

The influence of students' gender on equity in Peer Physical Examination: a qualitative study

Anna K. Vnuk¹ · Andy Wearn² · Charlotte E. Rees³

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Abstract Peer Physical Examination (PPE) is an educational tool used globally for learning early clinical skills and anatomy. In quantitative research, there are differences in students' preferences and actual participation in PPE by gender. This novel study qualitatively explores the effect that gender has on medical students' experiences of learning physical examination through PPE. We employ an interpretative approach to uncover the PPE experiences of students from a European, graduate-entry medical school. Volunteers participated in either individual or group interviews. The data were transcribed, de-identified and analysed using thematic analysis. There was evidence of gender inequity in PPE, with students describing significant imbalances in participation. Male students adopted roles that generated significant personal discomfort and led to fewer experiences as examiners. Assumptions were made by tutors and students about gender roles: male students' ready acceptance of exposure to be examined and female students' need to be protected from particular examinations. In contrast with the first assumption, male students did feel coerced or obliged to be examined. Students described their experiences of taking action to break down the gender barrier. Importantly, students reported that tutors played a role in perpetuating inequities. These findings, whilst relating to one university, have implications for all settings where PPE is used. Educators should be vigilant about gender issues and the effect that they may have on students' participation in PPE to ensure that students are not disadvantaged in their learning.

Keywords Medical education · Undergraduate · Peer Physical Examination · Clinical skills · Qualitative · Thematic analysis · Gender inequity

✉ Anna K. Vnuk
anna.vnuk@flinders.edu.au

¹ Flinders University School of Medicine, Adelaide, SA, Australia

² University of Auckland, Auckland, New Zealand

³ Monash University, Clayton, VIC, Australia

Introduction

Peer Physical Examination (PPE) is the term coined when students learn either physical examination skills or anatomy on each other. Given PPE's current global popularity as an educational method, it becomes important to analyse critically how it is practised. In common with many aspects of medical education and practice, such as career choice (Cleland et al. 2014) and demonstrations of empathy (Newton et al. 2008), gender plays an important role in PPE: with quantitative research suggesting that there are significant differences in the PPE learning experiences of male and female students (Rees et al. 2009; Reid et al. 2015). Taking a qualitative approach, this paper explores in depth the role that gender plays in the experience of medical students at one European university as they learn physical examination through PPE.

Background

A literature has grown up around PPE over the last 20 years, providing insights into good practice, underlying theoretical principles, benefits and potential risks (Abraham 1995; Chang and Power 2000; Duvivier et al. 2011; O'Neill et al. 1998; Rees et al. 2009; Reid et al. 2015; Wearn and Bhoopatkar 2006; Wearn et al. 2008). Many advantages for including PPE in the curriculum have been identified. The first is convenience: students can examine other students who are already at the teaching session, meaning that it does not incur additional financial costs or require extra administrative resources (as would occur with the use of real or simulated patients). Secondly, PPE allows students to become familiar with physical examination before encountering real patients (Chang and Power 2000). This second reason also has the added benefit of exposure to a range of normality before encountering or discussing abnormality (O'Neill et al. 1998). Thirdly, PPE provides a safe and unhurried learning environment where students have time to refine their skills (Abraham 1995). It allows them to make and learn from mistakes without causing harm to patients (Wearn and Bhoopatkar 2006).

There are, however, a range of issues where the potential benefits are less clear-cut. Students describe the process of learning through PPE as assisting them to obtain feedback about their physical examination skills (Wearn et al. 2008). Of course, any benefits here depend upon the quality of feedback. Student peers may lack the ability to provide good quality feedback that experienced teachers should possess (Duvivier et al. 2011, 2012). It has also been suggested that PPE assists students in developing empathy for patients through taking on the role of being examined, with students learning about factors such as vulnerability and being observed (Braunack-Mayer 2001; Wearn and Bhoopatkar 2006). However, the student experience during PPE is intrinsically different from the patient experience during a physical examination (Wearn et al. 2008). This is particularly relevant as real patients may be unwell and susceptible to power imbalances in the doctor-patient relationship. Students, on the other hand, are working with their peers, although that proximity of relationship can also lead to negative consequences as discussed below.

