COURSE CODE: OPTM 3082

COURSE TITLE: Research Project

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Title: Attitude and Perception of Spectacle Wearers Towards Contact Lens Wear.

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Abstract:

Aim: To investigate the attitude and perception of spectacle wearers towards contact lens wear.

Method: A cross-sectional questionnaire was distributed from the waiting rooms of licensed Optometry Offices to spectacle-wearing participants over 18 years of age with no history of contact lens wear and those who previously wore contact lenses. The data collected on the barriers, attitude, awareness, and willingness of the spectacle wearers towards contact lens wear was statistically analyzed using the Statistical Package for Social Sciences Computer Software with the significance level set to a p-value of 5%.

Results: Of the 119 participants, the majority were females (63.0%), had secondary education (47.1%), were of East Indian descent (59.7%) and were over 50 years (29.4%). Only 40 spectacle wearers indicated a history of previously wearing contact lenses. The main barriers for non-CL wearers were reportedly comfort of spectacles (40.5%), the perception that contact lenses are uncomfortable (38.0%) and difficult to use (36.7%) whereas for previous CL wearers it was mainly discomfort (57.5%). The main source of information were from eye-care practitioners (58.0%) and was only significantly associated with age (P=0.023). There was a greater willingness to retry contact lenses among previous CL wearers (62.5%) than non-CL wearers (41.8%).

Conclusion: There was a positive attitude and perception among previous contact lens wearers than those who have never worn contact lenses. There is a need for increased health education by eye-care practitioners and other delivery methods to remove misconceptions and perpetuate the awareness of contact lenses and their benefits to allow for an increase in contact lens usage.

Introduction:

Clear vision holds great importance in the normal daily functioning of most humans however, refractive error, also described as avoidable blindness, was reported to affect approximately 2.3 billion people worldwide with the majority residing in developing countries[1-4]. Refractive error can be defined as the abnormal focusing of light on the retina resulting in blurry vision[1, 2, 5]. Due to modern advances, persons who are affected by refractive errors can now be treated if intercepted at the right time, using some form of optical modality to achieve their optimal vision[1, 4, 6, 7]. Spectacles and contact lenses are among the various forms of optical devices for correction[3-5].

Spectacles are frames projected 10-12 mm in front of the eyes which are fitted with ophthalmic lenses to allow persons to maintain clarity of vision while completing everyday tasks with confidence and style[3, 4, 8]. Prior research indicated that spectacles have been at the forefront of the list of modalities chosen by persons for rectifying their refractive errors because of their simple, inexpensive and well-known aspects [2-4, 9, 10]. However, a previous study carried out in India determined that factors such as discomfort, incorrect prescription and misplacement were reasons for spectacle wearers becoming drop-outs[11, 12]. Henceforth it is important to not overemphasize the strengths of spectacle wear and assume its applicability to rectify all issues that follow refractive correction.

Contact lens wear, being one of the alternative modality options, fills the gap that spectacles may not be able to satisfy for individuals with refractive errors[4, 11]. Some studies have defined contact lenses to be curved tinted prosthesis that fits on the cornea correcting refractive errors directly from the ocular surface and providing various visual properties that spectacle wearers may not be able to achieve[4, 8]. These properties of contact lenses are; acquiring a higher visual quality due to wider visual fields, direct application of treatments to the lenses to cure eye diseases, visual rehabilitation after corneal surgery, less aberrational effects and modification of facial appearances satisfying aesthetic and recreational desires[8, 11].

This study investigated the attitude and perception of spectacle wearers towards contact lens wear in Central Trinidad.

Background:

Previous studies have been done globally to determine the attitude and awareness of spectacle wearers towards contact lenses where they studied the reasons for the lack of interest in contact lens wear. Also, many have investigated the reasons for contact lens dropout among neophytes and established contact lens wearers.

A study was done in Nigeria in 2014 which explored the reasons for the poor interest in contact lens and refractive surgery in a resource-limited area. There was a high awareness of both options but poor attitudes towards using these alternate corrections. Among the barriers to the lack of interest in both contact lens and refractive surgery was a lack of information, high cost and fear of complications[11].

A study was done in Turkey to identify spectacle wearers' inclination toward contact lenses. Among the non-contact lens users which included previous users and those who had never used contact lenses, the reasons for avoidance of contact lens wear included difficulty using contact lenses, the comfort of spectacles, the opinion of contact lenses being harmful to the eye, expense, and non-recommendation by ophthalmologists. The main areas of concern also included infections, the fear of the lens sticking to the eye, experiencing stinging or a foreign body sensation and near vision difficulty[8].

A study done in the United Kingdom evaluated the retention rates of neophyte contact lens wearers within 12 months. The reasons for lens discontinuation included discomfort, dryness, soreness, poor distance and reading vision, handling problems, loss of interest, inconvenience, expense, and other eye problems. The participants who discontinued contact lens wear agreed to retry contact lenses if there was increased comfort, better vision, easier handling, and reduced cost[13].

This research topic was chosen due to the interest in educating the population about contact lenses as well as exploring the population's awareness and attitude towards contact lens wear in Trinidad and Tobago as it would be beneficial for optometrists to understand how to approach this population to increase the interest in contact lens wear, as well as reduce contact lens dropout. Additionally, due to the lack of research done on this topic in Trinidad and Tobago and the Caribbean overall, this research will provide much insight into developing further understanding of the barriers towards contact lens wear and the reasons for the cessation of contact lens wear among the population and hence, this research will provide some direction towards helping address these issues.

Statement of the problem:

Spectacle wear is a popular option for refractive error correction but some alternatives exist such as contact lenses[7]. However, the lack of information regarding contact lenses has limited them as a choice for optical correction as studies indicate that many are unaware of the benefits of contact lenses[4, 11]. Furthermore, numerous barriers have hindered contact lens wear among populations around the world such as the fear of side effects[4, 11, 14], non-recommendation by eye care providers[8, 15], absence of interest in contact lenses[15], satisfaction with spectacles[8, 14, 15] and the perception of contact lens wear being costly[11, 14, 15], uncomfortable[15] and time-consuming [16].

Among contact lens wearers, even though there have been many advances in contact lens options and designs, cessation of contact lens wear is a problem in the contact lens industry[17-19]. Studies have shown that the factors contributing to contact lens lapse and dropout include discomfort, poor distance and near vision, handling problems, dryness and soreness of the eye, lens maintenance, loss of interest and inconvenience[13, 17, 20].

The population must become aware that contact lenses are an available option for refractive error correction. Due to the vast benefits of contact lenses and the many designs, materials, and modalities available, they could be given another option other than spectacles, which will be suitable for their needs and can help to improve their livelihood. Additionally, optometrists must be educated on the barriers and misunderstandings that have prevented spectacle wearers from becoming contact lens wearers. In doing so, this will help them address concerns and misconceptions present among non-contact lens wearers and hence, this will help to improve the interest in contact lens wear. Additionally, understanding the reasons for contact lens dropout will help optometrists approach new contact lens wearers and established wearers in a manner that will prevent dropouts such as by choosing the correct contact lens, offering alternate modalities or designs, and helping to maximize comfort and good vision.

Relevance to Public Health

This study provides valuable insight into the opinions of the spectacle-wearing population towards contact lens wear. The study explored the factors that have prevented spectacle wearers from considering contact lens wear as an option for refractive error correction as well as the factors that have contributed to contact lens dropout. It also explored the acceptance of contact lens wear among the spectacle-wearing population.

