

Struggles With Sex and Gender.
Perspectives of First Year Medical Students:
A Focus Group Study

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Abstract

Sex and gender are important determinants of healthcare that need to be taken into account for medical teaching. Education is more effective if tailored to students' subjectively-perceived needs and connected to their prior knowledge and opinions. This study explored first-year medical students thoughts about sex and gender differences in general and in specifically in healthcare, and what their educational preferences are in learning about these concepts during their medical training. Therefore six focus groups were conducted with 26 first-year medical students, 7 male and 19 female students, within one Dutch medical faculty. The discussions were audio-recorded and transcribed verbatim. After that a thematic analysis was performed which included descriptive coding, interpretative coding, and definition of overarching themes. Three major themes were identified. (1) Students' self-perception of concepts sex and gender, including three major domains: (a) The unavoidable allocation of individuals to groups, (b) The role of stereotypes, and (c) The effect of sex/gender on career choice options. (2) Students' goal orientedness in learning about sex/gender. (3) Students' struggles between the binary system of medicine and the complexity of reality. Continuous reflection during medical school might help medical students to acquire sex- and gender-sensitive competencies that can be applied in their future work. To increase awareness about the influence of sex and gender differences in healthcare and on career choices, we recommend addressing these themes explicitly early on in the medical curriculum.

Keywords: Medical education, Educational needs, Sex differences, Gender differences, Focus groups

1. Introduction

Over the last two decades, sex and gender have been recognized as important determinants of health and disease and as important aspects of clinical practice (Annandale, 2009; Phillips, 2005; Bird & Rieker, 1999; Baggio et al., 2013; Schenck-Gustafsson et al., 2012; Senten, 2015). Sex is a binary concept that refers to the biological differences (*e.g.*, chromosomes, hormones, and sex organs) between men and women. Gender is a fluid concept which originates from the social sciences. It describes masculine or feminine characteristics that are socially and culturally constructed and enacted. Furthermore, gender determines which behaviours are expected of people and this concept can vary over time. Sex and gender are difficult to disentangle in human subjects and also interact within health and disease (Nobelius & Wainer, 2004; McGregor, Templeton, Kleinman, & Jenkins, 2013). Furthermore, the analysis of the concept of "gender" in medicine is complicated by the absence of valid instruments, beyond some recent attempts (Pelletier, Ditto, & Pilote, 2015).

Doctors should be able to adjust prevention, diagnosis, and treatment approaches to patients' individual characteristics and avoid generalized approaches. Individualized medicine is an emerging concept that is gaining progressively more attention (McGregor, Templeton, Kleinman, & Jenkins, 2013). By integrating sex/gender differences in their clinical practice, doctors will not only deliver sex- and gender-sensitive care, but also contribute to individualized healthcare (Ludwig et al., 2015; Lagro-Janssen, 2014). To become sex- and gender-sensitive doctors, students need to be able to identify where differences found in health and illness are related to sex and gender, act upon it and, hence, produce more equal outcomes for all patients (Nobelius & Wainer, 2004; McGregor, Templeton, Kleinman, & Jenkins, 2013).

According to Wharton's theory (Wharton, 2012), the concept "gender" is constructed at the individual, social, and cultural level. Through socialization processes, children and adolescents are exposed to societal and cultural beliefs, norms, and stereotypes about gender, which shape their own individual beliefs, assumptions, and opinions (Beutel, Burge, & Borden, 2018). Reflecting upon subjective perceptions of sex and gender, will help medical students become more aware of the potential influences of their attitudes and beliefs on the medical treatment of their patients (Lagro-Janssen, 2010; Andersson et al., 2012). Insight into students' understanding of sex/gender and their opinions about these concepts at the start of medical school will help medical educators in tailoring sex- and gender-sensitive teaching materials and methods to their audience.

