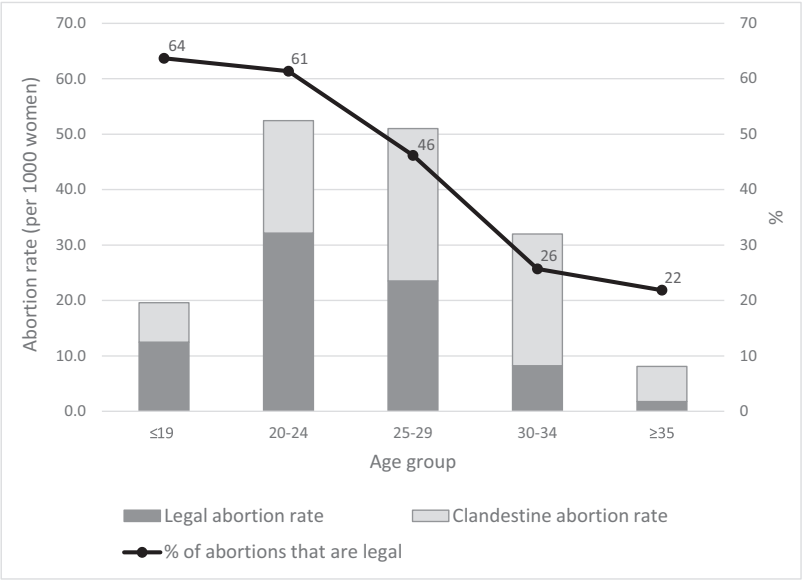
There were 96,243 induced abortions among adolescent women in Ethiopia in 2014, including 61,283 legal procedures and 34,960 clandestine procedures. Adolescents are underrepresented among women having abortions: they make up 22% of the population of reproductive-aged women but account for only 14% of all abortions, 19% of legal abortions, and 11% of PAC services.

Adolescents have the lowest abortion rate among all women less than 35 years of age, at 19.6 abortions per 1,000 women 15–19 years of age (Figure 2). The lower abortion rate among



Source: HFS, PDS and HPS (See Figure 1 and Appendix A).

Figure 2. Abortion rate and ratio by age-group in Ethiopia in 2014 (abortion rate constructed for all women, for ever-sexually active women, and for women sexually active in the past 12 months).



Source: HFS, PDS and HPS (See Figure 1 and Appendix A).
Notes: Calculated among all reproductive age women 15-49 years.

Figure 3. Legal and clandestine abortion rates and the percentage of legal abortions by age-group, Ethiopia 2014.

adolescents is likely due to lower levels of sexual activity: only 24% of women 15–19 years of age report ever having sex, compared with 72.6% among women 20–24 years of age [30]. After adjusting for exposure to pregnancy, adolescents have the highest abortion rate; the abortion rate is 80.9 per 1,000 ever sexually active adolescent women and 90.7 per 1,000 recently sexually active adolescent women. Adjusting abortion rates for potential exposure to pregnancy changes the overall pattern of abortion rates to reflect an inverse relationship with age. Adolescents also have the highest abortion ratio, with 31.1 abortions per 100 live births—indicating that there is about one abortion for every three births (Figure 2).

Legal and clandestine abortions

Adolescents are more likely than older women to access legal abortion services (Figure 3). Sixty-four percent of adolescent abortions were legal procedures performed in a health facility. Women 20–24 years of age have a similar proportion of legal abortions, at 61%, but the proportions drop much more rapidly for women at older ages, from 46% among women 25–29, down to 22% among women 35 and older.

Unintended pregnancy

In 2014, we estimate that there were 477,361 pregnancies to adolescent women. Among ever sexually active women, adolescents have the highest pregnancy (401 per 1,000 women) and unintended pregnancy rates (176 per 1,000 women). Overall, 43.8% of adolescent pregnancies are unintended, and 46% of those unintended pregnancies end in abortion (Figure 4). Only women 20–24 have a slightly higher proportion (48.9%), suggesting that compared with older women, adolescents and young adults are more likely to terminate their unintended pregnancies.

