

Attitudes and Intentions Regarding Abortion Provision Among Medical School Students in South Africa

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CONTEXT: Although South Africa liberalized its abortion law in 1996, significant barriers still impede service provision, including the lack of trained and willing providers. A better understanding is needed of medical students' attitudes, beliefs and intentions regarding abortion provision.

METHODS: Surveys about abortion attitudes, beliefs and practice intentions were conducted in 2005 and 2007 among 1,308 medical school students attending the University of Cape Town and Walter Sisulu University in South Africa. Bivariate and multivariate analyses identified associations between students' characteristics and their general and conditional support for abortion provision, as well as their intention to act according to personal attitudes and beliefs.

RESULTS: Seventy percent of medical students believed that women should have the right to decide whether to have an abortion, and large majorities thought that abortion should be legal in a variety of medical circumstances. Nearly one-quarter of students intended to perform abortions once they were qualified, and 72% said that conscientiously objecting clinicians should be required to refer women for such services. However, one-fifth of students believed that abortion should not be allowed for any reason. Advanced medical students were more likely than others to support abortion provision. In multivariate analyses, year in medical school, race or ethnicity, religious affiliation, relationship status and sexual experience were associated with attitudes, beliefs and intentions regarding provision.

CONCLUSIONS: Academic medical institutions must ensure that students understand their responsibilities with respect to abortion care—regardless of their personal views—and must provide appropriate abortion training to those who are willing to offer these services in the future.

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Voluntary induced termination of pregnancy is a common medical procedure worldwide. An estimated 42 million abortions are performed annually; nearly 20 million are considered medically unsafe.^{1–4} Estimates suggest that 97% of unsafe abortions occur in the developing world, and that unsafe abortion is the leading cause of maternal deaths in Africa, which has the world's highest case-fatality rates.^{2,3,5,6}

After a 1994 study found that an estimated 45,000 South African women per year were admitted to public hospitals as a result of incomplete or unsafe abortion,^{7,8} the country legalized abortion in 1996. Prior to this change in the law, abortion had been legal in very limited circumstances under the Sterilization Act of 1975, requiring the approval of three physicians. The 1996 law specifies that a woman can obtain an abortion on request within the first 12 weeks of pregnancy.⁹ Between 13 and 20 weeks' gestation, a woman can obtain an abortion if at least one of four criteria is satisfied: continuing the pregnancy would pose a risk to the woman's mental or physical health; there is significant risk that the unborn child would have a mental or physical handicap; the pregnancy was the result of rape or incest; or having the child would be detrimental to

the woman's socioeconomic condition.⁹ Beyond 20 weeks, abortion is sanctioned only when the woman's life is endangered. In addition, although medical providers can conscientiously object to performing abortions, providers who are unwilling or unable to offer abortion services are legally obligated to inform women of their rights and to refer them to other providers.

As part of a series of progressive human rights initiatives undertaken by the postapartheid government, the 1996 law extended abortion provision to all provinces in South Africa, and free abortion services were provided in public clinics and hospitals.⁹ Although the legalization of abortion often leads to a considerable decrease in maternal morbidity and mortality through the resulting decline in unsafe abortions,¹⁰ it does not necessarily ensure effective implementation of and access to medically safe abortion services. One global survey estimated that approximately 60% of the world's population lives in countries where abortion is officially legal but considerable barriers to getting an abortion remain, despite high demand.¹¹ In South Africa, one national survey of 15–24-year-olds found that 65% of women who had ever been pregnant reported having had at least one unwanted pregnancy, but only

3% had received an abortion in a medical facility.¹² In one major city, only one-third of all abortions requested over a two-year period had actually been performed.¹³ Estimates suggest that as many as 125,000 unsafe abortions (out of approximately 200,000 total abortions) are performed annually in South Africa, and that 26% of maternal deaths result from unsafe abortion.^{3,14-17} There is also concern that barriers in access to abortion services have led to an elevated rate of second-trimester abortions (about 20% of all procedures),^{18,19} and these later abortions are inherently more dangerous.

Barriers to access lead to a significant public health burden, in terms of both cost and poor health outcomes associated with medically unsafe abortions, as well as the strain placed on providers to meet the high demand for abortion without compromising quality of care. Evidence that midwives and nurses can safely provide first-trimester abortions has increased the use of such providers in South Africa, which has shifted some of the burden from doctors in hospitals to midlevel providers in community health centers.²⁰⁻²³ In addition, the increased use of medication abortion has helped to relieve the bottleneck of abortion service provision.^{24,25} However, in spite of South Africa's policy-making efforts, staff, infrastructure and budgetary constraints have limited the effectiveness and timeliness of the rollout of abortion services in the country.^{26,27} Yet the greatest barrier to implementing the abortion law has been the lack of health personnel willing to train to become abortion providers.^{28,29}

Data from present and future health care providers regarding their abortion attitudes, beliefs and practice intentions can yield insight about the potential supply of the abortion providers and can point to opportunities for training, values clarification and recruitment of practitioners. As the next generation of health care providers, medical students are a critical component of service provision, and a better understanding of their attitudes, beliefs and intentions regarding abortion may help inform the development of training programs and policies regarding abortion care.

