ORIGINAL ARTICLE

Knowledge and Practices of Episiotomy amongst House Officers, Student Midwives and Experienced Midwives in Low-Risk Obstetrics Practice – A Cross-Sectional Study in a Tertiary Hospital in Malaysia

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ABSTRACT

INTRODUCTION: Episiotomy rates differ widely internationally. There are few studies that explore gaps in knowledge and practices amongst clinicians performing episiotomy, yet limited amongst the obstetrics frontliners attending to low-risk births in Malaysia. This study aims to assess knowledge and practices amongst house officers, student midwives and experienced midwives, to determine if those gaps are narrower in this era of evidence -based practice. **MATERIALS AND METHODS**: A previously validated questionnaire was administered to three groups of respondents: house officers, student midwives and experienced midwives working in the obstetrics department and labour room. One section of the questionnaire explored the participants' knowledge of episiotomy based on a single best answer. The other section explored the participants' practices regarding episiotomy. Each response was classified as "correct" or "other", resulting in a 3x2 table for each item, and a chi-squared test was used to compare groups. **RESULTS**:128 respondents from three groups completed the questionnaire. 95.3% of all respondents preferred the mediolateral approach. House officers were the most knowledgeable in anatomy and episiotomy complications. More than 60% respondents of all three groups performed episiotomies on nulliparous women. Medical officers had a significant (p:<0.001) impact on influencing the decision to perform episiotomy amongst house officers. **CONCLUSIONS**: Despite knowledge levels and influence by seniors, practice of episiotomy is far from ideal amongst our obstetrics frontline staff. Evidence-based education and workshops with interprofessional education may be the way forward.

Keywords
Episiotomy, Education; Medical, Midwifery, Internship

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INTRODUCTION

Episiotomy is a surgical incision made in the perineal region to enlarge the introitus during delivery.[1] It is a standard procedure performed by midwives and clinicians in hospitals. Between 30-63% of women worldwide and 93% of nulliparous women in certain regions underwent this procedure.[2] Although experts and international agencies like WHO and ACOG have made recommendations regarding its restrictive usage,[3-5] episiotomy rates continue to vary widely. A recent Cochrane systematic review of 11 trials involving 5977 women going through spontaneous births, those under the 'restrictive' policy suffered 30% less severe perineal laceration with no difference in dyspareunia, urinary incontinence, or pain.[6] Routine episiotomy was associated with more blood loss at delivery than restrictive episiotomy.[7]

Some low and middle-income countries have high rates of episiotomy, while other countries like New Zealand and Ireland maintain low rates.[8] In 2011, only 16.7% of nulliparae in New Zealand had episiotomy.[9] A trial from Ireland reported episiotomies in only 14% of nulliparae

where midwives withheld performing routine episiotomies to reduce perineal trauma and preserve the perineum intact (PPI), unless there was evidence of a tight perineum or foetal compromise.[9] In contrast, studies from South East Asia which included 2 hospitals in Malaysia, quoted episiotomy rates in excess of 46%.[7,10] A team from Vietnam explored the knowledge and practice of episiotomy among their midwives and obstetricians and found that episiotomies were performed on nulliparae almost all the time, compared to 60% among multiparae. Reasons identified for this liberal practice of episiotomy included difficulty initiating change and following their peers' suit.[11]

For hospitals in Malaysia, house officers are doctors who have completed their medical degree from universities locally and internationally. In view of their heterogeneous clinical experience at undergraduate level, they are required to work in the obstetrics and gynaecology department for a period of four months. This is part of the 2-year crucial and supervised internship, before receiving full registration to practice in Malaysia. In addition, some tertiary hospitals are midwifery training centres, accounting for student midwives at our centre for this study. Both house officers and student midwives are required to complete their obstetrics logbook which include 30 normal vaginal deliveries and limited episiotomies with supervision. Midwives employed in Malaysian hospitals, have an Advanced Diploma in Midwifery, which is locally and internationally recognised. The hospital for this study, has a restrictive policy in place. In view of the wide variation in episiotomy rates internationally, we believed that it was important to measure the knowledge and determine the current practices of our obstetrics frontliners in Malaysia. We are aware of possible variations across many hospitals in Malaysia, but it is timely to ensure that policies and training are in place for incoming staff at a junior level. In view of the variation in different staff categories which is often the case in many hospitals, the findings will be valuable to target educating and improving our obstetrics frontline staff training at an undergraduate level or during midwifery training to enhance their knowledge and change episiotomy practices.

