EDUCATION

Medical Students Indicate the Need for Increased Sexuality Education at an Austrian Medical University

Nikola Komlenac, PhD, Heidi Siller, PhD, and Margarethe Hochleitner, MD

ABSTRACT

Introduction: The quantity and quality of education in the field of human sexuality vary greatly in medical education programs in the United States and Europe.

Aim: The current state of medical school education with regard to human sexuality was assessed at an Austrian medical university.

Methods: Self-constructed questionnaires and the Beliefs About Sexual Functioning Scale were filled out by 391 medical students (mean age = 24.0, SD = 2.5; 52.4% women, 47.6% men). Descriptive statistics are reported for summarizing students' responses, and structural equation models were calculated to reveal associations between variables of interest.

Main Outcome Measures: The outcome variable in the structural equation models was students' confidence in addressing sexual health concerns of patients.

Results: Most students were not instructed in sexual history taking (96.9%), sexual behavior (94.3%), love (97.4%) or sexuality in elderly persons (95.1%), and they reported having poor knowledge of these topics. Most students (72.5%) reported having little or no confidence in addressing patients' sexual health concerns. The number of addressed topics was positively associated with male ($\beta = 0.47$, $P < .001$) and female students' ($\beta = 0.52$, $P < .001$) knowledge. Knowledge was positively associated with male ($\beta = .49$, $P < 0.001$) and female students' ($\beta = 0.33$, $P < .001$) confidence in addressing sexual health concerns and was negatively associated with stereotypical sexual functioning beliefs in the male subsample ($\beta = -0.26$, $P = .009$).

Conclusions: Most medical students revealed that the teaching of important sexual health content (eg, sexual history taking) was deficient at this medical university. Education in sexual health issues needs to be increased to positively influence students' knowledge of and consequently their confidence regarding dealing with patients' sexual health concerns. **Komlenac N, Siller H, Hochleitner M. Medical Students Indicate the Need for Increased Sexuality Education at an Austrian Medical University. Sex Med 2019;7:318–325.**

Key Words: Medical Education; Austria; Medical Students; Knowledge About Sexual Medicine; Beliefs About Sexual Functioning; Sexuality Education

INTRODUCTION

Sexual health is inextricably bound to both physical and mental health.[1] Many medical problems and the treatment of many diseases negatively influence a patient's sexual health and sexual functioning.[2–4] Thus, it is important that physicians consider and look after a patient's sexual health along with other medical health problems.[5] Additionally, patients state that sexual health is an important component of their overall health and well-being,[6] and they expect their physicians to be willing to talk about their sexual health concerns.[7,8]

However, physicians report not having received enough education with regard to sexual health issues [9], and they, therefore, rarely ask their patients about sexual health issues.[10] Most notably, physicians report not having received enough education on sexual health issues during medical school.[11] To date, sexual health education in medical school remains underrepresented.[12] In the U.S. few students report having medical courses on human sexuality,[13] and sexual health education is reported to be

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Table 1. Courses that contained topics about human sexuality and students' wish for more or less content about sexuality in those courses

Courses	% of students recalling at least some content on sexuality	% of students who wished to have less content on sexuality	% of students who wished to have more content on sexuality
Gynecology	94.8	3.2	47.2
Gender medicine	82.0	8.3	30.5
Endocrinology	78.7	6.5	35.4
Psychiatry	77.3	3.6	51.2
Urology	75.9	8.1	25.6
Dermatology	65.7	8.8	24.4
Anatomy/physiology	64.1	9.1	20.2
Forensic medicine	59.4	8.8	17.2
Pediatrics	58.1	9.8	32.3
Immunology	55.0	8.4	16.1
Hygiene	49.3	8.7	15.1
Internal medicine	45.8	11.3	24.0
Neurology	44.1	16.6	23.4
Pharmacology	42.6	10.9	16.9
Surgical courses	27.2	12.7	14.6
Cardiology	24.4	16.0	12.4
Palliative medicine	20.8	14.4	13.2

deficient.[14] Also in Europe topics about human sexuality are rarely the subject of detailed training during medical education.[15]