Though medical students' attitudes towards sex/gender have been studied in several quantitative (Andersson et al., 2012; Lee & Coulehan, 2006) and qualitative studies (Hamberg & Johansson, 2006; Lempp & Seale, 2006), students' understanding of these concepts and their educational preferences have remained obscure. Moreover, previous qualitative studies that explored undergraduate medical students' ideas about the influence of sex/gender in healthcare have mainly focused on particular issues, such as the influence of gender in doctors' roles and careers (Hamberg & Johansson, 2006) and the influence of gendered stereotypes in students' choices for medical specialties (Lempp & Seale, 2006).

This study aimed to obtain an in-depth picture of first-year medical students' understanding of the concepts sex/gender, their ideas, opinions, and assumptions about sex/gender, and their educational preferences regarding learning about sex/gender in their medical education.

2. Methods

2.1 Study Design

This study follows a qualitative approach using focus group discussions as the basis of the analysis. Focus groups were used to collect in-depth information, identify interactions, agreement and disagreement between students (Stalmeijer, McNaughton, & Van Mook, 2014) about sex and gender differences. Next to their general perception of the subject, also their suggestions were collected for the integration of sex and gender aspects into medical education.

2.2 Study Context

This study was conducted at a Dutch medical university during the 2015-2016 academic years. The university has a 6-year medical programme. Students were admitted to medical school by (1) direct access through excellent secondary school performance (high pre-university Grade Point Average) and/or (2) a selection procedure (de Visser et al., 2017). In 2015, nearly all first-year medical students ($n = 328$ of in total $n = 330$) participated in the selection procedure.

The selection procedure consisted of two homework assignments and two exams at the medical university. For one of the homework assignments, aspiring students watched a video consultation that resembled a future practical experience and afterwards formulated their learning objectives and preferred learning activities. The goal of this assignment was to test students' capacity for self-centred learning. This video showed a sex- and gender-sensitive consultation of a male general practitioner with a female patient.

2.3 Recruiting Participants

In 2015, all first-year medical students who had been admitted to the medical school ($n = 330$) received an email, explaining the purpose of the study and inviting them to participate in a focus group discussion. Several reminders were sent to the potential participants. In addition, first-year medical students were also invited to participate in the focus group discussion by means of announcements in workshops in their introduction week and posters.

2.4 Data Collection

Between August and November 2015, an experienced female moderator (last author, PhD, professor) facilitated the focus groups, using a semi-structured interview guide, which was based on literature and the expert opinion of the research team (Table 1).

The sex- and gender-sensitive video consultation that the students watched during their selection procedure was referred to as an example of an educational tool to learn about sex and gender differences in medical school.

Focus groups were audio-recorded with the participants' consent. The focus groups had an average length of 73 minutes (range 59-86 minutes). Groups were kept small, averaging four students per group (range 4-5), to enable all participants to contribute substantially during the session, yet large enough to stimulate discussion and produce insights that would have been less accessible without interaction. All focus group interviews included male and female students.

Prior to each session, students were asked to complete a brief questionnaire to obtain their demographic characteristics (sex, age, prior education) and fill out an informed consent form. At the start of each session, the moderator explained the procedure of the focus group discussion and guaranteed full confidentiality. At the end of the focus group, the moderator summarized the discussion to evaluate whether all important issues had been discussed and to establish whether all participants agreed with the summary. Participation in the focus group interview was voluntary. Students did not receive any incentives and could withdraw at any

moment without any consequences.

Table 1. Topic list focus groups

Introductory question	
1. What do sex and gender mean to you?	<i>Introduction to start the focus group.</i>
Key questions	
2. What do you remember from the video assignment of the selection procedure and what did you learn about sex and gender differences?	<i>To explore the understanding and opinions of students about sex- and gender-sensitive healthcare. The video was used as an example of an educational tool to learn about sex and gender differences in their medical education.</i>
3. How do you think sex and gender differences should be addressed in the medical curriculum?	<i>To assess students' educational preferences to learn about sex and gender in medical school.</i>
Ending question	
4. How do your own sex and gender might impact your medical training and future professional role?	<i>To explore students ideas and assumptions of the impact of their sex and gender on their medical education and future professional role.</i>

Note. The topic list for the focus group consisted of key questions and several sub questions. For each key question, several sub questions were available for the moderator to obtain a more in-depth answer to the key question if needed. These sub-questions were used according to the moderator's discretion.

