

Correlation of Parents' Level of Knowledge with Actions Against Refractive Directness in Children Aged 5 – 8 Years at State Primary School

Okkis Razuansyah Siregar¹, Siti Kemala Sari², Edward Kosasih³

^{1,2}Islamic University of North Sumatra Medan

³Faculty of Medicine, Islamic University of North Sumatra, Medan

*Correspondence author: okkis.razuansyah@gmail.com

INFO	ABSTRACT
<p>Submitted: 12-10-2023, Revised: 18-11-2023, Accepted: 05-12-2023</p>	<p>Currently, the third most common cause of blindness is refraction problem. Children with untreated refractive disorders may have difficulty learning. Parents who are well-informed about refraction disorder and take appropriate steps to prevent vision damage in their children. The purpose of this study was to determine the relationship between parental knowledge and behavior about refraction disorder in children. The study used a cross-sectional analytical design. Parents of first- and second-graders at SD Negeri 101751 Klambir V were the study's respondents. The sample size was sixty-one in total. Simple random sampling was the sample technique used. A questioner was one of the study's instruments. The Spearman's correlation test was used to examine the collected data. The findings demonstrated a substantial relationship between parents' level of understanding and their behavior about refraction disorder in kids with $p < (p=0,000)$. Moderate correlation was shown by the Spearman correlation coefficient, $r = 0,478$. Parents' actions are associated with their level of understanding. In order to discover refraction disorders in children early, it was hoped that the health department's promotion program would include counseling or education about eye health and visual acuity screening.</p>

Keywords: Knowledge Level, Action, Refraction Disorder in Children

INTRODUCTION

Health is an important thing for humans. One of them is eye health. The eyes are the five senses that function to see and are very important for humans, through the eye's humans absorb visual information which is used to carry out various activities. During the first 12 years of development, children receive as much as 80% of their information from vision. As you get older, the working power of your eyes increases. However, vision problems often occur, ranging from mild disorders to severe disorders that can result in blindness (Ministry of Health Republic of Indonesia Data and Information Center, 2014). Refractive error is a condition that requires special attention, especially in school-aged children (Xiao et al., 2015). If during this period the refractive error is not corrected, it can disrupt the child's teaching and learning process and can further cause amblyopia. About 80% of children aged 2-6 years have hypermetropic eyes, 5% myopia, and 15% emmetropia. Meanwhile, the prevalence of amblyopia is 0.5% of all eye disorders in children (WHO, 2011).

According to the World Health Organization (WHO), the most common cause of visual impairment throughout the world is refractive error which is in first place at 42%, followed by cataracts at 33%, and glaucoma at 2%. This refractive error is also the third cause of blindness. In 2010, An estimated 285 million individuals worldwide are expected to have visual impairments, of which 39 million are blind and 246 million have poor vision. According to this data, there are 19 million children under the age of 15 who have visual impairment, 12 million who have refractive problems, and 1.4 million who will always be permanently blind (WHO, 2014).

This work is licensed under a [Creative Commons Attribution-ShareAlike 4.0 International License](https://creativecommons.org/licenses/by-sa/4.0/).
Jurnal Perilaku Kesehatan Terpadu Vol 2 No 2 2023

Refractive errors are the most common eye illness in Indonesia. Refractive errors have become more commonplace every year. The number of patients suffering from refractive errors in Indonesia is almost 25% of the population or around 55 million people, and as many as 15% of them are school-aged children. Refractive errors can be found in all age groups, this condition is very problematic and needs attention in school-aged children (Sirlan, 2006).

The results of Basic Health Data (Riskesdas) in 2013, Compared to 2007, the nationwide prevalence of blindness was significantly lower, at 0.4%. (0.9 percent). Gorontalo had the greatest rate of blindness among those who were five years of age and older (1.1 percent), followed by East Nusa Tenggara (1.0 percent), South Sulawesi (0.8 percent), and Bangka Belitung (0.8 percent). North Sumatra had the lowest rate, at 0.3 percent. 0.9 percent of people in the country over the age of five have severe poor vision. With a prevalence of 1.7%, Lampung has the greatest rate of extremely low vision, followed by 1.6% in each of East Nusa Tenggara and West Kalimantan, and just 0.9% in North Sumatra (Indonesian Ministry of Health Data and Information Center, 2014).

The world has paid serious attention to the problem of visual impairment in children because the incidence rate, especially in developing countries such as Indonesia, is very high. However, currently there is still a lack of attention in several regions in Indonesia regarding the problem of visual impairment, especially refractive errors in children (Courtright et al., 2011). This is proven by the existence of a health examination program for elementary school children which is more focused on dental and oral health, even though the environment is one of the triggers for decreased visual acuity in children, such as reading writing on a blackboard at a distance that is too far away without being supported by adequate classroom lighting. inadequate, children reading books at too close a distance, and school infrastructure that is not ergonomic during the teaching and learning process (Ratanna, Rares, Saerang, 2014).

