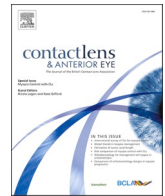




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## Contact Lens and Anterior Eye

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## Exploring contact lens opportunities for patients above the age of 40 years

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## ABSTRACT

**Purpose:** Contact lenses offer a good option for patients with presbyopia, especially with improved optical designs available in modern multifocal contact lenses. Due to the ageing population there is good opportunity to increase contact lens penetration by managing these patients better. However, multifocal contact lenses achieve low penetration in the market.

**Methods:** A questionnaire was administered to people aged above 40 years, to investigate their perceptions of contact lenses for presbyopia. Only people, with presbyopia, who were existing contact lens wearers or willing to try contact lenses were included. Participants were recruited from United Kingdom (UK), United States of America (USA), Netherlands, Germany, France, Spain and Italy.

**Results:** Data from 1540 participants above the age of 40 years was collected, 57.9% were females and 42.1% males. Overall, 50.8% of the participants wore contact lenses, but contact lens wear was less common amongst older participants. Some data supported earlier studies, such as 6.1% wore gas permeable lenses. However, only 25% of the contact lens wearers used multifocal contact lenses. The reasons the participants wanted to wear contact lenses were similar to younger patient such as sports or cosmesis reasons. Reasons why participants had dropped out of contact lenses included discomfort and dry eye related issues. Poor visual performance with contact lenses was a reason to dropout of contact lenses for the older participants.

**Conclusions:** The study highlights some failings by eye care practitioners in the management of patients with presbyopia. It seems that patients of this age group are seeking suggestions and recommendations from their eye care practitioner including upgrading contact lenses and dual wear options. The day-to-day problems encountered by the contact lens wearers in this study seem to be, in the main, things that could be easily tackled by additional counselling and instruction from the eye care practitioners.

## 1. Introduction

The ability to alter the focussing power of the human crystalline lens reduces naturally with advancing age. In fact, the steep decline in accommodative ability begins during childhood. By their mid-forties, most individuals will have reached presbyopia; a refractive stage where the inability to exert sufficient ocular accommodation means additional help is required to maintain clear visual focus at near [1]. Pre-presbyopia symptoms often start to occur above the age of 40 years. Patients suffering from presbyopia will require reading spectacles, but other solutions are available including multifocal contact lenses [2].

Multifocal contact lenses for presbyopia have improved in their optical design, available parameters, lens materials, and ease of fitting [3]. Yet despite advances, studies suggest contact lens attrition increases

amongst existing wearers upon reaching presbyopia and patients with presbyopia [4]. For patients who, prior to becoming presbyopic, have not previously used any form of vision correction, attaining a satisfactory level of visual quality can be challenging. Specifically, patients may find it difficult to tolerate the compromise in distance vision, to achieve near vision, from the multifocal contact lens. Other difficult-to-satisfy groups may include patients with myopia who, having reached presbyopia, will often opt to remove their spectacles to read but this is clearly unfeasible for the habitual contact lens wearer. Additional difficulties may arise where the magnitude of the myopic patients near addition is similar to their level of myopia.

It is possible that many new presbyopes may be in denial of their condition, especially at first onset; manifestation of presbyopia is indicative of ageing and its associated features (reading spectacles or

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bifocals), may be considered more typical of the generation above them. Contact lenses can provide psychological benefits, especially for those in denial of reaching presbyopia, but awareness of multifocal contact lens options is often less widespread than that of their spectacle counterparts. It should be remembered that many patients, of any age, wear contact lenses to avoid the inconvenience of spectacles and/or to achieve improved cosmesis [5,6]. Trying to understand patient perceptions and address fears related to multifocal contact lenses will help to ensure practitioners meet the needs of patients and sustain growth of this segment of the contact lens market and to help in the transition from single vision to multifocal contact lenses [6]. This study investigates the attitudes of patients in developed contact lens markets. An online survey was used to collect data from the United Kingdom (UK), United States of America (USA), Netherlands, Germany, France, Spain and Italy. This selection encompasses countries where there are established regulations for the practice of fitting and the sale of contact lenses although, inevitably, non-regulated sellers also exist in these countries as well [7]. Inter-country comparisons were not included in this study as that was not the aim of the study but rather the aim was to investigate perceptions and awareness, of participants with presbyopia, towards contact lenses in countries with established contact lens markets.

