Research

The Overview of Clerkship Students of the Faculty of Medicine and Health Sciences at Krida Wacana Christian University Year 2022 Awareness towards Refractive Error

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ABSTRACT

Background Knowledge of medical science is essential to clinical clerkship students. Eye disease is still one of the biggest health problems globally, especially those which cause blindness, one of which is related to refractive disorders.

Objective This study aimed to explore refractive abnormalities among clinical clerkship students of UKRIDA in 2022.

Methods It employed a descriptive research method. The questionnaires were formulated based on Guttman’s scale, and they were shared via Google forms.

Results There were 80 participants aged 20-25, with 67.5% of women. 43.75% students demonstrated a good level of knowledge, and the remaining 56.25% showed sufficient knowledge about refractive disorders. Meanwhile, 86.25% understood eye anatomy and refractive examination well. 75.75% posed a good level of knowledge about myopia. 32.5% had a good level of knowledge about hypermetropia. And 35% students were extremely familiar with astigmatism. Further, 37.5% students showed a good level of knowledge about refractive anomalies.

Conclusion 43.75% students demonstrated a good level of knowledge, and 56.25% had sufficient knowledge about refractive disorders. Age, education level, environmental and social factors influence refractive conditions.

Keywords: knowledge, refractive abnormalities, clinical clerkship student

INTRODUCTION

Eye disease continues to be one of the most prominent health problems in the world, especially those causing blindness. A refractive error is where a clear image does not always form on the retina, and there found an imbalance in the visible device inside the eye, leading to blurred vision. Light does not always refract precisely on the retina, but it may be in front or behind the retina and no longer on a single focal point. Abnormalities can cause refractive errors in the curvature of the cornea and lens, irregularities in the refractive index, and anomalies in the axis of the eyeball.

Refractive errors include myopia, hypermetropia, and astigmatism. Myopia is a refractive error in which parallel light rays entering the vision are introduced into consciousness in front of the retina. Myopia, commonly known as nearsightedness, is one of the top 5 causes of blindness worldwide. It was stated that intraocular pressure tends to grow with the severity of myopia during myopia.²

Hypermetropia is a refractive error in which vision no longer accommodates focusing images behind the retina.² Hypermetropia occurs when there is a mismatch between the period of the eyeball and the strength of the cornea and lens, causing the light focus lies
behind the retina. This may be due to a lower axial period of the eyeball (axial hypermetropia), a decrease in the refractive index of refraction (refractive hypermetropia), including aphakia (without lens). Astigmatism is a refractive error in which vision produces images with multiple factors or lines. Astigmatism is usually inherited or present at birth, and it goes hand in hand with myopia and hypermetropia and no longer affects the life route. Areas of abnormalities in astigmatism can be found in several places, especially aberrations within the cornea and irregularities in the lens. Corneal abnormalities include modifications in the cornea’s curvature with or without shortening or lengthening the eyeball’s anterior-posterior diameter. The disease may be congenital or acquired by accident, corneal irritation, or surgery. As people age, the lens of each eye undergoes progressive hardening. Loss of accommodation is manifested by decreased ability to focus on near objects (i.e., presbyopia). Presbyopia develops progressively with age but clinically progresses early to midway when the read distance ability (35-40 cm) is lost. Refractive error (0.14%) is the third leading cause of blindness after cataracts (0.78%) and glaucoma (0.20%). Of the 153 million who have refractive errors, 8 million are blind. Myopia varies among people from ethnicities 70-90% in some Asian countries. According to WHO calculations, this can lead to increased patient variation without preventive measures and treatment for refractive errors. This fact can be very contrary to the importance of human rights, especially the right to obtain an ideal vision (right to sight) which must be guaranteed. The highest prevalence of myopia is 26.5% for adults, while in Southeast Asia, it is 32.9%, and the lowest is in the United States (16.2%). Then the prevalence of hypermetropia is as much as 30.6% in adults, with the highest in Africa at 38.6%. As much as 40.4% in adults. This shows that knowledge about refractive errors is still unknown to many people, as is the case with a researcher named Wulur FC who stated in his research with a sample of 88 respondents, demonstrated results that most respondents (66.29%) had a low level of knowledge about refractive errors. Related to the above background, this study aims to understand the clinical clerkship students’ level of refractive errors knowledge in 2022.

METHODS
This research is an analytical descriptive study to outline the basic knowledge level of the clinical clerkship students of UKRIDA in 2022 about refractive disorders. The research was conducted online from February to March 2022. The sample of this study was clinical clerkship students of UKRIDA in 2022 who were willing to complete a questionnaire. The sample size in this study was 80 people, driven by using framework for categorical descriptive research with unidentified prevalence ($p$). The researchers settled the p value = 50%, thus obtaining 80 respondents as the sample calculation. The research sample was selected through an accidental sampling technique.