A person's knowledge greatly influences his health, after a person knows, then he makes an assessment of what he knows, then he will implement or practice what he knows or reacts to (judged good). Apart from affecting their own health, parents' knowledge and actions also affect their children who do not yet have their own awareness and responsibility for their health (Notoatmodjo, 2012). A good level of parental knowledge and action regarding refractive errors will be able to prevent vision problems in children, therefore the author is interested in knowing the correlation between the level of parental knowledge and actions regarding refractive errors in children.

Research Question?

How does parental education level influence their knowledge and actions regarding refractive errors in children?

- This question aims to explore the impact of the educational background of parents on their understanding and proactive measures taken to address refractive errors in their children. Studies have indicated that higher education levels correlate with better health awareness and management practices (Xiao et al., 2015; BMC, 2023).

What role do socioeconomic factors play in the prevalence and management of refractive errors in children?

- This question investigates how factors such as family income, occupation, and living conditions influence the incidence and handling of refractive errors in children. Socioeconomic status can significantly affect access to healthcare services and educational resources, which are crucial for early detection and treatment of refractive errors (Chebil et al., 2015; Aldebasi, 2014).

How effective are current educational programs in improving parental knowledge about eye health in children?

- This question evaluates the effectiveness of existing health education programs targeting parents, assessing whether these programs successfully increase awareness and prompt

corrective actions regarding eye health in children. The aim is to determine the strengths and weaknesses of these programs and identify areas for improvement (Courtright et al., 2011; Marmamula, 2011).

METHODS

The research employed a cross-sectional analytic design to investigate the correlation between parental knowledge and actions regarding refractive errors among children aged 5-8 years at SD Negeri 101751 Klambir V, North Sumatra, in April 2016. The study population consisted of parents of first and second-grade students during the 2015/2016 academic year, totaling 160 individuals. A simple random sampling technique was utilized, calculating a sample size of 62 (rounded up from 61.54 for statistical robustness) using the formula $n = \frac{N}{1 + N \times d^2}$, where N is the population size and d represents the confidence level or margin of error, which needs to be specified more clearly. Inclusion criteria included parents of students in the specified classes who were willing to participate by completing a questionnaire. Exclusively, parents working in healthcare professions (doctors, nurses, midwives) were omitted to minimize bias related to professional knowledge of refractive errors. This exclusion criterion warrants a brief explanation to clarify its purpose and ensure the study's objectivity.

Tabel 3.1 Operational Definition

Variable	Definition	Measure way	Result Measure	Scale
Parental knowledge about refractive errors in children	Parental knowledge about refractive errors which includes understanding the term refractive errors, early symptoms of refractive errors, corrections needed and ways to prevent refractive errors	Questioner	Good Normal Less	Ordinals
Parental actions regarding refractive errors in children	Whether there is action or not for refractive errors, correction of refractive errors must be carried out immediately, and the need for preventive action against refractive errors	Questioner	Good Normal Bad	Ordinals

The instrument used in this research is a list of questions (questionnaire). The primary instrument for data collection is a structured questionnaire, designed to capture both the level of parental knowledge and the extent of their actions towards managing refractive errors in children. Primary data are directly gathered from respondents, while secondary data regarding respondent demographics are obtained from school records. Secondary data was obtained from SD Negeri 101751 Klambir V. The data obtained were in the form of respondent characteristics including parent identity, parent education level, family economic level. Responses are quantified with binary scoring (1 for correct, 0 for incorrect answers), and overall knowledge and actions are calculated as percentages of correct responses. The Arikunto scale (2006) is employed for categorizing the level of knowledge and actions into three distinct categories, offering a structured approach to interpret the findings. The formula used is:

$$P = \frac{F}{N} \times 100 \%$$

Information:

P: Percentage

F: Number of correct answers

N: Number of Questions

Techniques for assessing the level of knowledge and actions of parents of students at SD Negeri 101751 Klambir V grades 1 and 2 based on the Arikunto scale (2006) are divided into 3 categories, namely:

Good: If the subject is able to answer correctly 76% - 100% of all questions.

Sufficient if the subject is able to answer correctly 56% - 75% of all questions.