Severity of abortion complications

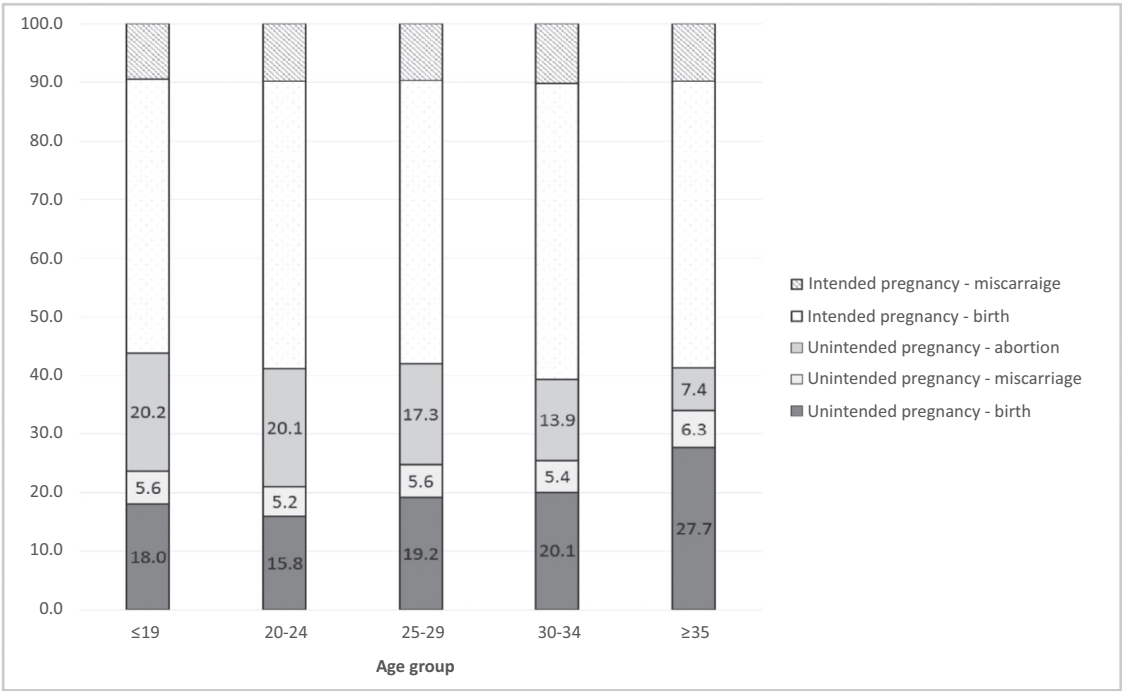
Although adolescents are less likely to have clandestine abortions, it is still possible that those adolescents who do have clandestine abortions fare worse than nonadolescent women. However, we do not find evidence of this disparity. Rather, only 26.8% of adolescent PAC cases were classified as severe, compared with 32.4% of cases among nonadolescent women (a nonsignificant difference) (Table 1).

Characteristics of adolescent legal abortion clients and postabortion care patients

Given their access to legal abortion services, it raises the important question as to why some adolescents still pursue clandestine abortions, and whether adolescents presenting at facilities with complications from abortion are different from those obtaining legal abortions. Table 1 compares characteristics of adolescents accessing legal abortions from all adolescent PAC patients, and the subset of adolescent PAC patients who likely had an induced abortion. Adolescent PAC patients who likely had an induced are nearly three times as likely to be married (50% vs. 18%; $p < .001$), have no education (14% vs. 5%; $p < .001$), and be in the second trimester (27% vs. 9 %; $p < .001$) compared with adolescent legal abortion clients. The vast majority of both adolescent PAC patients (who likely induced) and legal abortion clients were not using a family planning method at the time of their pregnancy (74% vs. 82%; $p < .150$) and had experienced at least one previous pregnancy (93% vs. 93%; $p < .059$).

