Uptake of Myopia Control Strategies and Its Demographic Profile among Teenagers and Eyecare Practitioners in Lurambi Constituency, Kenya

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ABSTRACT

The growing prevalence of myopia has become a public health concern. As of 2020, myopia affected 2.6 billion individuals globally, and it is projected that by 2050, almost half of the world's population will be affected by myopia. Therefore, there is a need for sensitization of the populations on the available strategies for myopia and proper utilization of these strategies to reduce its progression. The study employed an analytical cross-sectional research design. Eye clinics in Lurambi Constituency and participants at the clinic level were selected purposefully, whereas all teenagers and eyecare practitioners (ECPs) were enrolled in the study by census. A self-administered questionnaire, containing questions on the demographic profile of teenagers and ECPs, was used to collect data. Once ethical clearance from MMUST IERC, NACOSTI, and permission from all eye clinics in Lurambi Constituency were obtained, the data collection process began. A total of 115 teenagers and 22 ECPs participated in the study. The uptake of myopia control strategies among teenagers was at 55.7%, while the uptake of effective myopia control strategies among ECPs was reported at 86.36%, with the uptake of single vision spectacles being the most at 70.3% among teenagers. Among teenagers, the uptake was higher among males at 51.6%, those attending public clinics at 73.9%, teenagers aged 19 years at 42.2%, and those in the upper secondary at 51.7%. Among 22 ECPs, the greatest uptake was male at 73.7%, those aged 18-30 years at 42.2%, and those with less than 5 years of experience at 40.9%, and optometry technologists and optometrists at 36.8% each. Uptake was equally distributed between those in private and public clinics at 50% each. The uptake of myopia control strategies among teenagers and the uptake of effective myopia control strategies among ECPs were relatively high. The uptake was high in males of both teenagers and ECPs. A study on the uptake of MCS and its demographic profile should be conducted, covering a larger of Kenya.

Keywords: Eye Care Practitioners, Kenya, Myopia Control Strategies, Teenagers, Uptake

I. INTRODUCTION

Myopia, commonly known as nearsightedness, is increasingly recognized as a significant global public health concern, with its prevalence soaring particularly among children and adolescents (Mu et al., 2023; Resnikoff et al., 2019). This condition, characterized by the inability to see distant objects clearly, has witnessed an alarming rise in numbers, positioning it as a major challenge for healthcare systems worldwide. Studies predict that by 2050, nearly half of the global population could be affected by myopia, underscoring the urgency of addressing this issue (Holden et al., 2016). The distribution of myopia, however, is not uniform across the globe, with significant regional and demographic differences. For instance, Asian countries have reported some of the highest prevalence rates, where rapid urbanization and intense academic pressure are contributing factors. In these regions, the prevalence among children and adolescents is particularly striking, with studies reporting rates as high as 75.35% among children aged 5-20 years (Biswas et al., 2024; Zhang et al., 2022). Conversely, the prevalence in African countries has traditionally been lower, but recent data suggest that myopia is becoming an increasingly common concern, particularly in urban and semi-urban areas where lifestyle changes mimic those seen in more developed regions. For instance, among African children under 18 years old, the prevalence of myopia has been reported at 4.75% (Ovenseri-Ogbomo et al., 2022).

In Kenya, the prevalence of myopia varies notably by region and age group, reflecting broader global trends but also highlighting specific local factors. In Makueni County, for example, 1.7% of primary school pupils aged 12 to 15 are affected by myopia, a figure that rises significantly in other regions. In Kakamega County, the prevalence climbs to 7.5% among secondary school adolescents aged 13 to 19, while in Nairobi County, the figures are even more striking. In Nairobi, 9.4% of standard eight pupils aged 12 to 15 attending public schools are affected, with the prevalence increasing to 15.6% among students aged 14 to 20 in public high schools in Nairobi County (Muma et al., 2009; Nyamai et al., 2016; Nzuk et al., 2006; Ragot et al.,

2020). This regional variation within Kenya illustrates the complex interplay of factors contributing to myopia, including urbanization and changes in lifestyle. Notably, the rising prevalence of myopia in Kenya is largely attributed to the increasing use of digital devices. Like their global peers, Kenyan adolescents are spending more time indoors, engaged in activities that require prolonged close-up focus, such as reading on computers and using smartphones for gaming (Kharono et al., 2019).