Finally, there are some significant potential disadvantages to PPE, including: the physical discomfort of being examined by other inexperienced students; the emotional discomfort of examining and being examined by peers; issues of confidentiality; potential for coercion; inappropriate comments or unsuitable humour (Wearn et al. 2008) and gender inequity in participation (Reid et al. 2015). Some of these issues can be considered in light

of the social appropriateness of engaging in the physical contact and touch required to perform a physical examination. The crossing of this social barrier, described by Goffman (1974) as the “slow development of the easy right of the medical people to approach the human body with a natural instead of social perspective” (p. 35) and by Verghese (2009) as “a sacred privilege” (p. 1180), may be a significant hurdle for students. However, students will need to make this transition in order to practise as doctors. If the learning process is overseen well, PPE is one way for students to engage with this challenging transformation. Broadly, studies reveal that most students are happy to engage in PPE (O'Neill et al. 1998; Rees et al. 2009), as long as examination of sensitive areas such as female breasts, male and female genital and rectal areas are excluded (Rees et al. 2009).

We now come to the complex influence and relationship of gender on PPE. The term ‘gender’ has been used here rather than ‘sex’ to reflect the social construction and complexity of gender, particularly in relation to assumptions, stereotypes and expectations. In most of the previous studies on PPE, participants’ sex (whether they are male or female) are usually the comparators for exploring, for example, differences in attitudes towards willingness to participate (Rees et al. 2009) and self-reported participation in PPE (Chen et al. 2011; Reid et al. 2015). This research suggests that female students are consistently less comfortable to engage in PPE than males but the effect that this has on their experiences of learning is still unclear. Additionally, the impact of the composition of PPE groups is not consistent across studies and group composition itself may be related to local contexts, specifically, the way PPE is presented, enacted and overseen, as well as relating to prevailing cultural norms and behaviours and, in particular, whether students themselves can choose the composition of their group (Wearn and Bhoopatkar 2006).

Although quantitative studies using surveys have commented on gender differences in PPE, they have not explored, qualitatively and in detail, the ways in which gender interacts with the experience of PPE (O'Neill et al. 1998; Chang and Power 2000; Wearn and Bhoopatkar 2006; Rees et al. 2009; Reid et al. 2015). This paper therefore describes an exploration of gender and PPE from the student’s perspective. Our research question was “How does gender influence participation in PPE?”

Method

Design

This paper is part of a larger doctoral study that sought to understand the experience of learning physical examination from students’ perspectives. While the doctoral study was originally inspired by the writing of van Manen (1990) and employed a phenomenological approach in order to “capture people’s experience of the world” (Patton 2002, p. 107), this paper, focussing on the data related to PPE and gender, employs an interpretive approach using thematic analysis of qualitative interviews (Crotty 1998). This paper seeks to understand multiple perspectives and interpretations of reality, and is consistent with the epistemology of social constructionism, which asserts that individuals construct knowledge through interactions with others and the world around them (Crotty 1998).

Context

The research was undertaken at a European medical school, which the first author (from Australia) visited on sabbatical. Whilst we are unable to identify the school or its country for reasons of maintaining anonymity, the school possessed the following cultural context, which is helpful in understanding our given focus on gender. While there were no religious or University rules preventing female students from partial disrobing for learning purposes, the first author was struck by female students' hesitation to disrobe for fears that such activity might damage their personal reputations. Indeed, many students described themselves as shy with regards to exposing themselves to students of the opposite gender, which typically differed from the lead author's experience of working with students in an Australian context. The medical school was based in a country with a colder climate (to say, Australia), with students generally wearing several layers of clothes. This made disrobing for PPE more complicated and time-consuming. The students at this medical school undertook a 4-year graduate entry program, with students learning physical examination in years 1 and 2 of the program through PPE and they were assessed on standardised patients in their end of year OSCEs. The students were only introduced to real patients in clinical settings at the beginning of their third year.

Data collection

Ethics approval was obtained from the first author's university and from the host university. Medical students in years 2–4 were invited to participate in either focus group or individual interviews about their experience of learning physical examination. A semi-structured guide was designed for both modes of data collection with questions based on the literature review and the first author's personal experiences of teaching using PPE. Questions included "Before you started medicine, did you think you would be learning physical examination on each other?" and "When you started learning physical examination on each other, can you describe your experience?" The focus group and individual interviews were audio-taped, transcribed, checked and de-identified. The data were managed with NVivo9 (QSR International 2010, Melbourne, Australia).