This data can help to facilitate an improvement in the education of patients by eye care providers. Providing patients with reliable and sufficient information can help them to make more open-minded decisions regarding contact lens wear and help to reduce misconceptions and misunderstandings associated with contact lens usage. In doing so, patients would gain greater knowledge and hence, they can have a greater appreciation of the benefits of contact lenses. They may become more inclined to try contact lenses which can lead to an improvement in their lifestyle. It can also help to reduce the improper use of contact lenses and therefore reduce discomfort, infections and improve vision. This can help to reduce dropout rates among contact lens wearers, allowing them to continue to experience the advantages of contact lens wear and also, reduce financial losses for optometrist offices.

Additionally, this would help in reducing the number of office visits, time and resources spent on follow-ups and treatment by the patient allowing them to have comfortable and safe contact lens usage. It can also improve efficiency in the eye care offices as there would be a reduction in unscheduled patient visits as this may disrupt the functioning of the offices and uncompensated follow-up examinations. Hence, different methods of delivering appropriate information about contact lenses to the population must be considered.

Literature review:

Factors that have prevented spectacle wearers from trying contact lenses

A cross-sectional survey including 214 spectacle wearers was conducted to study the demographic characteristic, awareness and attitudes to contact lenses and refractive surgery and determine the factors contributing to the poor interest in alternatives to spectacles in a resource-limited setting[11]. The study included more females (56.5%) than males (43.5%). The age range was between 18 to 84 years with the mean age being 40.2. The participants within the study had backgrounds in tertiary education (70.6%), secondary education (22.0%) and primary education (4.2%). The majority of patients (74.0%) had worn spectacles for at least a year. The study found that the poor attitude towards using these alternatives was due to a lack of information, expense, and the fear of complications. Fear of complications was the most popular reason for contact lens avoidance, followed by a lack of information and finally, high cost. The study discussed the importance of popularizing alternates to eyeglasses to reduce uncorrected refractive errors which can be done by educating the public, improving affordability and alleviating fears. It mentions the benefits of these alternatives to professional athletes and those requiring vision rehabilitation.

A study done at Kwame Nkruma University of Science and Technology in Kumasi, Ghana assessed the awareness and response of 120 undergraduate students who wore spectacles towards contact lens usage using a self-administered questionnaire[4]. The participants' demographics included males (40.0%) and females (60.0%), with two-thirds (61.7%) between the ages of 21-25. This study showed that majority of the participants (78.0%) were satisfied with their spectacles while the remaining participants (22.0%) were not. There was also no significant relationship between gender and satisfaction with spectacles. The research found that the students' major reasons for contact lens avoidance were fear of side effects (47.5%), satisfaction with spectacle correction (18.3%) followed by a lack of information regarding contact lenses (18.3%) and high cost (12.5%). Non-interest (1.7%) and non-availability of contact lens services (1.7%) were among others.

In Cape Coast, Ghana, a study to assess the knowledge, usage and barriers associated with contact lens wear among the spectacle-wearing adult population was conducted[14]. This study consisted of males (46.2%), females (53.8%), an age range between 18-86 with a mean age of 42.6. Approximately (45.2%) wore spectacles for more than 5 years while (23.0%) wore spectacles for less than 2 years.

The barriers to contact lens wear in this study was a lack of adequate information (27.2%), satisfaction with spectacles (25.0%), followed by fear of side effects (23.0%), cost (19.1%) and finally, less accessibility (4.7%). The study proposed that the reasons for the lack of information may be due to a high number of patients, resulting in inadequate time to educate patients about contact lenses. Also, patients may not have been good candidates for contact lenses. Also, due to differences in socioeconomic backgrounds, some of the participants may also have been ineligible due to lack of hygiene or proper storing places. In terms of those who were satisfied with spectacle wear, the study suggested that a lack of experience with contact lenses may be the issue. Hence, the researchers concluded that contact lens education and trial contact lens fitting be implemented to help overcome the barriers.

A study among spectacle wearers was conducted in Ankara, Turkey, to determine the tendencies regarding contact lens usage[8]. One area of the study analyzed the reasons for contact lens avoidance among those who had never used and previously used contact lenses. The study demographics consisted of females (59.6%) and males (40.4%) in which the majority were 18-30 years old (68.9%). The participants also had education background in primary (46.5%) and secondary school (45.0%). The main barrier to contact lens usage was the belief that contact lens use is difficult (34.0%). Other barriers were the comfort of glasses (24.5%), the opinion that contact lens use is harmful to the eye (21.9%), non-recommendation by an ophthalmologist (9.4%) and expense (6.9%). The main concern of the participants was the fear of eye infections. Others included itching, lens sticking to the eye, burning, dryness, blurred vision, and redness among others. The majority of patients wore spectacles for 1-5 years (33.9%) and 6-10 years (31.1%). Among the participants, there were those who never wore contact lenses (64.6%), used contact lenses continuously (17.7%), used contact lenses intermittently (10.8%) and were previous wearers (6.9%). The study suggested that the participants were well educated, but they obtained their information through their social circles which contributed to their concerns regarding contact lens use. Hence, there was a lack of information from reliable sources. The research concluded that physician-delivered education is a reliable option to raise proper awareness.

The factors that have contributed to the cessation of contact lens wear

A retrospective study was conducted to determine the retention rates and factors for dropout among 524 neophytes contact lens wearers in the United Kingdom within one year[20]. The dropout rate was (26.0%) where almost half of these dropouts discontinued contact lens wear within the first two months. There was a higher rate of dropout among the older wearers with the highest dropouts in those over 60. Retention rates were also lower among SiHy wearers than hydrogel wearers. There was higher retention among wearers who were frequently supplied with contact lenses due to higher convenience. Participants discontinued contact lenses mainly due to handling problems (23.0%), poor distance (38.0%) and near (24.0%) vision, discomfort (21.0%) and loss of interest (16.0%). Hence, vision is the main reason when combined (47.0%) followed by comfort-related reasons (25.0%) and motivational reasons (18.0%). The main reason for the discontinuation of multifocals and toric lenses was vision-related. For those who wore soft lenses, discomfort and handling problems were the main reasons. Cost and inconvenience were among others. Gender, toric lens power, lens replacement frequency and location were not associated with dropout. Suggestions of the study included refitting patients with alternatives and improving contact lens designs and fitting procedures. The study concluded that improving retention rates can be done by addressing the factors associated.

An online survey with 4851 participants consisted of current and lapsed contact lens wearers and the study analyzed how many participants temporarily or permanently ceased contact lens wear between 2008 and 2010[17]. Among the participants, almost two-thirds started wearing contact lenses again while one-third stopped again (23.0%). There was no relation found between lapsed and non-lapsed wearers for gender. The lapsed wearers were older, began contact lens wear at a later age and did not wear contact lenses as long as those who resumed wear. The main reasons for lapse contact lens wear included discomfort (24.0%) and dryness (20.0%) while others included red eyes, handling issues, expense, lens maintenance, eye infections allergies, laser surgery, recommendation by their eye care provider, pregnancy, ran out of lenses and poor vision. The study found that among older lapsed wearers, the main complaints were poor distance or near vision. Among the younger participants, discomfort, expense, running out of lenses and becoming pregnant were prominent factors. The study also found that SiHy was the prominent material in non-lapsed wearers compared to lapsed wearers. A higher proportion of lapsed wearers also wore daily disposable lenses.