Table 3.2 Questionnaire Assessment of Knowledge

Questions About Knowledge	Answer		
	A	B	C
1	1	0	0
2	0	1	0
3	0	0	1
4	1	0	0
5	0	1	0
6	0	0	1
7	1	0	0
8	0	1	0
9	0	0	1
10	1	0	0

Tabel 3.3 Questionnaire Assessment of Actions

Questions About Action	Answer		
	A	B	C
1	0	0	1
2	0	1	0
3	1	0	0
4	0	0	1
5	0	1	0
6	1	0	0
7	0	0	1
8	0	1	0
9	1	0	0
10	0	0	1

Data processing

The data processing workflow includes editing, coding, data entry, tabulation, and cleaning, with SPSS software facilitating both data entry and analysis. Univariate analysis provides insights into individual variable characteristics, while bivariate analysis, specifically Spearman correlation, examines the relationship between parental knowledge and actions regarding refractive errors, acknowledging the ordinal nature of the variable, then the data is processed using the following steps: Editing (Checking data): Questionnaires that have been filled out and returned by respondents are checked to see whether all questions have been answered, are complete, clear, relevant and consistent. Coding (Data coding): After the editing process is complete, it continues with coding, namely changing data in the form of sentences or letters into numeric or numeric data. Data Entry (Entering data): Entering the data that has been obtained in the form of codes (numbers or letters) into a computer program or software. The program used for data entry for this research is the SPSS for Window program package. Tabulating (Tabulating data): After the questionnaire is filled in, it is tabulated and prepared to be presented in the form of a frequency distribution. Cleaning (Cleaning data): Checking the data that has been tabulated and cleaning the data from errors when tabulating the data (Notoatmodjo, 2012).

Data analysis

Data analysis was carried out computerized using the SPSS program with two procedures, univariate data analysis and bivariate data analysis. Univariate analysis is carried out on a variable from the research results, which aims to explain or describe the characteristics of each research variable. In general, this analysis only produces the distribution and percentage of each variable studied (Notoatmodjo, 2010). Bivariate data analysis: Bivariate analysis was carried out on two variables that were thought to be related or correlated. In this study, bivariate analysis was carried

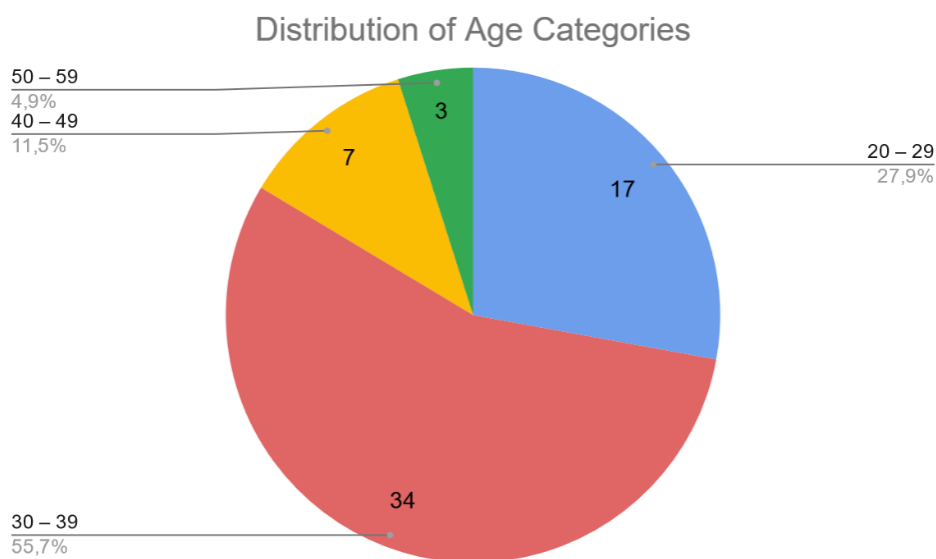
out to determine the relationship between the level of parental knowledge and actions for children's refractive errors. The statistical test used is Spearman correlation. The Spearman test is used to analyze ordinal to ordinal relationships. In this study, the variables of parental knowledge about refractive errors in children and parental actions regarding refractive errors in children are ordinal variables.