In this study, the variables studied were age, gender, and the level of knowledge of refractive errors regarding eye anatomy, refractive examination, myopia, hypermetropia, astigmatism, and refractive anomalies. Data were collected using a questionnaire through Google Forms. The list of questions for the questionnaire was made on a Guttman scale (Table 1). This questionnaire is a question about knowledge about refractive abnormalities with the answer True or False; questions come from various books related to ophthalmology as a source of reading for medical students.

<table>
<thead>
<tr>
<th>No.</th>
<th>Question Topics</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Eye anatomy and refractive examination (4 questions)</td>
<td>T/F</td>
</tr>
<tr>
<td>2</td>
<td>Myopia (7 questions)</td>
<td>T/F</td>
</tr>
<tr>
<td>3</td>
<td>Hypermetropia (9 questions)</td>
<td>T/F</td>
</tr>
</tbody>
</table>

Table 1. Respondent Questionnaire
All data collected were entered into Microsoft Excel and SPSS for analysis. Statistical analysis employed a univariate analysis to determine the frequency and percentage of each variable studied. This study has surpassed the moral judgment of the Medical and Health Research Ethics Committee of the Faculty of Medicine and Health Sciences of UKRIDA, with Certificate Number of Ethical Clearance No. 1230/SLKE-IM/UKKW/FKIK/KE/II/2022.

RESULTS

Respondents who answered the questionnaire were 80 people with the following characteristics. Table 2 indicated female students were higher in number with 54 people (67.5%), in an age range of 22-23 years. In this study, the age of clinical clerkship students of UKRIDA in 2022 ranged from 20 to 25 years old.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Frequency (N)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-21</td>
<td>23</td>
<td>28.75</td>
</tr>
<tr>
<td>22-23</td>
<td>34</td>
<td>42.5</td>
</tr>
<tr>
<td>24-25</td>
<td>23</td>
<td>28.75</td>
</tr>
<tr>
<td>Total</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>Gender</td>
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<td></td>
</tr>
<tr>
<td>Male</td>
<td>26</td>
<td>32.5</td>
</tr>
<tr>
<td>Female</td>
<td>54</td>
<td>67.5</td>
</tr>
<tr>
<td>Total</td>
<td>80</td>
<td>100</td>
</tr>
</tbody>
</table>

Figure 1 shows the knowledge of clinical clerkship students of UKRIDA in 2022 regarding refractive errors, with 35 people (43.75%) in the excellent category, 45 people (56.25%) insufficient category, and none in the poor class. The mean and median scores of the questionnaire were 99, with the lowest core of 79 and the highest score of 115 out of a total score of 150.

Figure 2 (a) shows the knowledge level of clinical clerkship students of UKRIDA in 2022 regarding eye anatomy and refractive examination with good categories of 69 people (86.25%), good category of 11 people (13.75%), and none included in the poor category. The mean and median scores of the questionnaire were 14, with the lowest score 7 and the highest score 19 out of a total of 20. Figure 2 (b) shows the knowledge of clinical clerkship students of UKRIDA in 2022 regarding myopia, with 59 people in in the good category (73.75%),21 people in good category (26.25%), and none in the poor class.
The mean and median scores of the questionnaire were 25 and 26, with the lowest score 17 and the highest score 35 out of a total score of 35. Figure 2 (c) shows the knowledge level of clinical clerkship students of UKRIDA in 2022 regarding hypermetropia with 26 people in good category (32.5%), good category as many as 54 people (67.5%), and none in the poor category. The mean and median scores of the questionnaire were 28, with the lowest score of 20 and the highest score 35 out of a total score of 45. Figure 2 (d) shows the knowledge of clinical clerkship students of UKRIDA in 2022 regarding astigmatism with a good category of 28 people (35%), a good category of 52 people (65%), and none in the poor class. The mean and median scores of the questionnaire were 19 and 18, with the lowest score of 12 and the highest score 23 out of a total score of 30. Figure 2 (e) shows the knowledge level of clinical clerkship students of UKRIDA in 2022 regarding refractive anomalies, with 30 people in the good category (37.5%), a sufficient category of 50 people (62.5%), and none in the poor category. The mean and median scores of the questionnaire were 13 and 12, with the lowest score of 8 and the highest score 20 out of a total score of 20.