MATERIALS AND METHODS

A prospective cross-sectional study was carried out in the obstetrics department of a tertiary hospital in Malaysia, from April 2019 to June 2019. The hospital has an average of 14,000 deliveries annually, with about 0.5% accounting for low-risk births.[12] Low risk pregnancies are coded white, based on risk stratification by the Ministry of Health, Malaysia which recommends obstetric care at the level of community clinics. House officers, student midwives and experienced midwives are the obstetrics frontline health care workers who handle uncomplicated spontaneous vertex deliveries (SVDs), and often have the opportunity to perform episiotomies.

Three trained researchers, ie Year 3 and Year 4 medical students along with two senior midwives approached the participants to fill the questionnaire.

Inclusions and exclusions

House officers, student midwives and experienced midwives were included for the study. Individuals who had less than two weeks of experience, which is the usual period of "tagging call" in obstetrics practice and those who declined to participate in the study were excluded.

QUESTIONNAIRE

A self-administered questionnaire in English was adapted from a study conducted in Vietnam by Trinh et al.[11] It was also translated to Malay language, checked for accuracy by two senior colleagues and tested on 10 people.

For the study, all respondents were given a bilingual version of the questionnaire. The first section of the questionnaire captured the demographic details of the participants. The second section comprised questions that explored the participants' knowledge on episiotomy based on a single best answer (Table II). Finally, the third section explored the participants' practices regarding episiotomy (Table III). Data captured from the questionnaires was stored in an Excel file. Missing values were left empty.

STATISTICS

The sample size was calculated for a two-group study: house officers and experienced midwives. An informal Ebel procedure[13] was carried out on the questions in the questionnaire and concluded that 66% of all questions were likely to be answered correctly by all participants. For the remaining questions, the knowledge questions were predicted to be answered correctly twice as often by house officers compared to the experienced midwives, and vice versa for the practice questions. Thus, the probabilities of incorrect answers were 0.11 vs. 0.22 for the two sets of questions in the two groups. Setting the alpha at 0.05, p1 at 0.11, and p2 at 0.22, an estimation that a 1-item questionnaire would require 200 respondents in each group and a 15-item questionnaire would need 14 respondents in each group to show significant differences between groups. Allowing for dropouts and improperly completed forms, we settled on a sample size of 30 participants for house officers versus experienced midwives. Given that students lacked experience, a higher probability of error at 0.33 was estimated for student midwives. At this estimated prevalence, 30 student midwives were considered enough to show differences in responses to the questionnaires. We compared the three groups using the chi-squared test. The response for each question was classified as "correct" and "other", resulting in a 3x2 table for each item. An online chi-squared test calculator was accessed, and $p<0.05$ was considered significant.[14]

ETHICS

Ethical approvals were obtained from National Medical Research Register (NMRR-18-3514-44587) and Monash University Human Research Ethics Committee (MUHREC 2019-20603-3230).

RESULTS

A total of 128 respondents (39 house officers, 45 student midwives, and 44 experienced midwives) completed the questionnaire. The house officers, student midwives, and experienced midwives who participated had spent an average of 2 months, 5 months, and 6 years respectively in obstetrics.

KNOWLEDGE SCORES

Knowledge scores ranged from 2 to 13 (maximum score of 15), with a mean of 8.16 (SD= 1.75) (Table I). We assessed the seven domains of knowledge, which yielded statistical differences between the three different groups

Table I: Scores from 'Knowledge' section

	HOUSE OFFICERS n = 39	STUDENT MIDWIVES n = 45	MID-WIVES n = 44
Highest Score*	13	11	11
Lowest Score*	3	2	5
Mean*	8.62	7.71	8.20
Median*	8	8	8
Std Deviation*	1.97	1.59	1.58

*The maximum obtainable score for the 'Knowledge' section is 15

(Table II)

