

How well do we truly understand clitoral anatomy? An Irish maternity hospital's perspective

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Abstract

Background

The clitoris has long been ignored in medical literature and teaching, with the first paper describing its anatomy only published in 1993. It is essential that those working in women's health understand the anatomy of this important female sexual organ.

Aims

The aim of this study was to assess the level of knowledge of the anatomy of the clitoris across five cohorts in a busy teaching maternity hospital in Ireland.

Materials and Methods

A questionnaire was devised, asking ten consultants, ten non-consultant hospital doctors (NCHDs), ten midwives, ten midwifery students and ten medical students to name the anatomical parts of a 3D model of the clitoris.

Results

None of the 50 respondents could name all five labelled parts of the clitoris, and 38 of respondents could not name one anatomical part correctly.

Conclusions

It is evident that there is a lack of knowledge of the anatomical parts of the clitoris among the medical staff included in this study. This reflects a lack of adequate teaching in this area in both past and recent years. Despite this, we acknowledge that women's health and sexual health awareness is improving all of the time, and we hope that this study can highlight the need for reformed teaching in this area.

Introduction

According to Gray's Anatomy the clitoris is an "erectile structure, partially enclosed by the anterior bifurcated ends of the labia minora. It has a crus, root, body and glans"(1). It is arguable that the clitoris has been a "taboo" subject since its discovery over 560 years ago(2). The first anatomical paper on the clitoris was published only in 1998(3) and its anatomy, using MRI, was described in full in 2005(4). The eminent urologist, Professor Helen O'Connell who pioneered those studies remarked on the pervasiveness of the view that clitoris is "at best unimportant and at worst shameful"(5). In Tuana's 2004 paper, she argues that "what we do and do not know about women's genitalia is a case study of the politics of ignorance"(6), *i.e.* that ignorance is not accidental but actively produced. The aim of this study is to capture a snapshot of the level of knowledge (or ignorance) about the anatomy of the clitoris among medical professionals working in a tertiary maternity hospital in Ireland. Our hospital is one of the busiest maternity hospitals in Europe, with just over 9,000 deliveries in 2021 and a diverse and evolving client population(7). A questionnaire was conducted that required fifty respondents representing various levels of experience within obstetrics and gynaecology, to name the labelled parts of a three-dimensional model of the clitoris.

Materials and methods

Ethical approval for this study was obtained from The Rotunda Hospital Ethics Committee (approval application number REC-2023-013). Five groups were identified to partake in the study; midwives, student midwives, medical students, non-consultant hospital doctors (NCHDs) and consultants in Obstetrics and Gynaecology. A questionnaire was designed to gather demographic information and knowledge of the anatomical parts of the clitoris (Appendix 1). Over the course of one week, ten people from each of the aforementioned groups were recruited to take part in the questionnaire. A participant information leaflet (PIL) was handed out to potential participants. If they agreed to take part, they were given the questionnaire and shown the three dimensional model of the clitoris. The clitoris was clearly marked with numbers 1-5 and participants were asked to name each of the numbered parts. They were given at least 20 minutes to complete the questionnaire. After the questionnaire was collected, the researchers provided the respondents with answers to the questions. Respondents were asked not to talk about the premise of the study with others until all fifty participants had completed the questionnaire, to prevent bias. This pilot study is intended as indicative rather than representative, *i.e.* it provides a snapshot of knowledge levels across different health sector employees in a maternity hospital setting.

A total of fifty one PILs were distributed. One person declined to take part in the study after reading the PIL. Fifty questionnaires were provided to participants, with a 100% (n=50) completion rate.

The results were analysed in Microsoft Excel by the primary researcher to assess levels of knowledge across different healthcare worker categories and identify any trends in the responses overall.

Results

The questionnaire began with four questions pertaining to participants demographics. Table 1 demonstrates the role that the participant had in the hospital, their gender, and level of experience in their post. 28/30 respondents were female (93.3%).

The participants were then asked their level of confidence in naming the anatomical parts of the clitoris (Figure 1). We were interested in ascertaining whether the respondents believed that they understood the anatomy of the clitoris before our questionnaire. Only ten respondents (20%) felt confident in their knowledge of the anatomy, and the remaining forty (80%) were unsure or were not confident at all.

A model of the clitoris was then shown to the participants, with parts labelled 1-5 (Figure 2). They were asked to write down the correct anatomical part that corresponded to the number. The parts were as follows; 1. Glans clitoris, 2. Clitoral shaft (/body), 3. Corpus cavernosum, 4. Bulb of vestibule (/vestibular bulb/clitoral bulb), 5. Crus (/crura). Figure 2 demonstrates the model shown to participants with five parts labelled.

