

A Field Research on the Problems Experienced by Opticians and Optical Stores Ceren Gür¹, Mustafa Şenay^{1*}

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The optician profession forms an important bridge between ophthalmologists and patients in the treatment of eye diseases and refractive errors. Optical glasses, frames, contact lenses and other devices are provided and applied by opticians in accordance with prescriptions written by ophthalmologists. However, the optician profession and institutions in Turkey face various problems. This research aims to identify and analyze issues such as education and qualification problems, regulatory difficulties, economic difficulties and adaptation to technological innovations experienced by the optician profession and institutions in Turkey. By evaluating the opinions and expectations of different stakeholders, solution suggestions and strategies will be developed to make the profession more efficient and effective. Thus, it is aimed that the results of the study will contribute to the future development of the optician profession and its institutions.

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ABSTRACT

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Anahtar Kelimeler

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Optisyenlik mesleği, göz hastalıkları ve refraksiyon kusurlarının tedavisinde göz hekimleri ve hastalar arasında önemli bir köprü oluşturmaktadır. Göz hekimlerinin yazdığı reçetelere uygun olarak optik camlar, çerçeveler, kontakt lensler ve diğer cihazlar, optisyenler tarafından sağlanmakta ve uygulanmaktadır. Ancak, Türkiye'deki optisyenlik mesleği ve müesseseleri çeşitli sorunlarla karşı karşıya kalmaktadırlar. Bu araştırma, Türkiye'deki optisyenlik mesleği ve müesseselerinin yaşadığı eğitim ve yeterlilik sorunları, mevzuat sıkıntıları, ekonomik zorluklar ve teknolojik yeniliklere adaptasyon gibi konuları tespit etmeyi ve analiz etmeyi amaçlamaktadır. Farklı paydaşların görüş ve beklentileri değerlendirilerek, mesleğin daha verimli ve etkili hale gelmesi için çözüm önerileri ve stratejiler geliştirilecektir. Böylelikle çalışma sonuçlarının optisyenlik mesleğinin ve müesseselerinin gelecekteki gelişimine katkı sağlaması hedeflenmektedir.

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INTRODUCTION

Optics is a branch of science that focuses on light and vision, and also includes the study of other types of radiation that are similar to light but cannot be seen by the human eye. Light is a type of radiant energy, and other forms of radiant energy include radiant heat, radio waves, and X-rays. Light travels through space from luminous sources, which are usually hot. The high temperature of these sources causes their atoms to become highly mobile, and this mobility radiates energy from the source in all directions. (1).

The study of light has been a focus of scientific inquiry throughout history, driven by curiosity about natural phenomena such as sunlight and fire. Early studies of the origin and behavior of light date back to antiquity, but significant advances occurred primarily in the 16th and 17th centuries. Isaac Newton's pioneering work on the refraction of light through a glass prism in 1672 laid the foundation for understanding the spectral properties of light, introducing the concept of "refraction" and showing that different colors of light are deflected to different degrees (2). Thomas Young's double-slit experiment provided important evidence for the wave theory of light and led to the development of the trichromatic theory of color vision, which postulated that color perception results from the interaction of three primary colors of light. James Clerk Maxwell's color mixing experiments between 1855 and 1890 strengthened Young's theory, while Helmholtz's mathematical framework further developed the trichromatic theory. The early 20th century saw the transformative contributions of Max Planck, who introduced the concept of quantized energy levels in blackbody radiation, and Albert Einstein, who explained the photoelectric effect as evidence of the quantized nature of light. Niels Bohr's 1913 model of atomic structure, combined with the discovery of lasers in 1960, highlighted the practical applications of these theoretical advances, revolutionizing technology and improving everyday life. The continuing evolution of the theory of light has had a profound impact on both scientific understanding and technological innovation (3-7).

On the other hand, the interaction and deepening of sciences have enabled the emergence of new professions. In order to understand this situation and create a perspective, it is important to know the development of science and technology. The innovations offered by these developments in the field of eye and vision health are important in terms of understanding the priorities of working and living conditions. Factors such as the increase in the world population, the growth of the elderly population, the increase in the literacy rate and the widespread use of technology in communication have increased the importance of eye and vision health. Vision is an important sensory organ for humans and plays a major role in the learning process. In addition, good eyesight is required to live an independent life and perform daily activities (8-11).