The study concluded that a lack of appropriate fitting, inadequate instructions for contact lens use and a lack of compliance reduce the chance of successful contact lens wear. The study also concluded that given the advances in contact lens materials and designs, discontinuation rates have not been impacted significantly.

A prospective study was conducted to analyze the factors that were associated with retention and contact lens failure among neophytes fitted at 26 practices[13]. Among the 250 subjects fitted with contact lenses, the drop-out rate was (22.4%). Age was not a significant factor, but gender was an associated factor where the retention rate was higher in women. The reasons for discontinuation were handling issues (25.0%), poor distance vision (23.0%), discomfort (21.0%) and poor reading vision (21.0%). Other reasons included dryness, soreness, inconvenience, expense, and other eye problems. Combining the vision-related barrier, the main reason for discontinuation was vision (41.0%) whereas comfort contributed to (36.0%). Retention rates were not significantly affected by lens material, practice type or replacement frequency. Success was higher in spherical lenses compared to toric or multifocal lenses. Spherical contact lens wearers' main reasons for discontinuation were discomfort, handling issues and inconvenience. For the toric group, it was poor vision and expense while for multifocal wearers who had the highest proportion of dropouts, they included poor vision, handling, and discomfort. For reusable lens users, the reasons for discontinuation included vision and comfort while for daily disposable users, they included vision, comfort, and interest/convenience.

Another research investigated the factors related to contact lens discontinuation and determined if these 236 participants can be refitted successfully[21]. Among those who discontinued, discomfort (51.0%), which included dryness, burning/stinging, edge sensation and limited wearing time, was the main reason followed by vision including reading or general vision (13.0%). Others included handling issues, inconvenience, disinterest, and practitioner advice. Among the 226 participants who were fitted with contact lenses, after 1 month, participants (22.0%) discontinued due to issues with handling, vision, inability to follow up, spectacle preference and discomfort. Vision was the major factor and hence the study suggested that advancements in contact lenses have improved the comfort of wearers. After 6 months, the reasons for discontinued contact lens use included discomfort, inconvenience, lifestyle, and spectacle wear. Those who dropped out were older, had higher cylinders and were more presbyopic. The study also indicated that lifestyle factors may also impact contact lens dropout but did not explore this area in the study.

One researcher, in his first experiment, investigated the perception of presbyopic patients 40 years and older towards contact lenses[22]. The main reason for discontinuation of contact lenses was poor vision (38.0%), followed by discomfort (35.0%), convenience (21.0%) and cost (6.0%) for the entire sample including those who began contact lens wear before and after 40 years of age. In this study, discontinued contact lens wearers were the most unsatisfied with their distance, intermediate and near vision compared to current contact lens wearers. Hence, there was not a significant difference between vision and discomfort in the study. Age, lens material and years of contact lens wear did not affect discontinuation in this study. The study concluded that comfort, as well as the quality of vision in all distances, should be considered by eye care providers.

For his second experiment, he also studied the comparison between the visual preferences of presbyopes and non-presbyopes[22]. Among spectacle-wearing presbyopes and non-presbyopes who had tried contact lenses and discontinued them permanently, the main reason for dropout was discomfort for both groups. Other reasons were convenience, cost, and eye health. Distance, near and overall vision were the least significant factor that contributed to dropout among these participants. The research found that overall, both groups including presbyopes and non-presbyopes had similar opinions regarding contact lens wear. The author suggested that the quality of vision was more advanced in the contact lens industry compared to comfort, resulting in vision being the least important factor resulting in contact lens dropout.

A study was conducted to determine the effect that the COVID-19 pandemic had on contact lens wear using an online survey[23]. Just under half of the participants (46.0%) discontinued contact lens wear. The major reason was a reduced need to wear contact lenses due to lockdown and restrictions followed by a perceived risk of infection, avoidance of touching their face, economic factors, and recommendation by their eye care provider. The majority of these participants (93.2%) indicated that they would recontinue contact lens wear when the pandemic ceases.

The knowledge of contact lens wear among spectacle wearers who have never worn contact lenses and previous contact lens wearers.

A descriptive cross-sectional study was done to assess the awareness and response of 120 undergraduate spectacle wearers to contact lens usage in the correction of refractive errors in Kwame Nkrumah University of Science and Technology in Kumasi, Ghana[4]. Among these participants, many of the students (95.8%) were aware of contact lens wear being an alternative modality yet fewer (35.0%) truly reported knowing about the benefits of contact lens wear. Over half (63.3%) knew much about its complications. Also, some students (18.3%) mentioned that lack of information was a reason for them not wanting to utilize contact lenses. In terms of obtaining useful information on modality options, electronic media was the leading resource where the majority (45.3%) of the students got their information from these platforms instead of the eye-care clinics. Less participants (21.7%) obtained their information from eye care professionals where optometrists were the main source (16.1%) followed by ophthalmologists (3.7%) and finally ophthalmic nurses (1.9%). Though the knowledge of contact lens usage was high, it did not directly relate to their knowledge about the benefits of contact lens wear. Thus, it can be assumed that this population needed in-depth education about the benefits of contact lens usage as this might boost the choice of contact lenses as their main form of correction among undergraduate students.

The study conducted in Nigeria, focused on the awareness and attitude of spectacle wearers to alternatives to corrective eyeglasses such as contact lenses and refractive surgery in a resource-limited community[11]. Interesting to note, that only 97 spectacle wearers out of the 214 participants in this study were conscious of contact lenses being an alternative to corrective eyeglasses whereas 115 spectacle wearers were negligent to the resource of contact lens correction. This means more than half of the population in this study were kept in the dark about the benefits of contact lenses. The trend here showed that as the individuals climbed in education level, their exposure to contact lenses was more abundant. The participants within this study (56.0%) showed a great preference for contact lens usage. This knowledge and interests however did not affect their desires to utilize the alternative correction. In essence, this study proposed that popularizing is a must for alternatives to eyeglasses which will in turn increase the awareness of spectacle wearers.

In the study done in Saudi Arabia, there was a comparison between the current wearers vs previous contact lens wearers on their knowledge about adverse effects of contact lenses[15]. The findings showed that the current users were able to display increased knowledge about the proper safety measures of contact lenses more so than the previous users. However, there was no significant link between current users and having higher awareness of contact lens complications.

A study was done in Ghana to assess the barriers and knowledge towards contact lenses among participants who were spectacle wearers[14]. Out of the 147 respondents that were considered knowledgeable by the author, the majority (79.6%) answered that contacts are small lenses placed on the eyeball. Unfortunately, most of these individuals were very unaware (38.8%) that it can be used to correct vision in individuals. The participants reported that these were their main sources for obtaining their information regarding contact lenses; eye-care practitioners (27.2%), family and friends (22.4%) and persons who are contact lens wearers (16.3%). However, the author concluded that their source of information did not serve its purpose in increasing their knowledge of contact lenses.

In another study, researchers were able to dissect in their study that the reasons for the incoherent concerns of the non-contact lens wearers regarding contact lens wear were due to observing personal interactions with contact lenses (35.7%), obtaining information from their social circles (29.4%) and the printed and visual media (15.3%) while information from an ophthalmologist included (13.7%) of participants. Whereas the current CL wearers reported the reason for their continuation and success was by obtaining their information directly from official sources such as ophthalmologists and opticians. Given that the participants were well educated, their main source of information was not via improper sources. Therefore, because of this proper information source, most of the concerns and misconceptions named by non-CL wearers were not experienced by the current contact lens wearers. This study proved the importance of obtaining valid information from reliable and qualified sources to maintain a successful contact lens journey[8].