Sexual health education in medical school should not only help students gain factual knowledge and skills about sexual health issues. It should help students become aware of or correct their own stereotypical beliefs and presumptions about sexuality,[16] because many negative or unrealistic beliefs and presumptions about sexuality can lead to detrimental effects for patients in health care settings.[17]

The current study assessed students' perception of sexuality education at an Austrian medical university, because, to date, knowledge about medical schools in Austria is limited. In the current study students were asked to report the medical courses in which human sexuality content was taught,[15,18] and the courses in which students wanted changes in the amount of content taught on sexual health issues. In addition, students should state what specific topics of human sexuality they learned about during their medical education.[18–21] Self-perceived knowledge and unrealistic or inflexible beliefs about sexuality were also assessed.

Next to the descriptive analyses of the current situation concerning sexuality education at this Austrian medical university, the following hypothesis was tested: Does increased sexuality education increase students' self-perceived knowledge and, in turn, increase their confidence in dealing with sexual health issues and, at the same time, reduce their unrealistic or inflexible beliefs about sexuality?

It was expected that students with more education about sexual health issues and consequently greater self-perceived knowledge would hold fewer unrealistic or inflexible beliefs about sexuality than would students who had not received such education.[22] Students' self-perceived knowledge should also be positively associated with students' confidence in dealing with sexual health issues, because previous studies showed that students who felt adequately trained in sexual health issues experienced no discomfort or lack of confidence when talking to patients about sexual health issues.[23]

METHODS

Measures

The current study's questionnaire was developed based on previous similar studies about German or U.S. medical students' education with regard to sexual health issues.[13,24–26] The questions about students' confidence in addressing sexual health concerns of patients were based on a European study among physicians in postgraduate training concerning these physicians' confidence in addressing patients' sexual health issues.[24]

In the current study, medical students were asked whether medical courses contained topics related to sexuality (not at all vs to some extent vs rather detailed vs detailed). The list of courses can be found in Table 1. For analysis, these variables were dichotomized to differentiate between courses that did not at all contain content on human sexuality and courses that contained such content at least to some extent.

The same list of courses (Table 1) was used to ask students whether they wished to have more or less content on sexuality in each of the respective courses. A third answer category indicated that they were satisfied with the quantity as it was. Students were asked how relevant they perceived human sexuality to be in

Table 2. Topics addressed concerning human sexuality and students self-reported knowledge about these topics

Topic	% of students' recalling having learned about this topic at least to some extent	% of students who felt at least rather knowledgeable about this topic
Sexually transmittable diseases	86.9	91.6
Pregnancy	81.2	90.1
Anatomy/physiology	71.6	91.4
Infertility	60.5	63.0
Contraception	50.5	93.2
Abortion	44.1	64.7
Variation in sexual development	42.4	54.0
Sexual side-effects of medications	35.1	46.1
Sexual violence	24.7	38.7
Sexual dysfunctions	24.2	49.5
Gender incongruence	15.1	23.7
Sexual behavior	5.7	71.0
Topics about sexual orientation and sexual identity	5.7	35.3
Aging and sexuality	4.9	14.8
Sexual history taking	3.1	22.8
Love	2.6	54.2
Paraphilia	2.4	9.1
Pornography	0.3	28.2

medical education (unimportant vs rather unimportant vs rather important vs important) and what course format they would prefer for this topic.

Students were asked in how much detail (not at all vs. to some extent vs. rather detailed vs. detailed) they were taught specific topics related to human sexuality. The list of topics can be found in Table 2. The same list of topics was used to ask students how knowledgeable they perceived themselves to be (not at all vs rather not vs rather knowledgeable vs knowledgeable) concerning these topics. The variables in structural equation models concerning students' knowledge and topics taught during medical education were composed into one mean score after summing all topics together. Students were asked how much confidence they had (none at all vs a little vs good vs very good) in their ability to help future patients with sexual health concerns. Finally, participants were asked for their age, nationality, and semester.