RESULTS & DISCUSSION

Respondent Characteristics

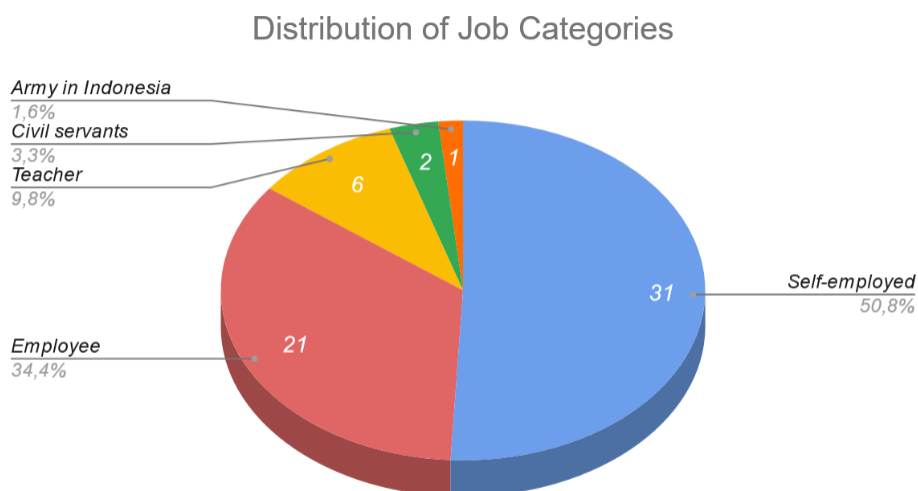
Age of the 61 respondents, the youngest respondent in this study was 22 years old and the oldest was 53 years old. The largest number in the 30-39 year age category was 34 people (55.74%).

Figure 1. Distribution of Age Categories



Work of the 61 respondents, the largest number of respondents' occupations were self-employed, 31 people (50.8%).

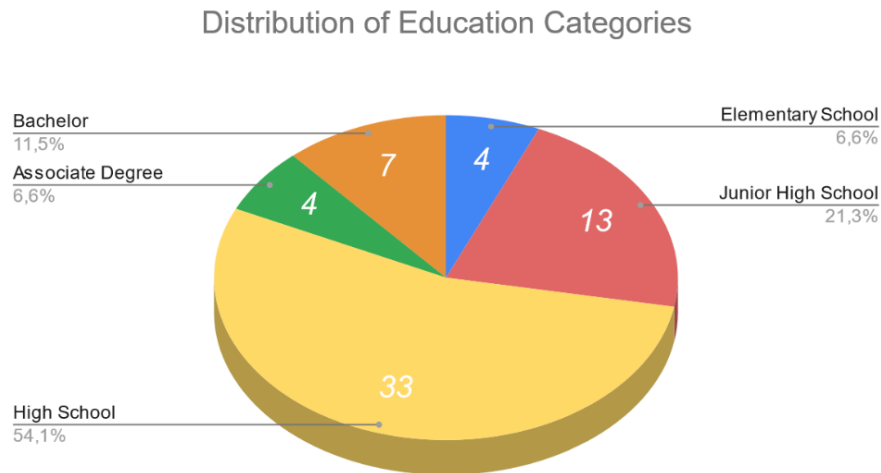
Figure 2. Distribution of Job Categories



Education

The highest level of education of respondents was high school, namely 33 people (54.1%).

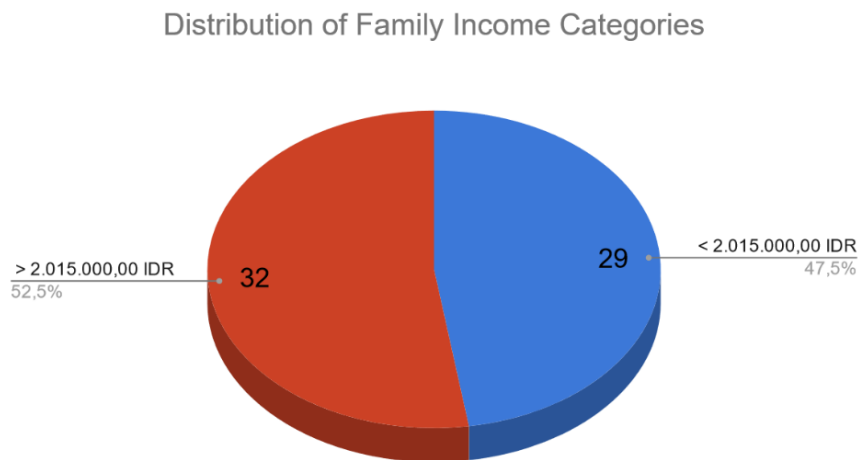
Figure 3. Distribution of Education Categories



Family Income

Family income is categorized based on total monthly family income according to the UMK (District Minimum Wage) of IDR 2,015,000. Of the 61 respondents, 32 people (52.5%) had incomes below the UMK, and 29 people (47.5%) had incomes above/equal to the UMK.

