Original Article

Self-assessment of Ophthalmology Competency among Thai Medical Interns

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Abstract

Introduction: Ocular issues encountered in general practice significantly impact patients' health and quality of life. However, Thai medical undergraduate programs dedicate only 1-2 weeks to ophthalmology rotation, potentially impacting students' knowledge, skills, and confidence in managing patients with eye problems. Despite this potential concern, limited empirical evidence on students' competency exists. This study investigates the knowledge, skills, and confidence of medical interns in ophthalmology to inform curriculum development within Thailand's medical schools.

Objectives: To evaluate ophthalmology competency of Thai medical interns through self-assessment questionnaires.

Methods: A cross-sectional descriptive design was used to survey 160 medical interns who graduated from Thai medical schools nationwide. A self-assessment questionnaire assessed their knowledge and confidence in ophthalmic diseases and procedures. The questionnaire also investigated their perceptions of the training duration's adequacy.

Results: The study reveals that 51.9% of interns spent 2 weeks and 25.5% spent 4 weeks in ophthalmology rotation. The majority of interns (49.4%) think that time spent on ophthalmology rotation is adequate but needs some curricular improvement while 43.1% think that it is not adequate. The top three topics that interns want more clinical exposure are "ocular emergency" (68.1%), "ophthalmic procedure" (62.5%) and "ophthalmic examination" (53.1%). Regarding self-assessed knowledge level, Thai medical interns chose glaucoma, hyphema and corneal abrasion as areas where they have the least knowledge level, respectively. Glaucoma and hyphema are areas that they had the least confidence level. Time spent on ophthalmology rotation did not correlate with interns' confidence and knowledge levels.

Conclusion: This study illustrates areas for improvement in ophthalmology education within Thai medical schools. While most interns felt comfortable with common eye diseases, knowledge gaps existed for some specific diseases. By using targeted educational strategies to address knowledge gaps and enhance practical procedural skills, the curriculum could be improved without increasing more time spent on ophthalmology rotation. These findings can guide improvements in ophthalmology education, ultimately leading to better care for eye patients.

Keywords: Ophthalmology competency, Medical education, Internist, Self-assessment, Ophthalmology curriculum

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Introduction

Vision is an essential perception of human experience, allowing humans to interact with their surroundings, and appreciate the beauty of the world. However, ocular issues can significantly impact patients' vision and their quality of life.[1-3] A broad spectrum of ophthalmic problems can manifest in the general population. Medical professionals, especially general practitioners, encounter eye problems in their daily practice. Effectively managing these conditions requires a solid foundation in ophthalmic knowledge, practical skills, and the confidence to deliver appropriate ophthalmic care.

The Thai Medical Council outlines specific learning objectives, such as requiring graduating medical students to possess the competency to diagnose and manage common eye diseases. These competencies include conditions like eye injuries with foreign bodies on the external eye, hyphema, acute corneal abrasions and ulcers, acute glaucoma, hordeolum, chalazion, conjunctivitis, and pinguecula. Furthermore, the curriculum incorporates basic ophthalmic procedures, with the skills to perform incision and curettage of external hordeolum and remove foreign bodies from the conjunctiva.[4] Despite the importance of ophthalmic care, current Thai medical undergraduate programs dedicate only 1 to 2 weeks to ophthalmology rotations.[5] Similarly, there is a global decline in the amount of teaching dedicated to ophthalmology over the past 20 years. The average course length has shrunk from 92.9 hours to 52.9 hours. This decrease in education has coincided with lower student confidence in their ophthalmology knowledge and skills.[6] This limited exposure to the field raises concerns about the adequacy of graduating medical students' competency and confidence in managing patients with eye problems in medical practice effectively. Moreover, current data on ophthalmology competency in Thai medical interns are still limited.

Understanding the interns' ophthalmology confidence and knowledge level in managing common eye diseases is critical for curriculum development within Thailand's medical schools. This study investigates confidence, knowledge level and procedural skills of Thai medical interns in ophthalmology through a self-assessment survey. The findings from this study will provide valuable insights for curriculum development, leading to improved ophthalmology education and better comprehensive eye care for the Thai population.

Objectives

To evaluate ophthalmology competency of Thai medical interns through self-assessment questionnaires

Methods

In this cross-sectional descriptive study, we investigated the self-assessed confidence, knowledge level and procedural skills of Thai medical interns in ophthalmology. A sample of 160 medical interns who graduated from Thai medical schools nationwide participated in the study. A self-assessment questionnaire was employed during January - June 2022 using Google Form to assess confidence, knowledge level in managing various ophthalmic diseases and procedural skills. Additionally, the questionnaire evaluated their perceptions regarding the adequacy of the current ophthalmology rotation duration within their institutional curriculum. This study was approved by the Human Research Ethics Committee of Thammasat University (Medicine).