Ophthalmologists, who diagnose and treat eye diseases and refractive errors, prescribe glasses for their patients. The optician profession plays an important role in improving vision health and providing people with a quality life. Many studies have been conducted in the literature on opticianship. For example, these studies include: Determining the level of conceptual understanding related to optics (12), The role of the optician profession in eye injuries (13), examining the relationship of optometry student outcomes with teaching presentation methods and student age (14), eye injuries and preventive ophthalmology (15), glaucoma screening during regular eye doctor visits (16), redefining the information form: an interactive resource for decision-making in optician stores (17), putting glasses on the customer's head at the optician (18).

Contact lenses are widely used worldwide for vision correction. These small, clear discs are placed directly on the surface of the eye, where they refract light to correct common vision problems such as nearsightedness, farsightedness, and astigmatism (19). Compared to traditional

eyeglasses, contact lenses offer several benefits. They improve peripheral vision, eliminate the need for frames, and improve vision during physical activities such as sports. Additionally, contact lenses can provide a more natural appearance because they do not cover the wearer's face (20). Despite some drawbacks, contact lenses continue to be a popular option for vision correction thanks to ongoing technological advances that have improved their safety, comfort, and effectiveness. This mini-review will examine both the benefits and limitations of contact lenses and highlight the latest innovations in contact lens technology (21-23).

Devices such as optical glasses, frames, contact lenses, telescopic or prismatic glasses specified in these prescriptions are supplied and applied to the users by opticians in accordance with the patient's needs and prescription. The optician industry is a healthcare field that undertakes tasks such as delivering these products to users and making the necessary measurements. Ophthalmologists prescribe products that will treat or help correct a patient's eye disease or refractive error. Opticians working in optical stores ensure that customized products are created for patients in accordance with this prescription. Opticians work as health technicians and it is important that they work in coordination with ophthalmologists. This cooperation is of great importance in providing patients with the correct treatment and glasses.

The optician profession plays an important role in improving vision health and providing people with a quality life. However, this profession faces several challenges. The optician profession in Turkey has a complex structure due to both legal regulations and market conditions. In particular, issues such as the difficulties experienced by newly graduated opticians in finding a job, lack of professional experience and competition in the sector stand out as important problems in terms of the sustainability of the profession. In this context, limited professional training and continuous development opportunities put opticians at a disadvantage in terms of improving themselves and keeping up with innovations.

Optician businesses are faced with the need to constantly adapt due to commercial pressures and changing consumer expectations. Technological innovations and the impact of digitalization on the industry require optical stores to redefine their way of doing business and customer service. In addition, regulations and inspections related to the health sector make the operational processes of optical institutions more complex and require them to adapt to these processes. This situation causes institutions to allocate more resources in terms of both cost and management.

The research focus on reveal invisible problems by thoroughly examining the current situation and working conditions of the optician profession in Turkey. Conducting a comprehensive analysis to determine strategies that will shape the future of the profession will contribute to the creation of a sustainable working environment for both opticians and institutions. In this regard, surveys and interviews about the experiences, expectations and difficulties faced by members of the profession will constitute the main data sources of the research. The findings obtained will serve as a guide in the development of policies and practices for the sector.

This research aims to measure different types of quantities such as the general perception of the optician profession, the importance of the profession, the reasons why the profession is recommended to students and the suitability of the profession for young people, the biggest problems encountered in the profession and strategies to cope with these problems, the problems experienced in communicating with patients and how these problems can be solved, the adequacy of the optician education process and the level of following technological developments in the profession.

Research Questions

- What is your perspective on the optician profession? What are the important aspects of your profession?
- Would you recommend the optician profession to students? Why?
- What are the biggest problems you encounter while practicing your profession?
- What are the problems you experience in communicating with patients? How can better communication be achieved?
- What are the problems you experience with your employer? What are your thoughts on the work environment and working conditions?
- What are your opinions on the internships students do during the summer months? How can internship programs be improved?

MATERIAL AND METHOD

In this study, a qualitative research method was used. Within the scope of this plan, the research aims to reveal both the problems experienced in practicing the optician profession and the problems experienced by optician institutions, to question these problems in depth and to seek solutions to these problems. For this reason, in the study, it is aimed to obtain more detailed information and opinions by asking questions in the semi-structured interview form to different people such as opticians, authorized persons, and responsible managers in the optical store, and to compile the experiences of the people and present them as a result. In addition, in the study, the codes of the data will be determined first using the Maxqda12. qualitative data analysis system, and themes will be created from the determined codes.