The consequences of unmanaged myopia extend far beyond simple refractive error correction. Severe visual impairment can result from progressive myopia, increasing the risk of irreversible ocular conditions such as cataracts, glaucoma, and retinal detachment (William et al., 2022). The vision loss associated with myopia has profound implications, not only reducing the quality of life for those affected but also placing a significant burden on global healthcare systems (Sankaridurg et al., 2021). This burden is exacerbated by the increased dependency ratio, as individuals with myopia may struggle to perform daily activities without additional support. The escalating prevalence of myopia, particularly among younger populations, highlights the need for comprehensive public health strategies aimed at prevention, early detection, and effective management to mitigate the long-term impacts on individuals and society.

1.1 Statement of the Problem

Despite the availability of various myopia control strategies, the uptake of these interventions remains inconsistent across different regions and demographic groups (Dhirar et al., 2020; Lawrenson et al., 2023 Ovenseri-ogbomo et al., 2022). The increasing prevalence of myopia, particularly among adolescents in Kenya, presents a considerable public health challenge. The prevalence of myopia in Kenya varies significantly by region and age, reflecting both global trends and local factors. For example, in Makueni County, 1.7% of primary school students aged 12 to 15 are affected by myopia, while higher rates are observed in other regions. In Kakamega County, the prevalence among secondary school adolescents aged 13 to 19 reaches 7.5%, and in Nairobi County, the situation is even more striking. Among standard eight students in public schools aged 12 to 15, 9.4% are affected, and the rate increases to 15.6% among high school students aged 14 to 20 (Muma et al., 2009; Nyamai et al., 2016; Nzuk et al., 2006; Ragot et al., 2020). The variation in prevalence rates across different regions in Kenya underscores the need to understand the factors influencing the uptake of myopia control strategies in specific populations, such as the adolescents in Lurambi Constituency. Understanding these factors is critical to developing effective interventions that can mitigate the progression of myopia and its associated burdens.

1.2 Research Objectives

i. To determine uptake of MCS among teenagers and ECPs of Lurambi Constituency.
ii. To investigate the demographic profile of teenagers and ECPs in relation to uptake of MCS.
iii. To evaluate the relationship between the uptake of MCS and its demographic profile among teenagers and ECPs of Lurambi Constituency, Kenya.

1.3 Research Hypothesis

H_0): There is no significant relationship between the uptake of MCS and its demographic profile among teenagers and ECPs of Lurambi Constituency, Kenya.

II. LITERATURE REVIEW

2.1 Uptake of MCS among Teenagers and ECPs of Lurambi Constituency

To address myopia progression in children and adolescents, various control strategies have been developed and extensively studied. These include optical interventions like orthokeratology (ortho-k) lenses, multifocal contact lenses, and specialized spectacle lenses, which have shown promise in slowing myopia progression by altering the focus of light on the retina (Akinbinu et al., 2023). Pharmacological treatments, particularly low-dose atropine eye drops, have also been effective in reducing myopia progression, with studies reporting significant reductions in axial elongation (Zadnik et al., 2023). Comprehensive myopia management programs often combine multiple strategies to achieve optimal outcomes, emphasizing the importance of a tailored approach based on individual risk factors and lifestyle.

The uptake of myopia control strategies varies across regions and age groups. A systematic review covering 16 countries in Asia, two in Europe, three in the USA, and two in Africa found a 40.9% uptake of traditional single-vision spectacles among preschoolers and school-going children (Dhirar et al., 2020). In Singapore, 80% of eye care practitioners (ECPs) reported using myopia control strategies (Yang et al., 2022). In India, the uptake of single-vision

spectacles was reported at 34.8% (Marmamula et al., 2022). In Saudi Arabia, the uptake of traditional single-vision spectacles was 45.8%, with 4% using soft contact lenses among individuals with a mean age of 22 years (Albishi et al., 2021). In Nigeria, 12.1% of users aged 20-34 years used traditional single-vision spectacles (Megbelayin, 2013), while in Eritrea, 22% of children aged 15-20 years used them (Chan et al., 2023). In Kenya, only 1.1% of users attending the Academic Vision Center in Kakamega reported using rigid contact lenses (Chikasirimobi et al., 2022).

2.2 Demographic Profile of Teenagers and ECPs in Relation to Uptake of MCS

The uptake of myopia control strategies is influenced by various socioeconomic and demographic factors, including age, gender, and educational background. Younger children, particularly those aged 6 to 12 years, are more responsive to myopia control interventions, as early intervention can significantly slow the progression of myopia (Lawrenson et al., 2023). Gender differences in myopia prevalence and progression rates have also been observed, with some studies suggesting higher rates in females (Ovenseri-ogbomo et al., 2022). However, a study in Lurambi Constituency, Kenya, found a higher prevalence of myopia in males aged 13-19 years (52.7%) compared to females 47.3% (Ragot et al., 2020).

