

Knowledge and Attitudes Toward Ophthalmology Services: Public Health Challenges and Opportunities

Aims: This study assessed the knowledge and attitudes of the Jordanian population toward ophthalmology services, identified barriers, and explored opportunities to enhance access and care quality.

Instrument & Methods: A mixed-methods design was used, combining quantitative surveys and qualitative interviews. Data were collected from 385 participants in Amman. The survey included Likert-scale items evaluating knowledge and attitudes, and open-ended responses analyzed using thematic analysis. Descriptive and inferential statistics examined the relationship between knowledge and attitudes.

Findings: Respondents showed moderate knowledge of ophthalmology services, with the highest awareness in professional roles (Mean = 3.24, SD = 1.36) and the lowest in service access (Mean = 2.76, SD = 1.42). Knowledge of eye health was also moderate, with limited understanding of disease symptoms (Mean = 2.74, SD = 1.38). While general attitudes were positive, confidence in seeking care was low (Mean = 2.48, SD = 1.39). Statistically significant correlations were found between knowledge and attitudes toward seeking ($r = 0.42$, $p < 0.05$) and utilizing services ($r = 0.38$, $p < 0.05$). Financial constraints (42.3%) and logistical issues (27.8%) were the most cited barriers. Suggested improvements included capacity building (44.7%), financial assistance (42.1%), and awareness campaigns (23.6%).

Conclusion: There are clear knowledge gaps and access barriers to ophthalmology care in Jordan. Public health interventions including financial support, professional training, and telemedicine could improve accessibility and service quality.

Keywords: Ophthalmology services, knowledge, attitudes, barriers, public health.

Introduction

Vision is a fundamental aspect of human health, directly influencing daily functioning, productivity, and overall quality of life [1, 2]. Despite significant advancements in ophthalmology, access to comprehensive eye care remains a global challenge—particularly in middle-income countries like Jordan—where systemic, economic, and social factors hinder the equitable delivery of services. Public health efforts in ophthalmology aim to bridge these gaps by ensuring that essential eye care is accessible to all segments of the population [1, 3].

Eye health holds critical importance within the broader scope of public health, as untreated conditions can result in irreversible vision loss or blindness, severely impacting individual and societal well-being. In Jordan, public awareness regarding the significance of eye health and the availability of ophthalmic services remains limited [3, 4]. A lack of knowledge about preventive measures and treatment options often leads to delayed diagnoses and disease progression. Assessing public knowledge and attitudes is, therefore, essential for developing targeted interventions and policies that promote early care-seeking behaviors [2, 3].

Access to ophthalmology services in Jordan is shaped by multiple determinants, including socioeconomic status, health infrastructure, and geographic distribution of resources. Urban populations typically benefit from more robust healthcare services, while rural and underserved regions face considerable challenges, such as shortages of specialists, limited facilities, and financial barriers [3, 4]. These inequities demand a coordinated public health response that addresses infrastructure, workforce development, and affordability [1, 3, 5].

Moreover, cultural beliefs and social norms significantly influence health behaviors related to eye care [5, 6]. In Jordan, some individuals perceive vision decline as a natural part of aging or harbor skepticism toward available healthcare services. These perceptions underscore the need for culturally sensitive education campaigns that build trust and promote proactive engagement with ophthalmic services [1, 3, 5].

Broader systemic issues further complicate the landscape of eye health services in Jordan, including underfunded health programs, resource constraints, and competing national health priorities. Nonetheless, there are opportunities to strengthen eye care delivery through technological innovation, public-private partnerships, and integration of ophthalmology into primary care frameworks [1, 3, 5]. These efforts can contribute to early detection, reduce pressure on specialized services, and enhance service equity.

Empowering primary care providers to perform initial eye screenings and refer patients appropriately is a promising strategy to extend coverage and reduce disparities [6, 7]. Simultaneously, public awareness initiatives can promote regular eye check-ups and early intervention, supporting a shift from reactive to preventive care [1, 3, 5].