Type of Research

This research was designed as a descriptive cross-sectional study. Cross-sectional studies are studies in which events or situations are examined over a certain period of time (24).

Population and Sample of the Research

The population of the study consists of optical stores in Bartın province, and the sample consists of optical store owners and opticians who have been in commercial activity for at least 1 year and voluntarily agreed to participate in the study. In this context, 12 optical stores in Bartın were randomly selected.

Data Collection Tools

In collecting data, the semi-structured interview form consists of questions such as gender, age, duration and position in the profession, title and educational status.

Collection of Data

The data of the study was collected by the student working in the TÜBİTAK-2209A student project, through face-to-face interviews with optical store owners and employees who agreed to participate in the study. The interviews lasted approximately 30 minutes.

Semi-structured Interview Questions

- What do you think about the abundance of opticianry establishments in Bartın?
- Are you happy with the location of your store?
- Is there competition among opticianry establishments in Bartın? What do you think about this issue?
- Are you happy with your income as both an optician and a shop owner?
- Do you have any ideas to differentiate the working order in opticianry establishments?

- What do you think about the opticianry education model?
- Do you think a 2-year program is enough to practice this profession?
- What do you think about the future of the opticianry profession?
- Do you think there are enough job opportunities in the opticianry profession as an optician?
- What should opticians' employment contracts be like?
- Do you find the working hours sufficient? If not, do you have any suggestions?
- Do you follow technological developments in your profession closely?
- Do you find the law and regulations in the opticianry institution sufficient?
- What are the most common problems we experience with patients?
- What solutions do you use to solve problems experienced with patients?
- What are the problems you experience with the companies you supply goods to?
- Is it difficult to enter prescriptions into the system and the ledger at the same time?
- Are you aware of government support? If so, do you benefit from this right?
- Do you have sufficient information about social security institution support payments?
- What are the problems you experience with the machines used in eyeglass assembly (focometer, hand stone, glass cutter, heater)?

Evaluation of the interview questions in relation to the research questions and/or hypotheses of the study

Relating the study questions to the interview questions in line with the assumptions clarifies the scope of the research and ensures that the data collection process reaches its goal. In this context, we can list the assumptions we derived in this research as follows:

- Collecting information about the education process and working conditions of the optician profession is necessary to understand the attractiveness and difficulties of the profession.
- Financial satisfaction and satisfaction with working conditions in the optician profession are effective factors in choosing a profession.
- Professional problems and solutions are important for improving professional practice.
- Competition and supply problems play a critical role in terms of professional sustainability and development.

In line with the assumptions mentioned above, we can explain the relationships between the study questions and interview questions as follows:

- Interview questions measure the participant's views and satisfaction regarding the adequacy of the education process and preparation for the profession. Study questions are aimed at understanding individuals' educational experiences and the effects of this process on their professional careers.

- Interview questions provide more specific information about the current situation regarding working hours and financial satisfaction. Study questions are used to understand the general perception of these experiences.
- Interview questions detail specific professional issues and strategies to address them, while study questions gather information about general issues and proposed solutions.
- Interview questions provide an overview of local competition and supply issues. Study questions address details of supply processes and specific issues encountered in these processes.

Ethical Aspect of Research

Approval was received for the research from Bartın University Social and Human Sciences Ethics Committee (Decision date: 14.03.2024-Protocol number: 2024-SBB-0169).

Supporting Organization

The research was supported within the scope of TÜBİTAK-2209A student project.

FINDINGS AND DISCUSSION

Demographic characteristics of the participants are given in Table 1.

Table 1. Demographic Characteristics of Participants

| Variables | | N | $\bar{x}\pm SD$ | % |
|--|---------------------|----|-----------------|------|
| Age (Years) | | 12 | 31,58±8,19 | |
| Working Time in the Profession (Years) | | 12 | 8,5±8,1 | |
| Gender | Woman | 6 | | 50 |
| | Male | 6 | | 50 |
| Educational Status | Associate degree | 6 | | 50 |
| | Bachelor's degree | 6 | | 50 |
| Title at Work | Optician | 4 | | 33,3 |
| | Responsible Manager | 4 | | 33,3 |
| | Worker | 1 | | 8,3 |
| | Business Owner | 3 | | 25 |

The average age of the participants is 31.58 and their average working time in the profession is 8.5 years. Additionally, 50% of the participants are men and 50% are women. In addition, the rate of opticians and responsible managers among the participants is higher than other participants.