Knowing that episiotomy wound heals slower than a second-degree perineal tear was most apparent among experienced midwives (36.4%), followed by student midwives (20%) and finally house officers (12.8%) *($p=0.03$)*. House officers (61.5%) were most aware, while midwives (25%) were least aware of a low APGAR score not being associated with an episiotomy *($p=0.001$)*. 87.2% house officers also knew that anal incontinence can occur after a midline episiotomy, while only 50% of the midwives and 55.6% student midwives were aware *($p=0.001$)*. While most midwives (93.2%) and house officers (89.7%) understood that episiotomies are not associated with an increased risk of future urinary incontinence, only 66.7% of student midwives answered this question correctly ($p=0.002$). A similarly high proportion of house officers (94.9%) and midwives (93.2%), but not student midwives (64.4%, $p=0.0001$) were aware that upon discharge from the hospital, those with an episiotomy need not always be prescribed with antibiotics. Student midwives (84.4%) showed the most significant knowledge of after-care for patients, particularly regarding abstinence from sexual intercourse for eight weeks after the episiotomy, compared to house officers (46.2%) and midwives (56.8%) ($p=0.001$).

Table II: Knowledge related to episiotomy among house officers, student midwives and midwives based on correct answers

Episiotomy Knowledge	House officers n=39	Student Midwives n=45	Midwives n=44	p-value
	n (%)	n (%)	n (%)	
Benefits: longer wound healing (cf. 2nd-degree tear)	5 (12.8)	9 (20.0)	16 (36.4)	**0.033***
Benefits: less perineal pain	17 (43.6)	13 (28.9)	9 (20.5)	**0.07***
Benefits: reduced perineal trauma	36 (92.3)	39 (86.7)	37 (84.1)	0.52
Indications: foetal distress & tight perineum	28 (71.8)	38 (84.4)	38 (86.4)	0.19
Indications: previous 3rd/4th-degree tear in multiparae	22 (56.4)	24 (53.3)	27 (61.4	0.74
Contraindications: coagulation disorders	23 (59.0)	27 (60.0)	33 (75.0)	0.22
Complication: acute urinary retention	7 (17.9)	10 (22.2)	8 (18.2)	0.85
Complication: postpartum haemorrhage	8 (20.5)	10 (22.2)	8 (18.2)	0.89
No association: low Apgar score	24 (61.5)	14 (31.1)	11 (25.0)	**0.01***
No association: urinary incontinence (cf. No episiotomy)	35 (89.7)	30 (66.7)	41 (93.2)	**0.002***
Negative association: pelvic organ prolapse	31 (79.5)	37 (82.2)	38 (86.4)	0.70
Complications (midline): anal incontinence	34 (87.2)	25 (55.6)	22 (50.0)	**0.001***
Complications: dyspareunia (long term)	12 (30.8)	4 (8.9)	8 (18.2)	**0.04***
Management: antibiotics at discharge not needed	37 (94.9)	29 (64.4)	41 (93.2)	**0.0001***
Management: abstinence from sexual intercourse for 8 weeks	18 (46.2)	38 (84.4)	25 (56.8)	**0.001***

*p-values are statistically significant

A significantly low level of knowledge (p=0.04) was identified across the three groups about long-term dyspareunia post-episiotomy (house officers - 30.8%, student midwives - 8.9%, midwives -18.2%).

PRACTICE SCORES

Table III depicts the practices related to episiotomy amongst the respondents. The three groups exhibited a significant difference in the rate of episiotomies that they said they carried out on nulliparous women. More than 50% of house officers perform episiotomies on nulliparous women 60-90% of the time, with only 8% of them performing it at similar rates amongst multiparous women. 31% of student midwives said they perform episiotomies on nulliparous women over 90% of the time, compared to multiparous women (7%). In comparison, experienced midwives perform episiotomies on nulliparous women at the lowest rate with 32% performing it at 60-90% of the time and only 9% performing over 90% of the time. This was statistically significant. Overall, more than 90% of all 3 groups performed episiotomies less frequently amongst multiparous women.

Most respondents (83.6%) claimed that they were confident in performing and repairing episiotomies for nulliparous women. However, some of them (62.5%) were less confident and uncertain when it came to multiparous women (p=0.75).

