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Research Article

Assessment of Knowledge, Attitude and Practice towards the Use of Medication Abortion among Female Regular Undergraduate Students in Faculty of Health Science, Jimma University, South-West Ethiopia

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Abstract

Background: Abortion rates following unintended pregnancies is increasing in developing countries like Africa. Unsafe abortion is threatening the gains in reducing maternal mortality and achieving millennium development goal targets. Medication abortion is one of safe abortion interventions.

Objective: To assess knowledge, attitude and practices towards the use of medication abortion among female regular undergraduate students in faculty of health science, Jimma University.

Method: An institutional based cross sectional study was conducted on female regular undergraduate students in faculty of health science using stratified random sampling techniques and the sample from each stratum was selected using systematic simple random techniques from 7/02/2019 to 14/02/2019 in Jimma university main campus.

Results: A total of 232 students were interviewed and 10 questionnaires were discarded due to incompleteness, the age of the study participants ranged from 18 to 26. One hundred and thirty-four (62.9%) participants claimed to know what medication abortion is. From the 134 (62.9%) of the respondents who claimed to know what medication abortion means only 99 (73.9%) knew exactly what medication abortion means. The major source of information about medication abortion was teachers 100 (74.6%) followed by media (radio, TV, newspaper) 39 (29.1%). The majority of respondents knew misoprostol 95 (42.8%) and mifepristone 67 (30.2%). The majority 137 (64.3%) did not support that government should allow abortion in this country and only 25 (11.3%) would consider abortion if they have unplanned pregnancy. Ninety (40.5%) of study participants had sexual experience of which 11 (5%) became pregnant and 7 (3.2%) had an abortion the majority 5 respondents had MA.

Conclusion: Sexual reproductive health interventions are needed on campus in order to equip female undergraduates with comprehensive knowledge and skills to reduce the likelihood of unplanned pregnancies.

Keywords: KAP of Medication Abortion; Jimma University; Undergraduate Female Students in the Faculty of Health Science

Background

A large percentage of the products of the union of an egg and a sperm never become infants [1]. If there is something seriously wrong with the fetus, the uterus often expels or abort it. Abortion is a generic term for pregnancies that do not end in a live birth or a stillbirth. The word abortion originates from the Latin word, aboriri which means the failure to be born [2]. Abortion can be defined as the termination of pregnancy, spontaneous, therapeutic or induced, before the fetus has become viable outside the uterus or before the fetus is capable to have a life outside of the womb. It is

the premature expulsion from the uterus of the products of conception, which include the placenta, bag of waters, and fetus [2,3].

Spontaneous abortion refers to a natural biological process by which some pregnancies end and an induced abortion takes place when a pregnancy is terminated by the deliberate removal of the fetus from the uterus by the use of external methods as a result of an unwanted pregnancy [3]. Elective abortion is the voluntary termination of pregnancy. Elective abortions may be performed surgically (e.g. by dilation and curettage (D&C)) or medically [e.g. by administration of medications such as mifepristone (also known as RU486 or mifeprex) and misoprostol). A therapeutic abortion takes place when a pregnancy is terminated by the removal of the fetus from the uterus by the use of external methods, however, unlike an induced abortion that is performed as result of an unwanted pregnancy, therapeutic abortion is performed to either to save the life of a pregnant woman; or when a woman's physical or mental health is in jeopardy; or if a child would be born with a congenital disorder that may be terminal or related to significant illness; or to selectively decrease the number of fetuses to reduce health risks that are linked to multiple pregnancies [4].

Legal abortions: This can be performed if the life of the woman will be jeopardized by the pregnancy. Unsafe abortions: This usually occurs where abortion is illegal. In some cases, women or adolescents may try to end their pregnancies by themselves or with the assistance of untrained personnel.

WHO (2004) defines unsafe abortion as a procedure carried out by persons lacking the necessary skills or in an environment that does not conform to minimal standards or both. As many as 67,000 women in the world die annually as a result of unsafe abortion and 48% of all abortions worldwide are deemed unsafe [5].

Unintended pregnancy poses a major challenge to reproductive health of young adults in developing countries. Some young women who had unintended pregnancies obtain abortion. Many of which are performed in unsafe condition and others carry their pregnancies to term, incurring the risk of morbidity and mortality higher than those for adult women. Unintended pregnancies is higher among women who were unmarried, lower economic status, at an early or late age of reproductive life, not using contraceptives consistently and attending formal education [6].

Unintended pregnancy is common and abortion rates are rising worldwide. In 2008, 33 million (16%) of about 208 million pregnancies worldwide resulted in unintended births and 41 million (20%) in induced abortions [7]. Be it induced, safe or unsafe, abortion is a universal phenomenon and has existed throughout history. Yet it continues to be a controversial issue, raising extreme passions among lay people, as well as politicians, religious leaders, and health and rights advocates [8]. Abortion is mainly performed whenever there are some compelling reasons to end a pregnancy. The death of women due to abortion related causes is unacceptable, since most of the causes are preventable. Inadequate delivery systems, restrictive abortion laws, negative cultural and religious attitudes and poor health infrastructure for the treatment of abortion related complications are the main burdens of women's health that could be prevented [9].

Statement of the Problems

As many as 67,000 women in the world die annually as a result of unsafe abortion and 48% of all abortions worldwide are deemed unsafe. In 2008, 33 million (16%) of about 208 million pregnancies worldwide resulted in unintended births and 41 million (20%) in induced abortions. Every day 192 women die because of complications arising from unsafe abortion due to different reasons and nearly all of them occur in developing countries.

More than 18 million young women give birth to a baby each year and 9 in 10 of them are in developing countries where about 30% women give birth to the first child before their 20th birthday. However, a large percentage of the unintended pregnancy results in unsafe abortion [10].

According to WHO, an estimated one-fifth of pregnancies, 42 million out of 210 million, each year are voluntarily aborted. Of these, 22 million occur within a formal health care system and 20 million outside of the legal system [11]. Other studies on abortion also showed that the victims, with induced, are largely young, nulliparas, and single, relatively more educated, unemployed and students. More commonly affected groups are the young, schoolgirls, those with formal education, and not married [12].