2.3 Relationship between Uptake of MCS among Teenagers and ECPs of Lurambi Constituency

The adoption of MCS among teenagers and ECPs is a crucial area of study within vision science and public health. Teenagers, particularly those in older age groups, often face increased academic pressures, which heightens their need for clear vision. However, this does not necessarily translate into higher uptake rates of myopia control strategies. According to Xie et al. (2022), individual differences in awareness, access to information, and personal health behaviors contribute to the varying rates of MCS uptake across different age groups. Similarly, gender-based differences in screen time and engagement in visual activities may lead to a higher prevalence of myopia among males. Nevertheless, Lanca and Saw (2020) highlight that personal motivation and familial support are critical factors influencing adherence to health interventions, and these factors can vary significantly among individuals, regardless of gender.

The type of clinic visited, whether public or private, is another factor that might be expected to influence the accessibility and availability of advanced eye care services. However, Lian et al. (2023) argue that the decision to adopt myopia control strategies is ultimately driven by a range of personal, familial, and economic considerations, which are not necessarily linked to the type of clinical setting. Educational pressures, particularly among teenagers in upper secondary school, could suggest a higher uptake of myopia control strategies due to increased reading and screen time. Nonetheless, Ba and Li et al. (2024) note that variations in educational environments, parental guidance, and individual health priorities contribute to inconsistent uptake rates across different class grades.

For ECPs, the decision to implement myopia control strategies appears to be more consistently aligned with professional standards. Chamberlain et al. (2019) suggest that this decision is primarily driven by universally accepted clinical guidelines and evidence-based practices, rather than individual or practice-related characteristics. Gifford et al. (2019) further support this perspective by emphasizing that the widespread availability of myopia control resources and continuing education opportunities ensures that ECPs across various demographics and professional settings are equally informed and equipped to adopt these strategies.

Moreover, Dani et al. (2018) underscore the consistent influence of professional norms and access to updated clinical information, which plays a crucial role in the uniform adoption of myopia control measures among ECPs. This suggests that, unlike teenagers whose uptake of myopia control strategies may be significantly influenced by personal and socio-economic factors, the adoption of MCS among ECPs is more uniformly aligned with professional standards and ongoing education, regardless of demographic variables.

III. METHODOLOGY

This study was conducted in all eye clinics of Lurambi Constituency. Lurambi Constituency is one of the constituencies within Kakamega County of Kenya. Lurambi Constituency has 10 private eye clinics and 2 public eye clinics. The study was conducted in Lurambi Constituency because it recorded a high prevalence of 7.5% (Ragot et al., 2020). Also, the availability of Kakamega Teaching and Referral Hospital, which serves as a referral center for Kakamega County and neighboring counties, made the area ideal for the study. The study employed a cross-sectional study design. Teenagers with myopia $\leq$ 0.50Ds and of age 13-19 years and ECPs who have worked for at least 6 months at the clinics were included in the study. Those teenagers with pathological eye conditions like cataracts and ECP students and those on internship who did not consent to participate in the study were excluded. Data was collected using structured questionnaires; for teenagers, a modified questionnaire on knowledge, attitude, and factors influencing the uptake of myopia control strategies was used (Almujalli et al., 2020; Chaurasiya et al., 2023; Ferdiana

et al., 2021; Megbelayin,2013; Nyamai et al., 2016) while for ECPs, a questionnaire adopted from a study on strategies and attitudes on the management of myopia in clinical practice in Spain was used (Martínez-Pérez et al., 2023). Before data collection, both questionnaires were piloted and adjusted accordingly. The questionnaires comprised closed-ended questions.

Teenagers and ECPs from all clinics of Lurambi were invited to participate in the study using a modified questionnaire on knowledge, attitude, and factors influencing the uptake of myopia control strategies (Almujalli et al., 2020; Chaurasiya et al., 2023; Ferdiana et al., 2021; Megbelayin,2013; Nyamai et al., 2016) for teenagers, and for ECPs, a questionnaire adopted from a study on strategies and attitudes on the management of myopia in clinical practice in Spain (Martínez-Pérez et al., 2023) was used. Questionnaires were administered to participants after signing a consent form. The filled questionnaires were collected and stored securely.

Data was entered into an MS-Excel 2022 spreadsheet and checked by the principal researcher to ensure there was no missing or incorrectly entered data. The data was then exported to SPSS version 27 for analysis. Descriptive statistics were analyzed in proportions and inferential statistics by chi-square. Thereafter, the data was presented in pie charts and tables.