125 out of the 128 respondents (95.3%) reported performing mediolateral episiotomies with an incision at the 7-8 o'clock position. Five respondents (3.9%) opted for mediolateral incisions at the 4-5 o'clock position, and 2 (1.6%) chose midline episiotomies. This finding was unexpected and is likely that respondents may have not thought this over as episiotomies are supervised and

Table III: Practice of episiotomy among house officers, midwives, and student midwives

Practice of episiotomy	House officers n=39	Student midwives n=45	Midwives n=44	p-Value
	n (%)	n (%)	n (%)	
Among nulliparae				
Always (99-100%)	2 (5.1)	2 (4.4)	2 (4.5)	0.99
Over 90% of the time	4 (10.3)	14 (31.1)	4 (9.1)	***0.01****
60-90% of the time	20 (51.3)	7 (15.6)	14 (31.8)	***0.002****
<60% of the time	13 (33.3)	22 (48.9)	24 (54.5)	0.14
Confidence in performing and repairing episiotomy on nulliparae	33 (84.6)	37 (82.2)	37 (84.1)	0.95
Among multipara				
Always (99-100%)	0 (0)	0 (0)	0 (0)	
Over 90% of the time	0 (0)	1 (2.2)	0 (0)	0.91
60-90% of the time	3 (7.7)	3 (6.7)	4 (9.1)	0.97
<60% of the time	36 (92.3)	41 (91.1)	40 (90.9)	
Confidence in performing and repairing episiotomy on multipara	24 (61.5)	30 (66.7)	26 (59.1)	0.75
Type(s) of episiotomy performed*				
Mediolateral (7-8 o'clock)	38 (97.4)	45 (100.0)	42 (95.5)	0.80
Mediolateral (4-5 o'clock)	1 (2.6)	1 (2.2)	3 (6.8)	0.47
Midline	1 (2.6)	1 (2.2)	0 (0)	0.99
Reasons for performing episiotomy*				
Reduce 3rd and 4th-degree perineal tear	27 (69.2)	23 (51.1)	30 (68.2)	0.15
Instrumental delivery	28 (71.8)	26 (57.8)	34 (77.3)	0.12
Thick/swollen perineum	11 (28.2)	5 (11.1)	4 (9.1)	***0.03****
Easier to suture compared to tear	6 (15.4)	10 (22.2)	13 (29.5)	0.30
Shorten 2nd stage of labour	22 (56.4)	29 (64.4)	32 (72.7)	0.30
Foetal distress	26 (66.7)	23 (51.1)	34 (77.3)	***0.03****
Others	1 (2.6)	0 (0)	4 (9.1)	0.23
Influencing factors*				
Specialist	19 (48.7)	9 (20.0)	7 (15.9)	***<0.001****
Medical Officer	30 (76.9)	12 (26.7)	14 (31.8)	***<0.001****
Midwife	22 (56.4)	26 (57.8)	14 (31.8)	***0.02****
Medical/Midwifery School experience	6 (15.4)	15 (33.3)	15 (34.1)	0.10
None of the Above	2 (5.1)	5 (11.1)	16 (36.4)	***<0.001****

**Multiple responses accepted*
**p-values are statistically significant

unlikely to have been permitted. In particular, midline episiotomies have long fallen out of favour as it is associated with obstetric anal sphincter injury.[10]

Instrumental deliveries were the most cited reason for performing episiotomies by both the house officers (71.8%) and midwives (77.3%). Contrastingly, the most common reason among the student midwives (64.4%) was to shorten the second stage of labour. Reasons for their choices were unexplored in the questionnaire.

There were significant differences among the three groups of influencers when deciding on an episiotomy. Most house officers (76.9%) stated that medical officers played a role in determining their decisions to perform episiotomies. Some of them (48.7%) identified consultant obstetricians as having influenced their decisions. Experienced midwives were the most common influencers of student midwives (57.8%).

Training in medical or midwifery schools did not play a major contributing role in decisions to perform episiotomies for house officers (15.4%), experienced midwives (34.1%), and student midwives (33.3%). Experienced midwives (36.4%) reported that their decisions to perform episiotomies were not influenced by any of the factors listed in our questionnaire, which was significant (p=0.0004) compared to student midwives (11.1%) and house officers (5.1%).