The acceptance and willingness towards contact lens wear from spectacle wearers and previous contact lens wear.

In one particular study, out of 120 students who wore spectacle correction, less than half of the undergraduate spectacle wearers (41.0%) responded to being open to wearing contact lenses as their refractive error correction instead of spectacles whereas the rest of the population (59.0%) did not want to try it. The study indicated that even though most participants were satisfied with their spectacles (78.0%), a high proportion still wanted to try contact lenses. Among the 120 participants, (12.5%) of males and (28.3%) of females were willing to try contact lenses compared to the (27.5%) of males and (31.7%) of females who were unwilling. In this study, there was no significant relationship between gender and preference to try contact lenses[4].

Another study done on the awareness and attitude of spectacle wearers to alternatives to corrective eyeglasses showed no trends between the knowledge of contact lenses and the willingness to wear them[11]. Out of the 97 individuals that reportedly knew of contact lenses as another option, only 34 spectacle wearers opted to use them. The study also investigated the duration of spectacle-wearing with willingness and there was no link between the two since the majority (162) was not willing to wear contact lens correction. Higher education and gender were not significantly associated with a willingness to use contact lenses. Overall, the study showed that there was a negative attitude towards alternative refractive error corrections.

Researchers were able to investigate the retention rates in new contact lens wearers and factors associated with retention and dropout[13]. The findings from this research among the individuals who were lapsed contact lens wearers showed indications that they do have intentions of retrying contact lenses. However, these intentions were based on satisfactory conditions being met such as gaining better vision (43.0%), easier handling (41.0%) and reduced cost (39.0%). This study concluded that since comfort-related problems are the reasons for contact lens wearers becoming dropouts, improved methods of soft contact lens design would be a way to solve this issue.

In another study, just over half of wearers (62.0%) resumed their contact lens wear after stopping for the first time. The reasons for their willingness were that they liked the cosmetic change provided by contacts, the convenience of this type of wear and being recommended other types of contact lens designs. However, due to discomfort and dryness, users (32.0%) reported having relapsed contact lens wear again thus contributing to the rate of discontinuation among contact lens wearers[17].

One particular study included a section to evaluate the satisfaction levels of participants with both glasses and contact lenses[8]. The participants in question were those who wear spectacles, non-CL wearers and current CL wearers. The non-Cl group was reported to be more satisfied with glasses and when asked their reasons for avoiding contact lens use, factors such as difficult use, CLs being harmful to their eyes, no recommendation from ophthalmologists, expensive cost and comfort of spectacles were mentioned. Therefore, it can be determined from this research that the influence of unofficial sources can indeed impede the choices of contact lens usage.

In another study, the author was able to compare the preference of spectacle wearers and previous contact lens wearers who are non-presbyopes vs presbyopes on wearing contact lenses[22]. Among the spectacle-wearing non-presbyopes (55.0%), who indicated having some previous interaction with contact lenses, all indicated they would prefer contact lenses over spectacles. Although few spectacle wearers with presbyopia (45.0%) had previously tried contact lenses, there was an increase in responses that indicated that they would prefer contact lenses over their spectacles. However, there was no significant difference between both groups of those who were lapsed contact lens wearers. In this study, better vision was highly represented as the main reason for resuming contact lens wear with presbyopia individuals showing the strongest opinion (75.0%), non-presbyopes (45.0%) and the entire sample (55.0%). In conclusion, the author claimed that the opinions of the spectacle wearers and contact lens wearers were the same no matter the correlation with presbyopia or not. Once the wearers can obtain comfort and better vision, their willingness and acceptance to contact lens usage will be stabilized.

Research Questions/Hypothesis:

Research Questions

1. What are the factors prohibiting spectacle wearers from trying contact lens wear?
2. What factors are associated with the cessation of contact lens wear among spectacle wearers?
3. Is acceptance and willingness to try contact lens wear influenced by higher knowledge and awareness among spectacle wearers?
4. Will the response of spectacle wearers to wearing contact lenses increase if the factors are resolved?

Hypothesis:

There is a negative perception regarding contact lens wear among the general spectacle-wearing population of Trinidad and Tobago.

Aims/Objectives:

Aim of the study: To investigate the attitude and perception of spectacle wearers towards contact lens wear.

Objectives of the study:

1. To identify the factors that have prevented spectacle wearers from trying contact lenses.
2. To identify the factors that have contributed to the cessation of contact lens wear.
3. To assess the knowledge of contact lens wear among spectacle wearers who have never worn contact lenses and previous contact lens wearers.
4. To evaluate the acceptance and willingness towards contact lens wear.

Ethical Approval/ Considerations:

The research study went through a process for ethical approval from the Research Ethics Committee of the University of the West Indies at the St. Augustine Campus and it was received before starting any data collection. Permission from each Optometry clinic was obtained before conducting the research using their patients. Brief explanations of the research were given to each participant by the principal investigators explaining the purpose of the study, why each of their participation was important and what was expected of them for completing the questionnaire. The principal investigators acquired consent from each participant before having them partake in the research questionnaire. Participants were also ensured no liability for wanting to be excluded from the research at any point in time. Anonymity for participation was maintained since participants were not required to place their names on the questionnaire forms. Any private information gathered from this research remained confidential between the principal investigators and was only used for the benefit of this research. The data collected was stored and safely secured in a computer that was password-protected, only seen by the principal investigators and the co-investigators. When the study has concluded, the data stored will be deleted after 5 years.

Methodology:

The following section highlights the method and processes that were utilized to successfully generate the necessary information from the participants of this research study to properly evaluate the attitude and perceptions of spectacle wearers towards contact lens wear.

Study Setting:

The study was conducted in the Borough of Chaguanas in various registered optometry offices. Over a period of 9 weeks, the questionnaires were distributed to the participants and recollected at the end of each visit to these clinics.

Study Design:

The research included a cross-sectional questionnaire with carefully structured questions as the main primary data collecting source on the adult population of spectacle wearers. A design of closed and open-ended questions about information on contact lenses was able to effectively assess the knowledge and awareness of spectacle wearers on this form of modality and generate the necessary information for this research.

Study Population:

The study population comprised 119 participants who wear spectacle correction sampled from the waiting rooms of licensed Optometry Offices in the Chaguanas Borough registered with the Trinidad and Tobago Opticians Registration Council (TTORC). Participants contained spectacle wearers who have been habitually wearing spectacles for more than 6 months, spectacle wearers who have never worn contact lenses and those who are contact lens dropouts. Individuals under 18 years of age that were encountered were not allowed to participate in this study as well as individuals unable to make decisions for their wellbeing.

Study Sample:

Sample Size-

The sample size for this research was tabulated using the ROASOFT online calculator. The confidence level was selected to be 95% with a significant level of 5%. Given that the population of Chaguanas Borough in Trinidad & Tobago was reported to be 83,516 in the 2011 general census[24], the sample size would require 383 participants.

Inclusion Criteria -

- Spectacle wearers who have been habitually wearing spectacles for at least 6 months.
- Spectacle wearers who have never worn contact lenses and those who are contact lens dropouts.