IV. FINDINGS & DISCUSSIONS

4.1 Uptake of Myopia Control Strategies

Teenagers

Out of the 115 teenagers who participated in the study, the overall uptake of myopia control strategies was at 64 (55.7%) as shown in Figure 1 with uptake of single vision spectacles being the most at 70.3%.

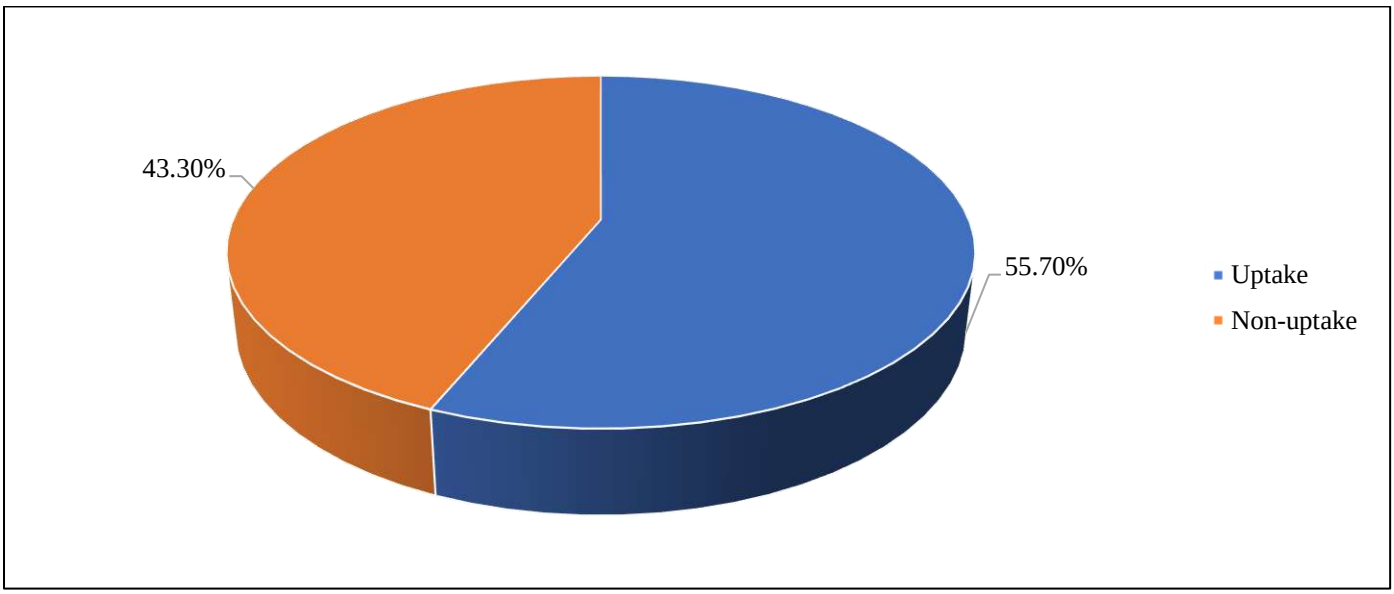

Figure 1
Uptake of Myopia Control Strategies among Teenagers

ECPs

Among the 22 ECPs who participated in the study, the overall uptake of effective myopia control strategies was at 19 (86.36%) as shown in Figure 2.