DISCUSSION

KNOWLEDGE OF EPISIOTOMY

This is the first of its kind in Malaysia to explore the knowledge and practices of episiotomy among staff who manage low-risk births at a busy tertiary obstetrics unit. House officers had the highest average score of only 57% compared to the other 2 groups. House officers may have been trained within a new paradigm of obstetric care in their undergraduate years reflecting their higher knowledge scores, however this is still below expectations and there is room for improvement. They are likely to be more open to changing their practices when exposed to evidence-based practice. Overall, new staff joining the obstetrics department, receiving orientation should include current evidence-based practices.

Midwifery training in Malaysia is a year-long advanced diploma compared to New Zealand and Ireland which offer a four-year Bachelor degree programme. With many years of experience, midwives were clearly more proficient in areas of episiotomy wound healing and sexual abstinence compared to the other 2 groups, despite only obtaining an average score of 54% in the 'Knowledge' section. This suggests that clinical experience cannot replace textbook teaching. However, gaps were identified in areas relating to perineal anatomy such as complications and incontinence. This is consistent with a multicentre study from the UK in which midwives reported difficulties in identifying perineal anatomy due to insufficient training before graduation.[15,22] Periodic refresher courses may be necessary and helpful.

In a study from Vietnam, episiotomies were performed on nulliparae almost all the time, compared to 60% of the time among multiparae.[11] Reasons identified for this liberal practice of episiotomy included difficulty initiating change and following their peers' suit. Data published in 2001 showed that the doctors in China shared a similar view on the practice of episiotomy too. Despite believing that episiotomies should be performed on primigravidae, they were open to the idea of a restrictive approach. They perceived that restrictive episiotomy could reduce infection during delivery and cause less psychological distress.[16] Knowledge on episiotomy complications amongst our respondents were suboptimal. This may be attributed to the lack of follow up by the same midwife or house officer in the postpartum period and thereafter. All groups will benefit from targeted education on the reasons to shift their practice with emphasis on such complications that they may have not been exposed to during their early years of training.

The training of house officers and midwives in Malaysia vary in terms of content and duration. Many hospitals including our centre have regular departmental teaching sessions for house officers and midwifery staff covering an array of relevant topics. It appears that there is a lack of focus on pelvic floor problems and episiotomy. There is a need to disseminate updated information regarding episiotomy practices from a global perspective. They may also lack interprofessional learning. Interprofessional education is the acquisition of knowledge that, through cognitive processes, translates into new understandings, skills, and behaviours, and if implemented in midwifery courses and undergraduate medical curricula, may be a way forward to address this issue.[17] Our study demonstrated that all three groups have strengths in various areas of knowledge. We believe that an exchange of knowledge and experiences through an interprofessional, evidence-based workshop will be invaluable.

Many studies have described the effectiveness of interventional training programmes in reducing episiotomy rates.[10,17] In particular, a study from Palestine in 2017 showed significant improvement of knowledge

scores amongst physicians and midwives following a training programme which detailed anatomy of the perineum, episiotomy techniques and repairs and a review of recent guidelines and recommendations.[18,19] Another multicentre trial in South East Asia, implemented a multicomponent intervention to improve understanding of evidence and found a significant increase in restrictive practice.[10,17]

PRACTICE OF EPISIOTOMY

In terms of practice, it is evident that most staff across all three groups continue to perform episiotomies, especially amongst nulliparous women, despite the current evidence. Many studies suggest difficulty changing clinicians' behaviour, which could often deter evolving practices.[5,10] In Jordan, 78% of obstetricians quoted the lack of training on preventing perineal tears as the main obstacle to reducing episiotomy.[20] Midwives had insufficient time to wait for stretching of the perineum and had difficulty in changing conventional practices.

Our study found that confidence levels amongst all groups in performing and repairing episiotomies were lower for multiparous women. Making a quick decision whether to perform an episiotomy or protect the perineum with the possibility of a perineal tear can be conflicting to the less experienced. Developing countries need precise perineal protection strategies to be practiced by clinicians and midwives during delivery. In developed countries, this practice has resulted in a steep decline in episiotomy rates.[19,21] A recent qualitative study by a group of experienced midwives in Ireland and New Zealand identified and explored four thematic areas in preserving the perineum intact (PPI) during spontaneous delivery.[8] The authors acknowledged that many of these techniques may already be practiced by many midwives worldwide.[8] Implementing such strategies as part of interprofessional education may give house officers and student midwives the confidence to preserve the perineum and perform lesser episiotomies. Learning perineal massage and stretching, positioning the mother in the 2nd stage, and breathing techniques from experienced midwives is invaluable.