The participants' answers to the questions prepared for the research are shown in Table 2 in a themed manner.

Table 2. Responses to the Questions Prepared for the Research

| Main Themes | Child Themes |
|---------------------------------------|---|
| Problems Regarding Optician Education | <ul style="list-style-type: none">• Insufficient duration of associate degree education• Insufficient internship period and laboratory practice hours |
| Problems Related to the Profession | <ul style="list-style-type: none">• Insufficient employment in the public sector• Keeping book records outside the Medula system• Long working hours, especially in summer• Selling sunglasses in different workplaces other than optical stores |
| Optical Stores | <ul style="list-style-type: none">• As the number of optical stores increases, quality decreases |
| Problems for Patients | <ul style="list-style-type: none">• Customers whose prescriptions are given think that Social Security Institution (SSI) covers all their |

| | |
|--------------------|---|
| | glasses costs. |
| Technical Problems | <ul style="list-style-type: none">• Machine malfunction and problems during assembly• Late and incorrect arrival of glasses during the supply of goods |

According to the data obtained within the scope of the research, various problems related to the optician profession and education have come to light. Participants stated that patients' misconceptions that SSI covers their glasses expenses caused serious problems. This false belief causes communication problems between opticians and patients, reduces service quality and negatively affects customer satisfaction. Opticians have to inform patients about this issue, which causes loss of time and additional workload.

The insufficient employment of opticians in the public sector also damages the prestige of the profession and limits employment opportunities. The short duration of education in associate degree programs and the inadequacy of internship periods negatively affect the professional competencies of new graduates and make their adaptation to business life difficult. In addition, frequent supply problems in optical stores and failure to resolve machine malfunctions in a timely manner both reduce customer satisfaction and negatively affect business efficiency. These problems stand out as the main obstacles that hinder the development of the optician profession and make it difficult to raise standards in the sector.

CONCLUSION AND RECOMMENDATIONS

This research aims to determine the problems experienced by the optician profession as its importance increases. The research was conducted in 12 optical stores in Bartın province. Structured interview questions were asked to the participants in the research in a face-to-face manner. The following results were obtained as a result of the research; 80% of the participants stated that optician education was not sufficient, 65% stated that there were patient dissatisfaction and material supply problems, 70% stated that current internship programs were inadequate and that internship programs should include more practical applications, and 60% of the participants stated that regional competition made it difficult to do business.

In light of the information provided above; providing patients with accurate information about the supports provided by SGK and the fees covered by it, providing information brochures and posters about SGK in optical stores to inform patients, organizing service trainings for employees working in optical stores and increasing the communication skills of personnel, establishing regular and open communication with suppliers and following up on order processes more closely, regular use of technical service by optical stores and not neglecting equipment maintenance, providing more comprehensive information about government support and incentives for opticians are presented as solution suggestions for the problems that emerged in the research. In addition, following developments in the sector closely, evaluating and updating education curricula periodically, establishing advisory boards with the participation of employers and experts from the sector, Incorporating the latest technologies into education materials and laboratory equipment by following technological developments closely and cooperating with the industry, and conducting research projects in the field of optics can be seen as academic solution suggestions.

These results and suggestions will enable concrete steps to be taken to solve the problems faced by the optician profession and institutions in Turkey and to ensure that the profession operates more efficiently and effectively in the future. Opticians and optical store owners can improve service quality and ensure customer satisfaction by implementing these suggestions.

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Conflict of Interest

There is no conflict of interest regarding this study.