Studies in the United States and the United Kingdom have shown associations between medical students' attitudes toward abortion and a number of individual characteristics, including religious beliefs, gender, age, sexual experience, exposure to abortion, extent of medical training in abortion services and future practice intentions.³⁰⁻³⁴ However, these findings may not be generalizable to South Africa or other African nations, and may not accurately reflect the nuances of African health systems and cultures. Furthermore, little research has been conducted on abortion in developing nations, and to help address this gap in the literature, the current study assessed attitudes and beliefs about abortion provision and future practice intentions of South African medical students. This research expands the scope of an earlier study that assessed attitudes and beliefs about abortion among students at a small medical school in rural South Africa.³⁵

METHODS

Sampling and Data Collection

We developed a self-administered questionnaire for all students enrolled in the medical training programs at the University of Cape Town (UCT; years 1-6) and Walter Sisulu University (WSU; years 1-5)* in 2005 and 2007, respectively. These settings were selected to capture the racial, ethnic, geographic, cultural and socioeconomic diversity of South African medical students and the communities served by these medical centers. UCT and WSU are in an urban and a rural area, respectively, on opposite sides of the country. The former school is located in one of the two wealthiest South African provinces, where annual per capita disposable income is US\$3,282, with 32% of the population living in poverty; the latter school is in one of the poorest provinces, where per capita income is US\$1,081, with 72% of the population living in poverty. In South Africa, most medical students attend medical school within their home province. Regarding race and ethnicity, UCT is a historically white university, whose student population reflects the greater number of whites living in the Western Cape, whereas WSU is a historically black university, reflecting the greater number of Africans or blacks living in the Eastern Cape.^{36,37} We believe these schools encompass South Africa's diverse medical student population.

Arrangements were made with faculty members and lecturers to designate an appropriate time to administer the questionnaire. Following an explanation of the purpose and intention of the study, informed consent was obtained from students. The questionnaire was administered during a required course for each year cohort and took approximately 20 minutes; responses were anonymous. We excluded students if they were absent when the questionnaire was disseminated. Class rosters were used to determine the underlying population size and overall survey response rate.

Survey Development and Measures

The survey consisted of five domains: social and demographic characteristics; knowledge of the country's abortion law; attitudes and beliefs about abortion provision; medical curriculum and training in abortion services; and future intentions pertaining to abortion provision. This study focuses primarily on students' attitudes, beliefs and practice intentions. The instrument was based on literature on the knowledge, attitudes, beliefs and practice intentions regarding abortion care of medical providers and medical students worldwide.^{32-35,38-47} According to Cook et al.,³⁹ the wording of questionnaires designed to capture knowledge, attitudes and beliefs about abortion is of critical importance. In their analysis of several types of survey questions from abortion polls in the United States, they found that when questions were too general, responses "overstate the strength of sentiments for positions at either

*The University of Cape Town has a six-year academic program, whereas Walter Sisulu University has a five-year program.

TABLE 1. Percentage distribution and means (and standard deviations) of medical school students at the University of Cape Town (UCT) and Walter Sisulu University (WSU), by selected characteristics, according to year in school, South Africa, 2005 and 2007

Characteristic	Years 1–2		Years 3–4		Years 5–6		All	
	UCT (N=363)	WSU (N=185)	UCT (N=268)	WSU (N=164)	UCT (N=251)	WSU (N=77)	UCT (N=882)	WSU (N=426)
Social and demographic (%)								
Gender								
Female	61	59	66	54	65	47	63	55
Male	39	41	34	46	35	53	37	45
Race/ethnicity								
White	28	2	33	1	35	0	31	1
African/black	40	86	30	83	30	81	34	84
Coloured	15	1	14	2	13	3	14	1
Indian	13	10	20	14	18	15	17	13
Other	4	1	1	0	4	1	4	1
Religion								
Catholic	12	13	10	15	11	13	11	13
Non-Catholic Christian	60	75	53	70	51	68	55	72
Muslim	12	0.5	15	1	17	1	14	1
Hindu	5	7	8	0	9	11	7	8
Jewish	3	0	2	9	1	0	3	0
Other	2	4	5	5	3	4	3	5
Atheist/agnostic	6	0.5	7	0	8	3	7	1
Religious service attendance								
Regular	44	39	48	33	41	34	44	36
Semiregular	21	32	17	39	28	30	22	34
Not often	25	24	22	26	21	32	23	26
Never	10	5	13	2	10	4	11	4
Relationship status								
Single, never in relationship	30	27	14	21	13	7	21	21
Single, no current relationship	40	34	35	26	34	28	36	30
Single, in relationship	29	33	47	46	45	54	39	42
Other	1	6	4	7	8	11	4	7
Ever had intercourse								
Yes	27	62	42	70	56	78	40	68
No	73	38	58	30	44	22	60	32
Total	100	100	100	100	100	100	100	100
Support for abortion provision (means)								
General support (scale, 1–5)	3.40 (1.07)	3.16 (1.01)	3.45 (1.05)	3.40 (0.95)	3.46 (1.07)	3.40 (0.98)	3.47 (1.08)	3.20 (0.90)
Conditional support (scale, 1–5)	3.24 (1.05)	3.15 (1.01)	3.28 (1.04)	3.38 (0.98)	3.27 (1.06)	3.33 (0.99)	3.26 (1.07)	3.30 (0.96)
Intention to act according to attitudes/beliefs (scale, 1–5)	3.33 (0.89)	3.22 (0.84)	3.36 (0.89)	3.40 (0.81)	3.37 (0.91)	3.39 (0.82)	3.36 (0.91)	3.31 (0.77)

end of the scale,^{39(p. 145)} whereas more specific questions allow for a considerably more nuanced assessment of subjects' attitudes and feelings. We therefore included as many specific questions as possible, and also inserted several general questions to gauge consistency and internal validity across survey items.