No respondents could name all five parts of the clitoris when shown the model, and 76% (n=38) could not name any part correctly. The “glans clitoris” was named correctly by one medical student, three NCHDs and three consultants. The “bulb of vestibule” was named correctly by two medical students, two NCHDs and one consultant. The “crus/ crura” was correctly named by two medical students and one consultant. The clitoral shaft/ body was correctly named by one midwife, one NCHD and one consultant. No respondent could name the corpus cavernosum.

The next question asked where the participants learned this anatomy, if known. 38% (n=19) learned this anatomy in their undergraduate degree. 4% learned it through postgraduate teaching. 6% learned this anatomy through personal research, and 14% answered that they learned it from “other” sources. Answers in the “other” category included; “I haven’t learned this”, “School”, “Nowhere”, “Didn’t know any was just a guess”, “Never learned this anatomy”, “Vague recollection – don’t know from where!” and “I don’t know”. 38% (n=19) left this answer blank. This indicates that half of respondents reported having had no formal or informal grounding in the anatomy of the clitoris.

The participants were then asked if they had experience operating in this area, *e.g.* labiaplasty; yes or no. No medical students or midwifery students had experience operating in this area. One midwife responded that they had experience suturing in this area. Two NCHDs reported experience suturing, and one had observed labiaplasty. Two consultants reported experience suturing. Other answers from consultants included “labiaplasty and pelvic floor repair” reported by two, “FGM revision”, “paediatric and adolescent gynaecology and clitoroplasty”.

Having completed the survey, participants were asked again how confident felt in naming the anatomical parts of the clitoris (Figure 3). It was clear that after being shown the model, the majority of respondents felt either unsure or not confident at all about the anatomy of the clitoris. Only two NCHDs and one consultant (6% of respondents) remained confident in their knowledge of the anatomy of the clitoris.

Discussion

Female anatomy has not changed, but our understanding of it has evolved. The clitoris has long been diminished and misunderstood in medical literature and teaching practices. The Greek physician Claudius Galen 130-210 AD described that “all the parts, then, that men have, women have too, the difference between them lying in only

one thing, namely, that in women the parts are within, whereas in men they are outside". The clitoris was first dissected by a French physician in 1545 who named it "membre honteux" or "shameful member". Vesalius, who is considered the father of human anatomy, considered it a "new and useless part"(8). Throughout history, the practice of "cliteroidectomy" was well described as a treatment for hysteria, cataplexia and other conditions(9). Records of this treatment remained in the literature right up to the end of the 19th century.

It was not until 1998 that Australian urologist Professor Helen O'Connell and her colleagues published a paper on the clitoris, and this was built on in her 2005 paper which outlined the true anatomy of the clitoris. Thousands of years after the anatomy of the penis was fully described in 35BC by Hippocrates(10), Professor O'Connell and her team presented a comprehensive review of the anatomy of the clitoris, using dissections and MRI to truly capture its 3D structure. Professor O'Connell was motivated in part by the frustration she experienced at the general ignorance of clitoral anatomy. For instance, her work and research revealed that typical textbook descriptions of the clitoris lacked detail and included inaccuracies(4).

Gray's Anatomy is a reference book of human anatomy which remains a standard "go to" source for medical students and physicians across the world. Early editions of it describe basic vulval anatomy, with the clitoris later being mentioned as "a smaller version of the penis" in the 38th edition in 1995 (11). In a positive development since its first edition in 1858, the current 42nd edition(1) includes diagrams of the anatomical structures of the clitoris, as well as its innervation. This indicates that teaching of clitoral anatomy is improving after centuries of being largely ignored.

As doctors and midwives working solely in the area of women's health, knowledge of basic female anatomy is essential to daily practice. The Royal College of Physicians in Ireland Basic Specialist Training and Higher Specialist Training curriculums both include pelvic anatomy as essential learning outcomes for trainees(12, 13). Midwifery is offered as either an undergraduate, postgraduate course or both in six institutions in the Republic of Ireland, and learning outcomes listed on their websites all include basic female anatomy.

