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Abstract

Background

Providing care for pregnant women and responding to obstetric emergencies are tasks which medical graduates are expected to be competent in performing. To ensure this, Australian medical schools have set clinical learning objectives for students to achieve during their obstetrics rotation. Alarmingly, several studies have shown students are struggling to participate in these clinical experiences, especially the birthing process. Further evaluation of student experiences on labour ward is needed to identify common concerns and to improve the overall educational experience.

Materials and Methods

Year 5 medical students from James Cook University completed an optional anonymous questionnaire at the end of their Reproductive and Neonatal Health (RNH) rotation. A cross-sectional analysis was performed on responses. Open-ended responses underwent a content analysis and both common positive and negative themes were identified.

Results

Assisting in deliveries and surgical procedures were regarded as highly valuable learning experiences. Male students reported that their gender was a clear drawback to their rotation experience ($p < 0.001$). Competition with midwifery students and poor interactions with midwifery staff were common themes reported and contributed to 57% of students experiencing difficulty gaining clinical exposure whilst on labour ward.

Conclusion

Difficulty in gaining clinical experience within labour wards is increasing as the number of health care students continues to rise and the birth rate falls. The presence of gender bias and misunderstanding of student learning objectives by midwives further contributes to the competitive environment experienced by medical students during their obstetrics term. Greater collaboration and communication between medical schools and midwifery staff is vital to ensure quality education continues to be delivered and clinical requirements are achieved. The use of simulation training should also be further explored as a means to provide standardised educational experiences.

Introduction

Despite the obstetrics and gynaecology curriculum for medical students sharing core components with that of midwifery students, there appears to be little interdisciplinary collaboration and sharing of teaching opportunities. This has resulted in the formation of a competitive framework within the labour wards and a struggle to gain clinical experiences [1].

It is imperative for junior doctors to have sufficient knowledge of the basics of obstetrics and gynaecology and have the appropriate clinical experience to provide care for pregnant women and respond to obstetric emergencies [1]. Whilst the Australian Medical Council has no graduate outcome requiring the completion of certain skills in obstetrics and gynaecology, RANZCOG expects all medical school graduates to be competent in managing normal labour under supervision [2]. To ensure clinical competency and promote active participation on the labour ward, James Cook University (JCU) students are required to follow the management of five deliveries in birth suite and perform at least two normal deliveries during their rotation. Similar clinical objectives are observed throughout medical schools Australia wide. These hands-on experiences are highly valued by students and are recognized to develop and consolidate their knowledge base. However, a 2015 study of Australian medical schools highlighted that in practice students are not always able to complete set clinical objectives [3].

Common resistive factors contributing to decreased educational experiences include gender bias, competition with midwifery staff and students and the misunderstanding of roles within the labour ward [1,3]. Reduced clinical exposure due to these factors has the ability to contribute to an overall negative placement experience, especially for male students, and adversely shape their view towards obstetrics and gynaecology, creating the potential for deterrence from the specialty.

To evaluate student experiences and identify common resistive factors faced within their rotation, JCU medical students were asked to complete an anonymous survey at the completion of their six-week term. It is hoped that the identification of common struggles faced by students will allow for improvements to the way that reproductive care term is delivered to medicals students.

Materials and Methods

Institutional permission was obtained from the department of Obstetrics and Gynaecology, and the use of anonymous student responses for the purpose of this study was approved by JCU Reproductive and Neonatal Health rotation (RNH) module coordinators along with the JCU Year 5 Student Committee.

A cross-sectional study was conducted analysing responses to a student feedback questionnaire on experiences within the RNH rotation at JCU from 2016 to 2019. Students who completed the survey were based in Townsville, Cairns, Mackay and Mount Isa hospitals. At the completion of each rotation, all students attended a mandatory debrief with academic staff and were supplied with either a paper-based version of the questionnaire or a link to an online version (Appendix 1). This provided all students who completed the RNH rotation with the opportunity to participate in the voluntary survey, allowing for responses from a wide spectrum of students. The questionnaire was designed by staff involved in medical education and research and aimed to assess the experience of fifth year medical students in their obstetrics and gynaecology rotation. The questionnaire was designed to be neutral and questions were neither ambiguous nor biased. Initial questions were closed and allowed students to respond to statements with *disagree, neutral, agree or strongly agree*. Open ended questions were then included and provided students the opportunity to describe both negative and positive experiences and suggest improvements to the rotation.