The instrument was pilot-tested among faculty members in women's health and among public health students, and was revised repeatedly according to the feedback received. The final instrument—a structured, 63-item, paper-and-pencil survey—was written in English, as this was the primary language used in medical programs.

Independent variables included the institution, gender, year in medical school (collapsed into three groups of the clinical years: 1–2, 3–4 and 5–6), religious affiliation, religious attendance (regular, semiregular, not often or never), relationship status (single and never in a relationship, not in one currently, presently in one, or other), experience of sexual intercourse, and race or ethnicity. Ethnic and racial classifications in South Africa are historically and

politically distinct from those in other countries; we used the widely recognized categories of white, African or black, coloured (i.e., of mixed race, including Cape Malay), Indian and other.

The survey included 25 questions about students' attitudes, beliefs and practice intentions regarding abortion provision (see Table 2). The majority solicited five-point Likert-scaled responses along a continuum from "strongly agree" to "strongly disagree." Questions were phrased in both the positive and the negative to ensure the consistency of answers; relevant items were reverse-coded for statistical analysis so that low scores reflected unsupportive responses and high scores indicated supportive ones. Prior to conducting factor analyses, we created three summary scales reflecting general support for abortion provision (five items), conditional support for abortion provision (nine items), and intention to act according to personal attitudes and beliefs (six items); scores represent averages of the relevant items on a scale of 1–5. In addition, responses to all individual items were averaged to produce a score for

TABLE 2. Percentage distribution of medical school students, by level of agreement with attitudes and beliefs about abortion provision

Characteristic	Strongly agree/agree	Neutral	Strongly disagree/disagree	Total
General support for abortion provision				
Safe, voluntary abortion should be legal and accessible.	40	17	43	100
The South African government should be responsible for providing abortions as a part of free public health care.	48	22	30	100
Abortion is morally unacceptable for any reason.†	29	26	45	100
Abortion should not be provided for any reason.†	22	16	62	100
A woman should have the right to decide for herself whether or not to have an abortion.	70	14	16	100
Conditional support for abortion provision				
Abortion should be legal if the woman's physical health is endangered by the pregnancy.	83	9	8	100
Abortion should be legal if the woman's mental health is endangered by the pregnancy.	69	16	15	100
Abortion should be legal if the woman is not married.	62	21	17	100
Abortion should be legal if the family (or woman) cannot afford to have the child.	48	21	31	100
Abortion should be legal if the fetus shows signs of serious congenital defect or malformation.	65	18	17	100
Abortion should be legal if the woman was raped.	64	18	17	100
Abortion should be legal if the pregnancy was the result of incest.	52	25	23	100
Abortion should be legal if the pregnancy would mean that the mother had to drop out of school.	27	22	51	100
Abortion should be legal if the pregnancy was unplanned, and the woman does not want to be pregnant.	30	16	54	100
Intention to act according to attitudes/beliefs				
I intend to provide legal abortion services to women once I am qualified.	23	26	51	100
I would refer patients for abortion services, in situations where I cannot or will not provide those services myself.	72	15	13	100
I would not refer a patient for abortion under any circumstances.†	11	19	70	100
I would not perform an abortion under any circumstances.†	31	22	47	100
If a female patient requested an abortion, I would try to discourage her from seeking the procedure.†	34	28	38	100
I would try to convince other health care providers not to perform abortions.†	17	24	58	100
Additional items				
I think I would be discriminated against/stigmatized if I provided abortions to women.	30	30	40	100
Health care providers who conscientiously object to abortion should be allowed to refuse to perform abortions.	87	6	7	100
Health care providers who conscientiously object to abortion should be required to refer patients seeking abortion to a nonobjecting provider.	72	13	15	100

†Reverse-coded in regression analyses.

the overall level of support for abortion provision.

We tested the internal reliability of students' responses and confirmed that the three-component support model demonstrated good fit with the observed data on the basis of confirmatory factor analysis and a structural equation modeling framework using MPLUS version 6.1 (Confirmatory Fit Index, 0.95; Tucker-Lewis Index, 0.95; both should be ≥ 0.95 for a good fit); however, one fit index (Root Mean Squared Error of Approximation) was outside the good-fit criteria (0.10 instead of < 0.06). Alternative models were tested, yet none showed significant improvement in fit. The internal consistency of the three scales was also good for group-level measurement: Cronbach's alphas for the general support, conditional support and intention to act scales were 0.92, 0.80 and 0.79, respectively.