Figure 4. Distribution of Family Income Categories



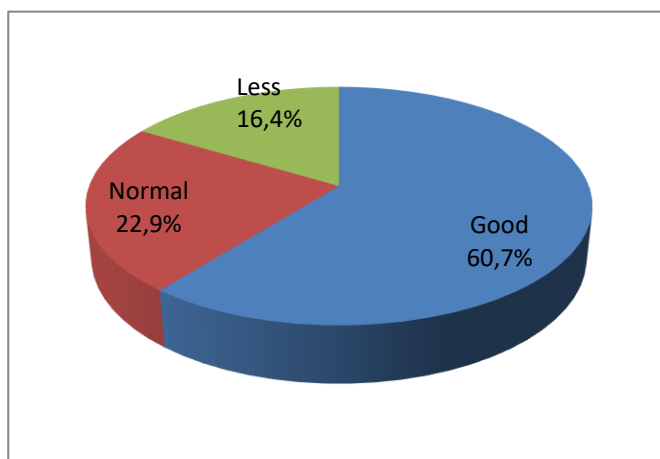
Correlation of Parental Knowledge Level with Actions Against Refractive Errors in Children
Level of Parental Knowledge of Refractive Disorders in Children the Cumulative Score of this variable has a theoretical range of 0-10. Based on the scores obtained from respondents' answers to questionnaire questions regarding parents' knowledge about refractive errors in children, respondents' knowledge was categorized into 3 groups, namely:

- ✓ Good: total score 8-10
- ✓ Normal: total score 5-7
- ✓ Less: score total 0-4

Determining the score for the respondent's answer by giving a value of 1 for each correct answer

and a value of 0 for each wrong answer or don't know. From the data obtained, 37 respondents (60.7%) were included in the category of having good knowledge, 14 respondents (22.9%) were in the category of having moderate knowledge, and 10 respondents (16.4%) were in the poor category.

Figure 5. Distribution of Parental Knowledge About Refractive Errors in Children



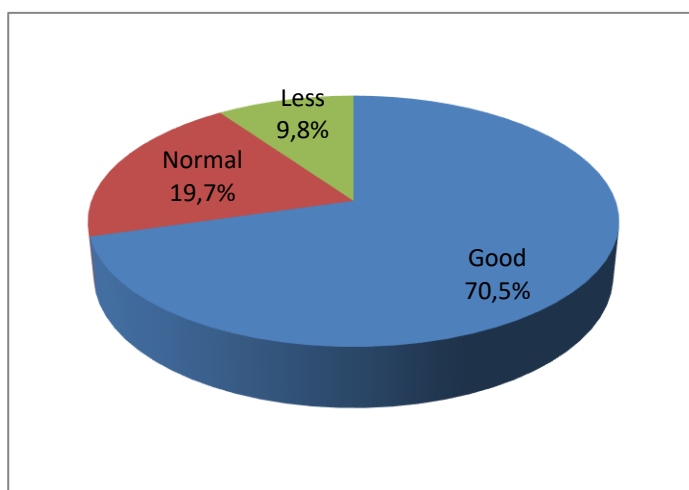
Level of Parental Action Against Refractive Errors in Children

The Cumulative Score of this variable has a theoretical range of 0-10. Based on the scores obtained from respondents' answers to questionnaire questions from respondents' answers regarding parental actions regarding refractive errors in children, respondents' actions were categorized into 3 groups, namely:

- ✓ Good: total score 8-10
- ✓ Normal: total score 5-7
- ✓ Less: total score 0-4

Determining the score for the respondent's answer by giving a value of 1 for each correct answer and a value of 0 for each wrong answer or don't know. From the data obtained, 43 respondents (70.5%) were included in the category of having good actions, 12 respondents (19.7%) were in the category of having moderate actions, and 6 respondents (9.8%) were in the poor category.

Figure 6. Distribution of Parental Actions Against Refractive Errors in Children



Relationship Analysis

In this study, a correlation was found between parental knowledge and actions regarding refractive errors in children. This is based on data analysis using the Spearman test, where the p

value <0.05 ($p=0.000$) is obtained, which means H_0 is rejected, with a positive direction and moderate correlation ($r=0.478$).

Table 4.1 Correlation of Knowledge with Action

Variable Correlation	p value	Correlation Coefficient (r)
Knowledge and Act	0,000	0,478

In this study, it was found that the largest proportion of parents' level of knowledge about refractive errors in children was in the good category (60.7%). This is influenced by the educational level of parents, most of whom (54.1%) are at a fairly good educational level, namely high school. With an increasingly higher level of education, the ability to absorb knowledge will also be better. A total of 56 respondents (91.80%) had heard of the terms minus eye/plus eye/cylindrical eye, but the majority of respondents stated that they had never heard of the term refractive error. Meanwhile, 5 other respondents (9.20%) admitted that they had never heard these terms at all. This shows that the term refractive error is quite unfamiliar in society and the term is more popular with the terms minus eye/plus eye/cylindrical eye.

