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Sexual health in patient care: shortcomings in medical training and experienced barriers in sexual history taking

Evelien Bogaert[1*] and Rick Roels[1,2]

Abstract

Background Sexual health is recognized as a fundamental component of well-being, with implications for individuals, communities, and healthcare practices. This study explores medical residents' perspectives on training in sexual history taking, emphasizing its importance and the challenges faced at the onset of their clinical practice.

Methods A survey was conducted among 167 medical residents at the largest medical school in Belgium and their training curriculum was analysed. The participants completed an online questionnaire addressing aspects of sexual history training, skills, knowledge, attitudes, and factors influencing sexual history taking.

Results The survey revealed several shortcomings in the medical training in sexual history taking. Dissatisfaction is expressed regarding the adequacy of provided training, with a prominent barrier being the lack of skills and knowledge necessary for effective sexual history taking. Discomfort, experienced by physicians and their patients, emerges as a critical factor affecting the initiation and quality of sexual history discussions. Other challenges include biases related to religion, ethnicity, age, and gender, while practical factors, such as time constraints and language barriers, underscore the multitude of obstacles in comprehensive sexual history assessments.

Conclusion This study highlights the opportunities for improved training in sexual history taking in medical education, contributing to more inclusive and effective sexual history taking practices. Recommendations are made, including targeted interventions to improve skills, knowledge and attitude of the students.

Keywords Sexual health, Communication with health professionals, School-based interventions, Health care, Access to health care

Background

Sexual health in medical practice

Sexual health is key to personal well-being [14] and is associated with good physical and mental health, a longer life, and overall higher life satisfaction [14, 21]. Furthermore, sexual health is associated with increased economic stability, education, employment, and improved relationships [21]. Inversely, poor sexual health can encompass physical, emotional, and financial burdens, with potential societal stigma [21]. Hence, discussing sexual concerns with patients can yield beneficial outcomes and patients are more inclined to disclose sexual dysfunctions when prompted by their healthcare providers [25]. Physicians who exhibit ease in addressing matters of sexuality are more likely to uncover sexual health issues in their patients, extending beyond mere dysfunctions [2]. A lack of fluency

*Correspondence:
Evelien Bogaert
evelien.bogaert@student.kuleuven.be
[1] Department of Neurosciences, Interfaculty Institute for Family and Sexuality Studies, KU Leuven, ON5 Herestraat 49, box 1020, Leuven 3000, Belgium
[2] Department of Psychiatry, UPC KU Leuven and UZ Leuven, Leuven, Belgium

in handling such issues, coupled with an inability to address patients' sexual questions and complaints, can have significant repercussions on the quality of care delivered and consequently, the well-being of patients [2, 27, 49]. Ineffective treatment by healthcare providers may result in diminished quality of life or may prompt patients to seek information from alternative sources such as the internet, potentially exposing them to misinformation [24]. In the absence of a clear scientific definition in the existing literature, we adopted the following working definition for 'sexual history taking': 'inquiring about sexual health and/or well-being (including sexual dysfunctions, concerns, orientation, risk of STIs, etc.) through a minimum of two targeted questions'.

In addition to consistently emphasizing the importance of sexuality and sexual health, population-based surveys also identify needs at the community level. These needs encompass sexually transmitted diseases (STDs), contraception, pregnancy (1), sexual boundary violations (2), aging-related and iatrogenic factors impacting sexuality (3), and sexual dysfunctions (4), as discussed below [10].

First and foremost, Buysse and colleagues' Sexpert study [10] – the most comprehensive population-based study to date on sexual health in Belgium – revealed that both women and men highlight the importance of sexuality in their lives. In a similar vein, in a study by Flynn and colleagues [18] in the United States, more than 50% of sexually active men and more than 40% of sexually active women rated sexual health as highly important.

The Sexpert study revealed that only one in three sexually active participants had been screened for STDs, with a third of those tested receiving positive results [10]. This aligns with data from the National Academies of Sciences, Engineering, and Medicine [32], which noted an increase in syphilis cases since 2013, while gonorrhea and chlamydia rates remained stable or declined. Additionally, Akter and colleagues [1] found that hormonal contraceptives were associated with higher risks of chlamydia and herpes but lower risks for trichomoniasis and bacterial vaginosis. Although comprehensive sex education (CSE) has been shown to increase safe-sex behaviours, it did not significantly impact sexual activity or STI rates [6].

Moreover, unintended pregnancies (UPs) remain a significant issue, with more than half of pregnancies in women under 25 globally being unintended [16]. In the Sexpert study, one in four pregnancies in the Flemish population between 2000 and 2010 were unplanned, despite high rates of birth control use [10–12]. This reflects Schonewille and colleagues' [37] findings that women with psychiatric vulnerabilities face a higher risk of UPs, underlining the importance of family planning discussions in this group to mitigate risks for both mother and child.

Despite widespread use of birth control, unintended pregnancies continue to occur, highlighting the complexity of contraceptive efficacy and adherence. Hormonal contraceptives, while effective in preventing pregnancies, were found to have varying impacts on STD risks [1]. In this context, the study of Steiner and colleagues [40] suggests that promoting condom use specifically for STI prevention is particularly important for users of long-acting reversible contraception, such as adolescents and young adults, who may still be at risk for STIs.

Second, sexual violence increases the risk of sexual and reproductive health problems, impacting physical and mental health [7]. Although the prevalence of sexual violence is declining, it is still significant, affecting one in three women and one in twenty men, as documented by Buysse and colleagues [10]. Notably, the incidence of sexual boundary-violations, a broader category encompassing various forms of sexual misconduct beyond outright violence, is substantially higher. Globally, the World Health Organization (WHO, 2021) reports that over one in four women experience sexual violence perpetrated by their partner, and 6% by a stranger experience it from strangers. Within the Flemish population surveyed in the Sexpert study, 17% reported encountering sexual boundary-crossing *behaviour* before reaching the age of 18 [10]. These statistics underscore a concerning reality wherein minors face a heightened risk of experiencing sexual boundary-crossing behaviour and sexual violence compared to adults.