Analysis

Frequencies were tabulated, and where appropriate, outliers and inconsistencies were checked against the original questionnaires. Data were analyzed for descriptive outcomes, including proportions and means. Bivariate associations between attitudes, beliefs and intentions regarding abortion provision and institution and year in medical school were examined using cross-tabulation and Pearson's

chi-square tests and Fisher's exact tests, as appropriate.

In multivariate analyses, ordinary least-squares regression was used to identify associations between individual-level characteristics and the degree of support for abortion provision, as represented by the three summary scales of general support, conditional support and intention to act according to one's attitudes and beliefs. Ordinal logistic regression analysis was used to estimate the average marginal effects of individual characteristics on two additional survey items: whether providers should be allowed to refuse to perform an abortion (where 1 = "strongly agree" and 5 = "strongly disagree"), and whether providers who object to abortion should be required to refer patients to another provider (where 1 = "strongly disagree" and 5 = "strongly agree"). In a nonlinear context, a marginal effect is a partial derivative that describes the average change in the value of a dependent variable as a result of a one-unit change in an independent variable, while holding all other variables at their mean values or at specific values of interest (e.g., for a subpopulation).⁴⁸ To generate average marginal effects in an ordered logistic regression, we employed the *margins* command in Stata postestimation to produce estimates of the change in the probability of observing any one of the five possible response outcomes.

TABLE 3. Standardized coefficients (and 95% confidence intervals) from ordinary least-squares regression analysis identifying associations between selected characteristics and types of support for abortion provision

Characteristic	General support (N=1,193)	Conditional support (N=1,192)	Intention to act according to attitudes/beliefs (N=1,186)
Medical school			
University of Cape Town	0.34 (0.22–0.47)**	0.06 (–0.07–0.18)	0.10 (0.00–0.21)†
Walter Sisulu University (ref)	na	na	na
Gender			
Female	0.27 (0.17–0.37)**	0.15 (0.05–0.25)**	0.14 (0.05–0.22)**
Male (ref)	na	na	na
Year in medical school			
1st/2nd (ref)	na	na	na
3rd/4th	0.41 (0.29–0.52)**	0.35 (0.24–0.46)**	0.28 (0.19–0.38)**
5th/6th	0.36 (0.23–0.49)**	0.17 (0.05–0.30)**	0.26 (0.15–0.37)**
Race/ethnicity			
White	–0.21 (–0.35 to –0.06)**	–0.20 (–0.34 to –0.06)**	–0.20 (–0.33 to –0.08)**
African/black (ref)	na	na	na
Coloured	–0.03 (–0.22–0.15)	0.00 (–0.18–0.19)	–0.05 (–0.21–0.11)
Indian	–0.12 (–0.34–0.10)	0.13 (–0.09–0.35)	–0.20 (–0.39 to –0.01)*
Other	0.15 (–0.18–0.47)	0.34 (0.02–0.66)*	–0.03 (–0.31–0.25)
Religion			
Catholic	0.14 (–0.02–0.29)†	0.16 (0.01–0.31)*	0.14 (0.00–0.27)*
Non-Catholic Christian (ref)	na	na	na
Muslim	0.11 (–0.11–0.32)	0.08 (–0.13–0.30)	0.20 (0.02–0.39)*
Hindu	0.60 (0.33–0.88)**	0.46 (0.19–0.74)**	0.67 (0.40–0.87)**
Jewish	0.94 (0.56–1.32)**	1.13 (0.75–1.51)**	1.07 (0.74–1.39)**
Other	0.00 (–0.25–0.25)	–0.01 (–0.26–0.24)	0.20 (–0.02–0.41)†
Atheist/agnostic	0.23 (0.05–0.52)*	0.41 (0.16–0.66)**	0.45 (0.24–0.67)**
Religious service attendance	–0.40 (–0.45 to –0.34)**	–0.41 (–0.46 to –0.35)**	–0.30 (–0.35 to –0.25)**
Relationship status			
Single, never in relationship (ref)‡	na	na	na
Single, no current relationship	0.06 (–0.07–0.19)	0.03 (–0.10–0.16)	–0.03 (–0.14–0.08)
Single, in relationship	0.32 (0.18–0.45)**	0.26 (0.13–0.39)**	0.18 (0.07–0.30)**
Ever had intercourse			
Yes	0.27 (0.15–0.40)**	0.41 (0.29–0.53)**	0.28 (0.17–0.38)**
No (ref)	na	na	na
Intercept	3.24 (3.04–3.44)**	3.39 (3.19–3.59)**	3.39 (3.22–3.56)**
Adjusted R ²	0.35	0.36	0.33

*p≤.05. **p≤.01. †p≤.10. ‡Includes 11 “other” cases. Notes: ref=reference group. na=not applicable.

The multivariate models controlled for all individual-level characteristics; age was not included as a covariate because it was highly collinear with the year in medical school. Although few data were missing, complete case analysis was used to avoid possible biases and inappropriate assumptions associated with multiple imputation. Statistical analyses were conducted using Stata version 11, and institutional review board approval was obtained from the research ethics committee within the Faculty of Health Sciences at each university.