Regarding symptoms that can be found in children who have refractive errors, only 30% of respondents did not know about children's complaints in the form of frequent headaches, eyes feeling tired quickly, and not clearly seeing objects far or near. Meanwhile, another 70% stated that they knew the symptoms of refractive errors in children. Based on this, it can be concluded that the majority of respondents have heard the terms minus eye/plus eye/cylindrical eye and they know the symptoms of refractive errors. This can affect parents' ability to detect early if a refractive error occurs in their child.

The largest percentage of parental actions regarding refractive errors in children is in the good category (70.5%). Around 95% of respondents agreed with the statement that refractive errors in children can be dangerous if treated too late. As many as 70% of parents know how to detect refractive errors early in children by always paying attention to each child's behavioral habits, in order to prevent refractive errors. Meanwhile, almost all respondents knew that handling refractive errors by using glasses was appropriate for good refractive correction.

For actions related to preventing refractive errors, 85% of respondents gave the correct answer about several things that need to be done as preventive measures, including preventing children from reading too closely for long periods without taking a break, installing good lighting in the study room, provide food intake rich in vitamin A. In this study, a significant positive correlation was found between parents' knowledge of actions for children's refractive errors. This result is almost the same as previous research, but has differences in the dependent variable. Research conducted by Sarwanto - Syaiful Anwar examined the relationship between parents' level of knowledge and attitudes towards refractive errors in children in Surabaya. From this research, it was found that there is a significant positive relationship between knowledge and attitude. The existence of this correlation shows that the level of knowledge plays an important role in determining behavior, namely in the form of a person's attitudes and actions, even though it can actually be influenced by several factors. These factors can come from within and from outside the individual himself. Internal factors include knowledge, intelligence, perception, emotions, and motivation. Meanwhile, external factors include the surrounding environment, socio-economics, availability of facilities, culture and so on.

CONCLUSION

Based on the data presentation and discussion, this research can draw the following conclusions: The largest percentage of parents' level of knowledge regarding refractive errors in children is in the good category (60.7%). The largest percentage of parental action levels for refractive errors in children is in the good category (70.5%). There is a significant correlation ($p=0.000$) between the level of parental knowledge and action on refractive errors in children with a moderate correlation ($r=0.478$). From the entire research process that has been undertaken by the author in completing this research, several suggestions can be expressed. It is hoped that there will be a promotional program from the health department to provide education or counseling

regarding eye health, and visual acuity screening, for early detection of refractive errors, especially in school-aged children. It is hoped that parents or school teachers will know how to detect refractive errors in children early, by paying attention to each child's visual behavior habits.

Acknowledgements

The authors would like to thank the parents and students of SD Negeri 101751 Klambir V for their participation in this study. We also express our gratitude to the faculty and staff of the Islamic University of North Sumatra Medan for their support and assistance.

Funding

This research was funded by the Islamic University of North Sumatra Medan. The funding body had no role in the design, data collection, analysis, or interpretation of the study.

Conflict of Interest

The authors declare no conflict of interest.

Data Availability

The datasets generated and/or analyzed during the current study are available from the corresponding author on reasonable request.

REFERENCES

- Aldebasi, Y. H. (2014). Prevalence of correctable visual impairment in primary school children in Qassim Province, Saudi Arabia. *J Optom*, 7(3), 168–176. <https://doi.org/10.1016/j.optom.2014.04.001>
- Almatsier, S. 2006. *Prinsip Dasar Ilmu Gizi Edisi keenam*. Jakarta: Gramedia Pustaka Utama.
- Arikunto, S. 2006. *Prosedur Penelitian Suatu Pendekatan Praktik Edisi Revisi VI*. Jakarta: Rineka Cipta.
- BMC Ophthalmology. (2023). A review on the epidemiology of myopia in school children worldwide. Retrieved from <https://bmcophthalmol.biomedcentral.com/articles/10.1186/s12886-023-02793-5>
- Chebil, A., Jedidi, L., Chaker, N., Kort, F., Limaiem, R., Mghaieth, F., et al. (2015). Characteristics of Astigmatism in a Population of Tunisian School-Children. *Middle East Afr J Ophthalmol*, 22(3), 331–4. <https://doi.org/10.4103/0974-9233.161087>
- Chua, W. H., Balakrishnan, V., Chan, Y. H., Tong, L., Ling, Y., Quah, B. L., ... & Tan, D. (2006). Atropine for the treatment of childhood myopia. *Ophthalmology*, 113(12), 2285-2291. <https://doi.org/10.1016/j.ophtha.2006.05.062>
- Courtright, P., Hutchinson, A. K., & Lewallen, S. (2011). Visual impairment in children in middle- and lower-income countries. *Archives of Disease in Childhood*, 96(12), 1129-1134. <https://doi.org/10.1136/archdischild-2011-300093>
- Departemen Kesehatan RI, Kementerian Kesehatan RI. *Buku Kesehatan Peserta Didik* [cited 2011 Jan]. Available from URL <http://www.gizikia.depkes.go.id>
- Departemen Kesehatan RI, Pusat Data dan Informasi Kementerian Kesehatan RI. *Situasi Gangguan Penglihatan dan Kebutaan*. [cited 2014 Okt]. Available from URL: <http://www.depkes.go.id>
- Dirani, M., Tong, L., Gazzard, G., Zhang, X., Chia, A., Young, T. L., ... & Saw, S. M. (2009). Outdoor activity and myopia in Singapore teenage children. *British Journal of Ophthalmology*, 93(8), 997-1000. <https://doi.org/10.1136/bjo.2008.150979>
- Eva, R.P., Whicther, P.J. 2013. *Vaughan & Asbury Umum Edisi 17*. Jakarta: EGC.