DISCUSSION
The current research subjected clinical clerkship students as they had studied ophthalmology (including refractive errors) at the pre-clinical stage and required to recall the
lesson before getting into an educational hospital. Most respondents had an excellent level of information and a good attitude towards myopia prevention. Ideally, their expertise is expected to qualify at a high school education and experience in the workplace. Similar to the research by Assefa et al. (2021), most respondents (53.8%) demonstrated a good understanding and accurate attitude towards refractive errors. 63.1% of them were familiar with the definition of refractive error, and 31% knew myopia. However, it differed from the study of Wulur that most respondents (66.29%) exhibited a low level of knowledge. The story of sufficient information on male respondents in grade IX with record rearrangements mostly came from parents, teachers, and the internet. The participants’ level of knowledge increases for some factors, such as age, education, and others. According to Notoatmodjo (2007), a person’s knowledge is influenced by internal factors (age, intelligence, education, experience) and external factors (information, environment, social, culture). Related factors include: (1) age, that adults can receive and remember knowledge. Thus, the older a person is, the more knowledge he has. Additionally, age also affects one’s mindset. (2) Educational level, which mainly affects understanding. The better the educational level, the less complicated the distance of data acquisition and the greater the data received. (3) Environmental and social factor. Knowledge is a result of one’s interaction with the surrounding environment. In the study of Assefa et al. (2021), most respondents knew about refractive errors as family members suffered of eye disorder and visited eye health care facilities. Eye healthcare workers had contributed to public knowledge through comprehensive information about refractive errors.

CONCLUSION
The research results concluded that 43.75% of clinical clerkship students of UKRIDA were in a good category, and 56.25% were relevant in regard with knowledge level of refractive disorders. Specifically, it went into the following details: 86.25% students demonstrated a good level of knowledge about eye anatomy and refractive examination, 75.75% of them posed a good understanding of myopia, 32.5% were distinctly familiar with hypermetropia, 35% were good at astigmatism, and 37.5% showed good knowledge about refractive anomalies. Several factors influence learning, such as age, educational level, environment, and social.

SUGGESTION
Further research may go into a broader scope in a multicenter manner at various levels of medical students. It is highly recommended to focus on not only refraction and ophthalmology but also other medical sciences with varied educational level to prepare students for the next stage of medical education.

ACKNOWLEDGEMENT
Nothing to declare.

CONFLICT OF INTEREST AND FUNDING RESOURCES
None of the authors have any conflicts of interest associated with this paper.

Appendices
1. The refractive medium consists of the cornea, humor Aquos, lens, and corpus vitreous (T)
2. Ametropia is an eye without refractive abnormalities and functioning normally (F)
3. Examination of the eye using the Snellen chart, the patient’s position is 6 meters away. (T)
4. Myopia or farsightedness is a condition in which a shadow falls in front of the retina. (T)
5. Myopia has two forms, namely refractive and axial, axial myopia is the axis of the eyeball that is too long, but the curvature of the cornea and lens is normal. (T)
6. Myopia corrected with photorefractive keratectomy. (T)
7. Close viewing activity is one of the factors affecting the increasing degree of myopia. (T)
8. People with myopia sometimes experience complaints of headaches or tired eyes, often accompanied by squints and narrow eyelid slits. (T)
9. Myopia can be caused by the presence of genetic factors. (T)
10. Regular exercise is one of the precautions for increasing the degree of myopia. (T)
11. Hypermetropia is a parallel beam to be focused in front of the macula lutea. (F)
12. According to the degree of lightness, medium heavy. Hypermetropia is corrected with a lens of more than +2.5 D including degrees of weight. (F)
13. According to its type, hypermetropia is divided into 5 types (absolute, facultative, manifest, latent, and total). (T)
14. If sharp 6/20 vision in hypermetropia is corrected with spherical + 2.00 D lenses it will be 6/6. (T)
15. Latent hypermetropia is hypermetropia that cannot be corrected with lens accommodation. (F)
16. Afakia can cause hypermetropia. (T)
17. Hypermetropia cannot cause amblyopia. (F)
18. "Every 20 minutes, seeing a distance of 6 meters for 20 seconds" is one of the ways of preventing hypermetropia. (F)
19. In hypermetropia, the examination can be performed using a Jaeger chart. (F)
20. Babies are born with mild hypermetropia. (T)
21. Astigmat occurs due to the inequality of the curve curvature of the retina. (T)
22. Astigmat myope simplex corrected with cylindrical lenses and spherical lenses (-). (F)
23. Astigmatism is classified into five types, namely myope simplex, myope compositus, hypermetropic simplex, hypermetropic compositus, mixtus. (T)
24. Based on the orientation of the main meridian, astigmatism can be classified into vertical, horizontal, and oblique astigmatism. (F)
25. Astigmat with the greatest refractive force on the horizontal meridian, corrected with a 90-degree axis cylindrical lens. (T)
26. The use of soft lens can correct astigmatism. (T)
27. Intraocular lens implantation can correct all kinds of refractive disorders. (F)
28. Anisometropia is a difference in the size of the shadow on the retina. (F)
29. Anisometropia can cause amblyopia. (T)
30. Refractive examination consists of subjective and objective. Objective refractive examination is carried out using a retinoscope. (T)

REFERENCES