Thirdly, patients may suffer from distress related to sexual problems, due to age, medication, medical condition and treatment [24, 44]. Even though the importance of sex tends to decrease with age, the maintenance of an active, satisfying, and fulfilling sexual life at an older age is positively correlated with overall life satisfaction [3, 45]. Vasconcelos and colleagues [45] found that sexual knowledge and positive attitudes towards aging sexuality, are associated with higher life satisfaction. Moreover, the European study of Hald and colleagues [22] shows that older men (aged 60–75) experience less distress around sexual problems than younger individuals, possibly because they view them as a natural part of aging—a hypothesis also supported by the findings of Vasconcelos and colleagues [45]. The level of distress may also be influenced by the nature of the sexual issue, with men reporting the highest distress when facing anorgasmia and reduced erectile function [22]. Lastly, a systematic review on sexual function in older women by Athey and colleagues [3] notes the various challenges they face as they age, including the effects of menopause, reduced vaginal lubrication, changes in libido, shifts in

societal roles, and a higher incidence of urogynaecological conditions such as genital prolapse and urinary or fecal incontinence [3]. They also noted that while sexual activity declines with age, previous sexual experience and behaviour play a crucial role in maintaining sexual well-being, and clinical interventions can help address related challenges.

Undoubtedly, sexuality remains a crucial psychosocial aspect for individuals across various health statuses, including those facing conditions such as cancer, cardiovascular diseases, and neurological disorders [18, 19, 44]. Unfortunately, sexuality does not often take its rightful place as part of a treatment or revalidation plan in healthcare [19, 44]. For instance, only one in four cancer patients, predominantly those with prostate and breast cancer, received pre-treatment information regarding the potential impact of treatment on their sexual well-being, while nine in ten encountered sexual difficulties during or after treatment [33]. The Dutch Society of General Practitioners (Nederlands Huisartsen Genootschap, NHG) advocates for the inclusion of sexual history assessments in the care of patients presenting with urogynecological complaints, depression, histories of sexual abuse, chronic illnesses, or chronic medication regimens due to hospitalization or long-term sickness [24].

Fourthly, individuals with sexual dysfunction often experience feelings of shame, diminished self-esteem, and reduced sexual satisfaction compared to their healthier counterparts [36]. Furthermore, the Sexpert study revealed that 85% of those affected by sexual dysfunction have not sought assistance from healthcare professionals such as physicians, sexologists, or psychologists regarding their sexual health concerns [10]. Several potential barriers can contribute to this high number, including not knowing where to seek help, misconceptions about the normalcy of their condition, and feeling ashamed [10]. Similar observations are echoed in the research by Gordon [21] in the United States, revealing that up to 75% of individuals with sexual dysfunction refrain from seeking healthcare. Since the vast majority does not seek professional help, a discrepancy arises between the prevalence of sexual dysfunction in the general population and the prevalence among patients as determined by physicians [24]. This underreporting of sexual dysfunctions is partly caused by physicians taking no or incomplete sexual histories [24].

Sexual health in medical training

To mitigate stigma and foster a normalized discourse surrounding sexuality, it is the responsibility of physicians and healthcare professionals to provide patients with up-to-date information pertaining to sexual health and to encourage open dialogue regarding sexual concerns [20, 21]. Consequently, comprehensive and practical multidisciplinary training of healthcare providers is necessary to safeguard the sexual well-being of patients [29, 42, 48].

Unfortunately, within the United States, a considerable portion of medical students, ranging from 42 to 62%, perceive deficiencies in their education concerning sexual health, mirroring concerns voiced in Scotland, Germany, Malaysia, and Canada [2, 17, 39, 42]. Oftentimes, this education leaves students feeling discomfortable and inadequately prepared to inquire about sexual health concerns [2, 17, 27, 39, 41, 42, 49, 50].

Implementation of a structured training regimen in sexual health holds promise in equipping physicians with enhanced proficiency to address sexual health concerns among their patients [11, 48]. Empirical evidence substantiates this impact, such as the work by Morreale and colleagues [30] which found that residents and medical officers who undergo training in sexual health are more inclined to inquire about their patients' sexual health. Consequently, investments in educational curricula are essential in diminishing physicians' reluctance and cultivating the competencies to discuss sexuality with their patients [11].

The current study aims to determine whether the deficiencies identified in other studies are present within our own cohort of medical students and residents by investigating the current curriculum, gauging the perspectives of medical residents regarding their training in sexual history taking and elucidating perceived shortcomings in this domain. Additionally we delineate the barriers encountered by students prior to undertaking sexual history assessments in clinical settings, in order to propose curriculum enhancements to better prepare future physicians in this crucial aspect of patient care. To fulfill this objective, we conducted inquiries among the medical residency students enrolled at KU Leuven, Belgium's largest medical school, and we investigated the medical curriculum with the aim of pinpointing opportunities for improvement in sexual health education and clinical practice.

Methods

Prior to participant recruitment, an exhaustive analysis of the current master's curriculum was undertaken utilizing the European Credit Transfer and Accumulation System (ECTS) framework in the course offerings. Subsequently, an online Qualtrics survey was disseminated to all General Practitioners in Training (GPT) and Residents in Speciality training (RS) enrolled at KU Leuven.

Participants were required to meet the following eligibility criteria: Healthcare providers were mandated to be GPT or RS currently enrolled at KU Leuven, who work within the region of Flanders (Belgium), possess

a master's degree in medicine conferred by KU Leuven, and have engaged in patient interactions since the start of their residency program.[1]

We designed a survey consisting of four sections, in which sexual history taking is defined as the process of "inquiring about sexual health and/or well-being (including sexual dysfunctions, concerns, orientation, risk of STIs, etc.) through a minimum of two questions." The first part of the survey inquired demographic information and relevant characteristics, such as educational background. The second section encompassed six questions, of which five were adapted and translated into Dutch from the analytical work of Beebe and colleagues [5]. These questions aimed to gauge perceptions regarding training in sexual history taking, the prevalence of sexual problems encountered in their clinical practice, the perceived significance of sexual history taking within their chosen specialization, and their level of comfort in conducting a sexual history. Additionally, a sixth question was introduced to assess participants' estimations of the prevalence of sexual health issues within their respective specialties. Respondents could indicate their responses using a scale ranging from 0 (indicating an extremely negative sentiment) to 100 (indicating an extremely positive sentiment). The questionnaire underwent translation specifically for the present study under the oversight of a native English speaker, followed by a review conducted by a native Dutch speaker to ensure linguistic accuracy and cultural appropriateness.

