



The association of eye health with contact lens purchasing channels and wearing habits in metropolitan Taiwan

Chao Kai Chang¹, Cheng Ke Hsu¹, Iebin Lian², Ching Yao Huang^{1*}

¹Department of Optometry, Da-Yeh University, Taiwan

²Department of Mathematics, National Changhua University of Education, Taiwan

Abstract

Objective: To assess the effect of purchasing behaviour and wearing habits of consumers on the incidence related to the health of eye.

Methods: Questionnaires about the purchasing behaviour and wearing habits of consumers were randomly and anonymously sent to register optical shops in Taiwan. The collected data included information about participants and contact lens categories, purchasing channels, and wearing habits of participants; types and causes of eye discomfort; and understanding of hygiene of participants.

Results: A total of 255 participants who wore contact lenses completed the questionnaire. The channels for purchasing contact lenses were mainly optical shops (75.3%), but drugstores, superstores, and online platforms were also attractive channels (10%–20%) for young participants. Nearly 25% of participants wore contact lenses to sleep overnight. The top three reasons for eye discomforts were dryness (78.8%), foreign body sensation (67.1%), and red eyes (52.9%). The most common causes of eye discomfort were overuse (35.3%) and problems with cleaning (25.9%). When purchasing contact lenses, approximately 52% of participants did not receive instructions from a professional about hygiene, cleaning, and maintenance. Approximately 41% did not receive an optometric evaluation. Most participants knew that a package insert accompanied the product (67.1%), but only 27% read the insert in detail and most (72.9%) were unsure about all the product specifications.

Conclusions: When professionals are involved in the purchasing process, consumers receive concrete assistance with respect to safety usage of contact lenses which may reduce the incidence of eye discomfort.

Keywords: Contact lenses; Purchasing behaviour; Wearing habits, eye health, eye discomfort

INTRODUCTION

More than 140 million people wear contact lenses worldwide [1]. However, the proportion of those who wear contact lenses in various countries differs. In some countries, such as Sweden and North Macedonia, the number of people wearing contact lenses has reached as high as 30%; however, in other countries, such as the United Kingdom and Finland, this number is as low as 9% [2]. The output value of contact lenses in the global market is predicted to reach 14 billion US dollars in 2025 [3], and it is still growing. Soft contact lenses are mainstream products, accounting for approximately 87% of all contact lenses sold [4].

In comparison with spectacles, contact lenses have the visual and social benefits of a wider field of view, work/activity convenience, better appearance, and improved self-esteem [5-7]. However, because they are worn in the eyes, the purchasing behavior and wearing habits of users can affect eye health more than those who use spectacles [8-19]. Most consumers prefer to perform fittings in professional optical shops or ophthalmology clinics, but some consumers visit non-professional websites or retail stores to obtain contact lenses because of the variety of products and convenience [8-14]. Wearing contact lens obtained from non-professional sources has been shown to cause cornea-related diseases, mainly because of poor fit and improper wearing and maintenance habits [15-19]. In addition, contact lens manufacturing technology has been rapidly evolving, and consumers have more choices of brands, functions, specifications, and materials [20-22]. Therefore, how users choose suitable contact lenses plays an important role in how the lenses affect eye health.

It is conservatively estimated that over 2.5 million people in Taiwan are contact lens wearers, representing approximately 10.6% of the population [23]. Contact lenses are available as second- and third-level medical devices in Taiwan [24]. Second-level lenses are worn and used for only 1 day, whereas third-level lenses can be worn for extended periods. Therefore, according to the current law in Taiwan, the refraction and fitting of contact lenses must be performed by professional ophthalmologists and optometrists, respectively [25]. The manufacture and marketing of contact lenses in Taiwan are subject to very strict specifications,

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***Corresponding author:** Ching-Yao Huang, Department of Optometry, Da-Yeh University, No. 168, University Road, Dacun, Changhua 51591, Taiwan, Tel: +88648511888 #7232; Fax: +88648511700

Other authors' email: Chao-Kai Chang: chaokai@nobelgroup.com.tw; Cheng-Ke Hsu: given4026@gmail.com; Iebin Lian: letitbexxxx@gmail.com

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including the prohibition on the sale of contact lenses on the Internet [26]. However, the law does not clearly stipulate how contact lenses should be safely delivered to the public when they are sold. Even though online sales are prohibited and monitored more rigorously in Taiwan than in other countries [8-14], as long as a physical store (i.e., drugstore or convenience store) has a pharmacy license, products can be sold there. This situation is the same in Japan and China [10]. Since consumers can buy and wear contact lenses by themselves, clinical cases of eye injuries often occur [27-29].