All responses were voluntary and were deidentified to ensure student privacy. The results were tabulated and analysed using IBM SPSS Statistics Program for macOS (IBM Corp, Armonk, NY, USA). Students were asked to nominate their placement site, gender and the term in which they completed their rotation. Gender was the only variable which appeared to significantly influence student responses. A crosstab analysis was therefore performed to assess the statistical relationship between gender and improvement in communication skills, improvement in practical skills, experiences on the labour ward and whether gender was perceived as a drawback or benefit to students during their terms. A Chi-Square test for trend was then performed on the crosstab data and the p-value for each variable was documented.

A content analysis was performed on the answers given in the open-ended responses. Each response was analysed and common themes were identified. The most common positive experiences were grouped into; shadow on-call shifts, participating in deliveries, theatre time, structured teaching and participation in clinics. The most common negative experiences included; competition with midwifery students, negative interactions or experiences with nursing and midwifery staff, negative interactions or experiences with doctors, difficulty participating in deliveries, difficulty being included in clinic consultations, and poor rotation scheduling. Each student response was coded and allocated to one of the common themes listed.

Results

A total of 162 questionnaires were collected from 2016 to 2019. Approximately 93% of the study cohort completed their rotation in Townsville, 4% in Mount Isa and 1% in both Mackay and Cairns. As the questionnaire was voluntary, response rates varied across the years; 27% of participants completed the survey in 2019, 40% in 2018, 25% in 2017 and only 8% of answers were from 2016. Response rates to individual questions also fluctuated and only an estimated 79% of surveys had all answer fields filled. Blank responses were omitted when tabulating results in order to ensure accurate data analysis, therefore resulting in less than 162 responses documented for certain questions.

Of the 162 students who participated, 45% were male, 54% were female, and one student did not nominate a gender. Male gender appeared to have a negative effect on student experience (Table 1); 48% of male students reported their gender was a drawback to their experience in their RNH rotation, whilst only 6% of females felt their experience was hindered by gender ($p<0.001$). Those female students who regarded their gender as a drawback found they experienced more competition with nursing and midwifery staff compared to their male colleagues, with some reporting *"it was evident that the boys had a better experience with the midwives than the female students did"* and "*patient wise it [the rotation] was okay, but staff wise I find it can be quite competitive with nursing staff and students."*

Our results showed that 32% of female students and 25% of male students reported difficulty gaining clinical experience on labour ward. Female students reported their greatest barrier to being involved in patient interactions on the labour ward was resistance from midwives or nursing staff, whilst male students report their greatest resistance was from patients. A combined total of 57% of students reported some difficulty in birth suite and both genders identified competition with midwifery students as being a common obstacle to achieving a satisfying clinical experience. One student reported "*there was a lot of competition from midwifery students, who I felt were given preference over medical students by many of the midwives. This made it quite difficult to see enough birth."* Some students elected to spend additional hours on labour ward in order to overcome these obstacles, though still felt dissatisfied with their experience, one student recalled *"I even went to birth suite on days I was not rostered to witness labour. I only manage to deliver 1 baby."*

Both male and female students felt their communication skills in relation to discussing obstetrics and gynaecology topics had improved during their rotation, at 78% and 75% respectively. Meanwhile, 89% of males and 77% of females also noted an improvement in their practical skills, such as performing speculum examinations. Students who reported finding no improvement in communication and practical skills stated this resulted from experiencing an observer type role in clinic consultations. Students found that their ability to interact independently with patients was largely reliant on facilitation by the senior doctor, spare clinic rooms and consent from patients. Those who were able to conduct their own clinical interviews found great benefit, with one student reporting *"when it comes to history taking and examinations I believe my time in the RNH term has helped me improve my communication skills with women, especially when discussing specific problems or symptoms."*

Overall, 84% of the study cohort regarded their rotation as a good overall experience.

The open-ended response questions allowed students to list specific examples of the positive and negative experiences they had within their RNH rotation. Students often gave multiple examples, the most common themes amongst responses are listed below (Table 2,3).

Positive Experiences

We found that 129 students provided examples of positive experiences in their RNH term (Table 2), while 33 students did not respond to this question. Participating in and observing the process of labour was the most common positive experience reported by students (35%). Students reported enjoying the practical aspect of labour ward and found the opportunity to be actively involved in the birthing process extremely valuable, one student reporting they *had "great clinical exposure and opportunity to practice clinical skills that I may never get the chance to practice again until I need to use them in my career e.g. VE in labour, performing [a] delivery."* Many students also enjoyed the rapport they were able to establish with labouring women and their families whilst on birth suite, describing their time as *"extremely rewarding and educational."*