2.5 Data Analysis

The audio-recorded focus group interviews were transcribed verbatim by a professional transcriptionist. The transcripts were analyzed using Atlas.ti7 (Atlas.ti, Scientific Software Development GmbH, Berlin, Germany). A thematic analysis was performed that was appropriate for the exploratory nature of the research question (King & Horrocks, 2010). The following thematic analyzing steps were followed: (1) descriptive coding, (2) interpretative coding, and (3) definition of overarching themes.

The consolidated criteria for reporting qualitative research (COREQ) (Tong, Sainsbury, & Craig, 2007) were applied.

Two female junior researchers (second and third author) read the focus group discussions line by line and descriptively coded the transcripts independently. Next, the researchers compared their code lists and coded text segments. Some codes were renamed and/or reorganized and the final code list, arising from the discussion, was applied to the entirety of the focus group

discussions. After analysis of five focus group discussions, no significant new codes emerged (saturation). To be sure data saturation indeed had been reached, a sixth session was conducted, which revealed no further information.

Lastly, the researchers re-examined the quotations and the codes to develop interpretative codes. These codes were agreed upon with the members of the supervising committee (first-, fourth- and fifth author). Subsequently, these interpretative codes were discussed and overarching themes were defined. Quotations were translated from Dutch to English by a bilingual speaker. The focus group (FG) session and demographic characteristics of the participants (age, sex, and if applicable prior education after graduating from high school) were mentioned in the quotations.

2.6 Ethical Approval

The study protocol was approved by the Ethical Review Board of the Netherlands Association for Medical Education (NVMO-ERB). The Board decided that the study was in accordance with the rules pertaining to the review of research ethics committees and informed consent (NERB-file number 539, 8-07-2015). The authors confirm that all personal identifiers were removed or disguised so the students described are not identifiable nor can be identified through the story details.

3. Results

3.1 Demographics

Six focus group interviews were organized and all participants completed the questionnaire and signed the informed consent form before the focus group started. The group consisted of 19 female students (73 percent) and 7 male students (27 percent). In comparison, the male-female student ratio in first-year medical students at the Radboud University is 30 to 70 percent. The students were 18-23 years of age, with a mean age of 19.4 and standard deviation of 1.6 years. Eight participants had also attended another university or a university of applied sciences for one to three years before they were admitted to medical school. In the results quotations were used from participants with FG number, age and gender between brackets.

Analysis of the focus groups discussions identified three major themes: students' self-perception of concepts sex/gender, students' goal orientedness towards learning about sex/gender, and students' struggles between the binary system of medicine and the complexity of reality.

3.2 Students' Self-perception of Concepts Sex/Gender

Three major domains were identified within the area of self-perception. Students highlighted (a) the unavoidable allocation of individuals to groups, (b) the role of prejudices and stereotypes, and (c) the effect of sex/gender on career choice options.

3.2.1 Unavoidability and Allocation Within Sex- and Gender-Specific Groups

In their discussions, male and female students displayed specific gendered expectations of

male or female patients and some students believed these differences between men and women are innate.

“I think women talk more easily about certain topics than men. Particularly about feelings. I think men have less need to do so. I think, with a male patient, I’m sure he feels no need to do so. [...] But I think the innate difference is certainly there.” (FG6; male, age 19)

Moreover, male and female students expressed assumptions about differences between boys and girls (referring to male and female medical students) which might have an influence during patient consultations.

“On the whole, I think boys don’t pause to think. They just act and might think afterwards ‘I shouldn’t have done this or I should’ve done that.’ Most girls take more time to consider and they tend to wait and see and then come up with a purposeful question. I think that might make a difference in their patient contacts.” (FG4, male, age 18).

Furthermore, male and female students noticed that both the patients’ and the doctors’ sex/gender might influence doctor-patient communication. Communication patterns were described in a stereotypical fashion with the attribution of longer conversation passages to women and fact-centeredness to men.