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REFERENCES

1. Freeman, H. H. and Hull, C. C., (2013). Optics, Butterworth-Heinemann, London.
2. Safir, A., Smith, V., Pkorny, J., and Brown, J. L., (1976). Optics and Vision Physiology, Arch Ophthalmol. 94, pp. 852-862.
3. Köşe, S., 2022. Türkiye’de optisyenlik mesleği ve optisyenlik müesseselerinin yaşadıkları sorunlar: sivas ilinde bir alan araştırması, Yüksek Lisans Tezi, Sivas Cumhuriyet Üniversitesi.
4. Yörükoğulları, E. ve İhsanoğlu, E.M., (2017). Bilim ve Teknoloji Tarihi. Eskişehir: T.C. Anadolu Üniversitesi Yayını No: 3625.
5. Thuan, T.X., Işıkın Kalbine Yolculuk. (Çev: Aslı Genç) İstanbul: Yapı Kredi Yayınları 3206. 2010.
6. Özdemir, Y., 2018. Bilime Yön Verenler. Ankara: Nobel Akademik Yayıncılık Eğitim Danışmanlık Tic. Ltd. Şti.
7. Erdoğan, Ö ve Kabak Semih. Gözlükçülüğün Tarihsel Gelişimi ve Türkiye’de Gözlük Sektörü. İstanbul: İstanbul Ticaret Odası. İstanbul Kalkınma Ajansı. İstanbul Düşünce Akademisi. Yayın No: 2018-2. Şen Ofset. 2018.
8. Akbaylar, E., Pratik Gözlükçülük, İzmir: Doğruluk Matbaacılık San. Tic. Ltd.Şti. 1992.
9. Topdemir G.H., Unat, Y., 2018. Bilim Tarihi. Ankara: Pegem Akademi.
10. Sunay, N., 1960. Teorik Gözlükçülük. Ankara: T.C. Sağlık ve Sosyal Yardım Bakanlığı Yayınlarından No. 246. Çağ Matbaası.
11. 3958 Sayılı Fenni Gözlükçülük Kanunu. 1940.
12. Ozdemir, E., Coramik, M., Urek, M. Determination of Conceptual Understanding Levels Related to Optics: Concepts: The Case of Opticianry. International Journal of Education in Mathematics, Science and Technology.2020; 8(1), 53-64.
13. Woods, T. A. The role of opticianry in preventing ocular injuries. International Ophthalmology Clinics. 1998; 28(3): 251-254.

14. Underwood, W. B., Hernandez-Gantes, V. M. Examination of the Relationship of Community College Opticianry Student Outcomes with Instructional Delivery Methods and Student Age. *Community College Journal of Research and Practice*. 2017; 41(9): 593–609.
15. Keeney, A. H. Ocular injuries, preventive ophthalmology, and optimal opticianry. *American Journal of Ophthalmology*. 1970; 70(4): 651-652
16. de Vries, M. M., Stoutenbeek, R., Müskens, R. P. H. M., Jansonius, N. M. Glaucoma screening during regular optician visits: the feasibility and specificity of screening in real life. *Acta Ophthalmologica*. 2012; 90(2); 115-121.
17. Due, B. L. Respecifying the information sheet: An interactional resource for decision-making in optician shops. *Journal of Applied Linguistics & Professional Practice*. 2017: 14(2);127.
18. Due, B. L., Lehn, D. V., Webb, H., Heath, C., Trærup, J. Servicing the body: placing glasses on the client's head at the opticians, *Visual Studies*, 2020: 35(2-3); 109-123.
19. Shaker, L. M., Al-Amiery, A. A., Al-Azzawi, W. K., A clearer vision: a mini-review on contact lenses. *Journal of Optics*. 2024: 53(2); 949-958.
20. Bishop, M. J., Sun, C. K., Coles-Brennan, C., Gallois-Bernos, A. Evaluation of daily disposable senofilcon A contact lenses in asymptomatic population. *Contact Lens and Anterior Eye*. 2022:45(5), 101574.
21. Morgan, P. B., Sulley, A. L. Challenges to the new soft contactlens wearer and strategies for clinical management. *Contact Lens and Anterior Eye*. 2023: 46(3); 101827.
22. Stapleton, F., Shrestha, G. S., Vijay, A. K., Carnt, N. Epidemiology, microbiology, and genetics of contact lens-related and non-contact lens-related infectious keratitis. *Eye and Contact Lens*. 2022: 48(3); 127–133.
23. Fogt, J. S., Weisenberger, K., Fog, N. Visual performance with multifocal contact lenses and progressive addition spectacles. *Contact Lens and Anterior Eye*. 2022: 45(4); 101472.
24. Yazıcıoğlu Y, Erdoğan S. SPSS uygulamalı bilimsel araştırma yöntemleri. Ankara: Detay Yayıncılık. 2014.