Results

The majority of medical interns in the study were female (75%), age between 24-26 years old (70%), graduated from public universities (62.6%), currently work as 2nd year interns (45%) and work in the Northeastern part of Thailand (29.4%). Table 1 shows the Demographic data. Regarding time spent on ophthalmology rotation, 51.9% of interns spent 2 weeks, 25.5% spent 4 weeks, 11.3% spent 3 weeks, 8.8% spent 1 week and 2.5% spent more than 4 weeks. The majority of interns (49.4%) think that time spent on ophthalmology rotation is adequate but needs some curricular improvement while 43.1% think that it is not adequate. The top three topics that interns want more clinical exposure are "ocular emergency" (68.1%), "ophthalmic procedure" (62.5%) and "ophthalmic examination" (53.1%). Data are shown in Table 2.

Table 1 Demographic data of Thai medical interns participated in the survey

Demographic Data		
	N	**Percent**
Sex		
Male	39	24.4
Female	120	75
Others	1	0.6
Age		
18-20	0	0
21-23	3	1.9
24-26	112	70
27-29	38	23.7
30 and above	7	4.4
Graduated Institution		
Public University	100	62.5
Private University	60	37.5
Level of Training		
1st year Internship	34	21.3
2nd year Internship	72	45
3rd year Internship	54	33.7
Work Location		
Bangkok and Suburban	24	15
Eastern Thailand	17	10.6
Northeastern Thailand	47	29.4
Northern Thailand	23	14.4
Southern Thailand	17	10.6
Central Thailand	32	20

Table 2 Data of time spent on ophthalmology rotation, adequacy of rotation duration and topics that need more exposure

Topics	N	Percent
Time Spent on Ophthalmology Rotation		
1 week	14	8.8
2 weeks	83	51.9
3 weeks	18	11.3
4 weeks	41	25.5
More than 4 weeks	4	2.5
Adequacy of Rotation Duration		
Adequate	12	7.5
Adequate but need some improvement	79	49.4
Inadequate	69	43.1
Topics that need more exposure		
Common Eye Disease	69	43.1
Ocular Emergency	109	68.1
Learning through Ophthalmic Cases	74	46.3
Ophthalmic Examination	85	53.1
Ophthalmic Procedure	100	62.5
Learning through Operation Room Observation	48	30

Our survey revealed that interns felt confident handling most common eye diseases required by the Thai Medical Council, providing basic care and referring patients for further treatment. However, when managing specific diseases like glaucoma and hyphema, interns reported lower confidence compared with the other diseases in the survey. Regarding self-assessed knowledge level among Thai medical interns, glaucoma, hyphema and corneal abrasion were areas they reported the lowest knowledge level, respectively. While hordeolum, pinguecula and conjunctivitis were areas where interns reported the highest knowledge level (Table 3).

The Thai Medical Council requires medical students in the curriculum to be able to perform incision and curettage of hordeolum as well as removal of foreign body in the conjunctiva. Our survey showed that 50% of interns never performed incision and curettage of hordeolum, with only 26.9% having performed it under supervision and 23.1% performed it by themselves. Regarding confidence level of the procedure, the majority of interns (46.2%) answered “not at all confident but think they can perform such a procedure if necessary”. Conversely, 76.3% have performed removal of foreign body from conjunctiva by themselves, and only 8.1% have not performed the procedure. Most interns feel confident performing such a procedure (Table 4).

Table 3 Confidence level and self-assessed knowledge level on common eye disease

Common Eye Disease Topics	Eye Injury and Foreign Body on External Eye	Hyphema	Corneal Abrasion	Glaucoma	Hordeolum	Conjunctivitis	Pinguecula
Confidence Level [N (percent)]							
Not at all confident and have had a bad experience with care	1 (0.6)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Not at all confident and do not think I can provide care	2 (1.3)	11 (6.9)	5 (3.1)	20 (12.5)	1 (0.6)	2 (1.3)	7 (4.4)
Not at all confident but think I can provide basic care	48 (30.0)	58 (36.3)	36 (22.5)	74 (46.3)	24 (15.0)	24 (15.0)	34 (21.3)
Confident and can provide basic care and refer to others	97 (60.6)	84 (52.5)	102 (63.7)	61 (38.1)	101 (63.1)	109 (68.1)	82 (51.2)
Very confident and can provide basic care and refer to others	12 (7.5)	7 (4.4)	17 (10.6)	5 (3.1)	34 (21.3)	25 (15.6)	37 (23.1)
Self-assessed Knowledge Level [5 = very high, 1 = very low (SD)]							
Diagnosis	3.61 (0.63)	3.58 (0.66)	3.55 (0.59)	3.26 (0.64)	3.84 (0.72)	3.66 (0.63)	3.71 (0.73)
Treatment	3.46 (0.59)	3.27 (0.54)	3.45 (0.65)	3.09 (0.65)	3.71 (0.66)	3.58 (0.59)	3.58 (0.7)
Follow up and Referral	3.49 (0.62)	3.36 (0.6)	3.48 (0.54)	3.24 (0.68)	3.66 (0.71)	3.54 (0.62)	3.58 (0.71)
Mean	3.52	3.4	3.49	3.19	3.74	3.59	3.62