Discussion

The Ethiopian government has taken considerable efforts to increase access to safe and legal abortion, including developing and disseminating guidelines for abortion care, broadening



Source: Abortions estimated using HFS, PDS and HPS data (See Figure 1 and Appendix A). Births by intention status estimated from the 2014 Ethiopian Mini DHS [26] and Central Statistical Agency[25]. Miscarriages estimated as 20% of all live births and 10% of abortions [32].
Notes: Calculated among all reproductive age women 15-49 years.

Figure 4. Pregnancies by intention status and outcome, Ethiopia 2014.

eligibility criteria to allow more facilities to provide services, and facilitating abortion training for more skilled providers [3,36]. Of particular note is the age criterion for legal abortion that explicitly acknowledges that adolescents might not feel equipped to carry a pregnancy to term [3]. This is a particularly bold and exceptional policy effort given that adolescents' reproductive health needs are typically unacknowledged in such policies. We find evidence that Ethiopian adolescents having abortions are more likely to access legal services, and among women presenting with abortion complications, adolescents' complications are no more or less severe than those of older women. This indicates that adolescents are benefiting from the abortion law that grants them the right to request safe abortion services.

Previous research using the AICM estimated an abortion rate of 11 per 1,000 women aged 15–19 in Ethiopia in 2008, with 9% of pregnancies ending in abortion [37]. Our study improved on this approach, incorporating age-group differences in miscarriages and access to treatment. We find that the abortion rate has increased to 19.6 per 1,000 women, and the proportion of pregnancies ending in abortion has risen to 20%. The increase in the abortion rate is not unique to adolescents in Ethiopia; the country's overall abortion rate also increased due to improved access to safe abortion services as well as decreasing fertility preferences [5]. We also find that adolescents have the highest abortion rate among sexually active women, highlighting the vulnerability of sexually active adolescent women to unintended pregnancy. Further policy and program efforts are required to help adolescents prevent unintended pregnancies, close to half of which end in abortion.

Despite the availability of legal abortion, one-third of adolescent abortions are clandestine and thus potentially unsafe. Reducing unsafe abortion among adolescents requires understanding how adolescents having clandestine abortions differ from those accessing legal abortions. We find that adolescents presenting with complications are more likely than adolescents having legal abortions to be married, have less education, and present at later gestational ages. Educational attainment and marital status are likely associated with a range of factors that could influence access to and use of legal abortion, including autonomy in abortion decision-making, distance from health facilities, abortion stigma, ability to pay for services, knowledge of the abortion law, and ability to navigate the abortion care system. Additional research would help elucidate how these factors may relate to abortion access, which is critical to addressing the persistence of unsafe abortion and inequities among adolescent women in Ethiopia.

A key assumption in calculating age-specific abortion rates is that the multiplier—the number of women without complications or with untreated complications for every woman with a treated complication—does not vary by age. If the multiplier is higher for adolescents, we are underestimating the abortion rate and the proportion that are clandestine. Although it is possible that the likelihood of experiencing a complication and subsequently accessing treatment differs by age, our analysis finds similar levels of severity between adolescent and nonadolescent PAC patients. Further, adolescents do not appear to have lower levels of access to health facilities: 19% of women <20 years old delivered in a health facility, compared with 17% among women

Table 1
Characteristics of adolescent and nonadolescent abortion care clients, and characteristics of adolescent legal abortion clients and postabortion care (PAC) patients, Ethiopia 2014