The third segment of the questionnaire comprised eight questions aimed at assessing participants' perceptions of skills and training pertinent to sexual history taking and discussing sexual health problems. Analysis indicated good internal consistency among these items (Cronbach's $\alpha = 0.77$). Additionally, this section gauged attitudes toward sexual history taking among GPT and RS through 14 questions, which also exhibited good internal consistency (Cronbach's $\alpha = 0.85$). Participants were provided with a Likert scale ranging from 1 (indicating strong disagreement) to 5 (indicating strong agreement) to express their responses.[2] The questions featured in the third segment were adapted and translated into Dutch from the research of Ariffin and colleagues [2].[3]

The fourth and concluding section of the survey aimed to elucidate the barriers encountered by participants during sexual history taking. Drawing upon an extensive review of the literature, including research by Fraser and colleagues [19] and Verhoeven and colleagues [46], nineteen relevant options were delineated and incorporated into the questionnaire. These topics underwent adaptation and translation into Dutch to suit the requirements of the current study. Participants were asked to indicate the barriers relevant to their experiences, with the option to specify other barriers if desired.

Procedure and data collection

An introductory message explaining the objectives of the study, accompanied by a hyperlink directing potential participants to the online Qualtrics survey platform, was disseminated across various channels at KU Leuven, located in Leuven, Belgium. These channels included dedicated Facebook groups catering to Residents (RSs) and Graduate Training Physicians (GTPs), as well as newsletters circulated by two Flemish interuniversity student bodies: the Interuniversity Coordination Body for General Practitioners in Training (ICHO) and The Flemish Association for Medical Specialists in Training (VASO), which represent GTPs and RSs, respectively. Additionally, outreach efforts extended to the Toledo Community email platform (an internal communication tool at KU Leuven for students and staff), and the survey was shared by two-thirds of the supervising faculty members overseeing all specializations at KU Leuven. The survey remained accessible for a period of three months, from December 2022 to February 2023. Informed consent was obtained from each participant, as they were required to actively opt in and agree to participate before being granted access to the survey questionnaire. All study measures and procedures were reviewed and approved by the university's research ethics board prior to commencement.

Statistical analysis

All statistical analyses of survey responses were conducted using IBM SPSS Statistics version 28.0 (SPSS Inc., Chicago, IL., USA). Descriptive information is presented using the average score per response and the distribution of various responses for each question. Statistical analyses were performed to examine differences in responses based on gender, age, specialization, specialization year,

[1] Three participants were included who studied at KU Leuven but are not completing their status as GPT or RS at KU Leuven practicing in Flanders.

[2] This scale was also divided into five parts during analysis: [1–1.8] = absolutely disagree, [1.8–2.6] = rather disagree, [2.6–3.4] = neither agree nor disagree, [3.4–4.2] = rather agree and [4.2–5] = strongly agree.

[3] Notably, two questions addressing perceived barriers were omitted from the original questionnaire. Specifically, these questions pertained to participants' perceptions regarding cultural and religious differences as barriers to discussing sexual health problems with patients. Subsequently, these questions were incorporated into the fourth segment of the questionnaire, designated as "Experienced barriers." The latter was further subdivided into distinct options, namely, "the patient adheres to religious beliefs (e.g., practicing Muslim or Christian)" and "personal religious convictions", to provide nuanced insights into participants' experiences with barriers encountered in clinical practice.

Table 1 Sample demographics and characteristics

		Number	%
Biological gender	Man	59	64.7
	Woman	108	35.5
Additional education in sexology	Yes	24	14.3
	No	143	85.7
Year of residency	First year	26	15
	Second year	37	22.2
	Third year	35	21
	Fourth year	31	18.6
	Fifth year	21	12.6
	Sixth year	17	10.2

and any additional training. The Kruskall-Wallis test was employed to compare mean ranks among specialization groups, with a sample size criterion of at least five valid responses. Post-hoc pairwise comparisons were conducted when significant differences were found. Gender disparities and the influence of sexology training on responses were explored through Mann–Whitney tests. In the assessment of barriers encountered in discussing sexual history, the Pearson chi-square test facilitated the identification of significant between-group variances, while Spearman's correlation was employed to evaluate associations with participant age. Additionally, to unveil overarching themes within the domain of "Experienced barriers," Principal Component Analysis (PCA) was applied.

Results

Sample demographics and characteristics

A total of 240 responses were collected, of which 168 were completed and 167 were included in the analyses.[4] Among these participants, 108 (64.7%) identified as female, while 59 (35.5%) identified as male (see Table 1). The cohort exhibited a diverse distribution across various stages of specialization training, encompassing 26 first-year, 37 s-year, 35 third-year, 31 fourth-year, 21 fifth-year, and 17 sixth-year students. Participant ages ranged from 23 to 36 years, with a median age of 27 years. Twenty-four participants (14.3%) reported having taken a course related to sexual medicine. Notably, KU Leuven offers a total of 36 specializations, including general practice, with 26 of these specializations represented in this study. One participant opted not to disclose their specialization. The most frequently reported specializations among participants included general practice ($N=29$), adult psychiatry ($N=24$), surgery ($N=14$), gynaecology and obstetrics ($N=11$), and anesthesia-reanimation ($N=10$). This cohort constitutes an estimated 9% of all residency students at KU Leuven who have obtained their master's diploma from the university over the preceding six years.

Students comfort, training and attitude on sexual history taking

The average score per question and the corresponding interpretation are presented in Table 2. The results of "Experienced barriers" are presented in Table 3. Six specific barriers were identified by the participants: 'sensing feelings of perversion of the patient', 'patients discomfort due to the gender and youth of the doctor', 'presence of the patient's children during the consultation', 'uncertainty regarding the sexual activity of elderly patients', 'no indication', and finally: 'rarely relevant in our context'. Only one participant clarified the option 'inadequate training (if not addressed previously)' with: 'pediatric population'.