Four focus groups and 11 individual interviews were conducted by the first author with a total of 24 students participating in the research. This number is within the range recommended for this type of qualitative research, which is between 5 and 30 (Adler and Adler 2012; Creswell 1998; Mason 2010; Morse 1994). The students were from years 2 to 4 in the medical course (twelve from year 2, six from year 3 and six from year 4) with at least one focus group from each year level. There were 14 female and 10 male students and there were 12 each domestic and international students.

Analysis

As mentioned above, the data for this study arose from research undertaken as part of the first author's doctoral thesis. While the thesis was underpinned by a phenomenological approach and the data were analysed with interpretative phenomenological analysis (Smith and Osborn 2008), the data employed for the secondary analysis described in this paper were subjected to thematic analysis (Braun and Clark 2006). We employed thematic analysis for three key reasons: (1) we felt that thematic analysis was most appropriate for addressing our research question; (2) we thought thematic analysis was most suitable given

the amount of qualitative data collected; and (3) thematic analysis suited our pragmatic ends (i.e. to develop educational recommendations relating to gender within the context of PPE). We first independently familiarised ourselves with the data from the study that pertained to PPE in order to identify key themes and sub-themes related to gender. We then met at an international conference to discuss our independently identified themes and sub-themes, comparing and contrasting themes and negotiating differences where necessary. The first author then identified themes in the whole data set, refining themes as she went. The authors had further ongoing discussions about the themes, sub-themes and interpretations of the data throughout the processes of writing this paper, negotiating any differences of opinion that arose. Although gender theory was not used a priori in the design of the study or data collection, we interpret our findings later in our discussion drawing on various gender theories (Crenshaw 1989; Davis 2008; Lykke 2010; Monrouxe 2015; Tsouroufli et al. 2011).

Team reflexivity

The study was not carried out at the 'home' institution of any of the authors and we were not involved in either teaching or assessment at this medical school. This outsider status gave us independence from the students and the curriculum and potentially allowed the students to speak more freely in the interviews about their experiences without fear of it having any effect on their assessment. It also allowed the authors to hear information about the curriculum, teaching and learning without being defensive due to ownership and to "take a fresh look at phenomena" (Crotty 1998, p. 82).

Results

Through reading, discussion and consensus, the three authors identified five themes related to gendered experiences in PPE. These themes were:

1. Gender segregation and the influence of tutors
2. Male students' experiences of being coerced to volunteer
3. Male students' perceived sense of duty
4. Skewed learning experiences and opportunities
5. Students' experiences of crossing the gender barrier in PPE

The findings are presented under each theme, summarising the issues that arose and providing contextual elaboration with supporting illustrative quotations. Students are identified by their unique code, their gender, whether they were international or domestic students and whether their quote arose in a focus group or individual interview.

Gender segregation and the influence of tutors

At this medical school, the students learn and practise physical examination skills in groups of eight in a room with two examination couches, each surrounded by curtains or screens for privacy. One female student described the formation of a natural 'gendered' division of students around the two examination couches:

...but I think it was just the natural: girls just sat with girls and guys just sat with guys, so naturally the girls were closer to one [examination] table, the guys were

closer to the other table so they just kind of split that way (2.6.1, female, international, individual interview)

While this comment about an almost “natural” segregation was echoed in other interviews, other students suggested that tutors played significant roles in this segregation, as highlighted by the same female student:

Yeah but umm I felt that the school was more... like they said that everyone should participate but it kind of turned out that the tutors were more placing girls with girls and boys with boys and I saw a lot more of that, than actual like students choosing girls or boys (2.6.1, female, international, individual interview)

Implicitly, tutors played a significant role in shaping the way the sessions ran, with students being likely to adopt their tutors’ approaches rather than challenging them.