RESULTS

Sample Characteristics

In total, 1,308 students completed the questionnaire; 882 attended the University of Cape Town, and 426 attended Walter Sisulu University. Response rates at the two universities were 79% and 84%, respectively. At the time, this sample represented about 15% of the medical student population in South Africa.³⁷ As expected, the two student populations were quite diverse and were different from each other. The majority of students at both UCT and WSU were female (63% and 55%, respectively—Table 1, page 156). One-third of UCT students were African or black, and three in 10 were white; in contrast, 84% of

WSU students were African or black, and 1% were white. Although the majority of medical students identified themselves as non-Catholic Christian (55% and 72%, respectively), the religious composition of the two samples differed: Larger proportions at UCT than at WSU were Muslim (14% vs. 1%) or agnostic or atheist (7% vs. 1%). Similar proportions of students reported regular attendance at religious services (44% and 36%, respectively). Most respondents had previously been in a relationship (36% and 30%) or were currently involved (39% and 42%, respectively), while one-fifth at each university had never been in a relationship. A smaller proportion of UCT students than of WSU students had ever had intercourse (40% vs. 68%). In general, respondents’ relationship experience and sexual experience increased with years of schooling.

Support for Abortion Provision

Mean scores of students’ general and conditional support for abortion provision were 3.4 and 3.3, respectively, indicating that, on average, their views were modestly supportive or tolerant (not shown). The mean score for students’ intention to act according to their attitudes and beliefs regarding abortion was 3.4. Overall, UCT students scored higher than WSU students on general support for abortion

regardless of specific circumstances (3.5 vs. 3.2), while the two samples had similar scores on the conditional support (3.3 for each) and intention to act scales (3.4 and 3.3, respectively).

Among the items included in the general support for abortion provision scale, 70% of all students agreed that a woman should have the right to decide for herself whether to have an abortion, and 48% believed that the South African government should provide abortions as part of free, public health care (Table 2, page 157). Although 40% of students agreed that safe, voluntary abortion should be legal and accessible, 43% disagreed with this position. Several items in the conditional support scale received widespread support among students: belief that abortion should be legal if a woman's physical or mental health is endangered by pregnancy (83% and 69%, respectively), if the fetus has a congenital defect or malformation (65%), if the pregnancy was the result of rape or incest (64% and 52%, respectively) and if a woman is not married (62%). However, sizable minorities said they would impose various restrictions on abortion provision or try to discourage patients from having the procedure, and 22% of all students believed that abortion should not be allowed for any reason.

Among items included in the intention to act scale, 23% of students agreed with the statement "I intend to provide legal abortion services to women once I am qualified," while 51% disagreed. Seven in 10 of all students said they would refer patients for abortion services in situations where they could or would not provide services themselves, and only 11% said they would not refer patients under any circumstances. About a third of respondents said they would not perform an abortion under any circumstances, and a third indicated that they would try to discourage a patient from having an abortion. Nearly nine in 10 respondents believed that providers who conscientiously object to abortion should be allowed to refuse to perform the procedure, yet seven in 10 agreed that such providers should be required to refer patients to a provider who offers abortion services. Regarding family and peer influences, 22% of students said their families had strongly influenced their beliefs about abortion, whereas only 12% said their friends had been very influential in shaping their views (not shown).

In comparisons of students' beliefs and attitudes by year in medical school, nearly two-thirds of first-year students said they did not intend to provide abortion services once they were qualified to do so, whereas 45–60% of students in the other year cohorts had the same attitude (not shown). Intentions regarding patient counseling varied significantly by year: While 49% of first-year students agreed or strongly agreed that they would try to discourage a patient from having an abortion, only 13% of sixth-year students stated this intention ($p < .01$). In addition, students in the last year of medical school were more likely than those in the first year to disagree or strongly disagree with the statement "I would try to convince other health

TABLE 4. Average marginal effects from ordinal logistic regression analysis between selected characteristics and belief that providers should be allowed to refuse to perform abortions

Characteristic	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Medical school					
University of Cape Town	0.16**	-0.09**	-0.03**	-0.02**	-0.02**
Walter Sisulu University (ref)	na	na	na	na	na
Gender					
Female	0.01	-0.01	0.00	0.00	0.00
Male (ref)	na	na	na	na	na
Year in medical school					
1st/2nd (ref)	na	na	na	na	na
3rd/4th	-0.03	0.02	0.01	0.00	0.00
5th/6th	0.00	0.00	0.00	0.00	0.00
Race/ethnicity					
White	0.13**	-0.07	-0.03**	-0.02**	-0.02**
African/black (ref)	na	na	na	na	na
Coloured	0.15**	-0.08	-0.03*	-0.02*	-0.02**
Indian	0.09	-0.05	-0.02	-0.01	-0.01
Other	0.03	-0.02	-0.01	0.00	0.00
Religion					
Catholic	-0.04	0.02	0.01	0.01	0.01
Non-Catholic Christian (ref)	na	na	na	na	na
Muslim	-0.04	0.02	0.01	0.01	0.01
Hindu	-0.13†	0.07	0.03	0.02	0.02
Jewish	-0.29**	0.16**	0.06**	0.04**	0.03**
Other	0.03	-0.02	-0.01	0.00	0.00
Atheist/agnostic	-0.12†	0.07†	0.03†	0.02†	0.01†
Religious service attendance	0.10**	-0.05**	-0.02**	-0.01**	-0.01**
Relationship status					
Single, never in relationship (ref)‡	na	na	na	na	na
Single, no current relationship	0.01	0.00	0.00	0.00	0.00
Single, in relationship	0.03	0.02	0.01	0.00	0.00
Ever had intercourse					
Yes	0.03	-0.02	-0.01	0.00	0.00
No (ref)	na	na	na	na	na