In Ethiopia, despite the technological advancements in modern contraception methods, unintended pregnancy is still a big problem. More than 60% of the pregnancies in adolescents are unintended; ones which result from contraception non-use, contraception method failure and rape. The incidence of unintended pregnancy and unsafe abortion, particularly among adolescents, remains high. Abortion emanating from unintended pregnancy is

one of the most significant causes of maternal morbidity and mortality; it is also a major medical and public health problem [13]. Low levels of contraceptive use lead to high levels of unintended pregnancy in Ethiopia, the root cause of abortion. In 2008, 101 unintended pregnancies occurred per 1,000 women aged 15 - 44 and 42% of all pregnancies were unintended. In the same year, an estimated 382,500 induced abortions were performed, for an annual rate of 23 abortions per 1,000 women aged 15 - 44 [14].

Significance of the Study

The main concern of the study is to investigate knowledge, attitude and practice of MA among female regular undergraduate students in faculty of health science, Jimma University. The output of the research is believed to be important input for policy makers and health practitioners, due to the fact that it will generate important information in relation to MA knowledge of Ethiopian female students in the faculty of health science Jimma University.

Based on the result of this study, recommendations had been suggested, concerned bodies can take appropriate and timely policy measures to address the problem.

Literature Review

Overview of global abortion laws and practices

Based on WHO estimates of annual deaths due to unsafe abortion, more than three-quarters of a million women have died since 1994, when this issue was first placed on the world's agenda at the International Conference on Population and Development (ICPD). These problems require increased attention and new actions by policymakers responsible for progress toward the MDGs of reducing maternal mortality, promoting gender equality and empowering women, and eradicating poverty. Women's ability to regulate their own fertility is critical to the achievement of these internationally agreed goals. Conversely, the persistence of unsafe abortion in many countries is a key obstacle to meeting the MDGs [15].

Since the 1950s there has been a global trend towards the liberalization of abortion laws, with the focus moving away from abortion as a crime towards a concern for women's health and family well-being. While most developed countries and a number of developing countries have relaxed restrictions, the legal status of abortion varies considerably throughout the world. Abortion laws tend to fall into one of the following categories (from the most to least restrictive)-prohibited totally or allowed only to save the woman's life (e.g. Mexico, Iran, Iraq, Nigeria); permitted to save the woman's life or protect her physical health (e.g. Poland, Saudi Arabia, Peru, Pakistan, Zimbabwe); permitted to save the woman's life or protect her physical or mental health (e.g. Ethiopia, Jamaica, Spain; Israel); permitted on all of the above grounds and also on socioeconomic grounds (e.g. India; Japan, Taiwan, United Kingdom, Guyana after eight weeks, before which it is 'on request'); Permitted 'on request' (e.g. many European countries, Russian Federation, South Africa) [16].

National laws and policies directly affect women's access to safe abortion. An estimated 61percent of the world's population lives in countries where laws permit abortion with no restriction as to reason or on broad socioeconomic grounds, with an additional 3 percent in countries whose laws permit abortion on broad physical and mental health grounds. In contrast, 36% of the world's population lives in countries where laws permit abortion only to save the woman's life or to protect her physical health [17].

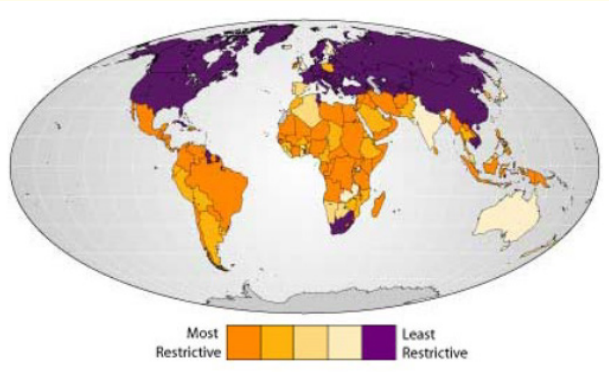

Figure 1: The world's abortion laws.

Source: Center for reproductive rights 39 [18].

In many countries, mortality and morbidity that resulted from abortion are declining due to the legalization of abortion and provision of accessible and affordable safe services. Legalization of abortion has an effect on reducing maternal mortality, although factors influencing maternal mortality vary between countries [19].

Ethiopian abortion law

In Ethiopia, abortion has only recently been made liberal, under more particular circumstances. Prior to 2004, abortion was permitted in Ethiopia only to save a woman's life, protect her health,

and in cases of rape. The 1957 Penal Code of Ethiopia had permitted abortion only to save the life or health of a woman. This restrictive penal code together with limited access to reproductive health services contributed to a high use of unsafe abortion services in the country. In order for a woman to have an abortion, visible signs of suffering were required. In addition, termination of pregnancy had to be diagnosed and certified in writing by a health care provider and two doctors had to authorize the procedure. Health care providers were subject to prosecution if they terminated a pregnancy based on false information provided by a woman [20].

In May 2005, Ethiopia's abortion law was amended to expand the exceptions within which a woman could legally seek an abortion. In a meeting with members of the CORHA, including Ethiopian Society of Obstetricians and Gynecologists, Ethiopian Public Health Association, Engender Health and Ipas, members explained how the high incidence of deaths as a result of unsafe abortion in the country led the government to make the change [21]. According to the new law a woman can legally terminate a pregnancy under the following circumstances: When pregnancy results from rape or incest, when the health or life of the woman and the fetus are in danger, in cases of fetal abnormalities, for women with physical or mental disabilities and for minors who are physically or psychologically unprepared to raise a child. According to the law, no consent from a spouse, partner or parent is required to obtain a legal abortion and no requirements exist for legal reporting or documenting rape or incest as a prerequisite for obtaining a legal abortion [22].

Studies on knowledge, attitude and practice on medication abortion

A study done on knowledge of MA among Brazilian medical students in Brazil where all students (1260) from three medical schools of the state of São Paulo were invited to participate in a survey where 874 completed the questionnaire, yielding a response rate of 69%. Although all students in their final year of medical school had heard of misoprostol for termination of pregnancy, and 88% reported having heard how to use it, only 8% showed satisfactory knowledge of its use and effects. The percentages of students who had heard about misoprostol as a means to induce abortion and about how to use it for abortion were 72% and 52% respectively. Of the students aged 25 years or older, 91% had heard of misoprostol as a means to induce abortion but only 40% of those younger than 20 years had heard of misoprostol as a means to induce abortion. Over one third of first-year students, more than 50% of second-year students, 90% of fourth-year students, and all students in their final year had heard about misoprostol for inducing abortion. In contrast, the proportion who had heard of mifepristone for abortion was very low, rising from just over 1% among first-year students to about 8% among those in their final year [23].