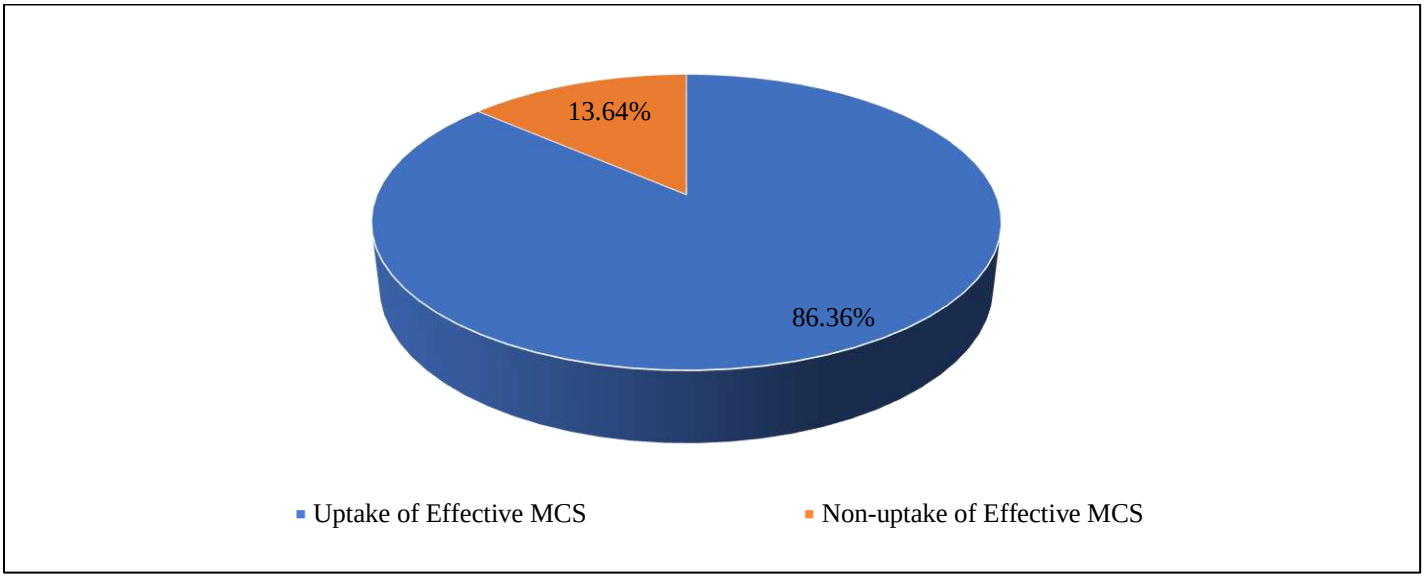

Figure 2
Uptake of Myopia Control Strategies among ECPs

4.2 Demographic Profile in relation to Uptake of Myopia Control Strategies

Teenagers

Table 1 shows the uptake was higher among males at 33 (51.6%), those attending public clinics at 47 (73.9%), teenagers aged 19 years at 27 (42.2) % and those in the upper secondary at 33 (51.7%).

ECPs

Table 1 shows that of those with uptake, the greatest uptake was male (73.7%), those aged 18-30 years (42.2%), and those with less than 5 years of experience (40.9%) and optometry technologists at (36.8%). Uptake was equally distributed between those in private and public clinics at 50% each.

4.2.1 Relationship Between Uptake of Myopia Control Strategies and Demographic Profile of Teenagers and ECPs

Teenagers

No significant relationships between uptake of myopia control strategies and age, gender, type of clinic and school grade/class were observed as shown in Table 1

Table 1
Relationship between Uptake of MCS and Demographic Profile of Teenagers

		Total of participants n (%)	Uptake of MSC n (%)	Non-Uptake of MCs n (%)	Chi-square P-Value
Sample size		115	64	51	
Gender	Female	61(53.0)	31(48.4)	30(58.8)	0.105
	Male	54(47.0)	33(51.6)	21(41.2)	
Age	13-14 years	26(22.6)	11 (17.2)	15 (29.4)	0.268
	15-18 years	50(43.5)	26 (40.6)	24 (47.1)	
	19 years	39 (33.9)	27 (42.2)	12 (23.5)	
Type of eye clinic	Public	85 (73.9)	47 (73.4)	12 (23.5)	0.896
	Private	30 (26.1)	17 (26.6)	38(74.5)	
School/Class grade	Primary	7 (6.1)	1 (1.6)	6(11.8)	0.125
	Junior Secondary	15(13.0)	8(12.5)	7(13.7)	
	Upper Secondary	57(49.6)	33 (51.7)	24 (47.1)	
	College	36(31.3)	22(34.3)	14(27.45)	

ECPs

No significant relationships were observed between uptake of myopia control strategies and age, gender, type of clinic, year of experience and cadres ECPs as shown in Table 2.

Table 2

Relationship between Uptake of Myopia Control Strategies and Demographic Profile of ECPs