Exclusion Criteria -

- Individuals under 18 years
- Individuals unable to make decisions for their wellbeing

Data Collection:

Information regarding licensed Optometry offices was obtained via the relevant authority of the TTORC and the research investigators were able to gain access to these sites by obtaining permission. Documents such as consent forms and questionnaires were presented to and signed by each participant to be later stored by the investigators for further analysis which will be discarded once the study is completed.

Data Analysis:

The analysis of data was analyzed with the Statistical Package for Social Sciences computer program where various Chi-squared tests of independence were tabulated using a significance level of 5%. Pearson R coefficient was used to assess any correlation found among parameters in this study to determine the significance of its relationships. The data has been presented in percentages and frequencies to statistically portray the opinions of spectacle wearers' response to contact lens usage and discuss different parameters of barriers spectacle wearers experience towards contact lens wear.

Data Protection:

The questionnaires and consent forms that were recollected from each participant were safely secured in a password-protected folder, accessible only by the principal investigator and the co-investigators and will be deleted 5 years after terminating the research study.

Findings/Results:

Demographic of participants in the study

As seen in Table 1, there was a total of 119 participants that took part in the study due to Covid-19 constraints. This included both male participants (37.0%) and female participants (63.0%). The majority of the participants had secondary school education (47.1%) followed by university education (33.6%). The participants were mainly of East Indian descent (59.7 %) followed by African descent (26.9 %). The highest percentage of the participants were over 50 years of age (29.4%) followed by participants between the ages of 30-39 years (25.2%), 40-49 years (23.5%) and 18-29 years (21.8%). Among the participants who indicated their category of employment, the top three included Government worker/ Public service (16.1%), followed by Business Owner/ Self Employed (14.3%) and finally, Manager/Supervisor (12.6%).

In Table 2, out of the total 119 participants that partook in this study, the majority of the participants were habitual spectacle wearers for more than 6 years (57.1%) followed by those with a duration of 2 years – 5 years (32.8%) and lastly 6 months – 1 year (10.1%). Concerning the rating of the comfort level of participants' current spectacles, more than half of the participants indicated that it was excellent (52.9%). Others rated it as comfortable (37.8%), satisfactory (8.4%) and uncomfortable (0.8%). Among the habitual spectacle wearers in this study, there was a greater percentage of participants that have never tried contact lenses (66.4%), compared to those who were previous wearers (33.6%). From the 40 participants that wore contact lenses, the highest percentage wore it for less than 6 months (40.0%), followed by 2 years – 3 years (32.5%). The type of contact lenses worn by these 40 participants were hydrogels (50.0%) and silicone hydrogels (50.0%). Among previous contact lens wearers, the major reason for trying contact lenses was to improve their confidence/appearance (27.5%) followed by participants being unsatisfied with spectacles (25.0%).

Table 1 Demographic Characteristics of the Participants.

Demographic Characteristic	Frequency (N)	Percentage/%
Gender		
Male	44	37.0
Female	75	63.0
Total	119	100.0
Education level		
Primary School/SEA	8	6.7
Secondary School/O/A Levels	56	47.1
University Degree/Masters/PhD	40	33.6
Skills Training	12	10.1
None	2	1.7
N/A	1	0.8
Total	119	100.0
Ethnicity		
African Descent	32	26.9
East Indian Descent	71	59.7
Hispanic	1	0.8
Asian	3	2.5
Caucasian	3	2.5
Other	9	7.6
Total	119	100.0
Age		
18-29	26	21.8
30-39	30	25.2
40-49	28	23.5
> 50	35	29.4
Total	119	100.0
Occupation		
Educator/Counsellor	7	5.9
Government Worker/Public Service	19	16.1
Social Worker	2	1.7
Transporter	5	4.2
Manager/Supervisor	15	12.6
Business Owner/Self Employed	17	14.3
Medical Professional	1	0.8
Student	11	9.2
Retired	11	9.2
Contractor	5	4.2
Other	26	21.8
Total	119	100.0

Table 2 The participants' response to duration of spectacle wear and comfort, if they ever wore contact lenses, the duration of contact wear, type of lenses worn and reason for starting contact lens wear.

Variables	Frequency (N)	Percentage Frequency (%)
Duration of Spectacle Wear		
6 months – 1 year	12	10.1
2 years – 5 years	39	32.8
>6 years	68	57.1
Total	119	100.0
Rating comfort of current spectacles		
Poor	0	0.0
Uncomfortable	1	0.8
Satisfactory	10	8.4
Comfortable	45	37.8
Excellent	63	52.9
Total	119	100.0
Ever Worn Contact Lenses		
Yes	40	33.6
No	79	66.4
Total	119	100.0
Duration of Contact Lens Wear		
<6months	16	40.0
6 months – 1 year	9	22.5
2 years – 3 years	13	32.5
>4 years	2	5.0
Total	40	100.0
Type of Contact Lens Worn		
Soft	20	50.0
Silicone Hydrogels	20	50.0
Rigid gas permeable	0	0.0
Total	40	100.0
Reasons for starting contact lens wear among previous wearers		
Unsatisfied with spectacles	10	25.0
To improve confidence/appearance	11	27.5
To have better performance in activities	5	12.5
To suit lifestyle	7	17.5
Recommended by eye care provider	6	15.0
Other	1	2.5
Total	40	100.0

Relationships between gender, age, and comfort of spectacles regarding the duration of spectacle wear and the participants' experience with contact lenses according to gender.

In this study, females were among the majority for each period including 6 months- 1 year (58.3%), 2 years – 5 years (53.8%) and >6 years (69.1%) as seen in Figure 1 below. When evaluating gender according to the duration of spectacle wear, the Pearson chi-square and R coefficient revealed no significant relationship or correlation between them ($p=0.272$, $r=0.122$). According to age, those between 18-29 years mostly had duration wear of 6 months – 1 year (50%). The 30–39-year-olds (46.2%) were among the majority for duration of wear of 2 years – 5 years along with the 40-49-year-olds (30.8%). Those who were over 50 years of age mostly wore spectacles for > 6 years (48.5%) (See Figure 2). The statistical analysis showed a significant relationship with a moderate positive correlation ($p<0.001$, $r=0.391$). Figure 3 showed a linear decline among those who indicated the comfort of spectacles to be excellent and the increase of comfortable and satisfactory spectacle wear as the duration of the wear period increased. The Pearson's R analysis revealed a weak negative correlation and a statistically significant relationship between the comfort of spectacles and the duration of spectacle wear ($p=0.040$, $r= -0.257$). According to Figure 4, more females (34.7%) have worn contact lenses previously as opposed to males in which fewer (31.8%) have had previous experience wearing contacts. Regarding those who have not worn contacts, a vast amount of males (68.2%) and females (65.3%) have not yet experienced contact lens wear within this study. However, no significant relationship or correlation was found among gender and ever having worn contact lenses ($p= 0.751$, $r=0.029$).