## 2. Methods

A detailed online non-validated questionnaire was administered to people with, or approaching, presbyopia. The study aimed to investigate subjects who wore (or were interested in trying) contact lenses for presbyopia and ascertain their experience for the purpose of offering advice to practitioners involved in the fitting of these types of patients. The survey took around 15 min to complete and consisted of 32 questions related to contact lenses, including some general demographic questions. Questions specific to contact lens habits during the COVID-19 pandemic are not included in this article and are dealt with in a separate paper. The survey was administered by ADK Insights. They invited an online panel of participants, representing the total online population in each market. ADK Insights is a large, independent multi-national analytics and advisory company. This work complied with the Code of Conduct for Responsible Market Research. ADK Insights estimated that those invited to participate in the study represented around 80–85% of the complete population in the market. Both males and females were equally invited from an age range between 40 and 70 years. Those who completed the survey were incentivised with department store shopping

vouchers (€5.50 in Europe, £5.00 in UK and \$6.50 in USA). ADK Insights have an existing large database of consumers around the world and this database was utilised for this study. Participants were not recruited specifically for this study, but were only included if they wore or were interested in wearing contact lenses and were in the age range of interest.

Respondents who were currently wearing contact lenses or interested in trying contact lenses were included (under 40 years old and over 70 years old were excluded). Respondents who wore contact lenses for a medical reason (for example primary corneal ectasia) or specialist contact lenses (such as orthokeratology or scleral lenses) were excluded from the study, as were spectacle wearers who expressed no interest in trying contact lenses.

## 3. Results

Results from 1540 participants were included, 57.9% were females and 42.1% males. The age profile of the participants can be seen below in Fig. 1.

### 3.1. Distribution of spectacle and contact lens wear

All participants currently wore spectacles only ( $n = 758$ , 49.2%) or contact lenses only ( $n = 123$ , 8.0%) or both ( $n = 659$ , 42.8%). From the data it was not possible to tease out the subjects who wore reading spectacles over their single vision distance contact lenses. Of the spectacle wearers only group ( $n = 758$ ) 32.1% were former contact lens wearers ( $n = 244$ ) but willing to try contact lenses again. Fig. 2 shows the age split of those who wore contact lenses (including if they wore contact lenses and spectacles) and those who wore only spectacles (not currently using contact lenses). Amongst all the participants who used spectacles ( $n = 1417$ ), 43% were wearing single vision distance spectacles and 16% were wearing single vision near spectacles, whilst 41% were using multifocal spectacles (bifocals or progressive addition lenses). A dropout rate for the subjects in this study could be calculated from the number of former CL wearers ( $n = 244$ ) divided by the sum of all those who have previously worn ( $n = 244$ ) plus all subjects who are currently wearing contact lenses ( $n = 782$ ). This gives a dropout rate of 23.8%.

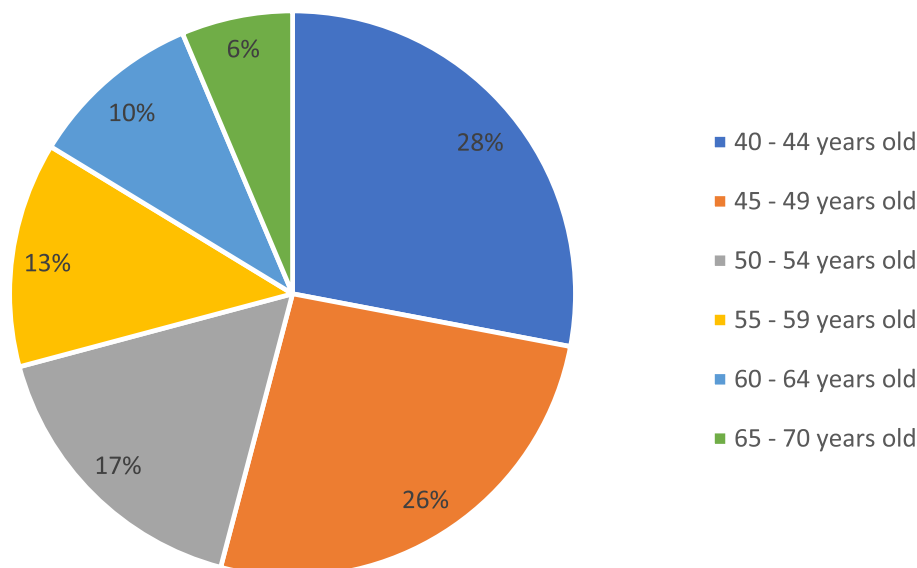


Fig. 1. Percentage of participants in each age group for the entire study cohort ( $n = 1540$ , range 40–70 years).