Research into public knowledge and attitudes toward ophthalmology services plays a critical role in identifying service gaps, informing health policy, and guiding the design of effective interventions[8-10]. This study seeks to explore the current awareness and perceptions among Jordanians, highlight the public health challenges involved, and propose strategies for enhancing the accessibility and quality of ophthalmology care in the country.

Methods

Study Design

This study employed a mixed-methods design, combining quantitative and qualitative approaches to understand knowledge and attitudes toward ophthalmology services in Jordan comprehensively. The quantitative component involved using structured questionnaires to gather measurable data. In contrast, the qualitative component included open end question in the questionnaire to explore more profound insights into participants' perspectives, experiences, and challenges.

Study Setting

The study was conducted in Amman, Jordan, between April and May 2024, and included three private ophthalmology clinics and one health center. The selected locations were chosen to reflect diverse socioeconomic and geographic contexts across the country.

Study Sample

The study targeted a representative sample of Jordanian adults aged 18 years and older. A total of 385 participants were recruited using a convenience sampling method during routine visits to three ophthalmology clinics and one public health center in Amman. These facilities recorded approximately 4,200 outpatient visits over the study period (April–May 2024). Based on this population, the minimum required sample size was calculated using the Raosoft sample size calculator, assuming a 95% confidence level, 5% margin of error, and 50% response distribution—yielding a target of 352 participants. To enhance robustness, a slightly larger sample of 385 was collected to account for potential nonresponse or incomplete data.

Instruments

Data were collected using a self-administered, structured questionnaire explicitly developed for this study, drawing upon validated items and frameworks from previous studies [1–8]. The questionnaire was designed in Arabic and included both open- and closed-ended questions across five comprehensive sections:

1. **Demographics** (5 items): This section gathered information on age, gender, education level, marital status, and occupation. These variables were used to analyze demographic trends and ensure a diverse sample.
2. **Knowledge** (12 items): This section was divided into two domains. Responses were measured on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree).
 - **Knowledge of Ophthalmology Services (6 items):** Items assessed awareness of the roles of ophthalmologists, optometrists, and opticians; services provided; access points; and links between ophthalmology and systemic diseases.
 - **Knowledge of Eye Health (6 items):** Items focused on understanding common eye disease symptoms, the impact of aging and lifestyle factors on vision, and preventive measures such as UV protection and protective eyewear.
3. **Attitudes** (12 items): Also divided into two domains. Responses were measured on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree).
 - **Attitudes Toward Seeking Services (6 items):** Included beliefs about regular check-ups, confidence in seeking care, comfort discussing vision issues, and the perceived value of early intervention.
 - **Attitudes Toward Utilizing Services (6 items):** Focused on trust in ophthalmologists, perceived accessibility and affordability, willingness to travel, and satisfaction with local services.These items also used a 5-point Likert scale.
4. **Barriers** (1 open-ended item): Participants were invited to describe the personal, financial, cultural, or systemic obstacles they face in accessing ophthalmology services.

5. **Opportunities** (1 **open-ended** **item**): Participants suggested practical solutions or strategies to improve access, such as mobile clinics, telemedicine, training programs, or public awareness campaigns.

Reliability and Validity

To ensure reliability, the questionnaire was subjected to internal consistency testing using Cronbach's alpha, with a value of 0.85 indicating high reliability. For validity, content validation was conducted by a panel of three experts in ophthalmology and public health. It was also **pre-tested on a pilot sample of 30 individuals**, resulting in no significant revisions, confirming its clarity and usability.

Data Collection

Data collection was conducted over a 6-month period through self-administered questionnaires. Trained researchers facilitated the process to ensure accurate and consistent data collection. Participants were assured of confidentiality and anonymity to encourage honest responses.