PCA analysis

The data proved to be moderately suitable (KMO = 0.61). After conducting PCA, only the components with high eigenvalues could be retained. The Scree Plot Test was employed to establish the threshold, leading to the retention of four components. Together, these components accounted for 41% of the data's variation. A Kaiser-Varimax rotation was performed to maximize the variation between different options, minimizing correlation with more than one component. Despite this rotation, the barriers did not consistently correlate with a single component. Therefore, the component selection process prioritized associations where barriers exhibited a correlation coefficient of at least 0.3. Notably, only the barrier labeled 'Patient does not report genital complaints' failed to demonstrate a correlation with any component, as evidenced by a correlation coefficient of -0.136, falling below the predetermined threshold of 0.3. Consequently, this barrier was excluded from subsequent analyses. All barriers except 'own religious reasons' and the additional options provided by participants were included in PCA. From the PCA, four components (overarching themes) emerged: Deficiency of knowledge and skills, concern for patient embarrassment, physician attributes, and lastly Minority groups, time constraints, and patient discomfort. These components have eigenvalues of 2.6, 1.9, 1.5, and 1.3, representing 15%, 11%, 8%, and 7% of the data, respectively.

[4] One response was removed because the participant had not had any patient contact since completing their master's in medicine. In eight of the remaining 167 responses, one question was left unanswered, and in one response, two questions were left unanswered. These responses are included in this study.

Table 2 Questionnaire on students comfort, training and attitude on sexual history taking

Question	Mean score	Std. Deviation	Conclusion
The sexual health education in my medical program was helpful[a]	39.71	25.68	RD
Sexual health training is important for my chosen speciality	63.78	30.54	RA
The prevalence of sexual health problems in my chosen speciality[b]	45.75	29.32	N
Comfort in initiating the topic of sexual health with patients[b]	52.95	26.17	N
Comfort when patients initiate conversations about sexual health	65.96	25.68	RA
Importance in knowing about patients' sexual health[b]	62.39	26.09	RA
I find taking sexual history easy	3.05	1.07	N
I have adequate skills to take sexual history	3.06	1.11	N
I have adequate skills to put a patient at ease when discussing their sexual health issues	3.40	1.07	N
The training at my university prepares me to take a sexual history	2.03	1.03	RD
I have enough exposure as a medical student to take a sexual history from a simulated patient	2.77	1.21	N
I have enough exposure as a medical student to take a sexual history from a real patient	2.77	1.19	N
I think there is not enough training in medical school on how to discuss sexual health problems with patients	3.93	1.09	RA
I feel that patients would like to discuss their sexual health problems with a doctor	3.98	0.78	RA
I am interested in learning about sexual health	4.05	0.89	RA
I think it is important for doctors to know how to take a sexual history	4.41	0.64	AA
I think a nurse can take better sexual history	2.56	0.79	RD
I think it is important to be nonjudgmental when taking a sexual history	4.77	0.54	AA
I feel comfortable in discussing sexual health problems with patients	3.57	1.03	RA
I feel comfortable discussing sexual health problems with adolescents	3.35	1.15	N
I feel comfortable discussing sexual health problems with patients of opposite gender	3.40	1.09	N
I feel comfortable discussing sexual health problems with unmarried but sexually active patients	3.69	1.08	RA
I feel comfortable in asking patients about their sexual orientation e.g. homosexuals	3.41	1.10	RA
I feel comfortable in asking patients regarding their sexual practices e.g. "Are you sexually active?". "Do you practice vaginal sex?	3.36	1.12	N
I feel comfortable in taking a sexual history from patients who are uneasy in discussing sex	3.07	1.11	N
I recognize my own limitations in discussing sexual health issues with patients	4.09	0.73	RA
I have thought about how my own attitudes. beliefs and values may affect my discussion of sexual health issues with patients	3.58	1.00	RA
I believe that it is important to maintain patient confidentiality	4.78	0.48	AA

AA Absolutely agree, *RA* Rather agree, *N* Neither agree. nor disagree. *RD* Rather disagree, *AD* Absolutely disagree

[a] 6 missing answers

[b] 1 missing answer

Component 1: Deficiency of knowledge and skills

This component encompasses a set of five barriers, each exhibiting varying degrees of correlation with the component. Barriers characterized by higher component loadings are more strongly associated with the component itself. Specifically, 'Insufficient knowledge about sexual dysfunctions' (loading: 0.73), 'Uncertainty regarding the management of information obtained from a sexual history' (loading: 0.73), and 'Lack of proficiency in formulating appropriate questions during sexual history taking' (loading: 0.67) manifest the strongest correlations with this component. In contrast, 'Insufficient knowledge concerning specific sexual practices (e.g., homosexual intercourse)' (loading: 0.49) and 'Inadequate training (if not addressed previously)' (loading: 0.40) demonstrate comparatively weaker associations with this component.

A total of 109 participants (66%) reported encountering one or more of these barriers during their clinical practice.

Component 2: Concern for patient embarrassment

Component two comprises five barrier options, ranked by their component loadings as follows: 'Presence of the patient's parent(s)' (loading: 0.70), 'Inadequate privacy' (loading: 0.67), 'Presence of the patient's partner' (loading: 0.63), 'Language and comprehension problems' (loading: 0.50), and 'The patient adheres to religious beliefs' (loading: 0.50).

Table 3 Experienced barriers

Nr	Barrier	Number	%
1	Presence of the patient's parent(s)	125	75
2	Patient is uncomfortable discussing the topic	106	64
3	The patient adheres to religious beliefs (e.g., practicing Muslim or Christian)	78	47
4	Language and comprehension problems	71	43
5	Insufficient knowledge about sexual dysfunctions	68	41
6	Inadequate time availability	67	40
7	Presence of the patient's partner	58	35
8	Lack of proficiency in formulating appropriate questions during sexual history taking	48	29
9	Uncertainty regarding the management of information obtained from a sexual history	47	28
10	Patient does not report genital complaints	46	28
11	Inadequate privacy	44	27
11	Inadequate training (if not addressed previously)	44	27
12	Age difference with the patient	36	22
13	Patient of a different gender than the trainee physician	29	18
14	Insufficient knowledge about certain practices (e.g., homosexual sex)	28	17
15	Personal discomfort	25	15
16	Patient identifies as part of the LGBTQIA + community (e.g., transgender, homosexual…)	18	11
17	Patient's ethnicity differs from that of the trainee physician	17	10
18	Other, namely:	6	4
19	Own religious reasons	0	0

A total of 143 participants (86.14%) reported encountering one or more of these barriers during their clinical encounters.