Male students’ experiences of being coerced to volunteer

Male students described feeling forced to volunteer as models for physical examination, despite significant reluctance on their part to do so. The pressure could come from the tutor (male or female) or from other male or female students. In the following example, one male student illustrates the pressure being applied by the tutor:

So when you [the tutor] look around saying ‘I need a volunteer for the respiratory exam’ and you look at me, that’s like you are saying ‘[name of student] are you going to do it, or are you going to be awkward?’ ... It’s always the same guys (2.2.2 male, domestic, focus group)

Here, the student is describing the significant pressure he feels during PPE. This expectation that volunteers would be male was also confirmed by a female student:

If there was a guy in the group, he would have to take his top off, generally. So for the major abdo[minal], resp[iratory], cardio[vascular], generally it was a male volunteer. Very rarely would you find a girl (3.3.1 female, domestic, individual interview)

It is interesting that this female student does not question the assumption that male students are happy or comfortable with this arrangement. This (mis)assumption however is challenged by another male student in the following quote:

I would take my clothes off for an exam but I think it’s an assumption to say that all guys would not mind doing it and that they don’t necessarily have things like body image issues and whatnot (2.1.4 male, international, focus group)

This quote also reminds us that male students are also susceptible to issues related to how they perceive their physical appearance.

Male students’ perceived sense of duty

Male students described how they felt pressured to volunteer because of a generally accepted but unexplored assumption that females were not able to be examinees for certain examinations (e.g. cardiovascular). In their language, they talked about the need to protect female students, as seen in the following comment from a male student:

Well there is, then like there is different personalities so some girls won't have a problem doing it [being examined] with guys around and some girls, no matter how much they trust their classmates, they obviously feel a little intimidated to do things like that so I think that as a result the guys feel obliged almost to have to do it (2.4.1 male, domestic, individual interview)

However, this purported 'sacrifice' to protect female students could lead to male students missing out on both being the examiner and having any experience examining females, particularly for cardiovascular and respiratory examinations. The above quote also suggests that there are female students who would not have had an issue acting as examinee, although seemingly, this was not acted upon.

Skewed learning opportunities and experiences

One male student described his experience of unexpectedly having to examine a female standardised patient's chest for a respiratory system in a formative OSCE station. Whilst there is clearly an expectation that medical students will be comfortable examining both males and females, in practice this is not always the case.

Well, I made a mess of it because I obviously wasn't prepared because I actually had never done it on a [female] (2.2.2 male, domestic, focus group)

This led to the student feeling frustrated and under-skilled. It is important to recognise that medical students at this school do not have contact with real patients in clinical settings until the third year of the medical program, so that PPE is the only option within the curriculum for male students to gain experience in examining females. Other students, who did not have the female standardised patient in their stream of the trial OSCE, also mentioned that the experience had made the whole cohort aware that their implicit practices of not examining female students was counterproductive to their learning.

Students' experiences of crossing the gender barrier in PPE

The following quote from a second year male student describes the influence of the experience of the formative OSCE on their subsequent PPE behaviour:

Exactly, that happened last year in the [formative OSCE], and up until that it was really kind of just boy to boys, girls to girls... I think it's only this year that people have become more comfortable with each other so like they would know each other much, much better now so I think it's taken people the guts of the year to get over the gender boundary in clinical practice (2.4.1 male, domestic, individual interview)

So, while this student highlights the level of trust that has developed in the cohort over time, where male and female students feel more comfortable examining each other, the experience of the formative exam is highlighted as the driver. This experience seems to have been pivotal in these students' experiences and appears to have led to a change in behaviour amongst the students, particularly amongst the female students who reported that they would give permission to male students that they trusted to examine their chests, in order to redress this imbalance:

Oh actually I kind of purposely said to one of my lads that I was with when I was in one of the smaller revision sessions, 'I don't mind you doing the cardiovascular exam

on me' because of the fact I knew that it would be a bit awkward for him, as in and because of the fact that you could easily get a female in the thing [exam]...I suppose it depends upon the girl, what their personality is and I suppose it depends upon who you are saying that to, there are actually people in the class that I wouldn't say that to (laughs) but I felt with him that I felt that I was comfortable enough to say it (2.2.1 female, domestic, focus group)

This again confirms the importance of the development of trust but, interestingly, here the female students are the ones enacting power.