Midwives are tutors for student midwives; when the tutors favour episiotomy, their tutees will naturally do the same. The high percentage of midwives and student midwives who performed episiotomy more than 60% of the time suggests a need to institute change through regular refresher courses for experienced midwives. This will facilitate a change in their behaviour and practice, and subsequently be emulated by their junior colleagues. Despite performing well in the "knowledge" section, 66.7% of house officers still perform episiotomies at a high rate. Attributing factors include role modelling. Our study showed that medical officers have the most influence on them (77%), compared to midwives and specialists. They often look up to them for guidance and discussion when needed. One possible explanation is house officers often assist medical officers in high-risk deliveries such as foetal distress, potential shoulder dystocia, or even instrumental deliveries. This requires swift deliveries and medical officers tend to perform episiotomies. House officers may then proceed to role model if no effort is made to help them understand the reason for the episiotomy. Medical officers can play a pivotal role in this instance and become trainers for targeted education on episiotomy, boosting their own confidence and self-esteem. House officers too are inherently exposed to informal mosaic mentoring by midwives and medical officers. Mosaic mentoring means having multiple mentors aiding development, which may also result in receiving conflicting advice.[22]

Another issue unexplored in our study is the blame culture among healthcare professionals of different medicine hierarchies, especially in obstetrics, due to its highly stressful environment. In the UK, undermining and bullying occurred up to 15% amongst trainee doctors in this speciality.[23] A study in 2019 on junior doctors across various medical disciplines within hospitals in Malaysia, found that medical officers (59%), followed by nurses and support staff (31%) were the most common source of negativity including "being the target of spontaneous anger" or "being humiliated".[24] Despite increased awareness of the risks associated with episiotomy, house officers may fear being scolded by their superiors if arising complications could be attributed from them not

performing an episiotomy. It may be hard for consultants and midwives to unlearn decades of reinforced behaviour, but the existing blame culture should be addressed. Suggested strategies include good role modelling and improved feedback to trainees. These will lead to better understanding, improved confidence, and patient care.

Similar to another study, our study reveals that knowledge is not translated into obstetric practice amongst obstetrics frontline staff, as demonstrated by the high level of episiotomy rates in all three groups.[25] The housemen, in Malaysia only have four months in obstetrics rotations, resulting in insufficient experience to make the correct clinical judgment. It is suggested to have an orientation for housemen on performing selective episiotomy, as is the current practice. Another reason for this observation could be insufficient evidence-based teaching at an undergraduate level or due to other influencing factors. A few studies have found complex reasons for this gap. Practical strategies to overcome these include key opinion leaders, regular audits and feedback, and educational outreach programmes designed to meet local needs.[10] Increasing training duration and implementing in-house evidence-based training workshops is worth considering before house officers and student midwives can perform episiotomies.

CONCLUSION

Our study shows that differences in training, duration of experience, and influence of superiors affect the knowledge and practice of episiotomy amongst our obstetrics frontline staff.

RECOMMENDATION

It is clear from our study that house officers, student midwives, and midwives continue to perform episiotomies at variable rates. To address this, organisations and stakeholders will need to play a role. Continued professional development and re-certification targeted at medical officers, trainee specialists, midwives, and midwifery tutors may initiate change and improve "role modelling" for junior staff. Workshops that cover theoretical knowledge and promote evidence-based practice with interprofessional education at the undergraduate level for medical and midwifery students will have an impact. The continuance of regular hospital-level audits and feedback to junior doctors and midwifery staff is imperative to facilitate change. This can be further enhanced by providing meaningful and consistent praise and offering incentives which are non-monetary like hospital awards, book vouchers or subsidies for workshops and seminars when a change is observed in their practices. Further research to evaluate suggested strategies for reducing the episiotomy rates in hospitals in Malaysia will be helpful.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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