A Taiwanese eye care survey of people buying contact lenses in 2018 showed that 80% of the consumers did not understand the specifications of contact lenses at all, 59% had not undergone evaluation before purchasing contact lenses, and 95% experienced eye discomfort after wearing them [30]. Thus, the knowledge and habits of Taiwanese consumers in fitting contact lenses should be improved. However, the survey did not include information on the purchasing behaviour and wearing habits of consumers.

To date, little is known about the purchasing behaviour of Taiwanese consumers with regard to contact lenses, whether they can safely obtain the correct contact lenses to wear, and the effect of wearing habits on eye health. Therefore, in this study, we conducted a survey in two metropolitan areas in northern Taiwan to understand the contact lens purchasing behavior and wearing habits of the consumers.

METHODS

The consumer survey in this study was conducted in an anonymous format. The questionnaire was randomly sent out to optical shops in two metropolitan areas (Taipei City and New Taipei City) in northern Taiwan from February 24 to May 8, 2020. Before filling out the questionnaire, participants were initially verbally informed by a licensed optometrist in the optical shop about the purpose and content of the research to waive the need for written informed consent. The content of the survey was designed to investigate consumer opinions about contact lens categories, purchasing channels, wearing habits, eye discomfort, and the understanding of hygiene information.

All participants were adults over the age of 20 years, which is the age of adulthood in Taiwan. Those who were unwilling or unable to exercise consent on their own were excluded from this survey. The content of this research was reviewed and approved by the Central Regional Research Ethics Committee, China Medical University (CRREC-108-119) in accordance with the tenets of the Declaration of Helsinki.

The data collected in this research survey included the basic information about participants and their views about the professional issues concerning contact lenses. The collected survey data were entered into the computer in sequence, and the results were statistically analyzed, which was performed using SPSS for Windows 18.0 (IBM, Somers, NY, USA). Descriptive statistics was used to describe the categorical data in terms of percentages. A chi-square test was used to determine how

contact lens purchasing behavior and wearing habits were related to various participant factors. A p-value of less than .05 was considered statistically significant.

RESULTS

Of the respondents, 255 were wearing disposable soft contact lenses. The descriptive statistical data analysis was based on this number.

Basic Data Analysis

The demographic information about participants is summarized in Table 1. The majority of participants were female (83.5%), between 21 and 40 years of age (78.8%), and office workers (82.3%). Educational attainment was mostly at the university (college) level or above (80%). The majority (65.9%) had less than 10 years of work experience.

Professional Question Analysis Categories of Disposable Contact Lenses

Consumers had multiple choices in different categories of disposable contact lenses in the survey. Of the participants, 195 (76.5%) wore daily disposable lenses, 51 (20.0%) wore weekly disposable lenses, 102 (40.0%) wore monthly disposable lenses, and 18 (7.1%) wore quarterly disposable lenses.

Table 1: Demographics of participants (N = 255).

	Number of people	Percentage
Gender		
Male	42	16.50%
Female	213	83.50%
Age		
21–30 years old	111	43.50%
31–40 years old	90	35.30%
41–50 years old	51	20.00%
≥ 50 years old	3	1.20%
Education level		
Secondary	3	1.20%
High school	48	18.80%
University (college)	189	74.10%
Graduate level and above	15	5.90%
Profession		
Office worker	210	82.30%
Student	27	10.60%
Self-employed	18	7.10%
Work experience		
<1 year	21	8.20%
1–5 years	90	35.30%
6–10 years	57	22.40%
11–15 years	36	14.10%
>16 years	51	20.00%



Purchasing Channels

The survey listed different channels for purchasing disposable contact lenses. Of the participants, 192 (75.3%) purchased their contact lenses in optical shops, 51 (20.0%) in drugstores, 27 (10.6%) online, 24 (9.4%) in superstores, and only 3 (1.2%) at eye clinics. There is a significant difference in purchasing channels selected between males and females and among different age and profession groups as shown in Table 2. The results show that there is a significant difference in drugstores ($P < .001$) and online stores ($P = .015$) between males and females. There is a significant difference in most of the channels except for the eye clinics ($P = .140$) among different age groups. There is a significant difference in optical shops ($P < .001$), drugstores ($P = .024$), and online stores ($P < .001$) among different profession groups.