A cross-sectional survey of a representative sample of female students of childbearing age living in halls of residence, on the resolution of unintended pregnancy at the University of Ghana showed that only 42 female students had ever heard about Misoprostol/Cytotec. Four students knew it was a tablet but did not know what it was meant for and another 2 admitted that it was an ulcer drug. The others knew about the effects of the drug on the reproductive system (i.e. a drug to regulate menstrual flow - 2 students, to induce labor - 3 students and to terminate pregnancy - 29 students). Of the 42 students, 33 knew a pharmacy and 4 knew a hospital where they could obtain Misoprostol [24].

A study conducted on knowledge and practices among medical abortion seekers in southeastern Nigeria where a descriptive, cross sectional survey of 100 was conducted on consecutive medical abortion seekers. Fifty-five percent of respondents were students where sixty-four percent had a secondary educational level, 33% had a tertiary education level and 3% had a primary educational level. Fifty-eight percent of subjects were aged 18 - 20 years; 25% had one or more previous deliveries and 49% had a previous termination of pregnancy. Forty-eight percent of the respondents had used drugs for pregnancy terminations. The frequently used drugs for termination included quinine combined with other drugs in 8%; gynaecosid alone in 6%, gynaecosid combined with other drugs in 6%, menstrogen combined with other drugs in 6% and an unclassified drug in 14%. Thirty-three percent of subjects purchased their abortion drugs in a pharmacy. Three percent, 2%, and 0% of subjects had knowledge of misoprostol, mifepristone and methotrexate, respectively. One percent of respondents had used misoprostol [25].

A study done in Nigeria on knowledge about complications and practice of abortion among female undergraduates in the university of Ibadan, A total of 425 students were interviewed, the mean age of the respondents was 21.5 ± 2.8 years with a range of 15 - 30 years. The majority, 414 (97.4%) were single, 242 (56.9%) were aged between 20 - 24 years and about a third 150 (35.2%) were in

the first year of study. Overall, 122 (29%) of the respondents had ever had sexual intercourse. Twenty five percent of those who were sexually active had ever been pregnant and 90% had terminated the pregnancy. The most common reason given for termination was that pregnancy was unplanned. Most of the respondents 354 (83.3%) had a good knowledge about complications of abortion and mean knowledge score was 4.01 ± 1.58 (range 0 - 5) [26].

A cross-sectional quantitative study conducted between 1st of June to 5th of July 2013 on Assessment of Knowledge, Attitude and Practices Regarding Medication Abortion among Regular Undergraduate Female Students in College of Social Sciences Addis Ababa University, Ethiopia reveals the following results: The age of the study participants ranged from 18 to 25 years with a mean age of 20.6 ± 1.5. Three fourth of the respondents (159, 74.6%) knew what medication abortion meant where 11 (6.9%) and 97 (61%) of them had high and low knowledge on medication abortion respectively. Majority (142, 66.7%) of the study participants would advise someone with unwanted pregnancy to undergo an abortion and 86 (40.4%) would consider abortion if they had unplanned pregnancy. From 21 respondents who had abortion experience, 13 (61.9%) used medication abortion [27].

Objectives of the Study

General objective

To assess knowledge, attitude and practices towards the use of medication abortion among female regular undergraduate students in faculty of health science.

Specific objectives

- To determine level of knowledge on medication abortion among female regular undergraduate students in faculty of health science.
- To assess attitude towards medication abortion among female regular undergraduate students in faculty of health science
- To assess the practice of medication abortion among female regular undergraduate students in faculty of health science.

Materials and Methods

Study area

The study was conducted in Jimma University which is found in Jimma town, Oromia Region, southwest Ethiopia. Jimma University is one of the largest and comprehensive public research universities in Africa. The university campus is located in the city of Jimma, situated around 352 kilometers southwest of Addis Ababa. Its grounds cover some 167 hectares. JU is Ethiopia's first innovative community-oriented educational institution of higher learning, with teaching centers for health care students in Jimma, Omo Nada, Shebe, Agaro, and Asendabo. JU is a pioneer in Public health training. It has academic and scientific collaboration with numerous national and international partners. The university is operating on four campuses and it is on the phase of establishing its fifth campus at Agaro. Currently, the university educates more than 43,000 students in 56 undergraduate and 103 postgraduate programs in regular, summer and distance education with more enrollments in the years to come.

Study period

The study was conducted from 7/02/2019 to 14/03/2019 in Jimma University main campus.

Study design

An institutional based cross sectional study was conducted on female regular undergraduate students in faculty of health science using systematic simple random techniques.

Source population

All the female regular undergraduate students in the faculty of health science. According to college registrar there is a total of 468 female students in the faculty of health science.

Study population

The female regular undergraduate students who were present in the campus during the data collection period. That was from 7/02/2019 to 14/02/2019

Sample size determination and sampling technique

A general formula was used to calculate sample size:

$$n = \frac{(Z)^2 P (I-P)}{d^2}$$

Where n = Sample size

p = 50% estimated population proportion of success (reflects assumption that impact is expected in 50% of the population)

d = 0.05 margin of error (5%) (The precision of measurement)

Z = Confidence interval (1.96)

$n = \{(1.96)^2 (0.5) (1-0.5)\}/ (0.05)^2 = 384$

However, adjusted formula was used because the total population of the study was below 10,000:

$$N_i = \frac{n}{1+n/N}$$

Where N_i = The minimum sample size

n = Sample size

N = Total number of female students

$N_i = 384/(1+384/468) = 211$

The 10% of none response was added giving rise to total sample size of 232.

Since the population is heterogeneous stratified random sampling techniques was used to select representative sample from each stratum using the formula.

ni =n/N*Ni

Where: ni = Sample from each stratum

Ni = Total elements in each stratum

n = Sample size from all the strata

N = Total population.

NB: The sample taken from it stratum was determined by using systematic random sampling techniques. The K value was determined during data collection based on the total number of students in each stratum who were present during data collection.