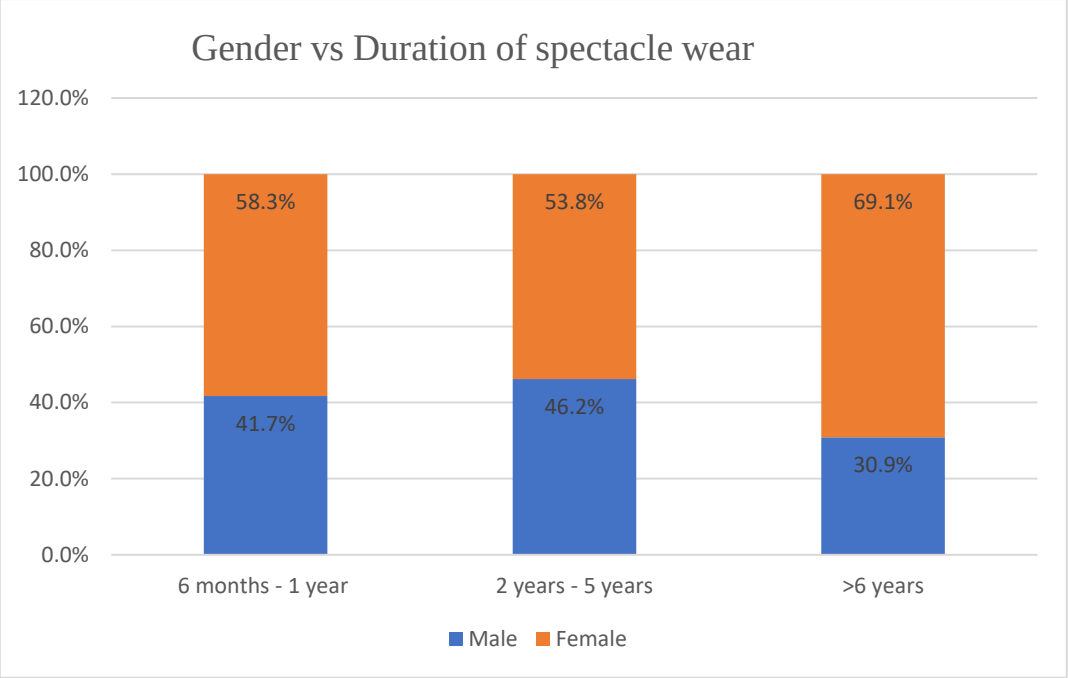

Figure 1: Bar chart represents the relationship between participants' gender and duration of spectacle wear.

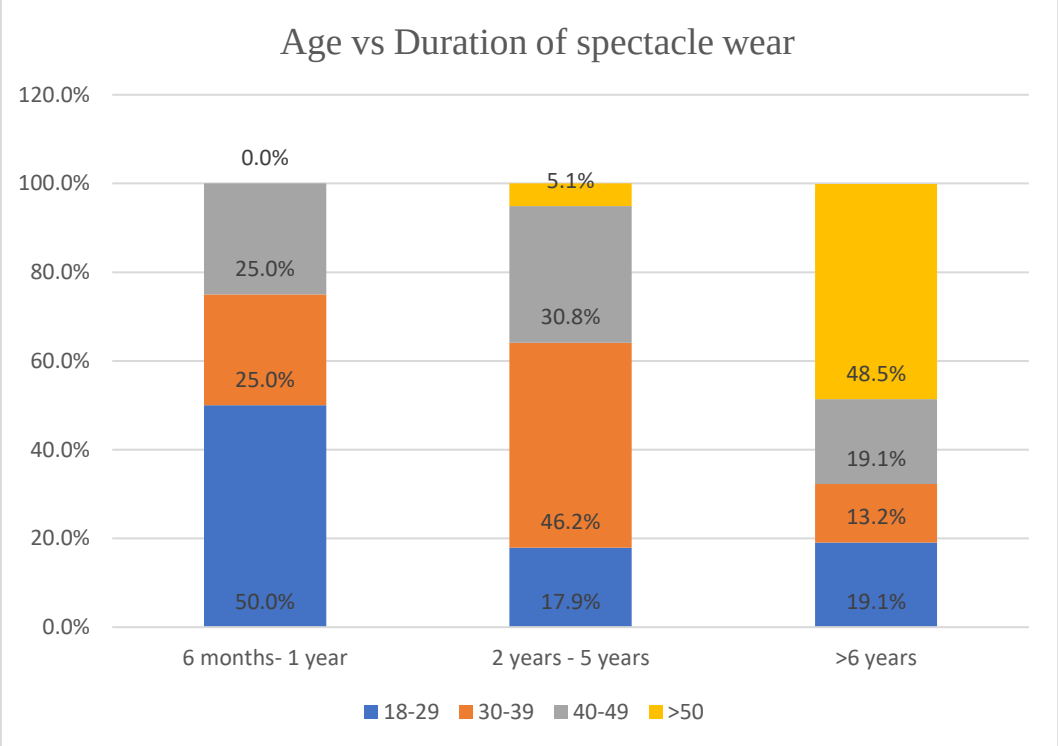

Figure 2: Bar chart represents the relationship between participants' age and duration of spectacle wear.

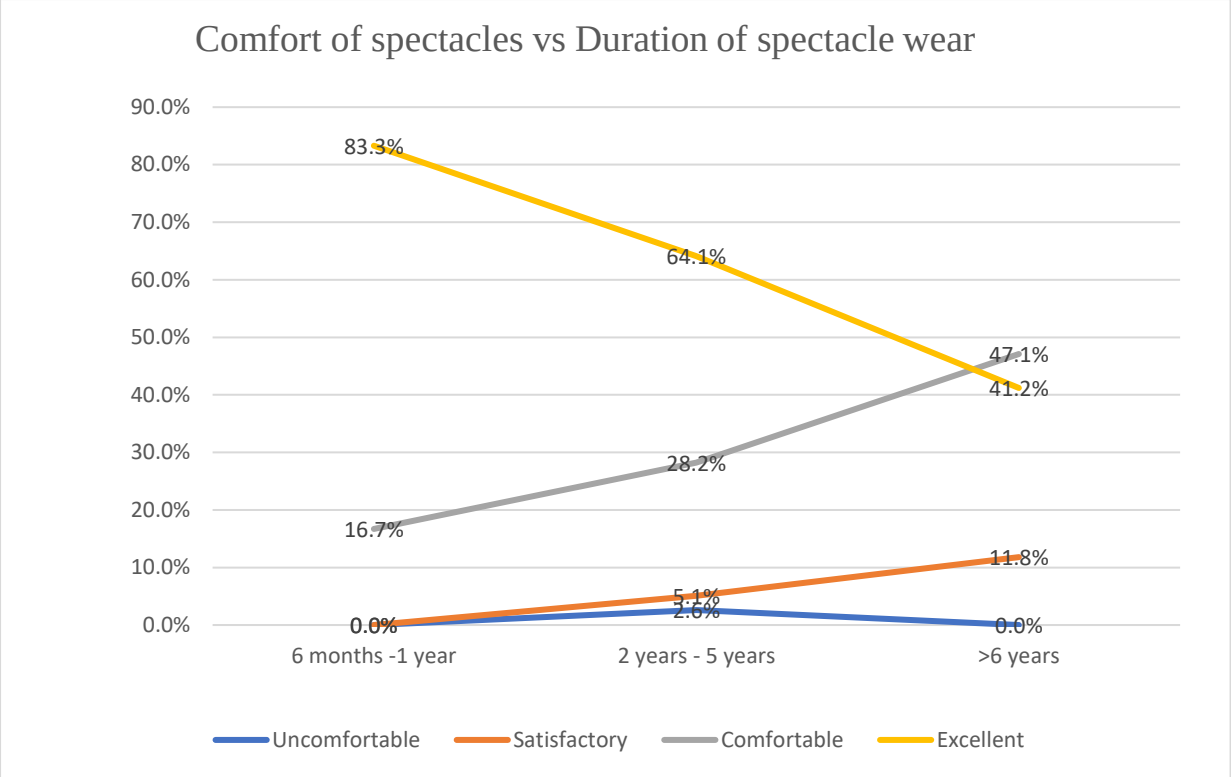

Figure 3 shows the relationship found between participants' comfort with spectacles and the duration of spectacle wear.