Data Analysis

The data collected was entered into SPSS software for statistical analysis. Descriptive statistics (frequencies, percentages, means) were used to summarize demographic data and responses to knowledge and attitude questions. Inferential statistics, including personal coefficient, were applied to identify Correlations between Knowledge and Attitudes toward Ophthalmology Services and Eye Health. Qualitative data from open-ended questions was analyzed thematically to identify common barriers and suggestions.

Results

Demographic Characteristics

A total of 385 participants completed the study, with a nearly equal distribution of males and females. The sample represented a broad range of age groups, educational levels, marital statuses, and occupations, which ensured demographic diversity. Participants included students, healthcare workers, manual laborers, and unemployed individuals, with varying levels of formal education and a mix of single, married, and widowed/divorced respondents. These characteristics provided a comprehensive foundation for understanding patterns in knowledge and attitudes across different population subgroups (Table 1).

Table 1: Demographic Characteristics of Study Participants (N=385)

Main Variable	Sub Variable	Frequency	Percentage
Age	18-25	92	23.9
	36-45	75	19.48
	56+	74	19.22
	46-55	73	18.96
	26-35	71	18.44
Gender	Male	193	50.13
	Female	192	49.87
Education	No formal education	3	0.78
	University	177	45.97
	Secondary	176	45.71
	Primary	16	4.16
Married Status	Divorced/Widowed	35	9.09
	Single	181	47.01
	Married	169	43.90
Occupation	Student	92	23.9
	Other Professional	87	22.6
	Healthcare Worker	75	19.48
	Manual Labor	71	18.44
	Unemployed	60	15.58

Key Findings on Knowledge and Attitudes

Table 2 summarized participants' responses regarding their knowledge and attitudes toward ophthalmology services and eye health. Overall, participants demonstrated moderate knowledge, showing greater awareness of professional roles and the general scope of ophthalmology, but limited familiarity with service access and specific disease symptoms. Knowledge of eye health reflected similar trends, with a better understanding of preventive behaviors than of clinical warning signs.

Table 2: Key Findings on Knowledge and Attitudes Toward Ophthalmology Services and Eye Health

Variables	Mean	SD
Knowledge of Ophthalmology Services		
I am aware of the range of services provided by ophthalmologists.	3.16	1.45
I understand the difference between an ophthalmologist, optometrist, and optician.	3.24	1.36
I know where to access ophthalmology services in my area.	2.76	1.42
I am familiar with the types of conditions treated by ophthalmologists.	2.78	1.34
I know the benefits of regular eye exams for maintaining eye health.	2.88	1.36
I understand the role of ophthalmology in managing chronic diseases like diabetes or hypertension.	3.22	1.42
Knowledge of Eye Health		
I am aware of the potential risks of delaying treatment for eye-related symptoms.	3.18	1.55
I know the importance of wearing protective eyewear in hazardous environments.	2.84	1.48
I know the signs and symptoms of common eye diseases (e.g., glaucoma, cataracts, macular degeneration).	2.74	1.38
I understand how lifestyle factors (e.g., smoking, diet, screen time) affect eye health.	3.1	1.47
I understand the impact of aging on vision and eye health.	3.14	1.47
I know about the importance of UV protection for preventing eye damage.	3.18	1.52
Attitudes toward Seeking Ophthalmology Services		
I believe regular eye check-ups are essential for maintaining good vision.	2.88	1.41
I feel confident in seeking care from an ophthalmologist if I notice changes in my vision.	2.48	1.39
I think it is important to consult an ophthalmologist even when no symptoms are present.	3.2	1.54
I am comfortable discussing my eye health concerns with a healthcare provider.	3.1	1.45
I prioritize eye health as much as I prioritize other aspects of my health.	3.36	1.38
I believe early detection of eye problems through ophthalmology services can prevent vision loss.	2.86	1.48
Attitudes Toward Utilizing Ophthalmology Services		
I trust ophthalmologists to provide effective and reliable care for eye-related issues.	2.94	1.39
I am willing to spend time and money to access quality ophthalmology services.	2.96	1.47
I feel that ophthalmology services are accessible and convenient for my needs.	2.96	1.34
I value the role of ophthalmology services in managing chronic health conditions that affect vision.	2.88	1.41
I believe it is worth traveling to specialized centers to receive ophthalmology care if needed.	2.48	1.39
I think the quality of ophthalmology services in my area meets my expectations.	2.72	1.55