Students appreciated opportunities to perform practical skills such as cannulations, pelvic examinations, and assisting in theatre. We found that 33% of responses discussed positive experiences students had whilst in theatre, including observing and assisting in caesarean sections. *"Getting to assist in a caesarean section was amazing, it was nice to see the doctor step through the procedure and learn technical skills, i.e. how to hold the different equipment."* Time in theatre also allowed for concentrated periods of time spent with senior doctors, which resulted in students receiving subjectively better teaching experiences. *"Doctors wanted to involve you in the procedures and made theatre experience much more enjoyable than other surgical terms."*

Structured teaching throughout the rotation was another positive aspect reported in 27% of the responses. Rostered tutorial sessions, including practice objective structured clinical examination (OSCE) sessions, provided guidance and support to students and many reported this improved their overall RNH experience. *"The teaching in RNH was really good. I felt better guided in this rotation compared to previous ones." "All the doctors were very keen on teaching (especially doctors who are involved academically) and making sure the students have the best experience in RNH."*

Negative Experiences

We found that 106 students provided examples of negative experiences they had within their rotation, 34 students did not respond, and 22 students had only positive experiences and were unable to identify any negative incidents (Table 3). Of those students who responded, 36 reported experiencing negative interactions with nursing and midwifery staff, with 55% of these responses being from female students. Many responses mentioned mistreatment and bullying within the labour ward and students felt that midwives were *"very resistant to the medical students", "unaccommodating", "dismissive"* and *"clearly don't want medical students there"*. One student wrote, *"I would go home crying every day and would leave early because the environment was that bad. I felt bullied by midwives and midwifery students."* Another student shared, *"..midwife ignored me the entire time, unable to go into the room with the mother although the mother consented to my presence."*

Students also found their labour ward experience challenging due to the presence of midwifery students and described having to 'compete' with student midwives in order to participate in deliveries. Students felt there was often preferential treatment of midwifery students, and this created barriers in forming rapport with midwives and being given the

opportunities to participate in the process of labour. Students shared their disappointment in the feedback saying, *"[I was] not able to assist with or witness births easily because we were informed that midwifery students take preference over medical students and often students who had been with mothers for a number of hours were asked to leave rooms if a midwifery student appeared and wanted to go in"* and *"I was in a room with a patient in labour and was assigned to deliver by the midwife, then another midwife said her midwifery student will do the birth….outside the room I could hear midwives and midwifery students talking about how medical students don't need births."*

Of respondents, 24% reported having limited opportunities to participate in clinical settings, such as the labour ward and clinic consultations. The majority of these responses were from male students (61%). Patient refusal was the most common resistive factor mentioned in responses, followed by congestion on labour ward with both midwifery and medical students and reduced numbers of patients in birth suite. The culmination of these factors contributed to decreased learning opportunities experienced by students.

The overall structure and organisation of the rotation was mentioned as a negative aspect of the rotation in 23% of responses. Students found that mandatory attendance at certain low-yield clinics interfered with their ability to attend tutorials, which they felt would have been of greater educational benefit. The restricted time-frame students spent on the labour ward was also seen as a disadvantage to the rotation, with many students reporting it made achieving clinical objectives, such as assisting in births and performing vaginal examinations in labour simply unachievable.

Discussion

Overall, students regarded their RNH rotation as an enjoyable term, with many reporting improvements in both practical and communication skills. Students felt having a 'hands on' approach allowed them to develop useful skills whilst consolidating their knowledge base and increasing their clinical confidence. However, there was notable disparity between experiences, with some students struggling to even witness a vaginal birth by the completion of their rotation. The difference in clinical opportunities appeared to result from multiple factors including gender bias, competition with midwifery students, and poor interactions with midwifery staff.

Student responses highlighted a statistically significant correlation between male gender being a drawback and female gender being of benefit during placement in obstetrics and gynaecology ($p<0.001$). Of the male respondents, 48% identified their gender as hinderances to their experience during the RNH rotation, and 14.8% reported difficulties gaining experiences in both labour ward and clinic environments. Students felt that resistance from patients was the main factor leading to reduced opportunities to observe and participate, particularly with intimate examinations. The influence of gender on student experience in obstetrics and gynaecology is well documented throughout literature. Akka *et al.* [4] analysed gender differences in the teaching of intimate examinations and reported male students were more often refused patient consent for examination as compared to their female colleagues ($p= 0.0001$). The theme of gender bias was also demonstrated in a prospective study by Chang *et al*. [5], where male students experienced patient refusal more often than female students in both clinical interview participation (61% vs 17%, respectively; $p<0.0001$) and physical examination (82% vs 37%, respectively; $p<0.0001$). Reduced clinical exposure has been shown to negatively impact examination performance and may also contribute to declining rates of males pursuing a career in obstetrics and gynaecology [6]. In 1978, the

membership base of the Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) was 95% male, though a surge in female applicants over the past twenty years has caused a drastic reversion. In 2018, a mere 20% of applicants to the college were male [7]. RANZCOG now has the has the highest percentage of female members in comparison to other Australian and New Zealand medical colleges. Whilst reasons for a reduction in male applicants may be multifactorial, prejudice against male medical students during their medical school rotation cannot be overlooked as a potential deterrent.