		Total Participants n(%)	Uptake of MCS n(%)	Non-Uptake of MCS n (%)	Chi-square P-value
Sample size		22	19	3	
Gender	Female	6 (27.3)	5 (26.3)	1 (33)	0.884
	Male	16(72.7)	14(73.7)	2 (66.7)	
Age	18-30 years	9 (40.9)	8 (42.1)	1 (33.3)	0.800
	31-40 years	8 (36.4)	7 (36.8)	1 (33.3)	
	40-50 years	1 (4.5)	1(5.3)	0 (0)	
	51-60 years	4 (18.2)	3(15.8)	1 (33.3)	
	60 years & above	0 (0)	0(0)	0 (0)	
Type of eye clinic	Public	11(50)	10 (52.6)	1 (33.3)	0.534
	Private	11(50)	9 (47.4)	2 (66.7)	
Years of experience	Less than 5 years	9 (40.9)	8 (42.2)	1(33.3)	0.183
	5-10 years	8 (36.4)	7 (36.8)	1 (33.3)	
	11-20 years	2 (9.1)	2(10.5)	0 (0)	
	More than 20 years	3 (13.6)	2 (10.5)	1 (33.4)	
Practicing cadre	Ophthalmologist	1 (4.5)	1 (5.3)	0 (0)	0.715
	Optometrist doctor	4 (18.2)	2 (10.5)	2 (66.7)	
	Optometrist	7 (13.6)	7 (36.8)	1 (33.3)	
	Ophthalmic officer	3 (13.6)	2 (10.5)	0(0.0)	
	Optometrist Technologist	7 (31.8)	7 (36.8)	0 (0)	

4.3 Discussions

4.3.1 Uptake of Myopia Control Strategies among Teenagers and Uptake of Effective Myopia Control Strategies among ECPs

Teenagers

The adoption rate of myopia control strategies among teenagers in this study was found to be 55.7%. This figure is relatively higher than the 40.09% uptake of traditional single-vision (SV) spectacles reported in a systematic review encompassing data from 16 Asian countries, 2 European countries, 3 countries in the USA, and 2 African countries, focusing on preschoolers and school children (Dhirar et al., 2020). In India, a 34.8% uptake of traditional SV spectacles was observed (Marmamula et al., 2022). Another study reported that in Saudi Arabia, the adoption rates for traditional single-vision spectacles and soft contact lenses were 45.8% and 4%, respectively, among users with an average age of 22 years (Albishi et al., 2021). In Nigeria, a 12.1% uptake of traditional SV spectacles among individuals aged 20-34 years was found (Megbelayin, 2013), while in Eritrea, a 22.2% uptake among children aged 15-20 years was documented (Chan et al., 2023). In Kenya, only 1.1% of users attending the Academic Vision Center (AVC) of Kakamega adopted soft and rigid contact lenses (Chikasirimobi et al., 2022).

The higher adoption rate of myopia control strategies in this study can be attributed to its focus on a variety of these strategies, in contrast to other studies that primarily examined traditional single-vision spectacles (Albishi et al., 2021; Chikasirimobi et al., 2022; Dhirar et al., 2022; Marmamula et al., 2022; Megbelayin,2013; Nyamai et al., 2016). Additionally, the study population predominantly consisted of teenagers aged 13-19 years, a demographic with a higher prevalence of myopia compared to younger children and adults (Wolffsohn et al., 2019). This higher prevalence likely leads to greater adoption of myopia control strategies, as early intervention is known to slow myopia progression (Brennan et al., 2021). Furthermore, the global and local rise in myopia prevalence has increased awareness and concern, contributing to higher adoption rates (Bullimore et al., 2021). A high prevalence of myopia (7.5%) among adolescents aged 13-19 years in Lurambi Constituency was also reported, supporting early adoption of control strategies to mitigate progression (Ang et al., 2020; Ragot et al., 2020).

Contrarily, the adoption rate of MiSight contact lenses among teenagers aged 5-18 years in Ireland was found to be 85%, significantly higher than the uptake of myopia control strategies in this study (Moore et al., 2023). This can

be attributed to the focus on MiSight contact lenses, a single, highly effective strategy believed to control myopia progression by 59% (Chamberlain et al., 2019). Additionally, the availability of optometrists skilled in fitting MiSight contact lenses and access to specialized contact lens laboratories in Ireland further explain the higher adoption rates compared to this study.

ECPs

In this study, the adoption rate of myopia control strategies among ECPs was 86.3%, which is higher than the 80% reported in a Singaporean study (Yang et al., 2022). This difference may be partly due to the sample sizes, with the Singapore study including 130 ECPs compared to just 22 in this study, leading to greater variability in results (Fleming et al., 2019).

Moreover, differences in the inclusion criteria for ECPs might have contributed to the variability in adoption rates. This study included ophthalmologists, optometrist doctors, optometrists, ophthalmic officers, and optometry technologists capable of diagnosing and managing myopia. In contrast, the Singapore study included ophthalmologists, optometrists, opticians, and optometry students. The latter group may not be fully knowledgeable about all myopia control strategies, their efficacies, and the risks associated with inadequate myopia management. Furthermore, in Singapore, opticians' scope of practice is limited to refraction, prescription, and dispensing of spectacles without the comprehensive management required for effective myopia control, such as axial length measurement and fundus examination (George et al., 2019).