The Beliefs About Sexual Functioning Scale was used to assess students' unrealistic and inflexible beliefs about sexual functioning.[27] Students were asked to indicate the degree of agreement with these sexual functioning beliefs on a 5-point Likert scale ranging from 0 (strongly disagree) to 4 (strongly agree). The current study used the global Beliefs About Sexual Functioning Scale score. The original version's global score was acceptable (Cronbach's $\alpha = 0.90$).[27] The internal consistency in the current study was satisfactory with Cronbach's $\alpha = 0.85$ (15 items).

Procedure

This study was conducted at the Medical University of Innsbruck in June 2018. After giving verbal information, the questionnaires were distributed in paper-pencil mode after lectures on the core curriculum. Participation was voluntary, anonymous and not associated with any compensation. No data were available on participants who chose not to participate in the study. According to Austrian legislation, that is, the Universities Act[28] and Hospitals and Health Resorts Act,[29] the current study did not require review by the medical university's Ethics Committee.

Statistical Analysis

Because of the exploratory nature of this study, many results are descriptive. The *t*-tests were used to analyze gender differences with SPSS for Windows, version 25.0 (IBM Corp., Armonk, NY, USA).

For analysis of the associations between students' perception of their medical education concerning human sexuality, their self-reported knowledge, their stereotypical beliefs about sexual functioning, and their confidence regarding dealing with sexual health concerns of potential future patients 2 structural equation models (SEMs) were calculated, separately for female and male medical students. The SEMs were calculated using MPlus, Version 8[30] (Muthén & Muthén, Los Angeles, CA, USA). The specific model is depicted in Figure 1. In the model, students' confidence in addressing sexual health concerns of potential future patients was predicted by self-perceived knowledge and the holding of inflexible sexual functioning beliefs. Knowledge was, in turn, predicted by the number of topics covered during medical education. Semester was entered in the model for predicting the number of topics, students' knowledge, and students' beliefs about sexual functioning.

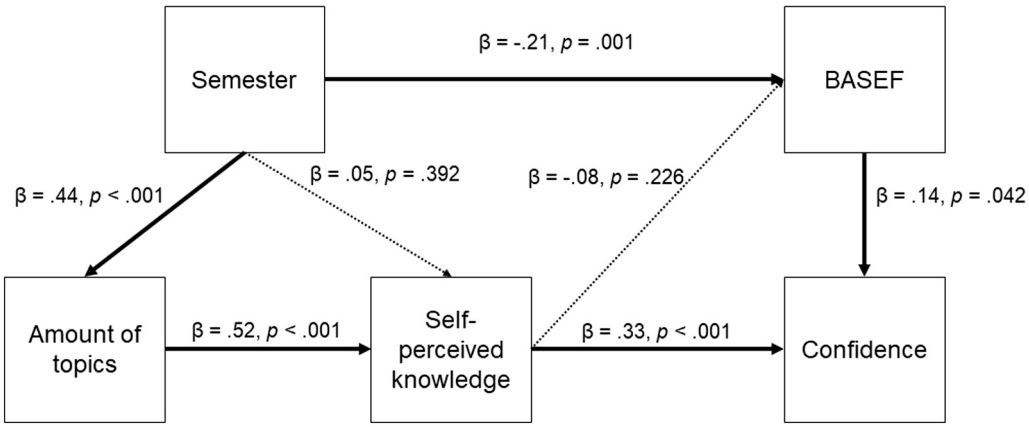

Figure 1. Structural equation model ($\chi^2[3] = 5.1$, $P = .167$; $\chi^2/df = 1.68$; RMSEA = 0.059; SRMR = 0.025; CFI = 0.986) predicting female students' confidence in addressing sexual health concerns of potential future patients. Standardized path coefficients are reported for significant associations that are indicated by solid lines. Dotted lines indicate non-significant associations. BASEF = Beliefs About Sexual Functioning Scale; CFI = comparative fit index; Confidence = students' confidence in addressing sexual health concerns; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual.