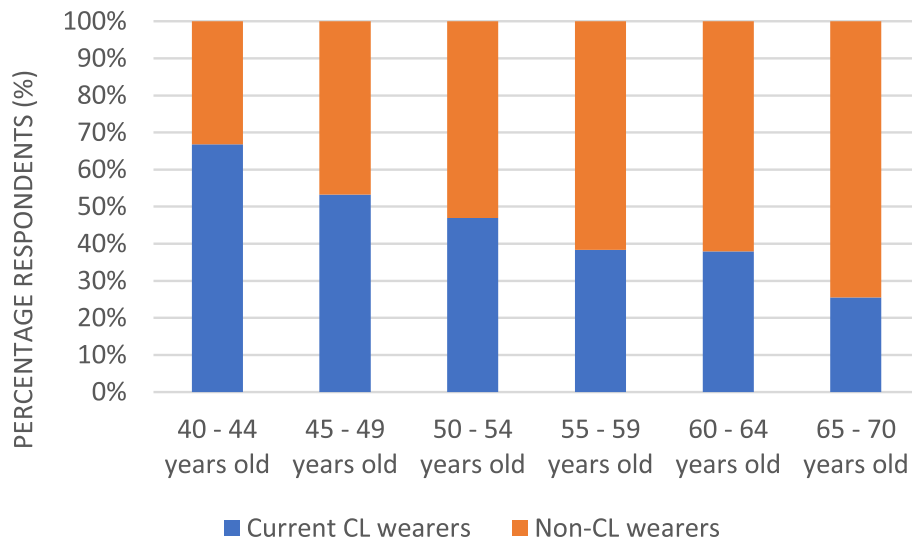


Fig. 2. Shows the age profile of participants who currently wear contact lenses ( $n = 782$ ) against those who are non-contact lens wearers ( $n = 758$ ).

### 3.2. Influence

Of the current contact lens wearers ( $n = 782$ ), when asked if they were influenced by anyone to wear contact lenses 63.7% said they were suggested contact lenses by an eye care practitioner, a further 12.4% said they were influenced by friends/family and 23.9% said they decided to wear contact lenses themselves without any influence from anyone else.

### 3.3. Contact lens types worn

Amongst the contact lens wearing participants ( $n = 782$ ) 93.9% were wearing soft lenses (hydrogel or silicone-hydrogel) and 6.1% wore rigid gas permeable corneal lenses. A majority (48%) were using daily-disposable contact lenses, 39% were using re-usable daily lenses (that required cleaning) and 13% were wearing extended wear contact lenses (these were exclusively silicone-hydrogel lenses). Approximately one quarter of contact lens wearers wore multifocal contact lenses, with a majority wearing spherical designs (see Fig. 3). All the participants were asked if an eye care practitioner had ever suggested wearing contact lenses to them (for non-wearers) or advised them on upgrading their contact lenses (for current wearers); whilst more than half of wearers had been advised on upgrades, a majority of non-wearers had not been suggested contact lenses, see Fig. 4 for details.

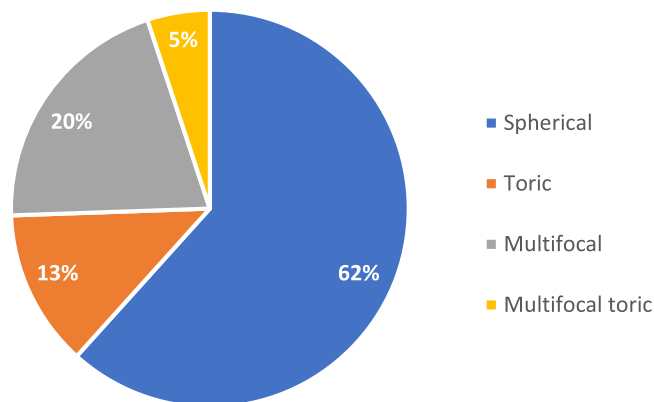


Fig. 3. Types of contact lenses worn by the contact lens wearers in this study ( $n = 782$ ).

### 3.4. Motivations and benefits of CL wear

The whole cohort, of 1540 participants, were either existing wearers of contact lenses or those interested in trying contact lenses for the first time or retrying them in the future. They were asked for the main reasons for wanting to wear contact lenses, see Fig. 5. The most commonly cited reason was due to 'sports and fitness', which was closely followed by 'work purposes. Amongst existing CL wearers, the main benefit of CL wear was also related to sports (see Fig. 6).

In the spectacle group ( $n = 758$ ) there were some participants who had never tried contact lenses ( $n = 514$ ) and some who had previously worn contact lenses ( $n = 244$ ). The former group were asked why they did not currently wear contact lenses, this was largely attributed to a lack of recommendation by their ECP, see Fig. 7. The latter group were asked why they gave up wearing contact lenses in the past, the most cited reasons related to comfort followed by lens handling, see Fig. 8. The data were divided into 3 groups based upon their age and investigated to see if age impacted their reason for ceasing contact lens wear. Some differences can be seen based upon the age group of the respondents.