A final year male student recalls incidents when female students volunteered but the tutors ignored such offers and used male students instead. The fact that the male student remembers the name of the female student who, 2–3 years earlier, “broke the gender barrier” implies that it was a significant and memorable event:

But some of the girls would volunteer and it was actually some of the tutors that were a bit more prudish than us. It was [name of female student] she broke the gender barrier because we got to do an abdominal exam on her. It was just her belly but it was probably the first girl that we got to examine as it would always be like [the tutors saying] ‘Who wants to volunteer?’ and some of the girls would volunteer but they would always be like [asking for the male students]. My group, we found that we almost had to kind of like push it on the instructors that ‘Look we’re okay. We’re all adults. We can have a girl. We’re going to see ladies in a few months’ time. It’s probably a good idea. We have no idea, you know, where all the bits are, you know’ (4.2.3 male, international, focus group)

Discussion

The study shows evidence of gender inequity for males and females in PPE at the university where the research was undertaken. Students describe significant imbalances in participation, with male students having to take on roles that they were not comfortable with and, in the process, losing valuable learning experiences, and females missing out on opportunities to play the examinee role and understand better the patient’s perspective. There were assumptions made about gender roles, specifically, male students’ ready acceptance of exposure to being examined and female students’ need to be protected from particular examinations. Importantly, students reported tutors playing a role in perpetuating such inequities. Tutors made assumptions about students’ levels of maturity and their ability to engage with PPE across genders. Having highlighted previously unexplored gender-related barriers in this setting, hopefully this will provoke tutors and educators to examine similar barriers in their own settings.

Using PPE successfully requires gender equity issues to be considered. There is value in the examinee role but students’ main goal is to learn to examine. For this to happen, as far as possible, institutional processes and cultures need to allow the majority of students to participate in both roles, irrespective of gender or other characteristics. Although previous regression data from a multi-centred study suggested that gender is independent of other factors (Rees et al. 2009), other studies suggest that gender is associated with religion as a barrier to PPE (O’Neill et al. 1998; Selleger et al. 2006). This is where intersectionality theory may assist us in our understanding, in that students’ comfort with PPE is likely to be based on the intersections between various personal (e.g. gender, age, ethnicity, religiosity)

and professional identities (Crenshaw 1989; Davis 2008; Lykke 2010; Monrouxe 2015; Tsouroufli et al. 2011). While religious faith was not one of the influences that were explored in relation to gender in the interviews, we illustrate aspects such as internationality (international versus domestic student) in our paper.

The role that gender plays on expectations of behaviour was highlighted in the discussions of male students who would typically volunteer, either freely or with persuasion, even when they were aware of the detrimental effects on their own learning. This was perhaps the most intriguing finding of our study. This 'sacrifice' can be examined through the lens of gender theory. Kaufman (1994), in "Men, Feminism and Men's Contradictory Experiences of Power", discusses how, with masculinity, comes power and control but, in order to maintain this masculinity, sacrifices must be made. For the male students in our study, they sacrificed learning physical examination directly themselves in order to maintain their masculine performance of protecting female students. Additionally, the experience of female students who enacted power to choose which male students they would permit to examine them (choosing only those they trusted) is also a contradictory experience of power: with women, who need to be 'protected' by the males, having control over male students' learning experiences.

The raising of body image issues by male students in our research is important as body image issues have only been discussed previously with reference to female students in the PPE literature (Rees 2007). Certainly, there is an increase in recent literature on male body image and theoretical literature on men's preoccupation with and worrying about their appearance, reinforcing the idea that this is highly relevant for male students and their perceptions of their own masculinity, and should be considered within the PPE setting (Connell 2005; Cramblitt and Pritchard 2013; Edwards 2006).

Another revealing feature of the quotes from medical students was their use of terms such as "girls", "guys", "lads" and "boys" when referring to themselves and other students, never referring to them as men or women, emphasising the importance of gendered language (Talbot 2010). The use of these terms was not explored in the interviews but is interesting to review in terms of Self Categorisation Theory, as described by Edwards (1998). While the use of these terms might make the situation familiar and acceptable, it also highlights students' self-identified lack of maturity (McConnell-Ginet 2003) and potential deprofessionalisation within the learning environment. Certainly, the students are not treating the other students and the PPE encounter in the same way that they would treat real patients and a real doctor-patient interaction. Interestingly, there is only one occasion (quoted above) where the adult term "ladies" was used and it was done to differentiate students (non-adults) from real patients. Yet, the term "ladies" is in itself a nuanced term, reflecting a degree of formality and cultural-historical hierarchy (McConnell-Ginet 2003). The use of "women", "men", "male" or "female" would be more neutral terms in this context. In fact, the student's argument to the tutor to allow mixed gender PPE (final quote in the results section) included the reminder that students were actually adults, which is surprising given that they do not categorise or identify themselves this way in their talk.