Data were mildly non-normally distributed (values of skew ranged from 0.00−0.44 and values of kurtosis ranged from −1.01−0.44). Therefore, the mean-adjusted χ^2 test statistic (MLM) was used to determine model fit.[30,31] Significant P values of the χ^2 test statistics indicated inadequate fit of the model and the empirical data. Because the χ^2 test depends on sample size and is likely to be significant as the sample becomes larger, the ratio between χ^2 statistics and respective degrees of freedom (χ^2/df) was additionally used. Ratios <2.5 indicated good model fit.[32] A good model was further assumed when root mean square error of approximation did not exceed the value of 0.06 and the standardized root mean square residual (SRMR) did not exceed the value of 0.08.[33] The comparative fit index was expected to be ≥0.90.[32] The level of significance for all analyses was $\alpha = 0.05$.

RESULTS

Participants

In total, 391 medical students (52.4% women/47.6% men) participated. The procedure prevented response rates from being calculated. According to the Austrian Federal Ministry of Education, Science, and Research, 3,178 students (52.0% women and 48.0% men) were enrolled at the Medical University of Innsbruck in the summer term 2018.[34] Therefore, it can be estimated that 12.3% of all medical students at the Medical University of Innsbruck participated in the study. On average, students were 24.0 years (SD = 2.5) old. Men were older (mean = 24.5, SD = 2.8) than women (mean = 23.5, SD = 2.1; $t(338.0) = 3.9$, $P < .001$, $r = 0.21$). At this medical university, the medical studies are composed of modular courses across ≥12 semesters. In semesters 1−6, courses focus on theory. Beginning with the seventh semester, courses shift focus toward clinical practice. The last 2 semesters also include clinical rotations.[35] Nearly half of the study participants (49.1%) were studying medicine in their seventh, eighth, or ninth semester. The other students had been studying medicine either for a shorter time (21.5%, semesters 1−6) or for a longer time (29.4%, higher than ninth semester). Students reported holding Austrian nationality (57.0%), German nationality (22.0%), Italian nationality (16.6%), or "other nationality" (4.3%).

Amount of Sexuality Education and Self-Reported Knowledge

Students recalled that sexuality was taught most often in the courses on gynecology, gender medicine, endocrinology, and psychiatry (Table 1). Students frequently reported that contents concerning sexually transmitted diseases, pregnancy, human anatomy of reproductive organs, or infertility were addressed during their medical education (Table 2). Consequently, students often reported being knowledgeable about these topics (Table 2). Most students did not receive education on pornography, paraphilia, sexual history taking, or sexuality in elderly persons. Few students stated that they were knowledgeable about paraphilia, sexual history taking, sexuality in the elderly, or gender incongruence (Table 2). Most students (72.5%) reported little or no confidence in addressing sexual health concerns of future patients.

Wish for More Sexuality Education

Most frequently, students stated that they wished to have more content regarding human sexuality in psychiatry, gynecology, endocrinology, or pediatrics (Table 1). The 3 most-often-mentioned courses for which students wished to have less content regarding human sexuality were neurology, cardiology, and palliative medicine (Table 1). Overall, of all the participating students, 19.2% stated for ≥1 course that they wished to have less content regarding human sexuality, whereas 65.7% stated for ≥1 course that they wished to have more content regarding sexuality.