4.3.2 Demographic Profile of Teenagers and Uptake of Myopia Control Strategies

Teenagers

The uptake of myopia control strategies was highest among teenagers aged 19 years. This disparity can be attributed to several factors. Older teenagers, particularly those at 19, are often at a transition stage in their education and early career development, where clear vision is crucial for academic and professional success (Jenkins,2024). The increased demand for optimal vision likely enhances awareness and the adoption of myopia control measures. Additionally, as teenagers mature, they tend to better understand health interventions and are more likely to adhere to prescribed strategies, which increases their likelihood of seeking and following through with myopia control (WHO et al., 2023). Furthermore, parents and guardians may be more willing to invest in myopia control for older teenagers, viewing it as a valuable investment given their impending transition into adulthood and higher education. These combined factors contribute to the higher uptake of myopia control strategies among 19-year-olds compared to younger teenagers.

The uptake of myopia control strategies was also observed to be higher among male teenagers. This trend can be linked to behavioral factors, as boys are more likely to engage in virtual activities such as video games, which increase screen time a known risk factor for the development of myopia (Xie et al., 2022). The high prevalence of myopia among males aged 13 to 19 years in Lurambi Constituency, reported at 52.7% compared to 47.3% in females (Ragot et al., 2020), correlates with the increased uptake of myopia control strategies among male teenagers in the area.

A higher uptake of myopia control strategies was noted among teenagers attending public clinics, with 73.9% utilizing these services. This can be attributed to several key factors. Public clinics typically offer advanced eye care equipment and a broader range of healthcare services, making them more accessible and frequently visited by the community for various health needs, including eye care. This accessibility likely leads to higher awareness and uptake of myopia control strategies as part of routine health visits. Additionally, public clinics often provide integrated and comprehensive care, addressing myopia control alongside other health issues, which increases the likelihood of adoption. The convenience of receiving multiple health services in one location also enhances compliance and follow-through with prescribed myopia control measures. These factors contribute to the higher uptake of myopia control strategies in public clinics compared to private ones.

Lastly, the uptake of myopia control strategies was higher among teenagers in upper secondary school. These students experience significant educational pressure as they transition to higher education and career paths, often spending extensive time reading to excel academically. Prolonged reading time has been shown to increase the onset and progression of myopia (Bullimore et al., 2023), explaining the higher uptake of myopia control strategies among upper secondary students compared to those at other educational levels.

ECPs

The uptake of myopia control strategies among ECPs was highest among those aged 18-30 years. This can be attributed to several factors. Younger ECPs are more likely to have been recently trained and, therefore, are more

familiar with the latest advancements and recommendations in myopia management (Coverdale et al., 2024). Their education emphasizes early intervention and the use of new, effective myopia control strategies. Additionally, younger ECPs tend to be more adaptable and open to incorporating new technologies and techniques into their practice (Press, 2019). In contrast, older ECPs may rely on established methods they are accustomed to, which could result in slower adoption of newer practices due to habit, skepticism, or comfort with familiar techniques.

Male ECPs demonstrated a higher uptake of myopia control strategies. Gender disparities in professional opportunities and exposure to new technologies might explain this difference. Males may have greater access to continuous professional development programs and may be more represented in networks where myopia control strategies are discussed and promoted (Omar et al., 2024). Societal expectations and gender roles could also influence professional behaviors, with males potentially feeling more pressure to adopt innovative practices to enhance their standing and competitiveness (Dani et al., 2019). Females, on the other hand, might face barriers such as work-life balance challenges or gender biases, which could limit their engagement with the latest myopia management techniques. Additionally, males may be more inclined to take risks and experiment with new strategies, contributing to the higher uptake among male ECPs in Lurambi Constituency.

The equal uptake of myopia control strategies among ECPs in private and public clinics suggests a shared commitment to addressing the myopia epidemic. This parity can be attributed to the standardization of professional training and continuous education, which ensures that ECPs across both sectors have similar knowledge and skills regarding the latest myopia control techniques (Ministry of Health [MOH], 2022). Resources and access to modern myopia management tools appear to be comparable in both private and public settings, reducing discrepancies in the ability to implement these strategies (Chamberlain et al., 2019). Furthermore, the competitive nature of healthcare services encourages both private and public clinics to stay updated with best practices to meet patient expectations. The balanced uptake reflects a collective effort to prioritize myopia control across the board for improved community eye health outcomes.