Strata	Ni	Ni	Year of study (Ni)	Year of study (ni)
Pharmacy	120	232/468*120 = 59	1st Ni = 22	59/120*22 = 11
			2nd Ni = 23	59/120*23 = 11
			3rd Ni = 29	59/120*29 = 14
			4th Ni = 27	59/120*27 = 13
			5th Ni = 19	59/120*19 = 10
Medical laboratory	71	232/468*71 = 35	1st Ni = 24	35/71*24 = 12
			2nd Ni = 12	35/71*12 = 6
			3rd Ni = 24	35/71*24 = 12
			4th NI = 11	35/71*11 = 5
Mid-wifery	100	232/468*100 = 50	1st Ni = 31	50/100*31 = 16
			2nd Ni = 16	50/100*16 = 8
			3rd Ni = 26	50/100*26 = 13
			4th Ni = 27	50/100*27 = 13
Nursing	177	232/468*177 = 88	1st Ni = 37	88/177*37 = 19
			2nd Ni = 41	88/177*41 = 20
			3rd Ni = 46	88/177*46 = 23
			4th Ni = 53	88/177*53 = 26

Inclusion criteria:

- Female student in the faculty of health science
- Present during data collection
- Willingness to participate in the study.

Exclusion criteria

- Male student in the faculty of health science.
- Female students from other faculties.
- Away from campus during data collection.
- Unwillingness to participate in the study.

- Postgraduate students.
- Those students from faculty of health science unable to see because of injury, disease, or a congenital.

Study variables

Dependent variables

- Knowledge about MA.
- Attitude towards MA.
- Practice of MA.

Independents variables

- Age
- Marital status
- Religion
- Region
- Place of residence
- Department
- Year of student.

Data collection procedure

The data was collected using a self-administered questionnaire, containing both open and close ended questions. The questionnaires included questions on the general socio-demographic characteristics of respondents, their knowledge, attitude and practice of MA.

Data quality control

In order to check the practicability of the study, a pre-test of the data collection instrument (the questionnaires) was performed a week before the actual data collection process and important modification was made accordingly. For testing the questionnaires 10% of the total sample (222) was used in the main campus.

Data analysis and presentation

The data was analyzed manually using percentage, frequency distribution table and different graphs. An electronic calculator was used in order to obtain percentages of each category to construct percentage frequency distribution tables.

Operational definitions

- **Medication abortion:** Is a method of pharmacologic termination of the early first trimester of pregnancy. Depending on the agent (s), the regimen, and the provider, MA may be initiated as soon as a woman finds out she is pregnant, through 7 - 9 weeks (49 - 63 days) of gestation (via menstrual dating).
- **Knowledge:** What a woman knows about MA (Meaning, place where it is done, drugs used for MA and gestational age MA is used).
- **Attitude:** The predisposition to respond in a favorable or unfavorable manner towards abortion, MA and related issues such as advising colleague to have abortion or for oneself in case of unplanned pregnancy, which type of abortion is preferable.
- **Practice**: Is the overt health behavior, habit or customs of a woman related to MA. Those who have experienced/ practiced MA.

Ethical consideration

Permission was taken from Jimma University ethical review board/CBE office before data collection. An oral consent was asked before distributing the questionnaires to the respondents and Further, the study participants were briefed about the study by the data collector by stating the main objective and any unclear points related to the study was explained, after which the interview was started. Those who were willing to be part of the study were included while others were excluded. Cultures and norms of the students were respected. Disinterested students were not forced to take part in the study.

Dissemination of the study result

The result of the study will be disseminated to Jimma University, Institute of health science, school of pharmacy and CBE office. Further, the result will be accessed for all concerned and interested bodies for utilization. Final attempt will be made to publish on peer reviewed journal.

Result

From the total sample size of 232 including the 10% of none response only 222 questionnaires were correctly filled and the other 10 questionnaires were discarded due to incompleteness accounting for 95% response rate.

Socio-demographic characteristics of the study participants

The age of the participants ranged from 18 to 26 years with mean age of 22. The age group 21 - 23 (69.8%) constitutes the largest proportions of the study participants followed by the age group 18 - 20 (26.1%). Out of the 222 respondents the majority 90 (41%) came from oromia region, 61 (27.5%) came from Addis Ababa city administration, and 50 (22.5%) from SNNP. The majority of the study participants 113 (50.9%) were orthodox Christians. From the total of 222 participants; 57 (25.7%), 34 (15.3%), 83 (37.4%), 48 (31.6) were from the school of pharmacy, medical laboratory, nursing and mid-wifery respectively. The majority of the participants 61 (27.5%) were in year III. From the 222 participants only 8 (3.6%) were married while the majority 158 (71.2%) were single without relationship. The majority of the respondents, 190 (85.6%) lived in the campus, and from the 32 respondents who lived outside the campus the majority 16 (50%) were living with their families.

Characteristics	Frequency	Percentage
Age distribution (n = 222)		
18 - 20	58	26.1
21 - 23	155	69.8
>=24	9	4.1
Region they come from (n = 222)		
Oromiya	91	41.0
Addis Ababa city Administration	61	27.5
SNNPR	50	22.5
Amara	17	7.6
Tigray	3	1.4
Religion (n = 222)		
Orthodox	113	50.9
Protestant	66	29.7
Muslim	37	16.7
Catholic	6	2.7
Department of study (n = 222)		
Nursing	83	37.4
Pharmacy	57	25.7
Midwifery	48	21.6
Medical laboratory	34	15.3
Year of study (222)		
Year I	52	23.4
Year II	43	19.4
Year III	61	27.5
Year IV	56	25.2
Year V	10	4.5
Marital status (n = 222)		
Single without relationship	158	71.2
Single with relationship	56	25.2
Married	8	3.6
Place of residence (n = 222)		
In the campus Dormitory	190	85.6
Outside the campus	32	14.4
Outside the campus Living with (n = 32)		
With my family	16	50
With my relatives	8	25
With my husband	3	9.4
With my friends	3	9.4
Alone	2	6.2

Table 1: Socio-demographic characteristics of undergraduate female students, in faculty of health science, Jimma University, February 2019.

Respondents general knowledge on abortion and Ethiopian's abortion law

From the 222 respondents, 213 (95.9%) have heard about abortion only 9 (4.1) have never heard of abortion. Among those who heard about abortion the major source of information was teachers 128 (60.1%) followed by media (TV, radio and newspaper) 98 (46%) and friends 89 (41.6%). From the 213 respondents who heard about abortion more than half 120 (56.3%) new that abortion is regal in Ethiopia under certain conditions, 61 (28.7%) said abortion is not regal in Ethiopia while 32 (15%) did not know whether abortion is legal or not. The conditions under which abortion is allowed in Ethiopia most of the respondents mentioned rape/incest 106 (88.3%) followed by When the fetus has severe abnormalities 92 (76.7%), When the woman's or fetus lives are threatened 89 (74.2%) respectively.