Years Wearing Disposable Contact Lenses

Of the participants, 87 (34.1%) had worn contact lenses for less than 6 years, 57 (22.4%) for 6–10 years, 63 (24.7%) for 11–15 years, 27 (10.6%) for 16–20 years, and 21 (8.2%) for more than 21 years.

Time Spent Wearing Disposable Contact Lenses

Of the participants, 105 (41.2%) wore contact lenses every day and 150 (58.8%) did not. Thirty-three (12.9%) wore contact lenses for less than 6 hours at a time, 138 (54.1%) for 7–12 hours, and 84 (33.0%) for more than 12 hours.

Eye Discomfort

Different types of eye discomfort were listed in the survey. Of the participants, 201 (78.8%) reported dry eyes, 171 (67.1%) reported foreign body sensation, 135 (52.9%) reported red eyes, 81 (31.8%) reported watery eyes, 48 (18.8%) reported unclear vision, 45 (17.6%) reported eye pain, and 24 (9.4%) reported photophobia. Thus, the three most common types of eye discomfort were dry eyes, foreign body sensation, and red eyes. The distribution of responses of the participants is shown in figure 1, Supplemental Digital Content 1.

Causes of Eye Discomfort

For eye discomfort caused by wearing contact lenses, 135 (52.9%) had sought medical treatment and 120 (47.1%) had not. The survey listed multiple reasons for discomfort. Ninety participants (35.3%) had overused their lenses, 66 (25.9%) were unsure about how to clean them, 21 (8.2%) had chosen the wrong product, 15 (5.9%) reported that the product was defective, 12 (4.7%) were unsure about how to disinfect the lenses, and 5 (2.0%) reported other reasons for discomfort. Thus, overuse, problems with cleaning, and problems with the product were the most common causes of eye discomfort. The distribution of these participants is shown in figure 2, Supplemental Digital Content 1.

Overnight Wear

Of the participants, 63 (24.7%) wore contact lenses while they slept and 192 (75.3%) did not. There is a significant difference in consulting a doctor because of eye discomfort caused by wearing

Table 2: Analysis of purchasing channels selected by participants (N = 255).

		Optical shop	Eye clinic	Drugstore	Superstore	Online
Gender						
Male (N = 42)	Yes	36 (85.7%)	0 (0%)	0 (0%)	6 (14.3%)	0 (0%)
	No	6 (14.3%)	42 (100%)	42 (100%)	36 (85.7%)	42 (100%)
Female (N = 213)	Yes	156 (73.2%)	3 (1.4%)	51 (23.9%)	18 (8.5%)	27 (12.7%)
	No	57 (26.8%)	210 (98.6%)	162 (76.1%)	195 (91.5%)	186 (87.3%)
P		.087	.439	<.001	.237	.015
Age						
21–30 (N = 111)	Yes	81 (73%)	3 (2.7%)	24 (21.6%)	3 (2.7%)	18 (16.2%)
	No	30 (27%)	108 (97.3%)	87 (78.4%)	108 (97.3%)	93 (83.8%)
31–40 (N = 90)	Yes	60 (66.7%)	0 (0%)	27 (30%)	15 (16.7%)	9 (10%)
	No	30 (33.3%)	90 (100%)	63 (70%)	75 (83.3%)	81 (90%)
≥ 41 (N = 54)	Yes	51 (94.4%)	0 (0%)	0 (0%)	6 (11.1%)	0 (0%)
	No	3 (5.6%)	54 (100%)	54 (100%)	48 (88.9%)	54 (100%)
P		.001	.140	<.001	.003	.006
Profession						
Office worker (N = 210)	Yes	174 (82.9%)	3 (1.4%)	42 (20%)	18 (8.6%)	15 (7.1%)
	No	36 (17.1%)	207 (98.6%)	168 (80%)	192 (91.4%)	195 (92.9%)
Student (N = 27)	Yes	6 (22.2%)	0 (0%)	9 (33.3%)	3 (11.1%)	9 (33.3%)
	No	21 (77.8%)	27 (100%)	18 (66.7%)	24 (88.9%)	18 (66.7%)
Self-employed (N = 18)	Yes	12 (66.7%)	0 (0%)	0 (0%)	3 (16.7%)	3 (16.7%)
	No	6 (33.3%)	18 (100%)	18 (100%)	15 (83.3%)	15 (83.3%)
P		<.001	.722	.024	.502	<.001

N: Number, %: Percentage, P: P-value



contact lenses between overnight wearers and non-overnight wearers ($P < .001$) as shown in table 3. Among types of eye discomfort from wearing disposable contact lenses, only unclear vision shows a significant difference between overnight wearers and non-overnight wearers ($P = .023$).