- Fotouhi, A., Hashemi, H., Khabazkhoob, M., & Mohammad, K. (2007). The prevalence of refractive errors among schoolchildren in Dezful, Iran. *British Journal of Ophthalmology*, 91(3), 287-292. <https://doi.org/10.1136/bjo.2006.099937>
- Gao, Y., Gao, J., Shan, G., Wang, F., & Li, J. (2013). Prevalence and associated factors of myopia among primary and middle school-aged students: a school-based study in Tianjin, China. *Investigative Ophthalmology & Visual Science*, 54(13), 8829-8835. <https://doi.org/10.1167/iovs.13-12639>
- Gopinath, B., Baur, L. A., Wang, J. J., Teber, E., Liew, G., Cheung, N., ... & Mitchell, P. (2012). Influence of physical activity and screen time on the retinal microvasculature in young children. *Arteriosclerosis, Thrombosis, and Vascular Biology*, 31(5), 1234-1239. <https://doi.org/10.1161/ATVBAHA.111.226894>
- Gunarsa, S.D., dan Gunarsa, Y S.D. 2006. *Psikologi Perkembangan Anak dan Remaja*. Jakarta: PT. BPK Gunung Mulia.
- He, M., Huang, W., Zheng, Y., & Huang, L. (2007). Refractive error and visual impairment in school children in rural southern China. *Ophthalmology*, 114(2), 374-382. <https://doi.org/10.1016/j.ophtha.2006.08.020>
- Holden, B. A., Sankaridurg, P., Smith, E. L., Aller, T. A., Jong, M., & He, M. (2014). Myopia, an underrated global challenge to vision: where the current data takes us on myopia control. *Eye*, 28(2), 142-146. <https://doi.org/10.1038/eye.2013.256>
- Ilyas, S. 2006. *Kelainan Refraksi dan Kacamata Glosari Sinopsis Edisi kedua*. Jakarta: FK UI.
- Ilyas, S. 2010. *Ilmu Penyakit Mata Edisi ketiga*. Jakarta: FK UI.
- Lang, G. K. (2000). *Ophthalmology A Pocket Textbook Atlas*. Thieme Stuttgart. New York.
- Ma, Y., Qu, X., Zhu, X., Xu, C., Lin, Z., & Qin, L. (2016). Age-specific prevalence of visual impairment and refractive error in children aged 3–10 years in Shanghai, China. *Investigative Ophthalmology & Visual Science*, 57(14), 6188-6196. <https://doi.org/10.1167/iovs.16-20019>
- Marmamula, S., Keeffe, J. E., Raman, U., & Rao, G. N. (2011). Population-based cross-sectional study of barriers to utilisation of refraction services in South India: Rapid Assessment of Refractive Errors (RARE) Study. *BMJ Open*, 1(1), e000172. <https://doi.org/10.1136/bmjopen-2011-000172>
- Mutti, D. O., Hayes, J. R., Mitchell, G. L., Jones, L. A., Moeschberger, M. L., Cotter, S. A., ... & Zadnik, K. (2007). Refractive error, axial length, and relative peripheral refractive error before and after the onset of myopia. *Investigative Ophthalmology & Visual Science*, 48(6), 2510-2519. <https://doi.org/10.1167/iovs.06-0562>
- Mutti, D. O., Mitchell, G. L., Moeschberger, M. L., Jones, L. A., & Zadnik, K. (2002). Parental myopia, near work, school achievement, and children's refractive error. *Investigative Ophthalmology & Visual Science*, 43(12), 3633-3640.
- Notoatmodjo, S. (2012). *Promosi kesehatan dan perilaku kesehatan*. Jakarta: rineka cipta, 193.
- Notoatmodjo, S. 2010. *Metodologi Penelitian Kesehatan*. Jakarta: Rineka Cipta.
- Pan, C. W., Ramamurthy, D., & Saw, S. M. (2012). Worldwide prevalence and risk factors for myopia. *Ophthalmic and Physiological Optics*, 32(1), 3-16. <https://doi.org/10.1111/j.1475-1313.2011.00884.x>
- Pärssinen, O., Kauppinen, M., & Viljanen, A. (2014). The progression of myopia from its onset at age 8–12 to adulthood and the influence of heredity and external factors on myopic progression. *A 23-year follow-up study*. *Acta Ophthalmologica*, 92(8), 730-739. <https://doi.org/10.1111/aos.12387>