Component 3: Physician attributes

Component 3 encompasses three barriers, with 'Age difference with the patient' (loading: 0.76) and 'Patient of a different gender than the trainee physician' (loading: 0.71) exhibiting the highest correlations with the component. Conversely, 'Personal discomfort' (loading: 0.48) demonstrates the least correlation with this component.

A total of 61 participants (36.75%) reported encountering one or more of these barriers during their clinical encounters.

Component 4: Minority groups, time constraints, and patient discomfort

Component 4 comprises four barrier options. It demonstrates a positive correlation with 'Patient identifies as part of the LGBTQIA + community' (loading: 0.64) and 'Patient's ethnicity differs from that of the trainee physician' (loading: 0.47). Conversely, it exhibits negative correlations with 'Patient is uncomfortable discussing the topic' (loading: -0.37) and 'Inadequate time availability' (loading: -0.47).

A total of 140 participants (84.34%) reported encountering one or more barriers from component 4. Specifically, 31 participants (18.67%) cited encountering barriers related to patient belonging to the LGBTQIA + community and/or having a different ethnicity than the trainee physician. Furthermore, 129 participants (77.71%) identified 'inadequate time availability' and/or patient's discomfort with the topic as pertinent barriers.

Significant differences between groups

Gender

Gender disparities were evident in responses to seven questions, with statistically significant differences observed between women and men.

Women exhibited a significantly higher inclination towards perceiving training in sexual health as important for their chosen specialization ($Z = -2.83$, $p = 0.005$). They also demonstrated a greater interest in acquiring knowledge about sexual health compared to men ($Z = -3.89$, $p < 0.001$). Furthermore, women were more inclined to endorse the importance of physicians possessing the skills to conduct a sexual history ($Z = -3.43$, $p < 0.001$). Finally, women expressed a stronger agreement regarding the significance of maintaining patient confidences ($Z = -2.04$, $p = 0.042$).

Conversely, men indicated a greater comfort level in discussing sexual health issues with patients ($Z = -2.23$, $p = 0.026$), particularly those of a different gender ($Z = -1.98$, $p = 0.047$) and in initiating conversations about sexual health ($Z = -2.31$, $p = 0.021$). Moreover, a weak yet statistically significant association between genders was

noted, wherein men were more likely than women to cite 'inadequate time availability' and less likely to cite 'insufficient knowledge about sexual dysfunctions' as barriers to conducting a sexual history (X2 (1, $N=167$) = 5.64, $p=0.018$; V = 0.18 and X2 (1, $N=167$) = 4.14, $p=0.042$: V = 0.16, respectively).

Age

A weak negative correlation emerged between age and the level of agreement with statements regarding the usefulness of training in sexual health within medical programs ($r(159) = -0.20$, $p=0.011$) as well as the perception of university education in preparing individuals for conducting a sexual history ($r(165) = -0.16$, $p=0.045$). A weak positive correlation was observed between age and agreement with the assertion that nurses are more adept at eliciting sexual histories ($r(165) = 0.17$, $p=0.028$). Notably, no significant differences based on age were discerned in relation to experienced barriers.

Additional education in sexology

Trainees and General Practitioners (GPs) who pursued additional training in sexology exhibited significantly higher scores on various metrics related to sexual health. Specifically, they expressed a significantly stronger endorsement of the importance of training in sexual health for their chosen specialization ($Z = -2.16$, $p=0.031$) and reported a significantly higher prevalence of sexual health problems within their respective specializations ($Z = -2.31$, $p=0.021$).

Moreover, participants who pursued supplementary education in sexology displayed a more favorable outlook regarding the utility of training in sexual health provided by their medical program ($Z = -3.66$, $p<0.001$) and demonstrated a markedly heightened interest in learning about sexual health topics ($Z = -3.34$, $p<0.001$).

No significant differences based on sexology education were observed for the reported barriers in 'Experienced barriers'.

Specialization year

No statistically significant differences were found across specialization years concerning participants' perceptions of skills, training received, and comfort levels in delivering sexual health care, as determined by a Kruskal–Wallis test. However, within the domain of 'Experienced barriers,' a statistically significant albeit moderate difference was noted among specialization years regarding the barrier 'uncertainty regarding the management of information obtained from a sexual history' (X2(5, $N=166$) = 12.53, $p=0.028$; V = 0.28). The proportion of students per year indicating this barrier varied, with percentages as follows: first year (19.23%), second year (33.33%), third year (20.00%), fourth year (19.35%), fifth year (57.14%), and sixth year (29.41%). Furthermore, the Kruskal–Wallis test was employed to explore distinctions between specialization years within specific specializations, with a minimum threshold of five individuals per specialization year. Only general practice and psychiatry yielded sufficient participant numbers. Significant differences were observed in the responses of general practice specialization years regarding the statement "I think a nurse is better at taking a sexual anamnesis" (H(2, $N=29$) = 6.74, $p=0.034$). In psychiatry, significant differences were evident in responses to the statements "I am interested in learning about sexual health" (H(4, $N=24$) = 12.938, $p=0.012$) and "I recognize my own limitations in discussing sexual health problems with patients" (H(4, $N=24$) = 10.78, $p=0.029$).

Discussion

The aim of this study was to examine the viewpoints of medical residents regarding their training in sexual history taking and to delve into its implications and constraints within clinical practice. To achieve this goal, the research probed into the educational content pertaining to sexual history taking and gauged the extent to which students perceive themselves as adequately equipped to address issues of sexual health and well-being in patient care. Furthermore, the investigation sought to uncover the barriers encountered by residents in effectively conducting sexual history assessments, as identified within the context of the master's program in medicine at KU Leuven during the academic year 2022–2023.