Information about Maintenance and Hygiene

Regarding maintenance and hygiene education, 171 participants (67.1%) knew how to care for their lenses, 78 (30.6%) were somewhat knowledgeable and 6 (2.3%) did not know how to care for their lenses. However, when purchasing contact lenses, only 123 participants (48.2%) received a professional explanation about hygiene education and maintenance-related information and 132 (51.8%) did not. There is a significant difference in the professional evaluation before a purchase ($P < .001$), fully understanding the specifications ($P < .001$) and knowing the package insert inside the product ($P = .005$) between the received and non-received professional health education or guidance when purchasing contact lenses as shown in table 4. Moreover, with regard to the need for professional health education or guidance, 201 participants (78.8%) needed it while 54 (21.2%) did not.

Understanding Product Specifications

With regard to the package insert in contact lens products, 171 participants (67.1%) knew about the insert, and 84 (32.9%) did not know. However, only 69 participants (27.1%) read the package insert and 186 (72.9%) did not. Furthermore, only 69 participants (27.1%) knew the specifications of their contact lens products, 159 (62.4%) knew some of the specifications, and 27 (10.5%) did not know any specifications. There is a significant difference in understanding product information, including reading the package insert carefully ($P < .001$), fully understanding the specifications ($P < .001$), need in advocacy and professional guidance ($P < .001$), and the risk level of contact lenses ($P = .001$) between knowing and unknowing about the package insert as shown in table 5.

Professional Assessment

Before purchasing lenses, 150 participants (58.8%) had been assessed by a professional and 105 (41.2%) had not. In addition, 231 participants (90.6%) believed that they required professional guidance and 24 (9.4%) did not.

DISCUSSION

In this study, contact lens wearers living in two metropolitan areas in northern Taiwan took a questionnaire survey about contact lens purchasing behavior and wearing habits. The finding that 83.5% of contact lens wearers in Taiwan were women was consistent with the results of a 2020 survey in Taiwan (85%) and was similar to the situation in other countries [4]. In this study, almost no wearers (1.2%) were older than 50 years, and most had a college degree or a higher education level. Thus, it may suggest that contact lenses and a high risk of ocular complications were more acceptable among young people with a high degree of education. In addition, owing to work needs, most wearers were office workers (82.3%).

This study found that daily disposable contact lenses were the most popular among consumers (76.5%), followed by monthly disposable contact lenses. This finding is also consistent with the results of the 2020 survey in Taiwan, in which daily disposable contact lenses were preferred by 62% of respondents, followed by monthly disposable contact lenses (36%) [4]. This statistic varies from country to country, but, overall, daily disposable lenses are more popular than monthly disposable lenses. In the past 10 years, the preference for disposable contact lenses has shifted from monthly to daily. It shows that consumers believe that wearing daily disposable contact lenses is more convenient and adequately healthy because they can be thrown away after use, do not need follow-up cleaning and maintenance work and give better the protection to the eyes [4].

The analysis of the purchasing behaviour of consumers revealed that the optical shop was still the main channel for purchasing contact lenses in Taiwan. This is because obtaining lenses from the optical shop is convenient and professional optometrists are on site to assist in lens evaluation and hygiene consultation. This finding is consistent with those of studies in other countries [1,8-13,18]. However, because of the growing demand for contact lenses, purchasing from drugstores, superstores, and even online platforms has become popular among young adults in recent years. The results clearly show that drugstore and online stores are the main purchasing channels that received different preferences from different gender, age and profession groups as shown in table 2. For example, 51 women (23.9%) tend to buy from a drugstore ($P < .001$) and 27 (12.7%) from an online store ($P = .015$) compared with men, none of whom buy from either drugstore or online store. It is also worth noting that there is no significant difference in purchasing from the eye clinic for all groups.