Table 4 Procedural performance and confidence level of required ophthalmic procedures

Procedure / Topics [N (percent)]	Incision and Curettage Hordeolum	Remove Foreign Body from External Eye
Procedural Performance		
Never performed	80 (50)	13 (8.1)
Performed under supervision	43 (26.9)	25 (15.6)
Performed by myself	37 (23.1)	122 (76.3)
Confidence Level		
Not at all confident and don't plan to do it	12 (7.5)	2 (1.3)
Not at all confident, but think I can do it if necessary	74 (46.2)	20 (12.5)
I think I can do it	58 (36.3)	79 (49.4)
I think I can do it with confidence	16 (10.0)	59 (36.8)

When comparing mean confidence level and self-assessed knowledge level between interns who graduated from public and private institutions, there is no statistically significant difference between the two groups ($p > 0.05$) (Table 5). Moreover, when analyzing the correlation of confidence level and self-assessed knowledge level with time spent on ophthalmology rotation, it shows that there is a low correlation ($r = 0.1$) between confidence level and time spent on ophthalmology rotation. Additionally, there is no correlation ($r = 0.02$) between self-assessed knowledge level and time spent on ophthalmology rotation (Table 6).

Table 5 Comparison between confidence level and self-assessed knowledge level of common eye diseases between public and private institution

Institution / Topics [Mean (SD)]	Public Institution	Private Institution	Independent T- test
Confidence Level [35]	26.42 (3.44)	26.30 (3.21)	P = 0.79
Self-assessed Knowledge Level [90]	63.12 (8.96)	63.33 (8.61)	P = 0.93

Table 6 Comparison between confidence level and self-assessed knowledge level of common eye diseases with time spent on ophthalmology rotation

Time Spent on Ophthalmology Rotation / Topics	Correlation	T	p-value
Confidence Level	0.1	1.26	0.21
Self-assessed Knowledge Level	0.02	0.19	0.85

Discussion

This study on self-assessment of ophthalmology competency among Thai medical interns provides valuable insights into the current state of ophthalmology education within medical schools in Thailand. The findings suggest that while interns generally feel comfortable managing common eye diseases and procedures, there are specific areas, such as glaucoma and hyphema where they reported lower confidence and knowledge level. This may have resulted from less clinical exposure compared to other areas. Additionally, the epidemic of SAR-CoV-2 which caused interruptions of clinical rotations of medical students may also have played a role in a lower confidence and knowledge level in some areas. The study highlights the importance of adequate exposure to various ophthalmic conditions and procedures during medical training, as indicated by interns' preferences for more clinical exposure in ocular emergencies, ophthalmic procedures, and ophthalmic examinations.

Furthermore, the study reveals that a sizeable portion of interns have not had hands-on experience with incision and curettage of hordeolum, despite it being a requirement by the Thai Medical Council. This discrepancy underscores the need for a more comprehensive ophthalmology curriculum that ensures interns are adequately prepared to perform such procedures effectively, incorporating more procedural experience, potentially through a simulation or supervised clinical practice, to help improve interns' confidence in performing such procedures.

The study's comparison between interns from public and private institutions showed no statistically significant difference in confidence levels and knowledge. The study's findings also suggest that the duration of ophthalmology rotations have a negligible impact on interns' self-perceived knowledge and confidence levels. Consequently, rather than solely extending rotation lengths, efforts should be directed towards curriculum completeness, ensuring that the core curriculum comprehensively covers all ophthalmology competencies as mandated by the Thai Medical Council. Additionally, implementing teaching methodologies that emphasize hands-on experience and involving simulation training or supervised clinical practice could address knowledge gaps and enhance practical procedural skills.

Limitation

Self-assessment surveys are subject to respondent bias, where participants may overestimate or underestimate their knowledge, skills, and confidence levels in ophthalmology. This potential bias could impact the accuracy of the results and the overall interpretation of interns' competency levels. Additionally, the study's sample size of 160 medical interns may limit the generalizability of the findings to a broader population of medical interns in Thailand. A larger and more diverse sample could provide a more comprehensive understanding of ophthalmology competency levels across different medical schools and regions. Future studies with longitudinal follow-up and a more diverse participant pool could address these limitations and provide a more in-depth analysis of ophthalmology competency among Thai medical interns.

Conclusion

In conclusion, the self-assessment study on ophthalmology competency among Thai medical interns illustrates both positive aspects and areas for improvement in ophthalmology education within Thai medical schools. While the majority of interns feel comfortable managing common eye diseases, there are notable gaps in confidence and knowledge levels, particularly in specific conditions like glaucoma and hyphema. This study underscores the importance of enhancing practical procedural skills and increasing exposure to ophthalmic conditions required by Thai Medical Council during medical training. By using targeted educational strategies to address knowledge gaps and enhance practical procedural skills, the curriculum could be improved without increasing more time spent on ophthalmology rotation. These findings can guide improvements in ophthalmology education, ultimately leading to better care for eye patients.

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