Question	Frequency	Percentage
Have you ever heard about abortion? (n = 222)		
Yes	213	95.9
No	9	4.1
Source of information about Abortion (n = 213)		
Teachers	128	60.1
Media	98	46
Friends	89	41.8
Family	39	18.3
Church	28	13.1
Is abortion legally allowed in Ethiopia? (213)		
Yes	120	56.3
No	61	28.7
I do not know	32	15.0
Under what condition is abortion allowed in Ethiopia? (n = 120)		
When the pregnancy is resulted from rape or incest (sex among close relatives)	106	88.3
When the fetus has severe abnormalities	92	76.7
When the woman's or fetus‟ lives are threatened	89	74.2
When the woman has physical or mental disabilities	86	71.7
When a woman is physically or psychologically unprepared to raise a child	50	41.7
On request for everyone	6	5

Table 2: General Knowledge on abortion and Ethiopian's abortion law among undergraduate female students in faculty of health science, Jimma University, February 2019.

NB: For multiple responses the sum of the percentage may add up to more than.

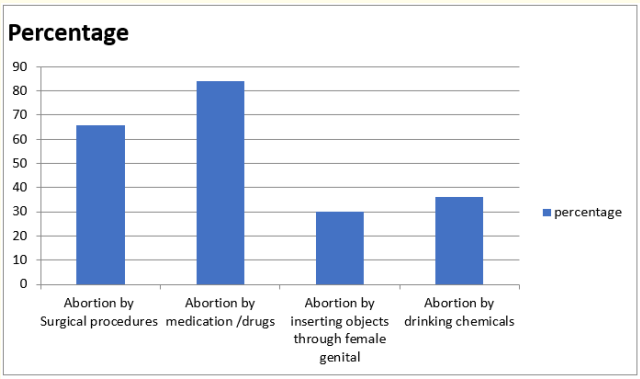

Figure 2: Ways of performing abortion, faculty of health science, Jimma University, February 2019.

Respondents knowledge on medication abortion

From the 213 respondents who heard of abortion, majority of them 134 (62.9%) claimed to know what medication abortion is and 79 (37.1%) of respondents did not know what medication abortion means. From the 134 (62.9%) of the respondents who claimed to know what medication abortion means only 99 (73.9%) knew exactly what medication abortion means. The major source of information about medication abortion was teachers 100 (74.6%) followed by media (radio, TV, newspaper) 39 (29.1%) and friends 20 (14.9%). From the 134 respondents who heard of medication abortion more than one-fourth of them 101 (75.4%) knew where it can be conducted. The majority of those who knew where one can conduct medication abortion mentioned hospital 79 (78.2%) followed by health center 51 (50.5%) (Table 3).

From the 134 respondents most of them 67 (50%) mentioned hospital pharmacy as a place where someone can get a drug for medication abortion followed by community pharmacy 48 (35.8%). From the 134 respondents who heard of medication abortion the majority 95 (70.9%) mentioned misoprostol as a drug used for medication abortion followed by mifepristone 67 (50%), methotrexate 9 (6.7%), gynaecosid 3 (2.2%) and 31 (23.1%) did not know the drug used for MA though they have heard of MA. The gestation age at which MA is preferred the majority 70 (52.2%) mention Gestational age ≤ 3 months, followed by Gestational age ≤ 2 months 59 (44%).

Questions	Frequency	Percentage
Do you know what a medication abortion means? (n = 213)		
Yes	134	62.9
No	79	37.1
Medication Abortion means? (n = 134)		
Abortion using abortion pill/drug	99	73.9
Abortion using any drugs/medication	29	21.6
Abortion by drinking chemicals	4	3.0
Abortion by inserting objects through female genital	2	1.5
Where did you get information about medication abortion from? (n = 134)		
Teachers	100	74.6
Media	39	29.1
Friends	20	14.9
Family	8	6
Do you know where someone can have medical abortion done? (n = 134)		
Yes	101	75.4
No	33	24.6
Where? (n = 101)		
Hospital	79	78.2
Health center	51	50.5
Private clinic	42	41.6
Home	13	12.9
Dorm	6	5.9
Do you know where someone can get drug for medication abortion? (n = 134)		
Hospital pharmacy	67	50
Community pharmacy	48	35.8
I do not know	42	31.3
From friends	11	8.2

Table 3: Knowledge on medication abortion among undergraduate female students in faculty of health science, Jimma University, February, 2019.

NB: For multiple responses the sum of the percentage may add up to more than 100.

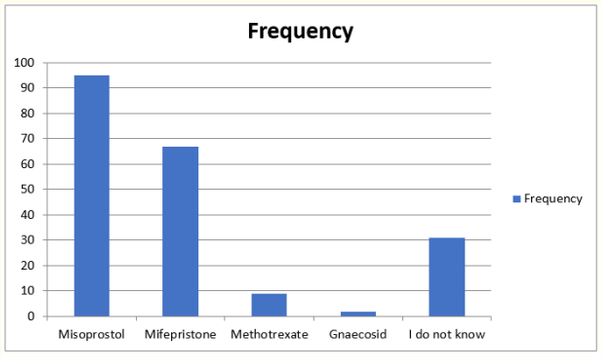

Figure 3: Drugs used for medication abortion, faculty of health science, Jimma University, February 2019.

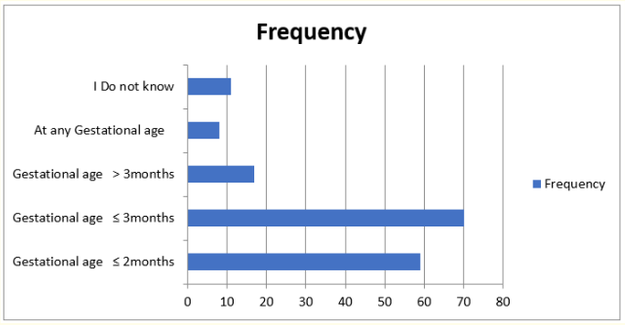

Figure 4: Gestational age at which medication abortion is preferred, faculty of health science, Jimma University, February, 2019.

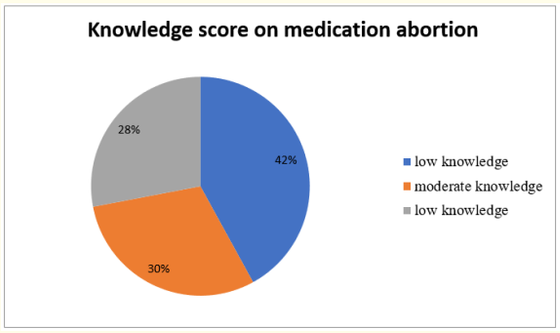

Figure 5: Knowledge score on medication abortion, faculty of health science, Jimma University, February 2019.