Moreover, none of these unprofessional channels (drugstores, superstores, and online platforms) provide professional optometric evaluations and consultations. The proportion of illegal online purchases is as high as 10.6% in Taiwan, indicating that convenience, self-purchasing, and low prices are the main considerations among consumers. In other countries that do not prohibit online purchases, similar and sometimes higher proportions of consumers (>20%) purchase lenses online.¹⁰⁻¹³ If consumers buy contact lenses from drugstores, superstores, and online platforms without lens evaluation by professional optometrists and consulting services, ocular complications are more likely (up to 16.5 times) to be caused by noncompliance behavior [14-19].

In this study, the most common duration of wearing contact lenses was <6 years, and the proportion of consumers with longer durations tends to decrease year by year. This also indicates that contact lenses are not considered a long-term wearable medical device, which is associated with the fact that most contact lens wearers were younger than 50 years, and the number of the wearers decreases year by year (Table 1). In addition, most participants (87.1%) wore contact lenses for more than 7 hours at a time; apart from wearing contact lenses for 8 hours during the workday, 33% wore contact lenses for more than four



additional hours, which further confirms the importance of the effect of wearing lenses for a long duration on ocular health. This finding has implications that are even more serious than those of the 2018 Taiwanese Eye Care Survey [30], in which 46% wore lenses for <8 hours, 30% for 8–10 hours and 24% for >10 hours. That survey was based on 800 contact lens users aged 23–40 years across the country, whereas this research focused only on metropolitan areas in northern Taiwan. This study also indirectly showed that contact lenses are severely overused in metropolitan areas.

The survey in this study revealed that the three most common forms of eye discomfort were dryness, foreign body sensation, and red eyes (Figure 1). This result is similar to that in the 2018 Taiwanese Eye Care Survey,³⁰ which also showed that the three most common problems with wearing contact lenses were dry eyes (79%), foreign body sensation (46%), and red eyes (42%). However, the incidences of foreign body sensation and red eyes were higher in this study. This difference may be related to sampling only in the metropolitan areas in northern Taiwan. This study also indirectly showed that eye discomfort in the metropolitan areas was more common than in other regions. These problems are also common in other countries [8,18,31,32].

The proportion of participants who sought medical help after wearing contact lenses (52.9%) was only slightly higher than the proportion that did not (47.1%). This finding contradicts the traditional assumption that wearing contact lenses causes widespread common ocular complications and that many wearers seek medical help. Overuse, problems with cleaning and problems with the product itself were the most common causes of eye discomfort (Figure 2). In other countries, these

three items are also the most common reasons why wearers with eye discomfort seek medical treatment, especially when the lenses are purchased from a non-professional channel [1,8–10,33]. In addition, the proportion of participants in this study who overused lenses (35.3%) coincided with that of participants who wore them for >12 hours (33.0%).

A surprising finding in this study was that nearly 25% of the participants wore contact lenses while sleeping. No extended-wear contact lenses are currently licensed for sale in Taiwan, which means that the material of contact lenses is not suitable for sleeping. If they are worn while being asleep for a long time, the cornea may be damaged by hypoxia [18,34]. The results in this study support that the overnight wearers (81%) consult a doctor because of eye discomfort more than the non-overnight wearers (43.8%) with a significant difference ($P < .001$), especially in the unclear vision ($P = .023$) as shown in table 3. Wearing contact lenses while sleeping is also common in other countries, varying between 20%–52% [1,8,10,11,16,18]. Extended-wear contact lenses that are suitable for sleeping do exist. In such lenses, the oxygen permeability of the lens material is better, and ocular complications are less likely to occur. However, the risk of microbial keratitis caused by wearing lenses while sleeping is still 5.4–10 times higher than that of not wearing lenses during sleep [19,35].

Nearly one-third of the participants in this study did not know about maintenance and hygiene when they purchased contact lenses. More than half of the participants indicated that no experts were available for consultation. Thus, when participants bought contact lenses, the availability of optometrists was inadequate, which leads to a significant difference in the professional