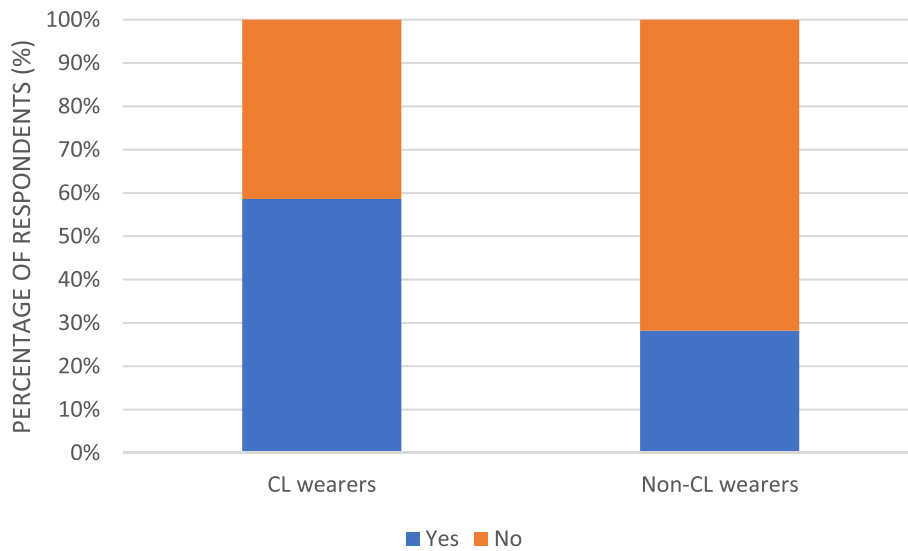
### 3.5. Source of CL

The contact lens wearing participants were also asked where they purchased their contact lenses, a majority relied upon optical practices with just over a fifth purchasing online (Fig. 9). Cost and convenience appeared to be the main motivations for purchasing from internet sellers (Fig. 10) and a lack of sales assistance the main deterrent (Fig. 11).

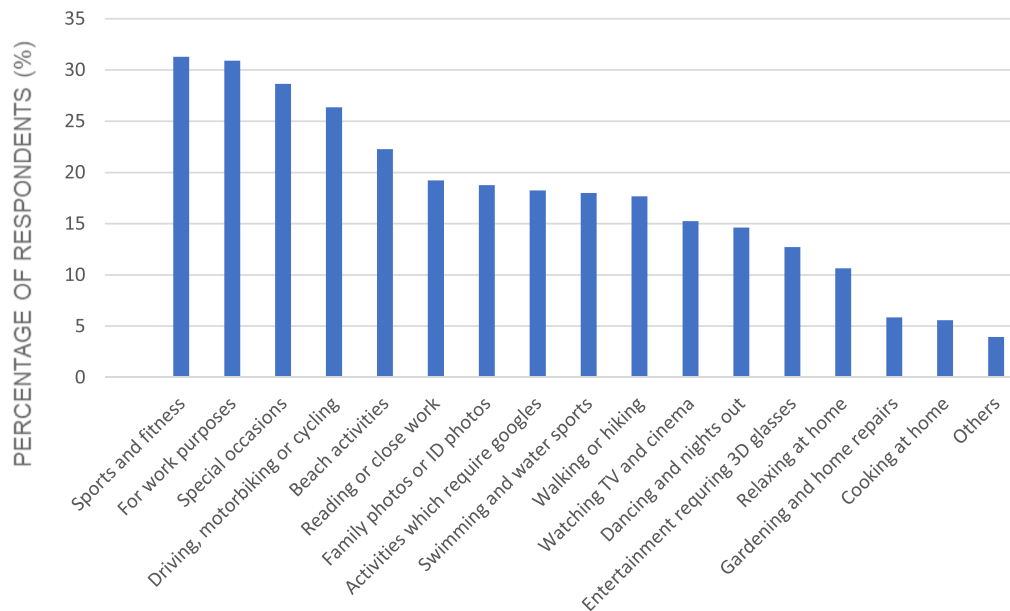
Finally, the contact lens wearers ( $n = 782$ ) were asked if they were happy with their current contact lenses and whose advice they would listen to before they would consider switching brands. Two-thirds of the contact lens wearers were satisfied with their current lenses and one third reported dissatisfaction. Amongst those who were unhappy with their current contact lenses 86% indicated they would seek the counsel of their eye care practitioner before considering a change of contact lens type, 5% said they would seek advice from friends and family and 9% would do their own research into better products.