Shortcomings in medical training

The sexual education program comprises a solitary lecture incorporated into one specific course and a mandatory three-hour training program dedicated to hone skills in navigating difficult patient conversations. While sexual history taking is included in these discussions, its coverage lacks consistency. Nevertheless, medical students do have the opportunity to practice sexual history taking during internships in the final two years of their master's education. However, the findings of this study reveal a prevailing sentiment among students that their university education inadequately equips them for the task of sexual history taking, a trend consistent with previous international research findings [5, 42].

In a study from three medical schools in Malaysia, less than half (46%) of all medical students reported that the training they received adequately prepared them to take sexual histories [2]. In a small study from Edinburgh, most medical students expressed feeling inadequately prepared to handle patients experiencing frequently encountered sexual and reproductive health issues [17].

In a nationwide study conducted in Germany, an examination of sexual health curricula within medical schools revealed that a significant proportion of medical stude (nts either reported a deficiency in sexual health topics incorporated into their curricula or were uncertain if such topics were included. However, within each university, there were students who reported they had been taught sexual health topics and students who claimed the contrary [42]. This may indicate an inconsistency in teachings about sexual health, as is the case in our study.

The students from our current study perceived the provided training in sexual health as not particularly helpful. These results are in line with the assessment of seven medical schools in the United States, which revealed that only two institutions' formal medical curriculum regarding sexual health encouraged the students to extend their sexual history beyond the basic reproductive health and include sexual dysfunctions related to libido and pain [13]. However, our results show a clear aspiration expressed by the residency students, who assign significant importance to proficiency in conducting a sexual history and receiving training in addressing sexual health issues.. Thus, it is unsurprising that the results in this study underscore a perceived lack of adequate training within the program pertaining to discussions on sexual health matters with patients. Similar findings were corroborated by Manninen and colleagues [28] in their national Finnish study in which 76% of final year medical students reported receiving too little sexual medicine education.

Two in three students in this study cited a lack of skills or knowledge as a personal barrier to inquire about the sexual history of their patient. Similarly, 'inadequate training' is a significant reason in five different studies, with 69.4–79% of physicians indicating this [14, 19, 30, 46, 48]. Moreover, existing literature suggests that healthcare professionals such as physicians, general practitioners, and advanced practice nurses, along with graduate training programs, also demonstrate insufficient knowledge regarding sexual dysfunctions [14]. In several studies, there is notable uncertainty about how to formulate relevant questions. For example, Morreale and colleagues [30] reported that 27% of healthcare providers were uncertain about how to formulate relevant questions during a sexual history. Similarly, Fraser and colleagues [19] found that 38% of healthcare professionals identified "difficulty raising sexual issues in a sensitive way" as a barrier to conduct a sexual history when working with patients with acquired brain injury. In line with these studies, 28% of students in the current study expressed uncertainty regarding how to formulate appropriate questions during a sexual history. Additionally, students seem to be uncertain about how to handle the information obtained from a sexual history. For example, the national Finnish study from Manninen and colleagues [28], reported that 66.1% of newly graduated medical students expressed fear of failing to respond appropriately to patients' sexual health issues. In contrast, Morreale and colleagues [30] found that 29% of healthcare providers lacked clarity on how to handle the information gathered during a sexual history. Consistent with these findings, 29% of students in the current study expressed uncertainty regarding the application of information obtained from a sexual history. Furthermore, despite receiving limited training and participating in intensive internships, students, on average, responded with ambivalence, indicating neither agreement nor disagreement when queried about their perceived proficiency in conducting a sexual history, whether with a real patient or during simulated encounters. Overall, students also expressed neutrality ('neither agree nor disagree') regarding the ease of undertaking a sexual history, suggesting a middling level of interview aptitude.

In addition to skill acquisition, knowledge acquisition also holds significance in the process of obtaining a sexual history. Despite the inclusion of content pertaining to sexual dysfunctions within the curriculum, two out of five students express a sense of inadequacy in their understanding of sexual dysfunctions, thereby ranking it as the fifth most prominent barrier to conducting a sexual history. Furthermore, 'insufficient knowledge about certain practices (e.g., homosexual sex)' emerges as a hindrance for one in six students.

Experienced barriers in sexually history taking

Students often encounter barriers that impede their willingness to broach the sensitive subject of obtaining a patient's sexual history. This section delves into the diverse challenges students face, categorizing them into interpersonal, personal and practical factors.

Interpersonal factors

Discomfort Doctors indicate hesitancy in conducting a sexual history because they perceive their patients to feel embarrassed discussing sexuality with their health care provider [14, 19, 47, 48]. More than six out of ten (64%) participants found it problematic for the sexual history when a patient experiences discomfort with the topic, ranking it as the second most significant barrier. Furthermore, survey participants generally exhibit a neutral stance—neither comfortable nor uncomfortable—when interacting with patients who express unease, albeit they are comfortable discussing sexual health issues in a broader context. However, regrettably, students indicate possessing, on average, only a moderate ability to put

patients at ease when broaching topics related to sexual health.

In addition to the expected embarrassment experienced by patients, the discomfort of physicians also plays a role. This discomfort is not unique to students but is also evident among experienced physicians when addressing sexual health problems with their patients, as documented in previous studies [2, 14, 17, 27, 42]. However, in our study, only one in ten participants identified their own discomfort as a barrier, contrasting with the substantial number of students who perceive an uncomfortable patient as a barrier, thereby attributing the discomfort primarily to the patient. This observation may indicate a lack of self-awareness among students despite their prior acknowledgement of the potential influence of their own attitudes, beliefs, and values on discussions regarding sexual health problems with patients. Based on the data provided, it is evident that students would benefit from both practicing scenarios in which patients express significant discomfort when discussing sexual health and gaining a heightened awareness of their own discomfort during sexual history assessments.

Who initiates the conversation? From the literature, it appears that physicians are unsure whether it should be them or the patients who initiate the conversation on sexual problems [19]. As a result, the prevailing attitude that patients will broach the topic if deemed necessary serves as a notable deterrent to initiating sexual history discussions [24]. Consequently, sexual queries often remain unaddressed as patients anticipate healthcare providers to take the lead in such discussions. However, when asked to rate their comfort levels in scenarios where the patient initiates the conversation about sexual health versus instances where they must initiate it themselves, participants in this study assigned scores of 65/100 and 52/100, respectively. This suggests that students in this study exhibit greater comfort when patients take the initiative in initiating discussions about sexual health.