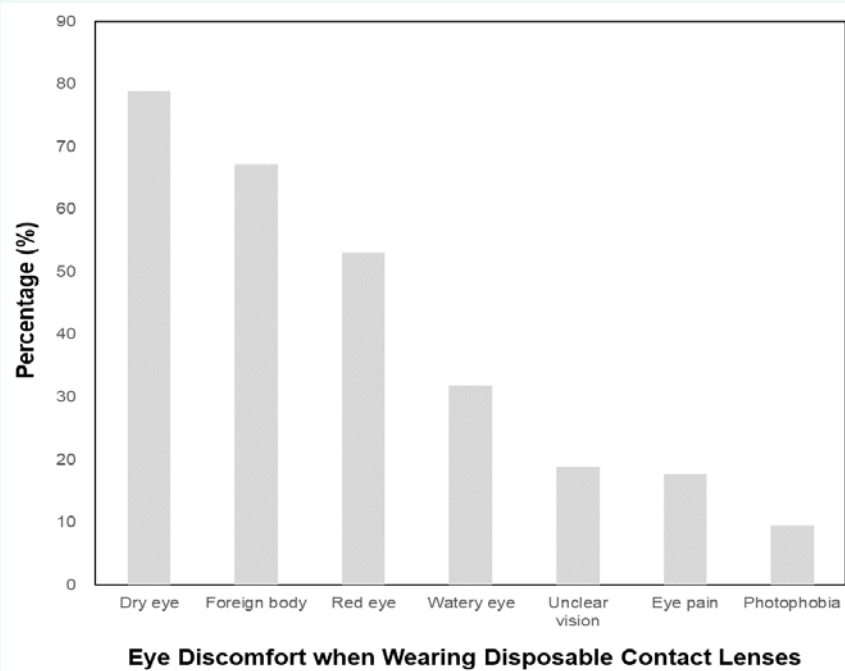


Figure 1 Eye discomfort when wearing contact lenses.

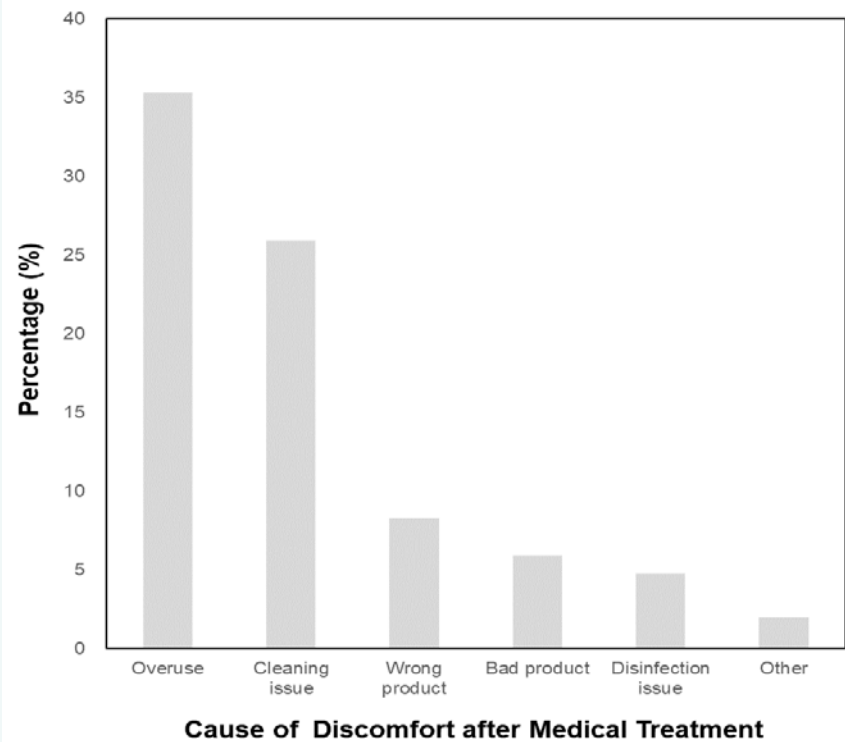


Figure 2 Cause of discomfort after medical treatment.

Table 3: Analysis of eye discomfort caused by wearing contact lenses between overnight wearers and non-overnight wearers (N = 255).

	Overnight wearers (N = 63)		Non-overnight wearers (N = 192)		P
	N	%	N	%	
Consult a doctor because of eye discomfort					
Yes	51	81%	84	43.80%	< .001
No	12	19%	108	56.20%	
Dry eye					
Yes	9	14.30%	45	23.40%	0.123
No	54	85.70%	147	76.60%	
Red eye					
Yes	30	47.60%	90	46.90%	0.918
No	33	52.40%	102	53.10%	
Foreign body					
Yes	15	23.80%	69	35.90%	0.076
No	48	76.20%	123	64.10%	
Eye pain					
Yes	48	76.20%	162	84.40%	0.139
No	15	23.80%	30	15.60%	
Watery eye					
Yes	42	66.70%	132	68.80%	0.758
No	21	33.30%	60	31.30%	
Photophobia					
Yes	54	85.70%	177	92.20%	0.127
No	9	14.30%	15	7.80%	
Unclear vision					
Yes	45	71.40%	162	84.40%	0.023
No	18	28.60%	30	15.60%	

N: Number, %: Percentage, P: P-value



Table 4: Analysis of professional information about maintenance and hygiene received by participants when purchasing contact lenses (N = 255).