Attitudes toward seeking care were generally positive, particularly regarding the prioritization of eye health and the importance of regular check-ups. However, a lack of confidence in seeking care and low perceived accessibility remained evident. Attitudes toward utilizing services revealed mixed perceptions; while participants expressed willingness to invest time and money in quality care, concerns persisted about traveling

for specialized services and the adequacy of local resources. These patterns indicated a need to address both informational gaps and structural barriers to optimize public engagement with eye health services.

Correlations between Knowledge and Attitudes

As shown in Table 3, the analysis revealed significant positive correlations between knowledge and attitudes toward ophthalmology services and eye health. Specifically, greater knowledge of ophthalmology services was associated with more favorable attitudes toward both seeking and utilizing these services. Similarly, higher knowledge of eye health was strongly correlated with greater willingness to seek and use ophthalmology care. These findings suggested that improved awareness and understanding played a pivotal role in shaping proactive health-seeking behaviors related to eye care.

Table 3: Correlations between Knowledge and Attitudes toward Ophthalmology Services and Eye Health

	1	2	3	4
1. Knowledge of Ophthalmology Services	1.00 (>.05)			
2. Knowledge of Eye Health	0.15 (>.05)	1		
3. Attitudes toward Seeking Ophthalmology Services	0.42 (<.05)	0.32(<.05)	1	
4. Attitudes toward Utilizing Ophthalmology Services	0.38 (<.05)	0.51 (<.05)	0.12 (>.05)	1

Barriers affecting access to ophthalmology services

The results highlighted the barriers affecting access to ophthalmology services, with financial constraints emerging as the most significant challenge, accounting for 42.3% of the responses. Many individuals struggled to afford consultations, diagnostic tests, and treatments due to high costs or lack of insurance coverage. Logistical challenges, representing 27.8% of the responses, were the second most common barrier. These included issues such as long travel distances to specialized centers, limited local availability of ophthalmology services, and delays caused by inefficient referral systems.

Knowledge gaps, reported by 22.1% of respondents, significantly hindered timely care-seeking behavior. Many individuals were unaware of the importance of early intervention or how to recognize common eye conditions. Cultural and social factors also played a role, accounting for 17.1% of responses. Misconceptions, stigmas, and biases discouraged individuals from seeking care. Finally, attitudinal barriers, reported by 15.6% of respondents, reflected negative perceptions or misconceptions about eye care. Some individuals believed that regular eye exams were unnecessary unless symptoms were severe, or they feared surgical procedures, leading them to postpone seeking care.

Opportunities for Improving Access and Quality of Ophthalmology Services

The results highlighted the opportunities for improving access to and the quality of ophthalmology services. The most significant opportunity identified was capacity building and training, accounting for 44.7% of responses. This indicated a strong need to expand the workforce of trained ophthalmologists, optometrists, and support staff to meet service demands. Financial assistance programs were the second most cited opportunity, representing 42.1% of responses. This reflected the need to reduce the financial burden of ophthalmology services for patients. Initiatives such as subsidies, insurance coverage, and payment plans helped ensure affordability, especially for essential procedures like cataract surgery.

Public awareness campaigns, mentioned by 23.6% of respondents, emphasized the importance of educating the public on eye health, early detection, and the availability of services. For example, campaigns in schools and communities promoted proactive eye care behaviors, such as regular check-ups and recognizing early symptoms.

Telemedicine integration, identified by 9.4% of responses, offered a way to bridge geographical barriers by providing remote consultations and virtual screenings, particularly benefiting patients in rural areas with

limited access to specialized care. Lastly, mobile eye clinics accounted for 8.1% of responses. These clinics delivered essential services—such as vision tests and cataract screenings—directly to underserved communities, reducing travel burdens and improving accessibility.