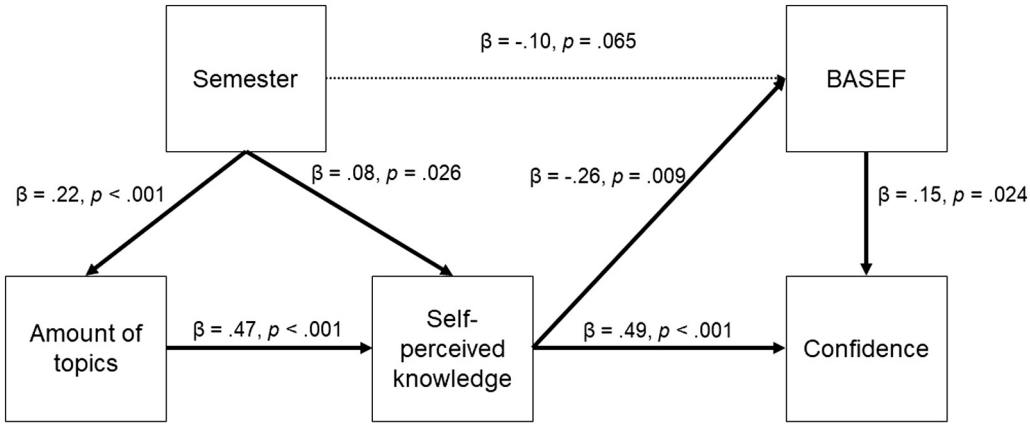

Figure 2. Structural equation model ($\chi^2(3) = 9.2$, $P = .027$; $\chi^2/df = 3.06$; RMSEA = 0.109; SRMR = 0.040; CFI = 0.956) predicting male students' confidence in addressing sexual health concerns of potential future patients. Standardized path coefficients are reported for significant associations that are indicated by solid lines. Dotted lines indicate non-significant associations. BASEF = Beliefs About Sexual Functioning Scale; CFI = comparative fit index; Confidence = students' confidence in addressing sexual health concerns; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual.

Most students (78.8%) stated that it is at least rather important that their medical education contain human sexuality topics.

Most students (80.7%) agreed that they wished that content regarding sexuality would be taught in large group lectures or small group courses (eg, seminars) (55.9%). The least-favored formats among students were practical courses (24.2%) or learning about this content during the compulsory visit to a hospital at the end of medical education (21.5%). Most students wanted specific elective courses on human sexuality (88.8%). Only a few students wanted compulsory courses on human sexuality (35.4%).

Factors Influencing Confidence in Being Able to Help

Overall, male students (mean = 1.3, SD = 0.6) agreed more often with inflexible beliefs about sexual functioning than did female students (mean = 1.1, SD = 0.6; $t(381) = 3.4$, $P = .001$, $r = 0.17$). Generally, female and male students on average disagreed with statements conveying these inflexible beliefs about sexual functioning.

For female students, a SEM with satisfactory fit indexes was obtained (Figure 1). Female students' confidence that they would be able to help future patients with sexual health concerns was positively associated with female students' knowledge and their inflexible beliefs about sexual functioning. Female students in later semesters reported that they had covered more topics than did female students in earlier semesters. Female students who reported that many topics involving human sexuality were taught during medical education were those female students who perceived themselves to be knowledgeable about human sexuality. Sexual functioning beliefs were not associated with self-perceived knowledge. Female students in later semesters reported fewer inflexible beliefs about sexual functioning than did female students in earlier semesters (Figure 1).

For male students, the SEM did not fit the data very well, because only the standardized root mean square residual and the comparative fit index were satisfactory (Figure 2). Still, the associations in the model revealed that male students' confidence about addressing sexual health concerns in the future was positively associated with male students' knowledge and inflexible beliefs held about sexual functioning. Male students in later semesters reported that they had covered more topics and that they were more knowledgeable about human sexuality than did male students in earlier semesters. Male students who reported that many topics about human sexuality were taught during medical education were those students who perceived themselves to be knowledgeable. Sexual functioning beliefs were not associated with semester, but with self-perceived knowledge. Male students who reported more knowledge about sexuality agreed less often with inflexible sexual functioning beliefs than did male students with less knowledge (Figure 2).

DISCUSSION

Many recommendations advocate the inclusion of sexual health issues in graduate education for the healthcare professions.[36–38] However, including such subjects in medical education has made slow progress to date.[12–14,25] The current study adds to the studies conducted in Europe by revealing students' perceptions on deficient or missing sexual health education at an Austrian medical university.