- Qian, D. J., Zhong, H., Li, J., Niu, Z., Yuan, Y., Pan, C. W. (2016). Myopia among school students in rural China (Yunnan). *Ophthalmic & Physiological Optics*, 36(4), 381-387. <https://doi.org/10.1111/opo.12302>
- Ratanna, R. S., Rares, L. M., & Saerang, J. S. M. (2014). Kelainan Refraksi Pada Anak di BLU RSU Prof. Dr. RD Kandou. *e-CliniC*, 2(2). <https://doi.org/10.35790/ecl.v2i2.5102>
- Rose, K. A., Morgan, I. G., Ip, J., Kifley, A., Huynh, S., Smith, W., & Mitchell, P. (2008). Outdoor activity reduces the prevalence of myopia in children. *Ophthalmology*, 115(8), 1279-1285. <https://doi.org/10.1016/j.ophtha.2007.12.019>
- Sarwanto, S. (2008). Hubungan Karakteristik, Pengetahuan, Sikap, dan Perilaku Ibu-ibu Anak SD Kelas 6 tentang Kelainan Refraksi (Studi Kasus di SD Kemayoran I dan II Kecamatan Krembangan Surabaya).
- Sastroasmoro, S. (2022). Dasar-dasar metodologi penelitian klinis.
- Saw, S. M., Gazzard, G., Shih-Yen, E. C., & Chua, W. H. (2005). Myopia and associated pathological complications. *Ophthalmic & Physiological Optics*, 25(5), 381-391. <https://doi.org/10.1111/j.1475-1313.2005.00298.x>
- Schlote, T., Mielke, J., Grüb, M., Rohrbach, J. M., & Gelisken, F. (Eds.). (2006). *Pocket atlas of ophthalmology* (pp. 2-8). New York, NY, USA:: Thieme.
- Sirlan, F. (2006). *Blindness Reduction Rate, Is It Important to Evaluate?*. Jakarta: Ophtalmologica Indonesiana.
- Sirlan, F. (2006). Survey pengetahuan, sikap dan praktek masyarakat di Jawa Barat terhadap kesehatan mata, tahun 2005. *Ophthalmologica Indonesiana*, 33(3), 245-251.
- WHO (2011). *Global Initiative for the Elimination of Avoidable Blindness Action Plan 2006-2011*. [cited 2011]. Available from URL: <http://www.who.int>
- WHO (2014). *Visual Impairment and Blindness*. [cited 2014]. Available from URL: <http://www.who.int>
- Williams, K. M., Bertelsen, G., Cumberland, P., Wolfram, C., Verhoeven, V. J., Anastasopoulos, E., ... & Foster, P. J. (2015). Increasing prevalence of myopia in Europe and the impact of education. *Ophthalmology*, 122(7), 1489-1497. <https://doi.org/10.1016/j.ophtha.2015.03.018>
- Wong, D.L., Hockenberry, E.M., Wilson, D., Winkelstein, M.L., & Schwartz, P. 2008. *Buku Ajar Keperawatan Pediatrik Vol. 2*. Jakarta: EGC.
- Wong, H. B., Machin, D., Tan, S. B., Wong, T. Y., & Saw, S. M. (2009). Ocular component growth curves among Singaporean children with different refractive error status. *Investigative Ophthalmology & Visual Science*, 51(3), 1341-1347. <https://doi.org/10.1167/iovs.09-4038>
- Xiao, O., Morgan, I. G., Ellwein, L. B., He, M., & Refractive Error Study in Children Study Group. (2015). Prevalence of amblyopia in school-aged children and variations by age, gender, and ethnicity in a multi-country refractive error study. *Ophthalmology*, 122(9), 1924-1931. <https://doi.org/10.1016/j.ophtha.2015.05.034>
- Zadnik, K., Sinnott, L. T., Cotter, S. A., Jones-Jordan, L. A., Kleinstein, R. N., Manny, R. E., ... & Mutti, D. O. (2015). Prediction of juvenile-onset myopia. *JAMA Ophthalmology*, 133(6), 683-689. <https://doi.org/10.1001/jamaophthalmol.2015.0471>