Attitudes towards abortion and medication abortion

From the 213 respondents the majority 137 (64.3%) did not support that government should allow abortion in this country the major reasons for their refusal to legalize abortion were; not allowed in my religion95 (69.3%) followed by it will encourages many women to have unplanned pregnancy 67 (48.9%). Only 76 (35.7%) respondents supported that government should allow abortion in this country the major reason was; to prevent the death of women due to unsafe abortion 68 (89.5) followed by to prevent unsafe abortion62 (81.6%). From the 213 respondents only 34 (16%) would advise their friends with unwanted pregnancy to have abortion and the majority 179 (84%) would not. Only 25 (11.7%) respondents would consider abortion if they had unwanted pregnancy while the majority 188 (88.3%) would not. From the 25 respondents who would consider abortion majority of them 18 (72%) prefer medication abortion. The 7 respondents who would prefer another method the major reason was that MA it is associated with prolonged bleeding time and severe abdominal cramping 16 (85.7%) (Table 4).

From the 25 respondents who would consider abortion in case of unwanted pregnancy the main reason was it It will affect my education 22 (88%) followed to protect social stigma 13 (52%) and I cannot raise the child 12 (48%). The majority would consider medication abortion 18 (72%) and the main reason was it is effective way to terminate pregnancy followed by it is safe 13 (72.2%). From the 188 respondents who would not consider abortion if they have unplanned pregnancy the major reason was my religion cannot allow abortion 129 (68.6%), I don't want to kill my own baby 112 (59.6%) and 37 (19.7%) said it is crime.

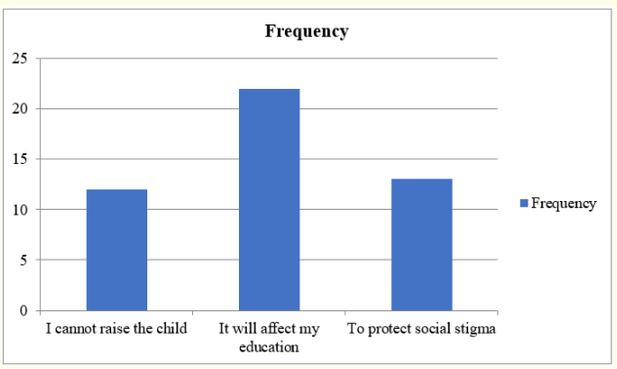

Figure 6: Reasons for considering abortion in case of unwanted pregnancy, faculty of health science, Jimma University, February 2019.

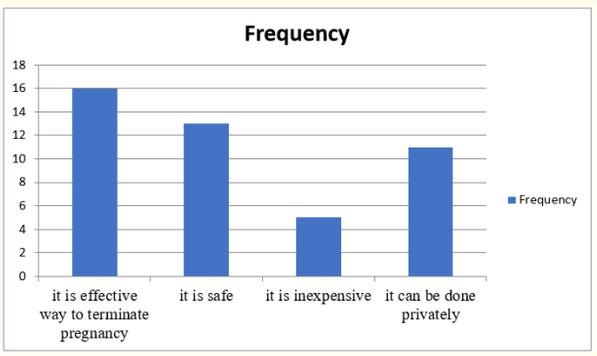

Figure 7: Reasons for considering medication abortion in case of unwanted pregnancy, faculty of health science, Jimma University, February 2019.

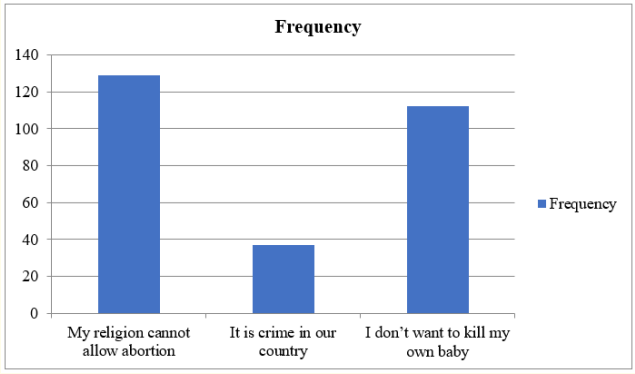

Figure 8: Reasons for not considering abortion in case of unwanted pregnancy, faculty of health science, Jimma University, February, 2019.

Question	Frequency	Percentage
Do you support that government should allow abortion in this country? (n = 213)		
Yes	76	35.7
No	137	64.3
If yes, what is your reason? (n = 76)		
to prevent the death of women due to unsafe abortion	68	89.5
to prevent unsafe abortion	62	81.6
to prevent girls from dropping out from school due to unplanned pregnancy	48	63.2
it is human right	9	11.8
If no, what is your reason? (n = 137)		
not allowed in my religion	95	69.3
it encourages many women to have unplanned pregnancy	67	48.9
it will risk the health of women	64	46.7
it is crime	59	43.1
Would you advise or encourage a colleague with an unwanted pregnancy to undergo an abortion? (n = 213)		
Yes	34	16
No	179	84
Which type of abortion would you advise or encourage a colleague with an unwanted pregnancy to undergo an abortion? (n = 34)		
Abortion by medication/drugs	24	70.6
Abortion by Surgical procedures	8	23.5
Abortion by inserting object through female genital	2	5.9
If you have unplanned pregnancy will you consider abortion to terminate? (n = 213)		
Yes	25	11.7
No	188	88.3
Which type of abortion would you consider if you have unplanned pregnancy? (n = 25)		
Abortion by medication/drugs	18	72
Abortion by inserting object through female genital	4	16
Abortion by traditional practitioners	2	8
Abortion by Surgical procedures	1	4
If not abortion by medication/ drugs, why (n = 7)		
it is associated with prolonged bleeding time and severe abdominal cramping	6	85.7
Longer interval from start to finish	4	57.1
it is associated with high failure rates	2	28.6

Table 4: Attitude towards abortion among undergraduates female students faculty of health science, Jimma University February 2019.

NB: For multiple responses the sum of the percentage may add up to more than 100.