The absence of physical complaints (e.g. concerns or symptoms related to genitalia) is reported as a reason not to inquire about a patient's sexuality by 28% of the students in this study, in contrast to 79% in the study by Verhoeven and colleagues [46]. Asymptomatic STIs underscore the importance of proactive inquiry by health care providers into patients' sexual activities, even in the absence of symptoms, to detect and mitigate the spread of STIs [26]. Research indicates that physicians who initiate discussions about patients' sexual activities tend to perform more STI tests [9].

The responsibility for providing their relevant sexual history cannot solely be placed on the patient. Prior research has highlighted patients showcase low rates of disclosing relevant information in critical situations, with for example, only 10% of pregnant women reporting their pregnancy upon arrival at the emergency room [29]. Patients expect their healthcare providers to broach sexual health topics and initiate discussions on these matters, emphasizing the importance of physicians possessing adequate knowledge and comfort in addressing such concerns [19, 39, 49, 50]. Given these findings, medical professionals would benefit from practice in initiating conversations about sexual health and integrating sexual issues into their diagnostic considerations.

Personal factors

Personal biases by the physician can play a role in whether or not an assessment of sexual history is conducted [9, 14]. For example, physicians may assume someone's sexual activity or risk of an STI based on biases related to age, gender, race, and socio-economic status [9, 14, 29].

Religion In our study, nearly half of the students (47%) identified the religious affiliation of patients, such as being practicing Muslims or Christians, as a significant barrier to conducting a sexual anamnesis, ranking it as the third most crucial barrier. This barrier holds potential adverse implications for such populations; for instance, research indicates that Muslim women are at a heightened risk of experiencing sexual dysfunctions, such as genitopelvic pain [34]. Furthermore, Barrio-Ruiz and colleagues [4] conducted a comprehensive review of qualitative and mixed-method studies, revealing that religious immigrant women expressed apprehensions regarding cultural differences with their healthcare providers. These concerns included conflicts between treatments and religious beliefs, as well as discomfort discussing gynaecological issues, particularly with male caregivers [4]. Cultural competence education emerges as a potential remedy to address these issues [4, 34]. Interestingly, our study did not find participants considering their own religious beliefs as a hindrance to conducting a sexual anamnesis, consistent with previous findings by Ariffin and colleagues [2], and diverging from the observations made by Eardley [14].

Minority groups In our study, one in ten participants highlighted that conducting a sexual history posed challenges when patients' ethnic backgrounds differed from their own. This observation aligns with findings from Morand and colleagues [29] and Verhoeven and colleagues

[46], who similarly noted that cultural and ethnic disparities complicate discussions about sexuality. Turpin and colleagues [43] further elucidated that individuals who are non-white and non-heterosexual encounter greater difficulties in accessing sexual health care. Given the burgeoning trend of multiculturalism in high-income nations like Belgium, navigating these cultural nuances may present a formidable task in future clinical practice [4].

Additionally, one in ten residents in our study identified the patient's affiliation with the LGBTQIA + community as a barrier to assessing their sexual history. Despite this, residents generally reported moderate comfort levels in asking about patients' sexual orientations. This barrier may stem from insufficient training and knowledge regarding the LGBTQIA + community, as echoed by one in six students in our study who cited inadequate knowledge about certain sexual practices hindering their ability to take a sexual history. This sentiment is corroborated by recent research such as that conducted by Hascher and colleagues [23], where homosexual participants reported a lack of informed knowledge among their healthcare providers. By familiarizing themselves with LGBT terminology, physicians can create a more inclusive environment for these patients [31]. Furthermore, Nama and colleagues [31] found that medical students often lack knowledge and training in treating transgender patients, resulting in discomfort when providing care to this demographic.

Age difference One in five residents in our study indicated that the age difference between themselves and their patients impeded their ability to conduct a sexual anamnesis. Although our survey did not delineate between older and younger patients, this finding may suggest a reluctance to broach the topic with older patients, as noted by Leusink and colleagues [24]. The lack of education and training among healthcare providers is cited as a key reason why older individuals often refrain from seeking advice or treatment regarding sexual health issues [15], despite the significant association between quality of life and sexuality in the older population [8]. Conversely, physicians may experience discomfort when discussing sexuality with younger patients, despite the imperative of conducting a sexual anamnesis in this demographic, which is more susceptible to sexual misconduct and abuse [10].

Gender Gender differences among residents were evident in our study, similar to the research by Ariffin and colleagues [2]. Female residents placed greater emphasis on education in sexology and perceived it as more crucial for their chosen specialties compared to their male counterparts. Conversely, male residents demonstrated higher levels of comfort in certain situations. For instance, while both male and female physicians expressed comfort in discussing sexual health problems with patients overall, men scored significantly higher in this regard. Additionally, male residents reported feeling more at ease discussing sexual health issues with patients of the opposite gender, whereas female residents indicated a moderate level of comfort in such situations.

The gender of the patient emerged as a notable factor, with nearly one in five residents citing it as a barrier when the patient was of the opposite gender. This finding aligns with research by Brookmeyer and colleagues [9], which observed a higher likelihood of conducting a sexual anamnesis when the physician and the patient shared the same gender. The reasons underlying this barrier remain unclear and warrant further investigation.

Practical factors

Insufficient time Inadequate time availability emerges as a prominent barrier to conducting a comprehensive sexual history, a concern voiced across various studies, with reported prevalence ranging from 22 to 84% [19, 30, 38, 46, 48]. In our study, four in ten students encounter this obstacle, consistent with the findings of Seitz and colleagues [38] where 39% of participants faced a similar challenge. The perception of limited time may reflect an underlying prioritization of other complaints or symptoms, as suggested by Seitz and colleagues [38], wherein 57% of psychiatrists indicated that they consider other issues to be more important than sexual health. Alternatively, the barrier may also stem from a lack of assertiveness, as indicated by Fraser and colleagues [19], where nearly half of healthcare professionals cited 'not knowing when the time is right to raise sexual issues' as a barrier.