As seen in the above results, lack of knowledge in this area is stark among the midwives and student midwives surveyed. These are the midwives of the future, who are months or up to one year away from qualifying, and they cannot confidently name the structures of the clitoris. These student and qualified midwives are working with women in the antenatal, peripartum and postnatal periods. They are involved in deliveries, are performing episiotomies, and reviewing intrapartum tears, yet there is a significant lacuna in their physiological knowledge of pelvic anatomy.

The lack of knowledge in their area among medical students echoes Codispoti et al. paper in 2022, which examined preclinical curricula at seven medical schools in Chicago, Illinois. 4/7 discussed clitoral anatomy, 6/7 mentioned the glans, 6/7 mentioned the corpora cavernosa, 6/7 mentioned the crus, 6/7 mentioned the bulb and 5/7 detailed the clitoral neurovasculature(14). They found that there needs to be a restructuring of curriculum as it relates to female sexual medicine in undergraduate medical education., It is evident with the lack of information among the medical students in this study that our curriculum must also be examined to ensure that all parts of female anatomy is being taught to these doctors of the future.

Among the NCHDs and consultants who took part in the questionnaire, again there was a paucity of knowledge surrounding the anatomy of the clitoris. As mentioned, there is a lack of teaching at a medical school level, and this is reflected in the lack of information among qualified doctors on this anatomy. These medical professionals, like midwives, are involved in suturing intrapartum tears, and caring for women who have undergone Female Genital Mutilation (FGM). There are direct implications for patients when their treating doctors lack knowledge in this area. In Peters et al. 2023 paper, they allude to the neglect of the clitoris and the resultant lack of awareness and lack of research, contributing to poor patient outcomes. They note that a lack of knowledge

around the innervation of the clitoris as well as its hormonal regulation is stark in comparison to the extensive research in to the innervation of the penis(15).

In our institution, it is likely that midwives, student midwives and qualified doctors will encounter woman who are victims of FGM. The World Health Organisation defines FGM as “all procedures that involve partial or total removal of the external female genitalia, or other injury to the female genital organs for non-medical reasons”(16). According to the Central Statistics Office (CSO) in Ireland, there were about 3,780 women living in Ireland since 2011 that had undergone FGM(17). As Ireland’s busiest maternity hospital, and a designated referral centre for surgical revision of FGM, we have many migrants using our services and we interact with these women frequently. It is essential that our medical and midwifery staff understand basic female anatomy so that they can recognise and treat women who have undergone these procedures.

This study provides a snapshot of a group of medical professionals working in an Irish maternity hospital, and the lack of knowledge that they have on the basic anatomy of the clitoris. It adds to the conversation among the medical profession and in wider society that the clitoris is somewhat of a taboo subject that has been ignored throughout history. Despite all respondents being either qualified doctors or midwives, or students who had all had some level of teaching on female anatomy, not one of the fifty recruits could name all five parts of the clitoris that were marked. It is as if its perceived redundancy (or alternately shamefulness) established through hegemonic patriarchal thinking across the centuries, has rendered the clitoris “unmentionable” even for those working in obstetrics and gynaecology. As Tuana points out it is important to pay attention to knowledge deficits such as that outlined above as “we cannot fully account for what we know without also offering an account of what we do not know and who is privileged and disadvantaged by such knowledge/ignorance”(6). Female sexuality is a particularly fertile area for tracking the intersection between power/knowledge-ignorance(6).

Despite our results highlighting the lack of knowledge among medical and midwifery staff and students, it is important to acknowledge that women’s health and sexual health awareness is improving and evolving. We hope to use the results of our study to add to the teaching in this area. It is essential that we as Obstetricians and Gynaecologists, an increasingly female dominated field, educate ourselves, other healthcare professionals and our incoming students so that we can continue to improve services provided to our patients.

Role in hospital	Gender	Experience in years
Consultant 20% (n=10)	Male 20% (2)	>10 years 100% (10)
	Female 80% (8)	
NCHD 20% (n=10)	Female 100%	>10 years – 10% (1)
		>5 years -20%(2)
		2 to 5 years – 60%(6)
		<2 years – 10% (1)
Midwife 20% (n=10)	Female 100%	>10 years – 50% (5)
		>5 years - 40% (4)
		2 to 5 years – 10% (1)
		<2 years – 0%
Medical Student 20% (n=10)	Female 100%	Final Year 70% (7)
	Female 100%	Penultimate year 30% (3)
Midwifery Student 20% (n=10)	Female 100%	Final year undergraduate degree 80% (8)
		First year of 2-year postgraduate programme 10% (1)
		Second year of 2-year postgraduate programme 10% (1)

Table 1: Demographics of study participants

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