Sexual and abortion related practices

From the 222 respondents 90 (40.5%) had sexual experience while 132 (59.5%) never had sex. From those who had sexual experience before 11 (12.2%) had incidence of pregnancy of which the majority 7 (63.6%) had abortion and 4 (36.4%) gave birth. From the 7 respondents who had abortion history, most of them 5 (71.4%) used medication abortion and only 1 (14.3%) had abortion by surgical method and 1 (1.3%) by traditional practitioner. Among those who had abortion history 3 (42.8%) conducted abortion in health center, 2 (28.6%) in hospital, 1 (14.3%) at home and 1 (14.3%) in the dorm. Those who had medication abortion history all of the used misoprostol and mifepristone of which the majority 3 (60%) acquired these drugs from hospital pharmacy 1 (20%) acquired from community pharmacy and 1 (20%) got the drug from friend.

Question	Frequency	Percentage
Have you ever had sexual intercourse before? (n = 222)		
Yes	90	40.5
No	132	59.5
If you had sexual intercourse before was there incidence of pregnancy? (n = 90)		
Yes	11	12.2
No	79	87.8
If there was incidence of pregnancy, what action did you take? (n = 11)		
Undergone abortion	7	63.6
Gave birth	4	36.4
If you had undergone abortion; which type of abortion did you use? (n = 7)		
Abortion by medication	5	71.4
Abortion by Surgical procedures	1	14.3
Abortion by traditional practitioners	1	14.3
Where did you conduct? (n = 7)		
health center	3	42.8
Hospital	2	28.6
Home	1	14.3
Dorm	1	14.3
If you used medication abortion procedure which drug did you use? (n = 5)		
Misoprostol	5	100
Mifepristone	5	100
Where did you get the dug from? (n = 5)		
Hospital pharmacy	3	60
Community pharmacy	1	20
From friends	1	20

Table 5: Sexual and abortion related practices, among of undergraduate female students in faculty of health science, Jimma University, February 2019.

NB: For multiple responses the sum of the percentage may add up to more than 100.

Discussion

In this study nearly all the study participants (95.6%) have heard about abortion and the major source of information was teachers (60.1%) followed by media (radio, TV, newspaper and Internet) (46%). Among those who had heard of abortion the majority 84% new medication abortion as a means to terminate pregnancy followed by surgical procedures (65.7%). More than half of the respondents (56.3%) new that abortion is regal allowed in Ethiopia under certain conditions while 28.7% said abortion is not allowed in Ethiopia and 15% did not know whether abortion is regal allowed or not. Which is comparable to a study conducted in Addis Ababa University in June 2013 that showed that; the entire study participants heard about abortion and the ways of performing abortion that the majority knew were: abortion by medication/drug (78.8%) followed by traditional practitioner (66%)?The majority (82.6%) mentioned media (radio, TV, newspaper and internet) followed by (70%). Nearly half of the respondents 46.9% believe abortion is regally allowed in Ethiopia while 28.2% believe abortion is not regally allowed in Ethiopia [27]. On the other hand one of study conducted at the University of Ghana in September 2007 among female students' shows that; only 16.5% of all respondents would attempt to outline the abortion law. Less than one third of these respondents simply stated that abortion is a criminal offence. However, about 14% of the students interviewed knew that abortions are legal in Ghana under certain conditions. The most commonly mentioned condition for which an abortion could be performed legally was, "if the pregnancy could cause risk to the physical health of the mother". This may actually be reflection of what pertains in clinical practice, rather than a reflection of theoretical knowledge of the law [24]. The difference was in knowledge regarding the country's abortion law where students in the faculty of health science at Jimma University were knowledgeable about the country's abortion law 56.3% compared to 46.9% of Addis Ababa University, college of social science and 14% in university of Ghana. This difference may be due to the different in the socio-demographic of the study participants such as department and year of study.

The finding of this study shows that 134 (62.9%) of the study participants had heard about MA. The major source of information about medication abortion was teachers 100 (74.6%) followed by media (radio, TV, newspaper) 39 (29.1%). From the 134 respondents who heard of medication abortion more than one-fourth of them 101 (75.4%) knew where it can be conducted. The majority of those who knew where one can conduct medication abortion mentioned hospital 79 (78.2%) followed by health center 51 (50.5%). From the 213 respondents interviewed 95 (44.6%) knew misoprostol as a drug used to terminate pregnancy and 63 (29.6%) mentioned mifepristone only 9 (4.2%) mentioned methotrexate.126 (59.2%) of the study participants knew where they could

obtain the drug. The majority mentioned hospital pharmacy (50%). The findings of this study is much higher compared to the study done on September 2007 at the University of Ghana where only 42 (8.8%) of the respondents knew misoprostol as a drug used to abort pregnancy, 33 (6.7%) knew pharmacy and 4 (0.83%) knew hospital as a place where they can obtain the drug [24]. In another study assessing Knowledge of medical abortion among Brazilian medical students showed that; the percentages of the students who had heard about misoprostol as a means to induce abortion and about how to use it for abortion were 72% and 52%. In contrast, the proportion who had heard of mifepristone for abortion was very low, rising from just over 1% among first-year students to about 8% among those in their final year. Only about 10% those who had attended lectures on MA had heard about mifepristone for pregnancy termination [23]. In the another study conducted in this country at Addis Ababa university among female students in the college of social science showed that The majority of the respondents 141 (88.1%) did not know which drugs are used in case of MA but few of the respondents mentioned Misoprostol 3 (1.9%), Mifepristone 2 (1.2%), Methotrexate 2 (1.2%), and Safe-T3 (1.9%) [27]. These differences seen in these studies may be due the different in the education background of the study participants from this studies it can be clearly seen that the study done in Brazil among medical students and the one done at Jimma University among female students in the college of health science show high knowledge regarding the drugs used for MA and this knowledge was also influenced by the year of study where students in their final year had better knowledge compared to those who were in year one or two.

The result of this study shows that the majority 137 (64.3%) respondents had negative attitude towards the legalization of abortion in this country due to the reason that abortion is not allowed in their religion 95 (69.3%). From the 213 respondents only 25 (11.7%) would consider abortion if they have unwanted pregnancy the major reason was it will affect their education 22 (88%) this is much lower that the result of the study done at Addis Ababa university where 86 (40.4%) would consider abortion if they have unwanted pregnancy and the reasons for termination were similar. This different may be due to the norms and taboos concerning abortion and the cost of living in these two different towns.