The role of tutors in creating and maintaining these gender inequities is an important finding in our study. A recent study by Reid et al. (2015) echoes these findings, with male students having decreased opportunities to examine females and identifying the role of tutors in encouraging this practice. The role of medical school policies and the effect of empowered tutors has been highlighted in recent articles (Koehler et al. 2014; Wearn and Bhoopatkar 2014) and explored in research by Selleger et al. (2006). In their paper, they describe how the Erasmus Medical School was the first medical school in the Netherlands

to formulate rules for mixed gender PPE, with “religion as such not being reason enough for dispensation” (p. e146), this being particularly relevant as their medical school had, at that time, the greatest percentage of non-Western immigrant students in their cohort including a significant proportion of Muslim students compared with other medical schools in the Netherlands. While not all students and tutors adhered to the mixed gender PPE policy, Selleger et al. (2006), described how students commented on the success of those tutors who took the time and effort to encourage all students, even individuals “with headscarves” (p. e145), to participate.

Methodological strengths and challenges

The strengths of this study include a reasonable qualitative sample size (Adler and Adler 2012; Creswell 1998; Mason 2010; Morse 1994) and a rigorous team-based approach to the data analysis. In terms of reflexivity, there was diversity in the team with two clinicians and clinical skills teachers (AV and AW) and one non-clinician/social scientist who works outside clinical skills (CR). All of the authors have experience with research in PPE and one author (CR) has experience in gender research. With both insider and outsider perspectives and specific experience, this has allowed multiple interpretations of the data. The major challenge of this study is that it was undertaken in one site only, limiting the transferability of the findings to other settings. In spite of this, we invite clinical skills teachers to reflect on our study findings and think about whether they are transferable to their own context. We hope the findings will create debate around gender and PPE and provide the impetus to others to explore these issues in their own learning settings.

Study implications

The major educational implication of this study is the need for student and faculty development around gender issues, particularly within clinical skills and anatomy learning. Verdonk et al. (2009) described how gender issues “do not enter medical practice and education spontaneously” (p. 143), highlighting the need for specific training of both students and tutors in gender issues and the advantage of creating policies to guide positive actions. This study describes the potential to unwittingly create negative learning experiences for the different genders through the learning activity of PPE.

Previous work has called for or described formal processes to oversee PPE in practice, through guidelines, policy, consent and role-modelling (Koehler et al. 2014; Koehler and McMenemy 2014; Wearn and Bhoopalkar 2006, 2014). Such approaches are ways of developing appropriate cultures that are shared by students, tutors and institutions. One specific area would be to develop tutor awareness about the need for males to examine and females to be examined, possibly supplemented with male and female simulated patients (SPs) to ensure that students have sufficient experiences to develop comfort and competence.

Most of the research literature in PPE is based on surveys and interviews. This study goes some way to understanding the experiences of medical students but, in order to address questions about examiner-examinee-tutor interactions in PPE and these protagonists’ reflections on such triadic interactions, an alternative methodology would be required such as an observational study, for example, video-reflexive ethnography (Carroll et al. 2008). There is also a need to interpret and operationalise observations from this body of research using theoretical frameworks. For example, cultural-historic activity theory (CHAT) could provide a way of looking at the dynamics within the activity of learning

(Engestrom 1987) and threshold concept framework (Meyer and Lands 2006) may help us structure the way in which students negotiate challenging aspects of learning using PPE.

Conclusion

Gender is a protected characteristic in terms of equality law and, according to the World Health Organisation (2001), achieving gender equity means that gender differences in needs and power should be identified and the imbalance between the genders must be addressed and rectified. The PPE experience of these students reveals a poorer and more coercive learning experience for the male medical students and female students missing out on opportunities to act as the examinee (patient role). This study highlights the potential impact of unchecked assumptions about gender roles and the influence of tutors. In other settings, these same issues may be present to a greater or lesser extent, driven by culture, processes and individuals. In this study, the students had no clinical examination experiences with either real patients or deliberate teaching with mixed gender SPs in their first 2 years; this probably represents one end of the clinical skills learning spectrum. Even so, the insights from this study provide a challenge for all medical educators working with PPE. Reid et al.'s (2015) study confirms that this is not an isolated experience and the challenge is to ensure that we provide a fair and equitable experience for all medical students. Our study highlights the need for an evaluation of unspoken gender-related issues in our teaching, learning and assessment-related practices and the empowerment of both male and female students and tutors through guidelines, policies and supportive teaching practices.