## 4. Discussions and conclusion

It is well accepted that patients with presbyopia represent a good business opportunity for eye care practitioners [8]. These are generally patients with more disposable income and due to additional visual demands of near addition correction they can be fitted with multifocal



**Fig. 4.** Whether current contact lens wearers ( $n = 782$ ) were advised on upgraded products and whether non-contact lens wearers ( $n = 758$ ) were advised to try contact lenses.



**Fig. 5.** The main reason why participants ( $n = 1540$ ) would like to wear contact lenses. Participants were able to choose their top 3 reasons. The x-axis shows the percentage that chose each option.

products [9]. Patients in this age group tend to be loyal and less cost-conscious. This study shows that a significant number of these patients are already using multifocal spectacles, showing a good awareness of this product range. There may be an opportunity to dispense multifocal spectacles to the others offering them dual-wear, where they utilise both spectacles and contact lenses as required and are not solely using one or the other. Some will be myopes who remove their spectacles for close work, whilst others may either be emmetropes who only use spectacles for close work or contact lens wearers who keep single vision spectacles in case they are unable to wear their contact lenses. The larger opportunity seems to be with multifocal contact lenses, since only a quarter of the participants from this study are currently wearing multifocal contact lenses, especially considering the number of participants who wore multifocal spectacle lenses. This study does highlight that in many cases the eye care practitioner is not proactive in making dual-wear recommendations. This may be due to the thin line between clinical and retail

advice that exists in optical practice but if the emphasis is on the benefit of the product, such as extended field of view or more natural vision or being able to wear regular sunglasses, then this issue can be avoided. This study also suggested wearers can successfully switch between eyewear options (spectacles and contact lenses) depending on personal preference.

The day-to-day challenges encountered by the contact lens wearers in this study seem to be, in the main, issues that could be easily tackled by additional counselling and instruction from the eye care practitioners [10,11]). The patient-practitioner relationship is a very important one in this group of patients. For many people the reason for their first eye examination was the onset of presbyopia. It should not be underestimated that this group of patients want advice and guidance, they do not want to be reminded of the fact they are ageing, and at first onset they will associate the need for reading spectacles or bifocals with their parents. This group of patients will often lead active lifestyles and their

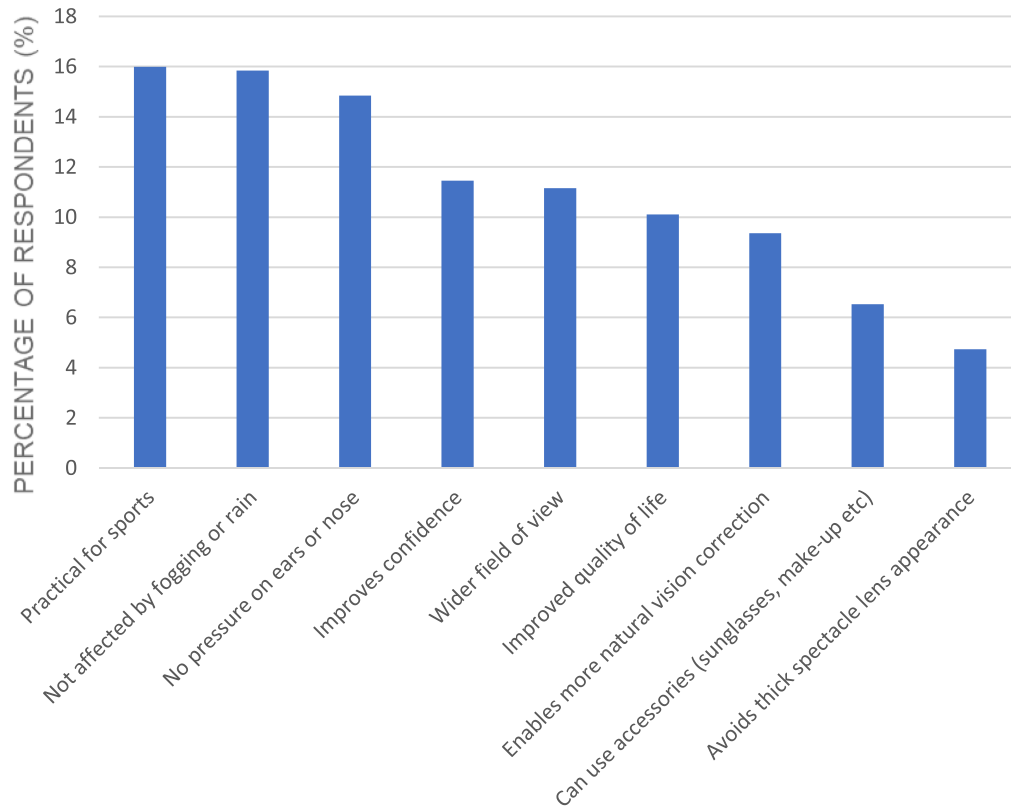


Fig. 6. The benefits perceived by contact lens wearing participants (n = 782). Participants were able to choose their top 3 reasons. The x-axis shows the percentage that chose each option.