* $p \leq .05$. ** $p \leq .01$. † $p \leq .10$. ‡Includes 11 "other" cases. Notes: N=1,184. ref=reference group. na=not applicable.

care providers not to perform abortions" (74% vs. 42%, $p < .001$).

Multivariate Findings

In multivariate analysis, all three measures of support for abortion provision—general and conditional support, and intention to act according to attitudes and beliefs—were positively associated with being female (coefficients, 0.1–0.3), being in the third to sixth year of training (0.2–0.4), being other than non-Catholic Christian (0.1–1.1), being single and in a current relationship (0.2–0.3), and ever having had sexual intercourse (0.3–0.4; Table 3). In contrast, the three support measures were negatively associated with being white instead of African or black (–0.2 for each), and with increasing frequency of attendance at religious services (–0.3 to –0.4). In addition, being a medical student at UCT rather than WSU was associated with a higher probability of reporting general support for abortion provision (0.3).

In ordinal logistic regression analysis, compared with students enrolled at Walter Sisulu University, those at the University of Cape Town had an increased probability of strongly agreeing with the statement that providers should be allowed to refuse to perform abortions (by 16 percentage points—Table 4); students who were white or

TABLE 5. Average marginal effects from ordinal logistic regression analysis between selected characteristics and belief that providers who object to abortion should be required to refer patients to another provider

Characteristic	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Medical school					
University of Cape Town	0.05	-0.01	-0.02	-0.01	-0.01
Walter Sisulu University (ref)	na	na	na	na	na
Gender					
Female	0.08**	-0.02*	-0.03**	-0.02**	-0.02**
Male (ref)	na	na	na	na	na
Year in medical school					
1st/2nd (ref)	na	na	na	na	na
3rd/4th	0.08*	-0.02*	-0.02*	-0.02*	-0.02**
5th/6th	-0.05	0.01	0.02	0.01	0.01
Race/ethnicity					
White	-0.07†	0.02†	0.02†	0.02†	0.02†
African/black (ref)	na	na	na	na	na
Coloured	0.12*	-0.03*	-0.04*	-0.03*	-0.03*
Indian	0.05	-0.01	-0.02	-0.01	-0.01
Other	-0.08	0.02	0.03	0.02	0.02
Religion					
Catholic	0.04	-0.01	-0.01	-0.01	-0.01
Non-Catholic Christian (ref)	na	na	na	na	na
Muslim	0.06	-0.01	-0.02	-0.01	-0.01
Hindu	0.21**	-0.05*	-0.07**	-0.05**	-0.05*
Jewish	0.29*	-0.07*	-0.09*	-0.06*	-0.07*
Other	0.03	-0.01	-0.01	-0.01	-0.01
Atheist/agnostic	0.21**	-0.05*	-0.07†	-0.05**	-0.05*
Religious service attendance					
Religious service attendance	-0.08**	0.02**	0.02**	0.02**	0.02**
Relationship status					
Single, never in relationship (ref)‡	na	na	na	na	na
Single, no current relationship	-0.02	0.00	0.01	0.00	0.00
Single, in relationship	0.12**	-0.03**	-0.04**	-0.03**	-0.03**
Ever had intercourse					
Yes	0.19**	-0.04**	-0.06**	-0.04**	-0.05**
No (ref)	na	na	na	na	na

*p≤.05. **p≤.01. †p≤.10. ‡Includes 11 “other” cases. Notes: N=1,169. ref=reference group. na=not applicable.

coloured, or who attended religious services more frequently, also had an elevated probability of strongly agreeing with this position (by 10–15 percentage points). In contrast, compared with non-Catholic Christian students, Jewish students were less likely to strongly agree with this statement (by 29 percentage points). When students were asked whether providers who object to abortion should be required to refer patients to another provider, those who were female, a third- or fourth-year student, coloured, or Hindu, Jewish, atheist or agnostic—as well as those in a relationship or sexually experienced—had an increased probability of strongly agreeing with this statement (by 8–29 percentage points—Table 5).

DISCUSSION

A majority of medical school students believed that women should have the right to decide whether to have an abortion, and that abortion is warranted when a woman’s physical or mental health is at risk, when fetal congenital defects are suspected or when the pregnancy resulted from rape. A majority also believed that providers who object to abortion provision should be required to refer women to providers who offer the procedure. These are reassuring findings, given that South African law requires medical providers to inform women of their abortion rights and

to refer them for services, and may indicate that medical schools are successfully educating future providers about their legal responsibilities to patients. For the majority of surveyed students, patients’ rights to referral appeared to supersede providers’ personal objections to abortion provision. However, a sizeable minority said they would impose various restrictions on provision or try to convince patients not to obtain an abortion, and a fifth of all students believed that abortion should not be provided for any reason. When asked whether safe, voluntary abortion should be legal and accessible, more than four in 10 students disagreed with this position, while a similar proportion supported it.