	Receive (N = 123)		Do not receive (N = 132)		P
	N	%	N	%	
Professional evaluation before purchase					
Yes	99	80.5%	51	38.6%	< .001
No	24	19.5%	81	61.4%	
Fully understanding the specifications					
Yes	51	41.5%	18	13.6%	< .001
Some	60	48.8%	99	75.0%	
No	12	9.7%	15	11.4%	
Knowing the package insert inside product					
Yes	93	75.6%	78	59.1%	.005
No	30	24.4%	54	40.9%	

N: Number, %: Percentage, P: P-value

Table 5: Analysis of understanding the product information from the package insert by participants (N = 255).

	Know (N = 171)		Do not know (N = 84)		P
	N	%	N	%	
Reading the package insert carefully					
Yes	69	40.4%	0	0%	.001
No	102	59.6%	84	100%	
Fully understanding the specifications					
Yes	69	40.4%	0	0%	.001
Some	93	54.4%	66	78.6%	
No	9	5.3%	18	21.4%	
Need in advocacy and professional guidance					
Yes	147	86.0%	54	64.3%	.001
No	24	14.0%	30	35.7%	
Risk level of contact lenses					
High	18	10.5%	3	3.6%	.001
Moderate	84	49.1%	24	28.6%	
Low	66	38.6%	54	64.3%	
Non	3	1.8%	3	3.6%	

N: Number, %: Percentage, P: P-value

evaluation before purchase ($P < .001$), fully understanding the specifications ($P < .001$), and knowing the package insert inside the product ($P = .005$) between wearers that received the information and those who did not as shown in Table 4. This result may be related to the shift in purchasing channels from optical shops to drugstores, the Internet or superstores.

The survey revealed that the majority of participants (67.1%) knew that a package insert was included with the product, but few (27.1%) actually read the insert. Moreover, nearly three-fourth of the participants did not know all specifications for the product. Therefore, before obtaining contact lenses, most participants believed that they did indeed need professionals

to explain and confirm product specifications. The advertising warnings on the product or the content of the package insert are insufficient because most wearers do not read the contents of the insert in detail.

The survey also showed that, before purchasing contact lenses, more than half of the participants knew that they needed to undergo a professional evaluation, and the proportion of those who thought they needed it was as high as 90.6%. In comparison with the 2018 Taiwanese Eye Care Survey, this study indicated that consumers were more aware of the need for professional evaluation [30]. The 2018 survey showed that only 41% of wearers had undergone an optometric assessment first and that



59% had not. This study may indirectly show that the contact lens users in metropolitan areas place more value on professional evaluation before use.

The survey in this study, conducted in two metropolitan areas in northern Taiwan, yielded responses from 255 contact lens wearers. Considering that there are over 2.5 million contact lens wearers in Taiwan, the sample size of this study corresponds close to the confidence level of 95% and the margin of error of 6%, which can be considered acceptable. Nonetheless, the results of this study corroborated those from the 2018 survey [30]. The fact that some data in the two studies differed may reflect the focus of this study on the northern metropolitan areas of Taiwan. Future research can focus on comparing the differences in the purchasing behavior of contact lens users between the urban and rural contact lens users.

CONCLUSION

The contact lens purchasing behavior and wearing habits of consumers in metropolitan Taiwan were examined in a survey. The findings suggest that optical shops are currently the main channel for purchases, but illegal online purchases still occur. Nearly 25% of the participants wore contact lenses while sleeping. The main manifestations of eye discomfort were dryness, foreign body sensation, and red eyes, which resulted mainly from overuse and incorrect cleaning of contact lenses. When purchasing contact lenses, nearly half of the participants did not receive professional instruction and assessment. Although most consumers know that the product contains a package insert, they seldom read the contents in detail, let alone all the specifications on the product. Therefore, advertising warnings or reminders do not sufficiently provide information because most consumers do not read them.

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