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References

- Abraham, S. (1995). Vaginal and speculum examination in medical curricula. *Australian and New Zealand Journal of Obstetrics and Gynaecology*, 35, 56–60.
- Adler, P. A. & Adler, P. (2012). Expert voices. In S. E. Baker & R. Edwards (Eds.), *How many qualitative interviews is enough?* National Centre for Research Methods Paper (pp. 8–11). <http://eprints.ncrm.ac.uk/2273/>.
- Braun, V., & Clark, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3, 77–101.
- Braunack-Mayer, A. J. (2001). Should medical students act as surrogate patients for each other? *Medical Education*, 35, 681–686.
- Carroll, K., Iedema, R., & Kerridge, R. (2008). Reshaping ICU ward round practices using video-reflexive ethnography. *Qualitative Health Research*, 18, 380–390.
- Chang, E. H., & Power, D. V. (2000). Are medical students comfortable with practicing physical examinations on each other? *Academic Medicine*, 75, 384–389.
- Chen, J. Y., Yip, A. L. M., Lam, C. L. K., & Patil, N. G. (2011). Does medical student willingness to practise peer physical examination translate into action? *Med Teach*, 33, e528–e540.
- Cleland, J. A., Johnston, P. W., Anthony, M., Khan, N. & Scott, N. W. (2014). A survey of factors influencing career preference in new-entrant and exiting medical students from four UK medical schools. *BMC Medical Education*, 14, 151. <http://www.biomedcentral.com/1472-6920/14/151>.
- Connell, R. W. (2005). *Masculinities* (2nd ed.). Crows Nest, NSW: Allen & Unwin.
- Cramblitt, B., & Pritchard, M. (2013). Media's influence on the drive for muscularity in undergraduates. *Eating Behaviors*, 14, 441–446.