Although we did not collect longitudinal data, our findings suggest that medical socialization and education about abortion may lead to greater acceptability and tolerance. Indeed, the curricula at both the University of Cape Town and Walter Sisulu University provide greater exposure to abortion topics in the later years of training. Our results are consistent with those of a study that examined the opinions of medical students in a small medical school in rural South Africa.³⁵ In a study among preclinical students at the University of Washington that reported a shift in attitude with increasing medical education, Rosenblatt et al. suggested that life experience and medical education afforded students “a broader understanding of the vagaries of existence that make abortions at times unavoidable.”^{44(p. 199)} In another U.S. study, among the 20% of medical students who reported a positive change in attitude toward abortion provision, the majority of the shift in opinion was attributed to training received during the clinical years.³⁴

In addition, more advanced medical students were more likely than younger students to be sexually experienced and to have been in a romantic relationship, which may have affected their views on unexpected pregnancy and abortion. In this study, students who had had intercourse or been in a relationship were more likely than their counterparts to favor legal, free and accessible abortion, to support a woman’s right to decide whether to have an abortion, and to intend to provide abortions or refer women for services in the future. Although sexual experience was associated with more tolerant attitudes toward abortion among medical students in a U.S. study,³³ sexual experience among medical students in the previously cited South Africa study was not correlated with such attitudes.³⁵

Our findings of associations between religious affiliation or attendance of services and abortion views were similar to those reported among students attending a medical school in rural South Africa: Compared with non-Catholic Christian students, those who self-identified as Hindu, Jewish, agnostic, atheist or affiliated with “other” religions were more tolerant of abortion provision, less willing to support restrictive legal barriers and more supportive of government provision of free abortion on request.³⁵ Christian and Muslim respondents were more likely than others to believe that abortion was morally unacceptable for any reason and to say that they would never perform

the procedure or refer patients for an abortion. They also tended to be much less supportive of patients' rights when answering questions about providers' conscientious objection. Religious affiliation has been found to be strongly associated with abortion-related attitudes among clinicians and medical students.^{33-35,38,39,41-47} However, some studies have suggested that health care providers recognize the distinction between personal and professional attitudes toward abortion, and believe that a personal religious objection would not prevent them from providing legal services to women, including nondirective counseling, referrals, and surgical and medication abortion.^{35,45,46}

Limitations and Strengths

This study has several limitations. First, responses from a self-administered survey may not be indicative of actual behavior, particularly regarding future intentions, as current expectations may differ from behaviors and practices years from now. Furthermore, external issues, such as facility-based constraints preventing abortion provision, may be deterrents to access to abortion services in the future, despite the clinician's training and willingness to perform abortions. A comprehensive assessment of long-term practices and beliefs would require a large-scale cohort study beginning in medical school with follow-up through professional practice, and future research in this area should consider such an effort. However, by describing attitudes and intentions during medical training, we have shown that a significant proportion of students are willing to provide abortion services in the future, which may point to opportunities for improved educational experiences or values clarification workshops on abortion and abortion training.

Second, because respondents were asked sensitive questions about abortion, social desirability bias may have influenced some responses. We attempted to minimize such bias by administering the questionnaire privately and anonymously. Furthermore, the questionnaire was explicitly designed to avoid lending weight to any particular view about abortion, and questions were pilot-tested and repeatedly rephrased to identify and modify any items that may have been biased toward a particular opinion. Should any response bias have occurred, however, it is unlikely to have been significant in any particular direction; despite South Africa's current abortion law, there is no clear social consensus about abortion.

A third limitation is that our findings may not be generalizable to other student populations in South Africa or other countries. In particular, the views of students training to be midlevel providers (e.g., nurses, midwives or physician assistants) may differ from those of medical students, and these midlevel health professionals are increasingly important in abortion provision in South Africa.²⁰⁻²³ Future studies should therefore assess abortion attitudes and practice intentions of students in other health professions. In addition, medical students in South Africa may differ demographically or otherwise from future medical

providers elsewhere. Knowledge, attitudes and beliefs about abortion and abortion provision can be quite different from country to country and should be considered in the appropriate political, religious, cultural and educational context.

We believe our study is the first to sample two very different medical institutions, which represent a sizeable component of the future South African medical workforce. We achieved a high level of response by recruiting students directly through course lectures, which most attend regularly. An additional strength is the instrument itself, which was designed carefully, piloted extensively, and tested for internal reliability and consistency.