At this Austrian medical university, the lion's share of content on sexual health was taught in gynecology, urology, endocrinology, psychiatry, and gender medicine. The topics covered in these courses are narrow and focus on disease, dysfunction, and pathology.[39] At the Austrian medical university, mostly topics about sexually transmitted diseases, infertility, pregnancy and abortion, or human anatomy of sexual and reproductive organs were taught, similar to at other medical schools.[15,18–21]

Topics such as sexual behavior, love, or sexuality in elderly people, which include a more holistic and health-oriented view of human sexuality than the disease-oriented topics,[40] were rarely taught. Most strikingly, students stated that they had not received education on sexual history-taking. This is a big shortfall, because sexual history-taking is an essential skill that physicians need to sensitively address patients' sexual health.[41] For this reason, it is highly recommended that sexual history-taking play an important part in sexual health education at medical universities.[42]

It is recommended that the amount of sexuality education provided in medical education be increased.[38] The current study shows that medical students at an Austrian medical university would welcome more education on sexual health issues. Medical students were interested in sexual health issues and perceived such education to be important.[25,43] Most of the students in this study wished to have more sexuality education in $\geq$1 medical course. Most frequently, students wished to have more sexual health education in psychiatry. Given that there are psychiatric classifications of sexuality disorders,[44] it is recommended that psychiatry courses contain topics regarding human sexuality in detail.[45]

However, the task of teaching human sexuality during medical education should not be relegated to psychiatry courses alone. Because sexual health is associated with many medical disciplines and can be affected by many diseases,[1,46] sexuality can potentially be taught in many medical courses throughout medical education. Medical students in the current study wished to have more content about human sexuality in courses such as gynecology, endocrinology, urology, dermatology, or gender medicine. 1 barrier to implementing more sexuality education in medical education is lack of space in an already busy curriculum.[13] This concern may also be reflected in students' responses in the current study. They reported that, if sexual health were taught in a separate course, such a course should be elective and not compulsory. This opinion could result from students being worried about being overwhelmed by 1 more compulsory course, in addition to the already tight medical education schedule. Sexual health issues should, therefore, be taught over many medical courses throughout medical education. For such an approach, however, colleagues and teachers of different medical courses and disciplines will need to be made aware of the importance and relevance for including discussions about sexual health issues in their courses.[13]

In the current study, the positive association between sexuality education and increased student knowledge that, in turn, positively influenced students' confidence in dealing with sexual health issues was tested and confirmed. An important goal of sexual health education in medical school is to help students correct their own unrealistic and stereotypical beliefs and presumptions about sexuality.[16] For the male subsample, this positive influence of sexuality education was supported by the current study's results. For female medical students, no such positive association between knowledge and amount of unrealistic and inflexible presumptions or beliefs about sexual functioning was found. 1 reason may be that female students hold fewer such beliefs, irrespective of knowledge, than do male medical students. However, further studies are needed to understand these gender differences concerning the associations between formal medical education and presumptions about health care issues.

This study has its limitations. First, the study is based on students' self-reports. This approach entails known problems. For instance, students may not correctly remember all occasions of sexual health education or may not recollect such events.[47] Especially, the assessment of self-perceived knowledge should be replaced by an actual knowledge test in future studies.[43] Even though the questionnaire in the current study is based on questionnaires often used in previous studies with similar study aims and study populations,[13,24–26] these questions and questionnaires still need to be subject to validation analyses in the future. Second, there is no information on students who chose not to participate. It may be that most of the students who participated in the study were interested in sexual health issues. However, around 10% of all enrolled medical students participated in the study. Therefore, opinions of a considerable number of medical students at this medical university were considered. Last, the bad fit of the SEM, which was calculated for male students, limits conclusions. However, the found associations in the model were strong and, again, in concordance with the literature.[23]

CONCLUSION

At this Austrian medical university, more education on sexual health issues is needed and desired by medical students. Topics on sexual health need to be addressed more thoroughly to increase students' knowledge and, consequently, their confidence, with a view to dealing with sexual health concerns of patients. Future patients may further profit from the potential increase in sexuality education, because this may cause future physicians, especially male physicians, to hold fewer unrealistic and inflexible beliefs about sexual functioning.

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