The result of this study show that 90 (40.5%) of the respondents had sexual experience while 132 (59.5%) never had sex. From those who had sexual experience before 11 (12.2%) had incidence of pregnancy of which the majority 7 (63.6%) had abortion and 4 (36.4%) gave birth. In a similar study conducted among female undergraduates in the University of Ibadan, Nigeria showed that; One hundred and twenty two (28.7%) of the respondents had ever had sexual intercourse. Thirty (24.5%) of the sexually active respondents had ever been pregnant with 28 (93.3%) of such ending in induced abortion [26]. In other study done on The Resolution of Unintended Pregnancy among Female Students at the University of Ghana, Legon revealed that; about 38% (180 students) of all students interviewed had ever had sex. Only 46 (9.6%) of the students in the sample had ever been pregnant and had had a total of 110 pregnancies. Among these students, 19 had ever given birth (a total of 52 live births).

Four women had had a total of 7 miscarriages, and 31 (6.5) had ever had an abortion (a total of 51 abortions), implying that 53% of all pregnancies did not result in a live birth [24]. In one of the study done in this country at Addis Ababa University among female students in the college of social science also revealed that; Ninety three (43.7%) of the respondents had sexual intercourse experience, while 120 (56.3%) did not have. Among those who had sexual intercourse before, 24 (25.8%) had incidence of pregnancy. Of these the majority 21 (87.5%) undergone abortion, while 3 (12.5%) gave birth [27]. These studies all show some minor differences in sexual practice and abortion this can be due the different in cultures and norms regarding sexual practices among girls in these communities as well as attitude towards the use of contraceptives or prevalence of rape that may expose school girls to unwanted pregnancy.

In this study majority of respondents who had an abortion conducted it in public setting (hospitals and health center) while in the study done on Knowledge about complications and practice of abortion among female undergraduates in the university of ibadan, Nigeria shows that; Often times, the procedure was done in private establishments, 27 (96.4%) [26]. This might be due to the different in the country's abortion law where respondents in Nigeria would prefer private sector when considering abortion.

Conclusion

Though 213 (95.9%) of the study participants in the faculty of health science heard what abortion is, only 134 (62.9%) knew what MA means and their major source of information were teachers and media. Majority of the respondents were found to have low

knowledge score on MA. Medication abortion is acceptable by the study participants where nearly one fourth of the respondents have positive attitude towards abortion by advising or encouraging colleague with an unwanted pregnancy to undergo an abortion where most of them would advise or encourage abortion by medication/ drugs (Medical Abortion). Of all the respondents, 25 (11.7%) will consider abortion to terminate if they have unplanned pregnancy, so the majority would not consider abortion though they have unplanned pregnancy due to the reason that abortion is not allowed in their religion. Sexual reproductive health interventions are needed on campus in order to equip female undergraduates with comprehensive knowledge and skills to reduce the likelihood of unplanned pregnancies.

Recommendations

Based on the results of the study the following recommendations can be forwarded:

- Clearly, programs must be put in place to help female students prevent unintended pregnancy and to reduce the level of unsafe abortions. The initial focus should be on counseling and education regarding relationships, sex and reproductive health decisions, including abstinence as an important option.
- It would be much beneficial to conduct awareness on abortion in the campus and giving the reproductive health education to girls in the campus and as the same time the university girls need to be taught about medication abortion and safe abortion.
- The student clinic should consider giving abortion service to prevent female students from going to unsafe abortion practitioners.
- To reduce unintended pregnancy and abortions, a comprehensive campaign should focus on reducing fears and misconception about family planning by disseminating accurate, reliable and consistent messages among this group of women nationwide. Emphasis should be on correct and consistent use, side effects and effectiveness of the various methods.
- The campaign should also focus on male students and other partners of female students, to increase their knowledge and understanding of contraception and their support for their female partners' contraceptive and abortion decisions.
- Similar studies should be conducted in different parts of the country so as to get a national picture on the medication abortion knowledge, attitude and practices.

Acknowledgment

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Formulation Code	Weight variation (mg) ± SD*, (P value)	Thickness (mm) ± SD*, (P value)	Folding endurance ± SD#	Surface pH ± SD#	Average drug content in each formulation (% of theoretical amount/ocusert = 0.9308) ± SD#	% Moisture content ± SD^, (P value)	% Moisture uptake ± SD^, (P value)
F1	28.205 ± 1.669 p<0.0001	0.0262 ± 0.016 p<0.0001	78.33 ± 6.02	7.16 ± 0.404	92.42 ± 3.309	3.19 ± 0.056 p<0.0061	2.98 ± 0.111 p<0.0246
F2	37.1 ± 2.018 p<0.0001	0.326 ± 0.02 p<0.0001	72 ± 14.0	7.23 ± 0.351	89.01 ± 1.028	2.55 ± 0.02 p<0.0007	3.17 ± 0.036 p<0.0025
F3	47.165 ± 2.499 p<0.0001	0.364 ± 0.026 p<0.0001	64.33 ± 4.16	7.6 ± 0.5	90.72 ± 2.138	3.19 ± 0.053 p<0.0055	4.34 ± 0.036 p<0.0025
F4	24.45 ± 2.722 p<0.0001	0.224 ± 0.021 p<0.0001	51 ± 2.0	7.2 ± 0.3	87.31 ± 0.946	3.39 ± 0.044 p<0.0037	2.42 ± 0.177 p<0.0616

F5	34.38 ± 2.177 p<0.0001	0.229 ± 0.017 p<0.0001	45.66 ± 2.51	7.46 ± 0.416	83.9 ± 0.882	4.57 ± 0.046 p<0.0041	4.21 ± 0.036 p<0.0025
F6	47.165 ± 2.499 p<0.0001	0.354 ± 0.027 p<0.0001	44.66 ± 4.16	7.5 ± 0.519	87.31 ± 0.823	3.15 ± 0.036 p<0.0025	3.55 ± 0.053 p<0.0055
F7	24.78 ± 2.268 p<0.0001	0.224 ± 0.016 p<0.0001	95 ± 3.60	7.066 ± 0.208	89.01 ± 2.67	3.40 ± 0.026 p<0.0013	3.19 ± 0.07 p<0.0097
F8	33.18 ± 0.891 p<0.0564	0.308 ± 0.014 p<0.0001	74 ± 13.07	7.2 ± 0.360	87.31 ± 2.094	3.69 ± 0.026 p<0.0013	3.08 ± 0.044 p<0.0037
F9	44.395 ± 2.096 p<0.0001	0.38 ± 0.02 p<0.0001	78.66 ± 3.51	7.166 ± 0.35	89.01 ± 1.612	4.60 ± 0.026 p<0.0013	4.30 ± 0.046 p<0.0041

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