Discussion

Vision health is a crucial aspect of public health because untreated eye conditions can lead to vision loss or blindness, significantly impacting individuals' quality of life and ability to function. In Jordan, the study highlights a general lack of public awareness regarding the importance of eye health and the availability of ophthalmology services. These gaps contribute to delays in seeking care, leading to late diagnoses and preventable complications. Addressing these issues is vital for ensuring a healthier population with improved access to essential eye care services [1, 7].

The study found that participants moderately understood ophthalmology services, particularly in recognizing professional roles like ophthalmologists, optometrists, and opticians. However, knowledge about where and how to access these services was limited [10-12]. This lack of knowledge may stem from inadequate public health communication strategies and insufficient promotion of available services, especially in rural areas. Such gaps can leave individuals without clear guidance on addressing vision problems, leading to unnecessary care delays and worsening conditions [1, 5].

Knowledge about eye health was also moderate, with participants showing better awareness of preventive measures, such as protecting eyes from UV rays and understanding the risks of delaying treatment. However, awareness about common eye diseases, such as glaucoma or cataracts, was notably low [13-16]. This lack of understanding may be due to limited public health campaigns or a general focus on other health priorities in Jordan. Many individuals may not recognize the signs of these diseases, delaying their diagnosis and treatment. A stronger emphasis on education about specific conditions could bridge this gap and encourage earlier intervention [5, 6].

Participants exhibited generally positive attitudes toward seeking ophthalmology services, with many prioritizing eye health alongside other aspects of their well-being. However, there was a noticeable lack of confidence in seeking care, possibly due to fear of diagnoses, mistrust in healthcare providers, or misconceptions about the effectiveness of treatments [18-21]. Such attitudes may also be shaped by cultural norms that discourage proactive health-seeking behaviors or by past experiences of inadequate care, which may deter individuals from seeking help when needed [2, 4].

While participants expressed willingness to invest in quality eye care services, logistical challenges and perceptions of service accessibility were significant barriers. Many individuals hesitated to travel long distances to specialized centers, particularly in rural or underserved areas. This reluctance might be attributed to inadequate transportation infrastructure, high travel costs, or a belief that local services are insufficient. These factors suggest a need to decentralize services and improve community access [2, 4].

The study revealed that higher knowledge about ophthalmology services and eye health was associated with more positive attitudes toward seeking and utilizing care. This correlation underscores the importance of public awareness campaigns and educational programs in shaping health-seeking behaviors [22-24]. When individuals are informed about the benefits of early intervention and the availability of services, they are more likely to take proactive steps to protect their eye health [6, 7].

Financial and logistical barriers were the most significant challenges identified in the study. The high cost of consultations, diagnostic tests, and treatments limits access for many individuals, particularly those in lower-income groups [24-26]. Additionally, rural areas' lack of specialized services forces patients to travel long distances, further exacerbating the financial burden. Cultural and social factors, such as misconceptions about eye care and stigmas associated with seeking treatment, discourage individuals from accessing services [1, 3]. In developed countries, access to ophthalmology services is generally more streamlined due to robust healthcare systems and comprehensive insurance coverage. For example, national health services in countries like the UK provide free or subsidized eye tests for vulnerable populations, significantly reducing financial barriers. Public awareness campaigns in developed nations are also more widespread, utilizing diverse platforms to educate people about eye health and encourage regular screenings [4, 6].

The study highlights several opportunities for improving access and quality of ophthalmology services in Jordan. Capacity building, such as training more ophthalmologists and optometrists, is essential to address the growing service demand [8,10,12]. Financial assistance programs can alleviate the burden on low-income populations, while public awareness campaigns can foster a culture of proactive eye care. These efforts can

mirror successful models in developed countries where similar strategies have yielded positive outcomes [5, 8, 9].