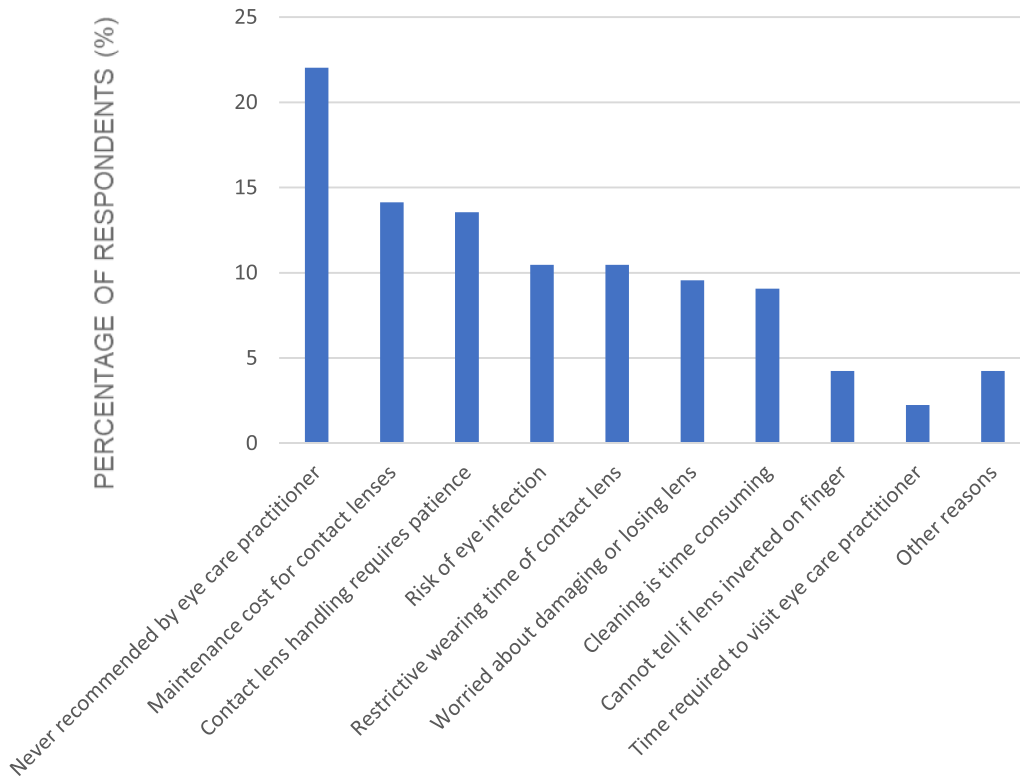
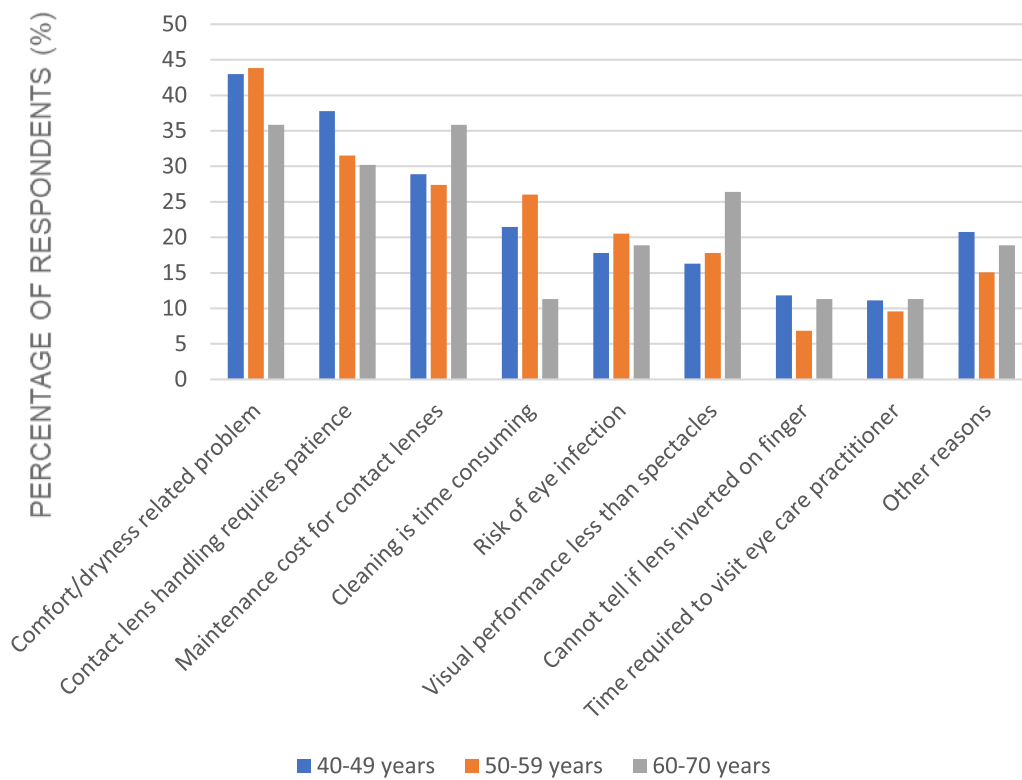