- Crenshaw, K. W. (1989). Demarginalizing the intersection of race and sex: A black feminist critique of antidiscrimination doctrine, feminist theory and antiracist politics. *The University of Chicago Legal Forum, special issue: Feminism in the Law: Theory, Practice and Criticism*, 140, 139–167.
- Creswell, J. (1998). *Qualitative inquiry and research design: Choosing among five traditions*. Thousand Oaks, CA: Sage.
- Crotty, M. (1998). *The foundations of social research: Meaning and perspective in the research process*. London: SAGE.
- Davis, K. (2008). Intersectionality as buzzword: A sociology of science perspective on what makes a feminist theory successful. *Feminist Theory*, 9, 67–85.
- Duvivier, R. J., van Dalen, J., Muijtjens, A. M., Moolaert, V., Van der Vleuten, C. P. M., & Scherpbier, A. J. J. A. (2011). The role of deliberate practice in the acquisition of clinical skills. *BMC Medical Education*, 11, 101.
- Duvivier, R. J., van Geel, K., van Dalen, J., Van der Vleuten, C. P. M., & Scherpbier, A. J. J. A. (2012). Learning clinical skills outside timetabled training sessions. *Advances in Health Sciences Education*, 17, 339–355.
- Edwards, D. (1998). The relevant thing about her: Social identity categories in use. In C. Antaki & S. Widdicombe (Eds.), *Identities in Talk* (pp. 15–33). London: Sage.
- Edwards, T. (2006). *Cultures of masculinity*. London, NY: Routledge.
- Engstrom, Y. (1987). *Learning by expanding*. Orienta-Konsultit, Oy: Helsinki.
- Goffman, E. (1974). *Frame analysis*. New York: Harper.
- Kaufman, M. (1994). Men, feminism, and men's contradictory experiences of power. In H. Brod & M. Kaufman (Eds.), *Theorising masculinities* (pp. 142–163). Thousand Oaks, CA: Sage Publications.
- Koehler, N., Currey, J., & McMennamin, C. (2014). What should be included in a peer physical examination policy and procedure? *Medical Science Education*, 24, 379–385.
- Koehler, N., & McMennamin, C. (2014). The need for a peer physical examination policy within Australian medical schools. *Medical Teacher*, 36, 430–433.
- Lykke, N. (2010). *Feminist studies: A guide to intersectional theory, methodology and writing*. New York, NY: Routledge.
- Mason, M. (2010). Sample size and saturation in PhD Studies using qualitative interviews. *Forum: Qualitative Social Research*, 11, Art 8. <http://www.qualitative-research.net/index.php/fqs/article/view/1428/3027> Accessed 27 September 2015.
- McConnell-Ginet, S. (2003). "What's in a Name?" Social labeling and gender practices. In J. Holmes & M. Meyerhoff (Eds.), *The handbook of language and gender* (pp. 69–97). Maiden: Blackwell Publishing.
- Meyer, J. H. F., & Land, R. (Eds.). (2006). *Overcoming barriers to student understanding: Threshold concepts and troublesome knowledge*. London and New York: Routledge.
- Monrouxe, L. V. (2015). When I say...intersectionality in medical education research. *Medical Education*, 49, 21–22.
- Morse, J. M. (1994). Designing funded qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed., pp. 220–235). Thousand Oaks, CA: Sage.
- Newton, B. W., Barber, L., Clardy, J., Cleveland, E., & O'Sullivan, P. (2008). Is there hardening of the heart during medical school? *Academic Medicine*, 83, 244–249.
- O'Neill, P. A., Lacombe, C., Duffy, K., & Dornan, T. L. (1998). Medical students' willingness and reactions to learning basic skills through examining fellow students. *Medical Teacher*, 20, 433–437.
- Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). Thousand Oaks: Sage Publications.
- Rees, C. E. (2007). The influence of gender on student willingness to engage in peer physical examination: The practical implications of feminist theory of body image. *Medical Education*, 41, 801–807.
- Rees, C. E., Wearn, A. M., Vnuk, A., & Sato, T. J. (2009). Medical students' attitudes towards peer physical examination: Findings from an international cross-sectional and longitudinal study. *Advances in Health Sciences Education*, 14, 103–121.
- Reid, K., Sutherland, R., Dodds, A., McNair, R., & Pierce, D. (2015). Abdomen and chest examinations in peer physical examination: Variation in participation by gender. *FOHPE*, 16, 13–26.
- Selinger, V. J., Bonke, B., & Leeman, Y. A. M. (2006). Student diversity at Erasmus medical centre Rotterdam: Does it make any difference? *Medical Teacher*, 28, e142–e148.
- Smith, J. A., & Osborn, M. (2008). Interpretative phenomenological analysis. In J. A. Smith (Ed.), *Qualitative Psychology: A practical guide to research methods* (2nd ed., pp. 53–80). Los Angeles: Sage.
- Talbot, M. (2010). *Language and gender* (2nd ed.). Cambridge, UK: Polity Press.
- Tsouroufli, M., Rees, C. E., Monrouxe, L. V., & Sundaram, V. (2011). Gender, identities and intersectionality in medical education research. *Medical Education*, 45, 213–216.

- Van Manen, M. (1990). *Researching lived experience: Human science for an action sensitive pedagogy*. Albany, NY: University of New York Press.
- Verdonk, P., Benschop, Y. W. M., De Haes, H. C. J. M., & Lagro-Janssen, T. L. M. (2009). From gender bias to gender awareness in medical education. *Advances in Health Sciences Education, 14*, 135–152.
- Verghese, A. (2009). A touch of sense. *Health Affairs, 28*, 1177–1182.
- Wearn, A., & Bhoopatkar, H. (2006). Evaluation of consent for peer physical examination: Students reflect on their clinical skills learning experience. *Medical Education, 40*, 957–964.
- Wearn, A., & Bhoopatkar, H. (2014). Experience of a peer physical examination policy within a New Zealand medical programme. *Medical Teacher, 36*, 826–827.
- Wearn, A. M., Rees, C. E., Bradley, P., & Vnuk, A. K. (2008). Understanding student concerns about peer physical examination using an activity theory framework. *Medical Education, 42*, 1218–1226.
- World Health Organisation. (2001). Madrid Statement, Mainstreaming gender equity in health: The need to move forward. Spain: Madrid, 14 September 2001. Retrieved December 17, 2007, from World Health Organisation website: <http://www.euro.who.int/document/a75328.pdf>.