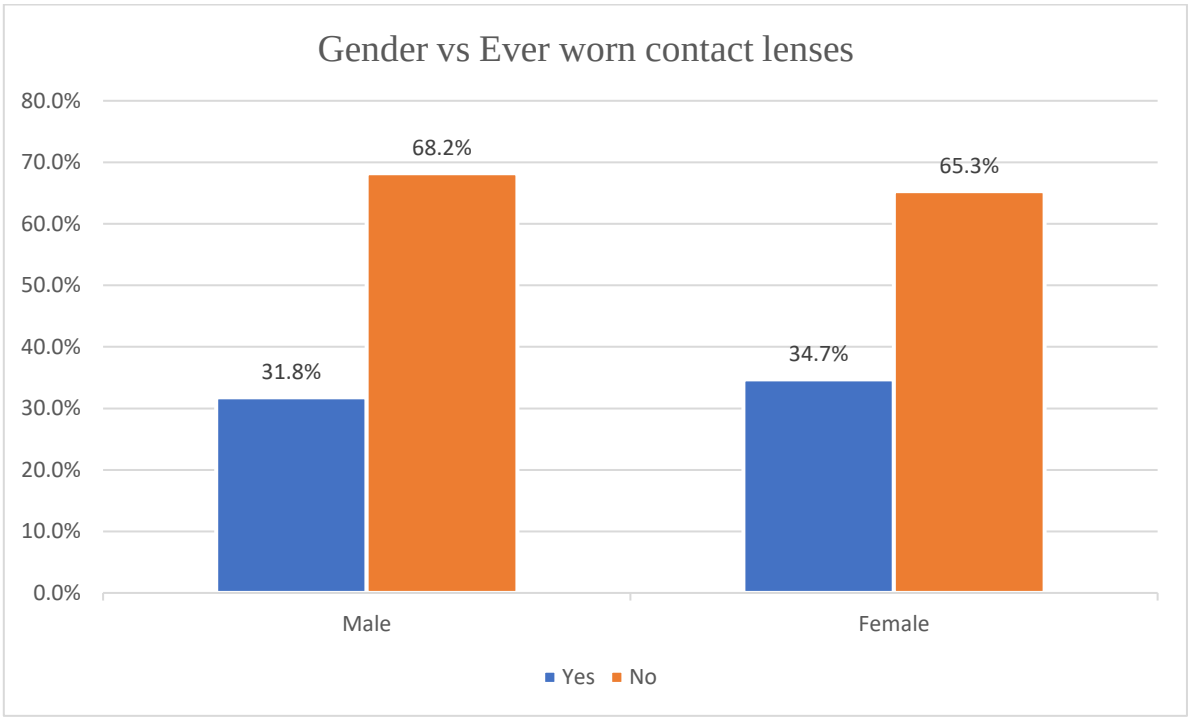

Figure 4 represents the participants' response to having tried contact lenses according to gender.

To identify the factors affecting spectacle wearers who have never worn contact lenses.

As seen in Figure 5, among spectacle wearers who have never worn contact lenses, the major reason was the comfort of spectacles (40.5%). The second and third most common reasons respectively were that participants thought that contact lens wear is uncomfortable (38.0%) followed closely by thinking that using contact lenses is difficult (36.7%). As seen in Table 3, among the participants who have never worn contact lenses, the most common reason for contact lens avoidance among males was the comfort of spectacles (17.9%) compared to females whose major reason was thinking that using contact lenses is difficult (18.8%). The major barrier was the comfort of spectacles for those between 18-29 (28.6%) and those over 50 years of age (22.2%). The most common barrier for those between 30-39 was thinking that contact lens wear is uncomfortable (25.0%) while for those between 40-49, it was a fear of side effects (18.2%). Based on education level, the major barrier for those with primary (18.5%) and secondary education (20.0%) was thinking that contact lens use is difficult. Those with secondary education equally indicated that contact lenses use is uncomfortable (20.0%). Among those with tertiary education, it was the comfort of spectacles (17.6%) and for skills training it was cost, fear of side effects, thinking contact lens use is uncomfortable, lack of knowledge and comfort of spectacles. The participant with no education chose cost, fear of side effects and comfort of spectacles.

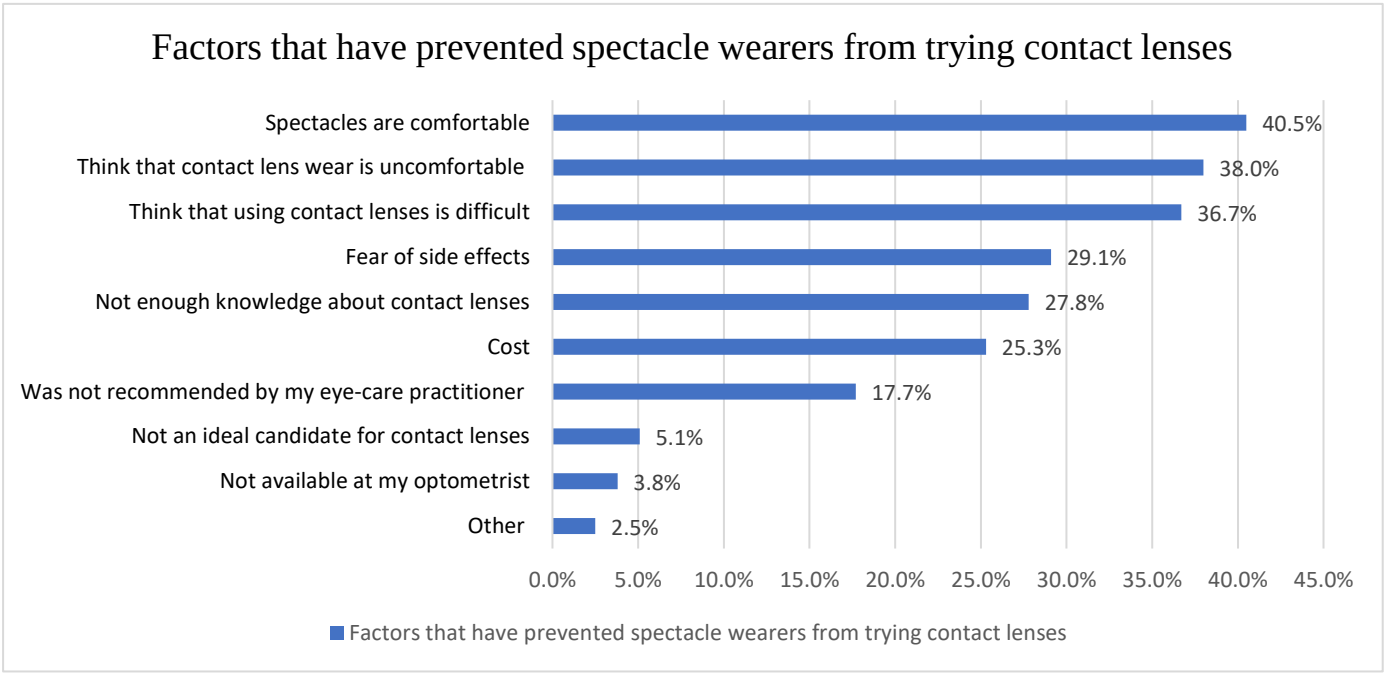

Figure 5 Bar Chart represent the factors that have prevented spectacle wearers from trying contact lenses.