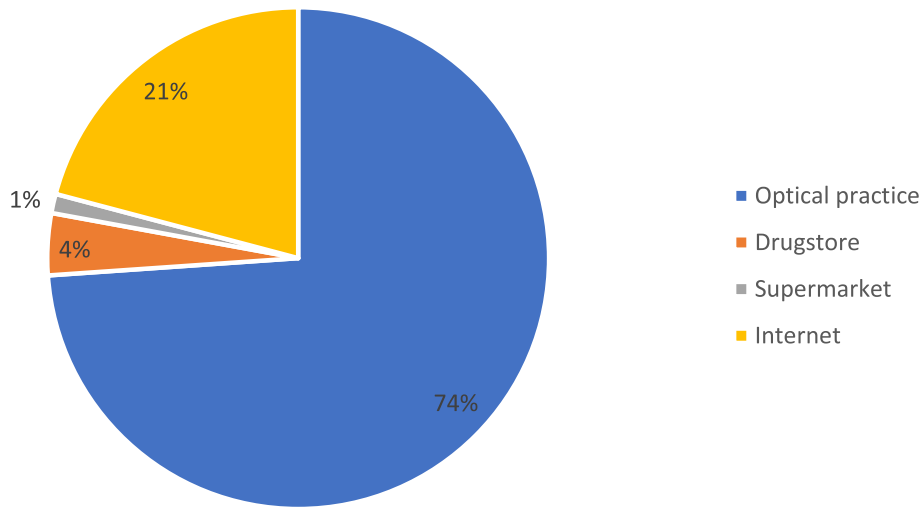