Conclusions

Without enough willing providers, abortion services can never be fully available and accessible to the extent required by South African law. The legalization of abortion provision is not enough; effective strategies to improve access to abortion care must be carefully planned, strategically implemented, and regularly monitored and evaluated. A coherent, national effort to improve abortion training and service delivery is needed, and must involve private and public practitioners, the Department of Health, academic training and research institutions, and nongovernmental health organizations. Academic medical institutions must ensure that students understand the laws and responsibilities that govern their professional actions with respect to abortion care (regardless of their personal views), and must provide appropriate abortion training to those who are willing to offer these services. In addition, incentives—such as higher pay and increased institutional support—may help improve abortion access and availability, and may also diminish the stigmatization and discrimination that some providers experience. Furthermore, it is critical that guidelines for the provision and management of abortion care, as well as the National Strategic Plan for the Implementation of the Choice on Termination of Pregnancy Act,⁴⁹ be disseminated to health care providers, for evidence suggests that many facilities and providers in South Africa lack this vital clinical information.⁵⁰ Finally, in light of the essential role of midlevel providers in the delivery of abortion care in South Africa, additional studies examining the knowledge, attitudes, beliefs and intentions of these clinicians in training would be an important contribution to the field.

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RESUMEN

Contexto: Aunque Sudáfrica liberalizó su ley de aborto en 1996, todavía hay barreras importantes que impiden la prestación del servicio, como la falta de prestadores capacitados que están dispuestos a proporcionarlo. Para entender cómo podría ser el futuro, se necesita una mejor comprensión de las actitudes, creencias e intenciones de los actuales estudiantes de medicina en relación con la prestación de servicios de aborto.

Métodos: En 2005 y 2007, se condujeron encuestas sobre las actitudes, creencias e intenciones en cuanto a la práctica del aborto entre 1,308 estudiantes de las facultades de medicina de la University of Cape Town y la Walter Sisulu University. Mediante análisis bivariado y multivariado se identificaron las asociaciones entre las características de los estudiantes y su apoyo general y condicional para la prestación de servicios de aborto. La encuesta también indagó sobre las percepciones en cuanto a la influencia de actitudes y creencias personales en la práctica de la medicina.

Resultados: Setenta por ciento de los estudiantes de medicina afirmaron creer que las mujeres deben tener el derecho a decidir tener o no un aborto; y la gran mayoría consideró que debería ser legal en una variedad de circunstancias médicas. Sin embargo, una quinta parte consideró que el aborto no debe ser permitido por razón alguna. Cerca de la cuarta parte expresó su intención de realizar abortos una vez que estuviesen cualificados; y un 72% dijo que debería ser obligatorio que el personal clínico objetor de conciencia refiriera a las mujeres a otros prestadores de estos servicios. Los estudiantes de medicina avanzados tuvieron mayor probabilidad de apoyar la prestación de servicios de aborto que otros estudiantes. En el análisis multivariado, las variables de los años en la facultad de medicina, raza u origen étnico, afiliación religiosa, estado de relación de pareja y experiencia sexual se asociaron con las actitudes, creencias e intenciones relacionadas con la prestación del servicio.

Conclusiones: Las instituciones académicas de medicina deben asegurarse que sus estudiantes comprendan sus responsabilidades respecto a la atención del aborto—independiente-

mente de las opiniones personales—y deben proporcionarles capacitación apropiada sobre aborto a aquellos que están dispuestos a ofrecer el servicio en el futuro.

RÉSUMÉ

Contexte: Bien que l'Afrique du Sud ait libéralisé sa législation de l'avortement en 1996, d'importantes barrières font toujours obstacle à la prestation de services, notamment l'absence de prestataires formés ou disposés à pratiquer l'IVG. Il importe de mieux comprendre les attitudes, croyances et intentions des étudiants en médecine concernant la pratique de l'avortement.

Méthodes: Des enquêtes sur les attitudes, les croyances et les intentions de pratique de l'avortement ont été menées en 2005 et en 2007 auprès de 1.308 étudiants des facultés de médecine des universités sud-africaines de Cape Town et de Walter Sisulu. Les associations entre les caractéristiques des étudiants et leur soutien général et conditionnel de l'avortement ont été identifiées par analyses bi- et multivariées, de même que leur intention d'agir conformément à leurs attitudes et croyances personnelles.

Résultats: Soixante-dix pour cent des étudiants en médecine pensent que les femmes doivent avoir le droit de décider de se faire avorter ou non et de grandes majorités estiment que la procédure devrait être légale dans diverses circonstances médicales. Près d'un quart ont l'intention de pratiquer l'avortement une fois qualifiés et 72% estiment que les cliniciens objecteurs de conscience doivent être tenus d'orienter les femmes vers les services d'avortement. Un cinquième des étudiants consultés estiment cependant que l'avortement ne doit être autorisé sous aucun prétexte. Les candidats médecins plus avancés dans leurs études sont plus susceptibles que les autres d'appuyer la prestation de l'avortement. Dans les analyses multivariées, l'année d'études, la race ou l'ethnicité, l'affiliation religieuse, l'état d'union ou de liaison et l'expérience sexuelle sont associés aux attitudes, croyances et intentions de prestation.

Conclusions: Les facultés de médecine doivent veiller à ce que leurs étudiants comprennent leurs responsabilités en ce qui concerne les soins liés à l'avortement – indépendamment de leur opinion personnelle – et doivent assurer une formation appropriée à la pratique de l'avortement à ceux disposés à offrir le service dans le futur.

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