“I myself have noticed that women often tend to make the first move in conversation and ask questions, and that, with men, you need to show more initiative in the conversation to establish the facts about a particular patient. I think that’s certainly something we should be taking on board.” (FG2, female, age 22).

“I think that, in a consultation, women tend to tell more additional things about their private lives, things that aren’t purely physical, and that men tend to just list the facts of their symptoms in a matter-of-fact way. If a woman mentions that she’s having relationship problems, for example, or another thing in her private life, it makes it easier for a physician to think that it might be down to stress.” (FG2, female age 19).

3.2.2 Students’ Awareness of Sex/Gender Prejudices and Stereotypes

Some students, both female and male, were aware of their own and general prejudices and stereotypes about male and female patients. They were able to pinpoint the role of society as a whole in the process of gender stereotyping and could critically point out the inherent limitations to this.

“It’s down to culture, I suppose, isn’t it. Well, I have to say, when I’m thinking of women—if you don’t mind my saying so—technology isn’t the first thing that comes to mind.” (FG5, male, age 18)

“Well, I’m thinking of flat-out stereotypes, [...] tools for men [...] and the kitchen for women. It’s got sort of ingrained in your brain without there ever being a conscious choice in the matter; so you’re not thinking that this is how it should be. But it’s actually been shaped like that by the media, your upbringing, other stories.” (FG3, male, ages

22).

“But I think that some of those properties tend to be attributed to women or to men a bit rashly, while in my view they are prejudices rather than actual fact. Take care giving, for instance, women are supposed to be such all-round caregivers by definition. It’s not true, of course.” (FG2, female, age 19).

3.2.3 Students’ Associations Between Sex/Gender and Their Career Expectations

When students were asked how their own sex/gender might influence their medical training and future professional role, they immediately focused on the potential influence on their career planning and medical specialty selection. The students clearly described potential career differences between male and female doctors linked to the anticipated difficulty to strike a balance between career and family life. The female students were especially aware of this and remarked that they were, already at this early stage of their training, thinking about their career perspectives in combination with plans to start a family.

“The medicine program takes a long time [...] and you’ll be thinking of starting a family when you’re between 25 and 30. [...] I know you can do a part-time specialty in Geriatrics. General Practice too, I think. So I would perhaps prefer to do that to Cardiology, where I don’t think it’s possible to do a part-time specialty. So I think that certainly has an influence.” (FG6, female, age 19).

“Yeah, and I was wondering what would be an opportune moment for students to have children. You need to think about that, don’t you, so you can decide whether to do this medical specialty or that residency. What’s the most convenient moment?” (FG1, female, age 18).

Moreover, they expressed a need for a possible dialogue about these issues starting from the beginning of medical school.

Male students, on the other hand, remarked that they felt their sex/gender might be an advantage when applying for a medical specialty: with the number of female graduates growing, male students thought women would be competing more with each other for positions in a medical specialty than men.

“In the future, I suppose that perhaps it’ll get harder and harder for women than for men to get into certain specialties because they want to maintain a fifty-fifty balance and there happen to be more women.” (FG4, male, age 18).

Nevertheless, some female students emphasized that no distinction should be made between male and female students for access to a medical specialty, but that this should depend on an individual’s competencies, preferences, and personality.

“I think it shouldn’t matter whether you’ve got children or not and what specialty you choose to do. I feel you should simply be doing the specialty that suits you best and that makes you happy. [...] So there should be a part-time and a full-time option for everyone.” (FG6, female, age 19).

3.3 Students' Goal Orientedness Towards Learning About Sex/Gender

Learning and talking about sex and gender differences in medicine, as illustrated by the video assignment of the selection procedure, was considered to be an eye-opener, as students mentioned that these sex and gender differences had barely received any explicit attention in their prior education. The students were surprised that there were more health differences associated with sex/gender than they had anticipated. They mentioned the video assignment as a relevant educational tool to increase their awareness and knowledge about sex and gender.

“The decentralized selection procedure, that’s where you were already alerted to the topic of sex and gender. A great way to make people think.” (FG4, female, age 18).