Fig. 7. Reasons why those from the spectacle wearing group had never tried contact lenses (n = 514). Participants were able to choose their top 3 reasons. The x-axis shows the percentage that chose each option.



**Fig. 8.** The reasons why those from the spectacle wearing group had ceased contact lens usage (n = 244). Participants were able to choose their top 3 reasons. The x-axis shows the percentage that chose each option. These participants were separated into 3 age groups 40–49 years (n = 126), 50–59 years (n = 68) and 60–70 years (n = 50).

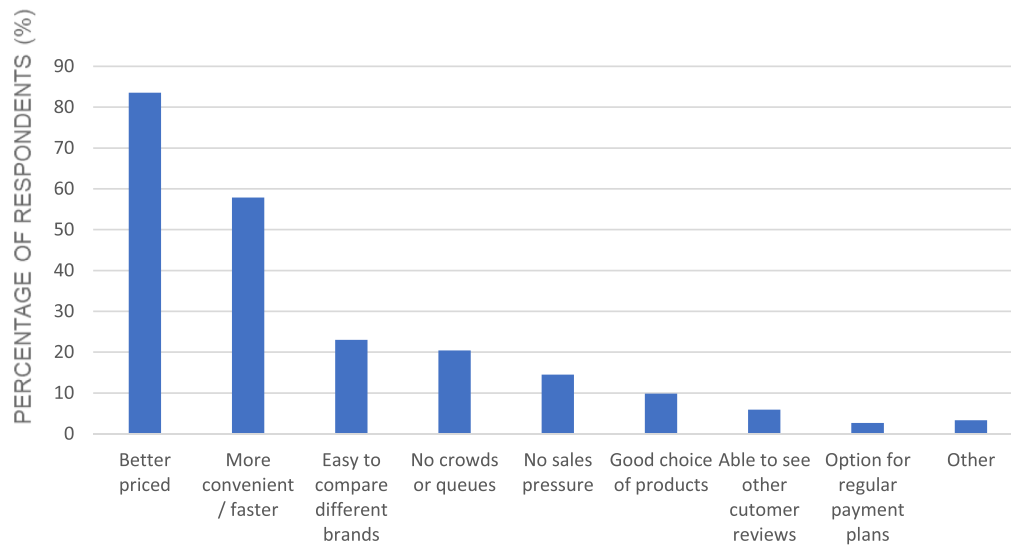


**Fig. 9.** shows where the contact lens wearers purchased their last set of contact lenses (n = 782).

reasons for wanting contact lenses do not differ from pre-presbyopic patients. The reasons that participants in this study wish to wear contact lenses seem to be very similar to younger patients - reasons relating to sport, work, convenience, cosmesis and psychological benefits. Although this study does highlight that contact lens wear was less prevalent amongst older presbyopic patients, it is worth remembering that the non-contact lens participants in this study were selected on the basis that they were willing to try contact lenses, either again or for the first time. This drop off in contact lens use in the over 50-year-old patients may be related to the fact that they have less need for freedom from spectacles (maybe they are less engaged in sport for example) or

they may have age related dry eye issues or other age-related ocular problems. Some patients may presume they are not suitable for contact lenses since their ECPs have not made recommendations of CL use. However, their participation in the study demonstrates a willingness to try contact lenses and presents an opportunity for eye care practitioners that should not be ignored, even if it means only occasional use of contact lenses [12]. In fact, most of the contact lens wearers in this study were regular users of spectacles too (dual-wear) and participants who solely wore contact lenses were very few (around 1 in 12).

Similarly, those participants who had previously dropped out of contact lens wear, had done so for reasons that could have been easily



**Fig. 10.** Reasons why contact lens wearers bought from internet sellers (n = 152). Participants were able to choose their top 3 reasons. The x-axis shows the percentage that chose each option.



**Fig. 11.** Reasons why contact lens wearers did not purchase from internet sellers (n = 576). Participants were able to choose their top 3 reasons. The x-axis shows the percentage that chose each option.

managed by their eye care practitioners [13]. The main reason seems to be comfort and dryness related problems [14]. This is certainly a factor and suggests that upgrading to improved contact lens products or better advice on cleaning and wearing times would be beneficial [15]. This age group of patients are more likely to have dry eye disease that is unrelated to contact lens use, so careful advice about eye hygiene and contact lens wearing times is important [16]. For some patients, this may even be a reduction to part-time wear but as stated above, an overwhelming majority of the contact lens wearing participants in this study also wore spectacles. Vision related reasons for dropout seem to be lower in this study, although this factor does feature higher for the older presbyopic patients, however reasons for dropout were not specifically investigated in this study.

Finally, it does seem to be that this is a group of patients that, overall, prefer the customer service they will get from an optical practice. Only around a quarter will purchase their contact lenses from non-optical outlets. It has been shown that signing patients up to monthly direct payment schemes (such as direct debit in the UK) grows patient loyalty to a practice and these patients even spend more on non-contact lens

related products [17]. For the small number (around 1 in 5) who do purchase from the internet, the main reasons would appear to be cost and convenience, which would also be the reasons that most people buy any product online. Again, these are things that eye care practitioners can address and bundling the cost of the aftercare in with the product purchase may disguise the professional fee and be more harmful as the patient perceives the product as expensive and devalues the service element. This study does suggest that these patients want the better service. They are willing to listen to advice from their eye care practitioner and the fact they will need aftercare appointments features low in causing them to not wear lenses or dropout of contact lenses. The introduction of virtual appointments could be a useful addition to contact lens practice, especially in the case of asymptomatic patients who are attending for a routine aftercare [18,19]. Another lesson for eye care practitioners could be to develop their own internet sites for their own optical practice, where patients can get the desired convenience, but still feel connected to the optical practice and know that they can get support when it is needed. This sentiment is echoed in the fact that nearly nine out of ten patients would seek advice from their eye care practitioners

before they would consider changing their current contact lens type.

Certainly, patients with presbyopia want good eye care, well priced products, convenience but most of all appreciate good service. Many the patients in this study were not aware of multifocal contact lenses. This study does highlight the importance for eye care practitioners to be proactive in suggesting contact lenses to non-wearers or offering upgrades in products to wearers.

#### Declaration of Competing Interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: The study was funded by Mencion Co. Ltd. Neil Retallic is an employee of Menicon Co. Ltd. Shehzad Naroo and Manbir Nagra have no financial declaration to make.

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