Competition between midwifery and medical students for clinical experience on labour wards is a common theme observed in hospitals nation-wide. Hogan *et al.* [3] surveyed 18 Australian medical schools, with eight schools specifically reporting competition from midwifery students as a problem in the provision of clinical experience for medical students. As birth is the central event to both midwifery and obstetrics, the learning objectives of both groups are comparatively similar. Unfortunately, the exponential increase in health students undertaking placement within the obstetrics field is conversely accompanied by a declining birth rate, and together these factors contribute to difficulty facilitating the needs of both student groups. Additionally, Quinlivan *et al.* [4] proposed that the misunderstanding of the respective learning roles of both medical and midwifery students further adds to the competitive framework seen in birth suite. Within the current study, thirty-six students reported negative interactions with nursing and midwifery staff during their obstetrics rotation, and a vast majority were a result of midwifery staff being misinformed of student learning objectives and therefore providing resistance to student participation. Midwives play an integral role in the RNH rotation and many students report positive and valuable learning experiences when given the opportunity to work closely with midwifery. However, survey responses indicate that many midwifes were unfamiliar with student learning objectives and this contributed to difficulty facilitating opportunities to participate as an accoucheur, particularly when in competition with a midwifery student. Deficiency in the understanding for the need for medical students to have hands-on learning experiences was reported by Cheng *et al.* [1] in 2018. Responses indicated that many midwives were unaware that junior doctors may be faced with emergency management of labour or pregnancy complications with little help and no additional training after medical school. This misapprehension of roles on labour ward has the ability to influence the attitude of midwives and subsequently their willingness to involve medical students in teaching activities.

The voluntary nature of the questionnaire acts as a limitation as it made capturing responses from the entire student cohort difficult, and also allowed students to omit certain questions. Another limitation is the possibility that only students with either strongly negative or strongly positive experiences were likely to participate. Whilst the majority of students were based in the Townsville hospital, there was a minority completing their rotation at smaller hospitals, and therefore their experience may have differed.

Delivery of quality training in obstetrics and gynaecology for medical students remains challenging. Student experiences are ultimately influenced by gender, interactions with health care staff, in addition to the consent from the woman herself. As the annual intake of medical students continues to rise and competition with midwifery students looks to worsen, developments must be made to prevent a declining standard of clinical experience. Rostering adjustments to increase time spent in birth suite and limit student congestion is a small step which can be taken. Encouraging senior members of staff to introduce medical students to patients may also facilitate better patient engagement and foster clinical environments where

patients feel comfortable with the involvement of male medical students. Greater collaboration and communication between medical schools and midwifery staff is also vital to ensure adequate understanding of student learning needs and equitable access to birth suite opportunities [3,8]. Mires *et al.* [9] analysed the effects of introducing an interdisciplinary educational programme for medical and midwifery students at the University of Dundee. Students were found to highly benefit from the multidisciplinary teaching approach and increased not only their knowledge regarding normal labour but also their own awareness of professional responsibilities and roles in women's health. Simulation training is also being explored as another means to further equalise the educational experience available in labour wards. Everett *et al.* [10] discussed the effectiveness of simulation training in providing students with opportunities to perform valuable yet invasive skills, such as vaginal examinations in labour. Simulation training removes barriers such as gender bias, consent refusal and interdisciplinary competition for skill exposure, whilst also preventing patients from being exposed to multiple examinations and potential safety risks. Educating through simulation has shown to increase student confidence whilst providing a standardised learning platform and is an avenue which should be further researched and implemented into medical student training. Ultimately, there are a number of viable interventions available and further research should be conducted to determine the most effective and achievable methods to enhance the educational experience of medical students in obstetrics and gynaecology.

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Conflict of Interest

None declared.

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None.

Authors contribution

Jordanna Mladenovic: Collation of data, construction of manuscript, revision of manuscript
Dr Sandhya Gupta: Formulation of study questionnaire, revision of manuscript
Prof. Ajay Rane: Conception of study, revision of manuscript
Torres Wooley: Interpretation of data

Ethics board approval name, number, and date

This study was approved by the clinical board of studies JCU School of Medicine. This is a routine collection of confidential data and was approved on 12.1.2016. Due to its low-risk nature and audit nature, specific ethics approval was not deemed necessary.
Please let me know if you require any other information.

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