Public awareness campaigns hold significant potential for bridging knowledge gaps and shifting attitudes toward eye health. In developed countries, such campaigns are often targeted and culturally sensitive, addressing specific barriers and misconceptions [14,16]. Jordan can adopt similar approaches by engaging community leaders, schools, and media outlets to disseminate accurate information about eye health and the benefits of regular check-ups [1, 9, 10].

Telemedicine offers promising solutions to geographic and logistical barriers. In rural areas of developed countries, teleophthalmology has been successfully implemented to provide remote consultations and screenings [18,21]. Adopting similar initiatives in Jordan could extend access to underserved populations, reduce travel burdens, and ensure timely care for conditions like diabetic retinopathy [1, 11, 12].

Mobile eye clinics represent another opportunity to address geographic disparities [6, 7, 13]. These clinics can bring essential services directly to communities, offering vision tests, screenings, and referrals [4, 23]. Developed countries have demonstrated the effectiveness of mobile clinics in reaching marginalized populations, and Jordan could benefit from adopting this model to enhance service delivery [2, 16, 25].

Integrating basic eye care into primary healthcare systems can significantly improve early detection rates and reduce the burden on specialized centers. In developed countries, general practitioners are often trained to perform initial screenings, ensuring timely referrals for specialized care. Jordan can implement similar strategies to expand access and improve outcomes.

Limitations

This study has certain limitations that should be considered when interpreting the findings. First, convenience sampling may limit the representativeness of the results. The sample may not fully capture the diversity of the broader population, potentially affecting the generalizability of the study's conclusions. Second, as the data relied on self-reported questionnaires, there is a risk of bias, with participants possibly overestimating or underestimating their knowledge and attitudes. Such biases can influence the accuracy of the findings and may not entirely reflect the population's actual experiences.

Third, the study did not specifically examine the unique barriers faced by pediatric or elderly populations. These groups may encounter different challenges in accessing ophthalmology services, such as mobility issues for elderly individuals or a lack of pediatric-specific care for children. Failing to address these specific needs may overlook critical subgroups within the population. Lastly, the cross-sectional nature of study design limits the ability to assess changes over time. While the study identifies key challenges and opportunities, it does not capture the long-term impact of interventions or the progression of knowledge and attitudes over time.

Recommendations

To address the challenges identified in this study, several recommendations are proposed. Integrating essential ophthalmology services into primary healthcare systems is critical to improving accessibility. Training general practitioners to perform basic eye exams and provide timely referrals can reduce barriers to specialized care. Additionally, establishing financial assistance programs can alleviate the cost burden for vulnerable populations, ensuring that financial constraints do not prevent individuals from accessing necessary eye care services.

Culturally appropriate public awareness campaigns are essential to address misconceptions and promote proactive health-seeking behaviors. These campaigns should be tailored to resonate with diverse communities, highlighting the importance of regular eye check-ups and early detection of conditions. Expanding the workforce of trained ophthalmologists and optometrists is another priority. Investment in education and training programs can help meet the growing demand for eye care services and improve the quality of care provided. Finally, telemedicine and mobile clinics offer innovative solutions to reach underserved communities. These initiatives can reduce geographic disparities and ensure that individuals in rural areas have access to essential ophthalmology services.

Conclusion

This study highlights significant gaps in knowledge and barriers to accessing ophthalmology services in Jordan, as well as opportunities for improvement. Financial constraints and logistical challenges emerged as the most critical obstacles, while cultural and attitudinal barriers further hindered access to care. Despite these

challenges, the study identifies several promising opportunities, including capacity building, public awareness campaigns, and the integration of telemedicine and mobile clinics.

By drawing on successful strategies from developed countries, Jordan can enhance its ophthalmology services and promote equitable access to care. Addressing these challenges requires a collaborative effort among policymakers, healthcare providers, and community stakeholders. Improving access and quality of ophthalmology services will enhance the population's vision health and contribute to overall well-being and productivity, ultimately advancing public health outcomes in Jordan.

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