The uptake of myopia control strategies was also significantly higher among ECPs with less than five years of experience. Being recent graduates, these ECPs are likely to be more familiar with current myopia management protocols and evidence-based practices (Coverdale et al., 2024; Press, 2019). They are also more enthusiastic about adopting new technologies emphasized during their training. In contrast, ECPs with more than five years of experience may rely on traditional methods they are comfortable with and may be slower to adopt newer strategies due to established practice patterns and less frequent engagement with recent advancements in myopia control (McCrann et al., 2020).

The adoption rate of myopia control strategies was equally high among optometrists and optometry technologists. These professionals are on the front lines of primary eye care and frequently encounter myopia in its early stages, motivating them to implement control strategies (MOH, 2022). Their training often emphasizes practical, preventive, and corrective measures, making them proactive in adopting new techniques to manage myopia (Press, 2019). In comparison, optometrist doctors and ophthalmic officers, while involved in myopia management, may have broader responsibilities encompassing a wide range of eye health issues, diluting their focus on myopia control (Keiling, 2023). Ophthalmologists, who typically handle more complex eye conditions requiring surgical intervention, may prioritize other aspects of eye health over myopia control, especially for mild to moderate cases that are often managed by optometrists and technologists (Churchill & Gudget, 2024). Additionally, ophthalmologists' seniority and hierarchical position in eye care may limit their involvement in routine myopia management.

4.3.3 Relationship between Uptake of Myopia Control Strategies and Demographic Profile of Teenagers and ECPS

Teenagers

Despite observing varying uptake rates of myopia control strategies among teenagers based on age, gender, type of clinic visited, and class grade, no significant relationship was found between these factors and the adoption of these strategies. This lack of significant correlation could be attributed to the multifaceted nature of myopia control adoption, which is influenced by a complex interplay of factors beyond the demographic and institutional variables considered. For instance, while older teenagers may have a heightened need for clear vision due to academic and career pressures, individual differences in awareness, access to information, and personal health behaviors can lead to inconsistent uptake rates across age groups (Xie et al., 2022). Similarly, although gender differences in behavior, such as screen time and engagement in visual activities, might suggest higher myopia prevalence and control strategy uptake in males, personal motivation and familial support play crucial roles in health intervention adherence, which can vary widely among individuals (Lanca & Saw, 2020). The type of clinic visited, whether public or private, might influence accessibility and availability of advanced eye care services, yet the decision to adopt myopia control

strategies is ultimately driven by personal, familial, and economic considerations that can differ significantly within similar clinical settings (Lian et al., 2023). Furthermore, the educational pressure experienced by teenagers in upper secondary school might suggest a higher uptake of myopia control strategies due to increased reading and screen time; however, variations in educational environments, parental guidance, and individual health priorities contribute to the observed inconsistency in uptake rates across different class grades (Ba & Li et al., 2024). These complexities highlight that while certain demographic and institutional factors may influence the likelihood of adopting myopia control measures, the actual decision-making process is nuanced and influenced by a broader spectrum of individual, familial, and socio-economic variables that were not fully captured in this study.

ECPs

The study found no significant relationship between the uptake of myopia control strategies among eye care practitioners (ECPs) and factors such as age, gender, type of clinic, years of experience, or the type of cadre with which the ECPs were practicing. This lack of significant correlation may be attributed to the uniformity of professional training and education received by ECPs, which standardizes knowledge and approaches to myopia control regardless of these demographic and professional variables (Chamberlain et al., 2019). Additionally, the decision to implement myopia control strategies is likely driven by universally accepted clinical guidelines and evidence-based practices rather than personal or practice-related characteristics (Gifford et al., 2019). The widespread availability of myopia control resources and continuing education opportunities may also play a role in ensuring that ECPs across different demographics and professional settings are equally informed and equipped to adopt these strategies (Dani et al., 2019). Thus, the uptake of myopia control measures appears to be consistently influenced by professional norms and access to updated clinical information rather than individual or practice-specific factors.

V. CONCLUSIONS & RECOMMENDATIONS

5.1 Conclusions

The uptake of myopia control strategies among teenagers and the uptake of effective myopia control strategies among ECPs were relatively high. The uptakes were higher in males of both teenagers and ECPs. No significant relationships were found between the uptake of myopia control strategies and the demographic profile of both teenagers and ECPs.

5.2 Recommendations

This study examined the general uptake of myopia control strategies but did not delve into the specifics of various methods. Therefore, it is recommended to conduct a study focused on understanding the uptake of different myopia control strategies within Lurambi Constituency.

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