“Yeah, I thought this video was a wonderful way to learn, so perhaps this could be used again at later points in the curriculum. We learned a lot by way of this video. [...] I thought it was very interesting.” (FG3, female, age 20).

When discussing the video assignment, the students expressed the need for concrete in-depth explanations about specific differences between men and women, as they did not know which differences were important for clinical practice. Therefore, the students preferred sex and gender differences to be mentioned explicitly and concretely in their education when relevant. Also, they wished to gain a deeper understanding of sex and gender differences and were eager to explore the causes of these differences.

“Personally, I think it would work well for me if there were a few real eye openers, which would force you to think about it and make you aware: ‘Right, so there are a couple of differences. And what are they?’.” (FG14, male, age 22).

“So there clearly are differences between men and women. That’s obvious, but what are they exactly? [...] How can it be that something occurs more often in men?” (FG4, male, age 18).

Some students, both male and female students, expressed the importance of mentioning the influence of sex and gender per subject or disease, while others were proponents of describing the general picture of sex and gender differences in a separate lecture.

“I think you must pay attention to it, to make clear that with certain diseases there simply are differences between different patients and what the influence of gender is on that disease. And how you can diagnose this, for example.” (FG2, female, age 22).

“It would be a bit much, wouldn’t it, to do so for every condition that comes up: this is how men present their symptoms and this is how women do it? I think there should rather be a sort of [...] general lecture explaining that you should be aware of differences.” (FG3, male, age 22).

During their discussions, students also stated that doctors should be aware of the influence of sex and gender prejudices in their consulting room. One female student had a pragmatic idea to help students become more aware of their unfounded judgements towards patients' gender

or sexual orientation. She proposed to add an awareness question, in style of ‘What are your ideas about this patient?’ to the beginning of e-learning video consultation modules.

“With prejudices it’s important to know that you’ve got them. So you’re aware of them and you don’t act on them with a blinkered view and without thinking.” (FG2, female, age 18).

“That’s really how you launch into your consultation: there’s this patient, and you’ve got a picture. Perhaps you learn to recognize you’re doing this, when you’re questioned about these pictures in an e-learning module. [...] You see a video (consultation) in which your patient is a men wearing women’s clothing. Yes, you will have certain prejudices. Or for example a lesbian couple entering (the consulting room).” (FG6, female, age 19).

Students preferred learning about sex and gender differences in practice, namely they wanted experts, simulation patients, and patients to help them improve their communication skills, such as listening and asking questions. They wanted to receive regular feedback from their fellow-students, tutors, teachers, simulation patients, and patients. Moreover, students preferred mixed study groups as they expected an added value towards their learning processes when female and male students work together.

“I think that this (mixed-gender groups) in fact is an important step in learning from each other. That you just work together. Therefore, I think these mixed activity groups and mixed learning and everything, that’s okay.” (FG2, female, age 19).

3.4 Students’ Struggles Between the Binary System of Medicine and the Complexity of Reality

Next to an eagerness to learn about sex and gender differences in symptoms, presentation, and communication styles in a binary manner (female vs. male patients), the students also displayed an awareness of the complexity of clinical reality. Students argued that patients not only differ in terms of their sex and gender, but also in other respects, such as their age, personality, and sexual orientation.

“But what I would like to know is how I should be dealing with a man? Or a woman? Or a transgender? Or a child? Or an elderly grandmother? Or a disabled person? That’s the main thing. The patient is the most important to me.” (FG6, female, age 19).

In addition, the students pointed out that female and male patients differ on a group level, however, in their discussions they also stated that an individual female or male patient might differ from their group and some students even mentioned that every patient is unique.

“Well, I think that’s a highly individual matter, different for every person rather than tied to your gender.” (FG3, female, age 19).

In their discussions, students tried to find a compromise for their struggles by acknowledging the importance of the influence of sex/gender in every single consultation and combining this with a personalized patient care perspective.

“It is important to know differences in symptoms between men and women. [...] Yes, but is also important to mention (in medical school) that there are also differences between

people [...]. With every patient you have to ask yourself ‘who is in front of me?’ and ‘to what extent might this person differ from other people?’ and also ‘Might this (difference) influence health and disease?’.” (FG1, female, age 18).