Problems with language and understanding In contrast to the 74% reported in the study by Verhoeven and colleagues [46], 'only' 42.8% of participants found language and understanding problems to be a barrier to conducting a sexual history, positioning it as the fourth most important barrier in this study. Language difference is a recognized impediment for i.a. immigrants seeking healthcare services [4]. Miscommunication between patients and healthcare providers can induce feelings of anxiety, insecurity, and discrimination, potentially dissuading individuals from utilizing sexual and reproductive health care services [4]. Although our study lacks sufficient information to fully elucidate why language or understanding problems constitute a barrier for the students, several possibilities are worth considering in light

of our findings. It is plausible that students perceive discussing this sensitive subject as time-consuming, exacerbating their existing time constraints. Alternatively, the topic may evoke embarrassment, and a limited vocabulary could compound discomfort during the conversation. We encourage future research endeavors to delve deeper into our results to provide a more comprehensive understanding of this aspect.

Privacy and presence of a third party The most notable factor hindering the taking of a sexual history in this study is the presence of the patient's parent, identified by 75% of participants. This figure is nearly on par with those in other studies, such as Morand and colleagues [29] at 76% and Verhoeven and colleagues [46] at 94%. Additionally, more than one-third of students indicated that the presence of the patient's partner (35%) and lack of privacy (27%) were barriers. Similar findings have been reported in other studies; for instance, Fraser and colleagues [19] found that 31% of healthcare providers encountered obstacles due to the presence of a third party. Lack of privacy is also mentioned by 22% of the medical students and residents in the research of Morand and colleagues [29]. It is plausible that residency physicians anticipate patient embarrassment or inaccurate responses when discussing sexual health in the presence of a third party [46]. Gong and colleagues [20] indicated that the presence of other patients and/or their visitors may deter patients from expressing their concerns. This is supported by the research report of Stand up against Cancer, in which cancer patients expressed during interviews that a lack of privacy prevented them from adequately discussing their sexual complaints.

Recommendations and opportunities

Bloom's Taxonomy of Educational Objectives provides a robust framework encompassing skills, knowledge, and attitudes [35]. Building on these insights, we propose enhancements to the curriculum that specifically address attitudes and biases related to sexuality. Integrating these elements into medical education is essential for equipping current and future physicians to deliver more comprehensive, informed, and empathetic care to their patients [27]. Noteworthy, the Faculty of Medicine at KU Leuven offers a singular academic Master's training in Sexology, which addresses several of the discussed shortcomings, by implementing a wide range of perspectives — biological, psychological, social – to the study of human sexuality. However, the following recommendations These recommendations extend beyond the KU Leuven, offering valuable insights for educators and institutions worldwide. Despite the modest response rate of approximately one in twelve resident students, our findings align with international literature, reinforcing the relevance of the proposed measures on international scale [19, 38, 46].

Skills

- Implement comprehensive training programs that *prioritize communication skills*, particularly in addressing sensitive topics like sexual health, to enhance students' capacity to *actively engage patients* in discussions about their sexual health, respecting their preferences and comfort levels.
- *Facilitate experiential learning* through role-playing scenarios that simulate challenging conversations, including situations where patients express discomfort, where family members are present or where a language barrier between the physician and the patient exists.
- Provide the students with *example sentences* they can use as a basis to further develop their skills throughout their careers.
- *Integrate time management strategies* into the medical curriculum to underscore the importance of allocating sufficient time for comprehensive sexual history assessments. Emphasize efficient communication skills to ensure essential aspects of sexual health are covered within time constraints and encourage students to integrate considerations of sexual health into their *diagnostic frameworks*.

Knowledge

- Provide *substantive educational content* elucidating the importance of sexual history, including insights into sexual dysfunctions, the possible ramifications of medical interventions, and the intersections of disease and age with sexual health.
- Incorporate curriculum elements aimed at *cultivating cultural competence*, equipping students with the necessary skills to navigate cultural nuances and effectively engage with patients from diverse backgrounds.

Attitude

- Highlight the significance of cultivating *self-awareness* among students, prompting them to acknowledge and navigate their personal discomfort during sexual history assessments effectively.

- *Implement cultural competence* training modules aimed at addressing biases stemming from religious beliefs, ethnicity, and sexual orientation.

Conclusion

This study is the first large-scale investigation into sexual history training among medical residents in Belgium, revealing a significant gap between students' educational needs and their preparedness to conduct sexual history assessments. A lack of skills, knowledge, or both was found in two out of three students. Additionally, the presence of the patient's parent (75%), patient discomfort (64%), and the patient's religious belief (47%) were identified as major barriers, alongside practical issues such as time constraints (40%) and language barriers (43%). By addressing these obstacles and offering targeted recommendations, including enhanced training, self-awareness, and cultural competence, the study provides a strong evidence-based foundation for improving sexual health education. The comprehensive methodology, combining personal experiences with curriculum analysis, offers valuable insights into the current deficiencies in sexual health education.

Building on international literature, these findings extend beyond Belgium and contribute to a global dialogue on enhancing sexual health training in medical education. These recommendations can potentially serve as a starting point in other countries for critically assessing medical education, and as a foundation for change in addressing sexual health in clinical practice. Future research incorporating qualitative methods, such as interviews, could offer deeper insights into the curriculum's strengths and areas for improvement.

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Authors' contributions
Evelien Bogaert: conceptualization and study design, data collection, data analysis, literature search, manuscript drafting and revisions. Rick Roels: conceptualization and study design, manuscript drafting, revisions and review, general supervision.

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Data availability
The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate
Ethical Approval and Consent to Participate Ethical approval for this study was approved by the Research Ethics Committee of KU Leuven (EC Research), that evaluates research projects on medical-scientific and healthcare-related topics. Informed consent to participate was obtained from all of the participants in this study.

Consent for publication
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Competing interests
The authors declare no competing interests.

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Publisher's Note

Evelien Bogaert presently a second-year medical graduate student at the University of Leuven (KU Leuven) and achieved a magna cum laude distinction in the Masters in Sexology in 2023 (KU Leuven).

Rick Roels Psychiatrist, psychotherapist and clinical sexologist at the University of Leuven (UPC KU Leuven, UZ Leuven) and clinical professor at the Institute for Family and Sexuality Studies, Department of Neurosciences (KU Leuven).