All Women					
	Adolescents	Nonadolescents	*p* Value		
Total N	1,042	4,471			
Age					
Mean (years)	17.6	27.9			
Services accessed			<.001		
Legal abortion	75%	47%			
PAC	25%	53%			
Severity of PAC cases			.238		
Low/moderate severity	73%	68%			
High severity	27%	32%			
Adolescents					
	Legal abortion	PAC (all)	*p* Value	PAC[a] (likely induced)	*p* Value
Total N	771	271		136	
Age					
Mean (years)	17.6	18.0		17.9	
Marital status			<.001		<.001
N	756	267		134	
In union	18%	62%		50%	
Not in union	82%	39%		50%	
Highest level of education			<.001		<.001
N	763	269		135	
No education	5%	21%		14%	
Some or completed primary	18%	18%		9%	
Some or completed secondary	75%	61%		77%	
Higher than secondary	3%	.3%		.3%	
Previous pregnancies			.009		.059
N	771	271		136	
None	6%	6%		7%	
1	81%	70%		72%	
2 +	12%	24%		21%	
Had previous miscarriage[b]			<.001		<.001
N	738	249		123	
Yes	4%	18%		21%	
No	96%	82%		79%	
Had previous abortion[b]			.230		.011
N	743	263		130	
Yes	6%	10%		20%	
No	94%	90%		80%	
Using method at time of current pregnancy			.296		.150
N	755	270		135	
Yes	18%	13%		26%	
No	82%	87%		74%	
Gestation (reported by provider)			<.001		<.001
N	747	258		131	
First trimester	91%	69%		73%	
Second trimester	9%	31%		27%	

Source: Prospective Data Survey (excludes nongovernmental organization [NGO] clients of both legal abortion and PAC).
Characteristics of legal abortion clients are compared to with groups of PAC patients: all PAC patients (which includes PAC provided for both induced abortions and miscarriages), and PAC patients who are likely to have had an induced abortion. *p* values presented are for chi-square tests between each group of PAC patients and the legal abortion clients.
[a] Likely induced includes women who reported using family planning at the time of the pregnancy for which they are seeking care, or who reported interfering with their pregnancy, or who had high severity PAC complications.
[b] Among women who reported a previous pregnancy.

aged 20–34 years, and 10% among women 35–49 years [25]. These factors suggest that the multiplier would not necessarily be higher for adolescents.

It is also possible that legal abortions among adolescents are overestimated due to women misreporting their ages to access legal terminations available to minors. However, we find no evidence to suggest substantial age-misreporting. Women 20–24 years of age have only a slightly smaller share of legal abortions, at 61%. Additionally, there is not a strong incentive to misreport age as women can just as easily obtain abortions under other criteria without proving eligibility.

Comparing the characteristics of legal abortion clients and PAC patients is an imperfect assessment of the differences between adolescents accessing legal versus clandestine abortions. PAC patients represent only a small proportion of adolescents who have clandestine abortions, and do not include those without any complications, with untreated complications, or who died outside of facilities. As such, our analysis of how PAC patients are different from those accessing legal abortions cannot be generalized to all adolescents having clandestine abortions. Nevertheless, adolescents presenting for PAC have likely had unsafe clandestine abortions, and therefore are the most important group to target to reduce abortion-related morbidity.

This analysis represents the first known nationally representative assessment of Ethiopian adolescents' rates of legal and clandestine abortions, and of the severity of their postabortion complications. Adolescent women are noticeably benefiting from the abortion law, with the majority of their abortions occurring in facilities by trained providers. However, critical gaps remain; one-third of adolescent abortions are clandestine and potentially unsafe, and one-quarter of adolescent PAC patients have severe complications. Understanding the processes through which some adolescents access legal services and others do not is essential in determining how to reduce clandestine abortion among adolescents. The inclusion of age as sufficient criteria for legal abortions does appear to be effectively reaching some young, usually marginalized, women—but not all. To expand upon this success and reach all adolescents, efforts should be made to promote policies and programs that reach particularly vulnerable adolescents, including less educated and married adolescents. The high rate of abortion among sexually active adolescents highlights the critical need for addressing unmet need for family planning among adolescents. Although the Ethiopian government has developed policies aimed at meeting adolescents' reproductive health needs, including the National Adolescent and Youth Reproductive Health Strategy [38], more is needed to ensure their successful implementation. Adolescents' clandestine abortions and the resulting complications need to be addressed not only through national policies, but also through programs that expand knowledge of services and target barriers to accessing both abortion and family planning services.

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Supplementary Data

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