4. Discussion

This study allowed us to explore the wishes and struggles of first-year medical students when approaching the concepts of sex and gender in medicine. On a subjective level, the students appeared well aware of their own preconceptions about sex/gender and they also seemed very mindful of its impact on their future career choices. On an objective level, they expressed a need for practice-oriented and pragmatic teaching approaches, highlighting the relevance of sex- and gender-sensitive medicine. Furthermore, they raised questions about the ability to combine patient-centered, sex- and gender-sensitive approaches with the binary decision-making processes of the current medical system.

4.1 Reducing Gendered Expectations and Stereotypes

Some of the students displayed a critical awareness of their gendered prejudices and stereotypes and how these may potentially influence their practice of medicine. The values and opinions described closely match overall trends within Dutch society, confirming the relevance of cultural and societal context in forming gendered beliefs (Beutel, Burge, & Borden, 2018). Thus, students start their medical studies with a subjective concept of sex/gender and project this onto their peers and patients, demonstrating that sex/gender is a ubiquitous, albeit possibly unrecognized, concept. Lecturers and trainers need to be aware of this and make it explicit to the students in their teaching, as this deeply influences all forms of communication. Therefore, we believe undergraduate medical education should pay explicit attention to sex and gender differences from the very beginning. We recommend that critical reflection about sex and gender attitudes is continuously encouraged during medical school. We advise medical teachers to create an atmosphere of dialogue and reflection, in which students feel free to address their ideas and attitudes (Andersson et al., 2012). Furthermore, Lempp and Seale advised explicitly discussing the impact of the hidden curriculum: *i.e.*, “the set of influences that function at the level of organizational structure and culture” (Lempp & Seale, 2004) upon the training of medical professionals (Lempp & Seale, 2006). The medical students indicated both the video assignment of their selection procedure and the focus group discussions of this study as useful and relevant educational tools to start recognizing and addressing their gendered expectations (Scholte et al., 2020).

4.2 Discussing Career Planning Early in the Medical Curriculum

Besides their subjective perception of sex/gender, the students spent significant time discussing the impact of sex and gender on their future professional role. Male and female students both expected that their sex/gender would influence their career. Female students’ opinions diverged between anticipated problems with their future work-life balance, and the desire to freely choose specialty training based solely on interests and merits. Male students, a minority group in Dutch medical schools, expected their sex/gender would be an advantage when applying for future positions.

Most of the career expectations which were described by the first-year students in this study are consistent with earlier research (Pas et al., 2011; Maiorova et al., 2008; Van Tongeren-Alers et al., 2011; Drinkwater, Tully, & Dornan, 2008; Smith, Bethune, & Hurley, 2017; Alers et al., 2014), indicating that these ideas about potential career differences between male and female students are already present when students enter medical school. In one study (Smith, Bethune, & Hurley, 2017), male medical students indicated that they also strived for work-life balance, yet this meant having time for their hobbies. In the same study it was found that female students emphasise that ‘passion for one’s field’ as the most important influence on their specialty choice, irrespective of the working hours (Smith, Bethune, & Hurley, 2017). Other studies have indicated that both female and male students assume that starting a family will solely have an influence on the career aspirations of female physicians (Drinkwater, Tully, & Dornan, 2008; Smith, Bethune, & Hurley, 2017; Alers et al., 2014). An explanation for this finding might be the belief that competence and ambition are masculine traits, whereas caring and dealing with emotions are feminine traits (van den Brink & Stobbe, 2009) and that students have internalized these concepts of gender (Grönlund & Magnusson, 2018).

Furthermore, this study revealed that male students did not feel disadvantaged among the growing number of women in medical education. In fact, they thought that being a minority may be beneficial as male doctors will still be needed in the long run and male students, therefore, will gain admission more easily. In short, male students expected positive discrimination.

Since students enter medical school with preconceived ideas about career opportunities, medical teachers should discuss these ideas at an early point in time to help students make well-informed career choices. It is important that students feel that medical specialties should be equally accessible to female and male students. Female students’ career opportunities should not be jeopardized by their anticipation of stereotypical care tasks (Elhaam, Qabass, Fatemazahra, & Zara, 2021). Therefore, options for combining work and family life, such as day-care facilities and flexible working hours both for themselves and for their (future) partners, should be discussed early in medical school. These discussions could take place in interactive group meetings or individual coaching sessions (Hamberg & Johansson, 2006).

4.3 Students’ Preferences Regarding Learning About Sex and Gender Differences in the Medical Curriculum

Watching a sex- and gender-sensitive video consultation during the application process for medical school, led the students to describe these topics as surprising, revealing, and relevant. They perceived the need for discussing sex and gender differences explicitly and concretely when relevant for clinical practice. Some students were proponents of integrating sex and gender differences into the curriculum while others wanted to learn about these differences in separate specialized lectures. Previous studies also advocated for integrating sex and gender in regular medical education and offering optional courses in which students can receive more in-depth information (Lagro-Janssen, 2010; van der Meulen et al., 2017). Most importantly, students expressed the need for practice-oriented and pragmatic examples of the

relevance of sex and gender differences to medical practice. Previous studies indicated that medical teachers need support to develop their teaching materials, since the knowledge of sex and gender medicine is rapidly expanding and they have limited time ((Lagro-Janssen, 2010; van der Meulen et al., 2017).

4.4 Combining Patient-Centered, Sex- and Gender-Sensitive Approaches With Binary Decision-Making Processes

Students expressed some criticism towards a sole focus on sex and gender differences, as they felt individuals are characterized not only by their sex and gender, but also by factors such as age and personality. Presumably, these students were unknowingly reasoning in line with an intersectionality perspective, which holds that every individual has characteristics (e.g., sex/gender, age, ethnicity, and sexual orientation) which need to be examined simultaneously as they interact with each other and can potentially lead to combined forms of discrimination (Hankivsky, 2012). At a core level, students' struggles exemplify the inherent difficulty to incorporate a non-binary concept into medicine. While attention to biological sex can be operationalized in a binary fashion, the concept of gender is much more complex. This leads to uncertainty and is somewhat counterintuitive to the process students need to learn in order to apply standardized algorithms in healthcare. Yet, while these first-year medical students did not have the practical experience, they already empirically understood the complexity intrinsic in patient-centered care. Furthermore, incorporating sex- and gender-sensitive and intersectional thinking complicates a linear decision-making process. Students should be accompanied in this process and the struggle should be made explicit and reflected upon in teaching. In order to prepare the students for their future practice, their awareness for complexity needs to be trained and sex- and gender-sensitive medicine is an ideal concept to acquire these abilities. In previous research about achieving complex competencies, key elements included receiving clear and practical recommendations, discussing relevant cases in groups, receiving daily feedback and support of your study group, focussing on communication skills, engaging patients, and collaborating inter-professionally (van de Pol et al., 2017; Celik et al., 2008).

4.5 Strengths and Limitations

This study gives a unique insight into first-year medical students' opinions, beliefs, and assumptions about sex and gender issues in medicine. This will help tailor future education to their preferences. The focus group discussions being tape-recorded and transcribed verbatim, summarizing the discussion in the end to check if everything was said, and the members of the study team having different expertises were strengths of this study. However, some limitations also need to be addressed.

As student participation in the focus group discussions was voluntary, we might have selected particularly engaged and interested students in the topic of sex/gender. Next to this, the selection procedure's video assignment may have spiked the participants' attention for sex and gender differences. However, in the introduction of the focus group it was explicitly mentioned by the moderator that we were searching for all opinions about sex and gender differences, positive and negative, and that students did not need to agree with others in the

group.

5. Conclusions

Students acknowledge the importance of addressing sex and gender differences in medical education and enter medical school with gendered opinions, beliefs, and ideas. Continuous reflection during medical school might help them acquire sex- and gender-sensitive competencies that they can apply to their future work. To make medical students aware of the influence of sex and gender differences in healthcare, we suggest to discuss these themes explicitly early on in the medical curriculum.

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