As seen in Figure 6, among spectacle wearers who chose 'Think contact lens is uncomfortable', 'spectacles are comfortable', 'not recommended by optometrist' and 'cost' as a factor that has prevented them from trying contact lenses, the highest percentage were over 50 years of age for each barrier. The relationship between age and thinking contact lens is uncomfortable was statistically significant with a p-value of p = 0.002. There was also a correlation of r=0.245 indicating a low positive correlation. The relationship between age and choosing spectacles are comfortable as a barrier was statistically significant with a p-value of p < 0.001. There was a correlation of r= 0.183 indicating a weak positive correlation. However, there was not a statistically significant relationship between age and 'not recommended by an optometrist' (p=0.668) and 'cost' (p=0.805). As seen in Figure 7, the association between gender and fear of side effects was assessed where the majority that choose that barrier was female. The relationship between gender and fear of side effects was not found to be statistically significant as the p-value was p= 0.248. As seen in Figure 8, it was seen that the highest percentage of spectacle wearers who wore spectacles for > 6 years thought that contact lens use was difficult (66.0%) and uncomfortable (67.0%). The relationships between duration of spectacle wear and thinking contact lens use is difficult and uncomfortable were not significant as the p values were p= 0.509 and p= 0.187, respectively.

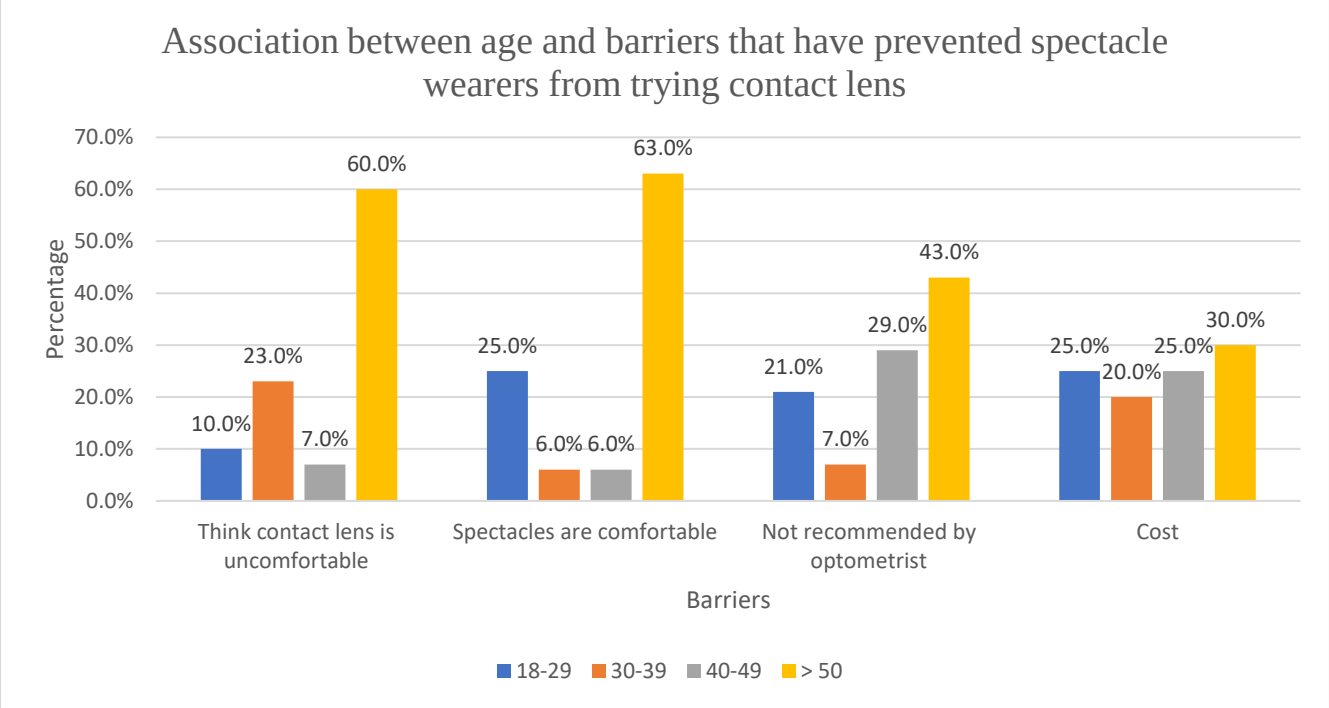

Figure 6 The relationship between age and factors that have prevented spectacle wearers from trying contact lenses including thinking contact lenses are uncomfortable, spectacles are comfortable, non- recommendation by optometrists and cost.

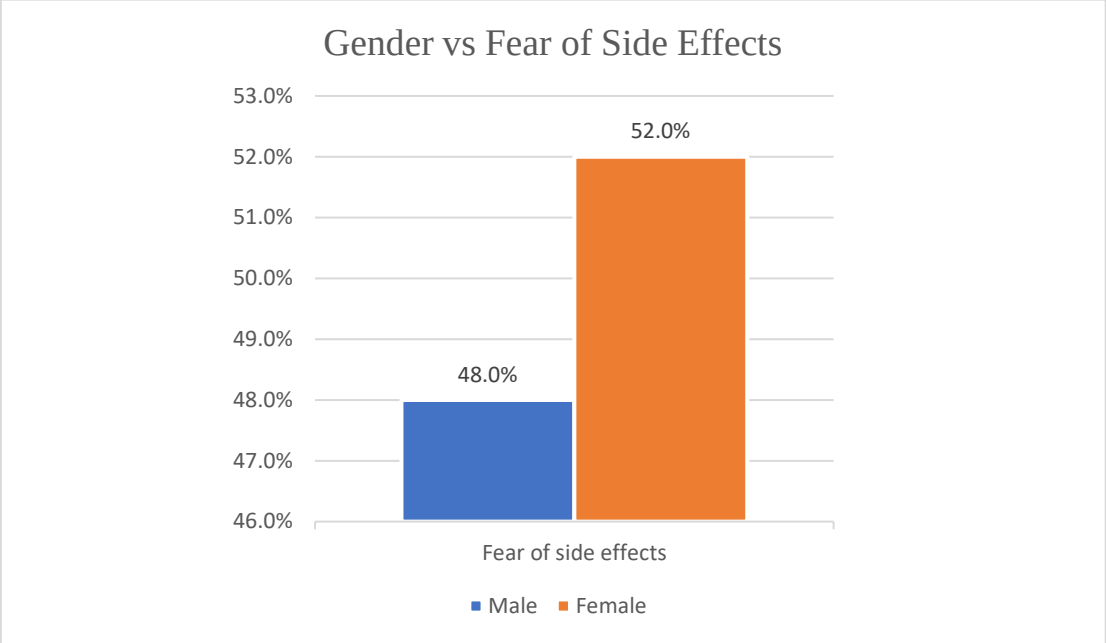

Figure 7 shows the association of gender with the fear of side effects.

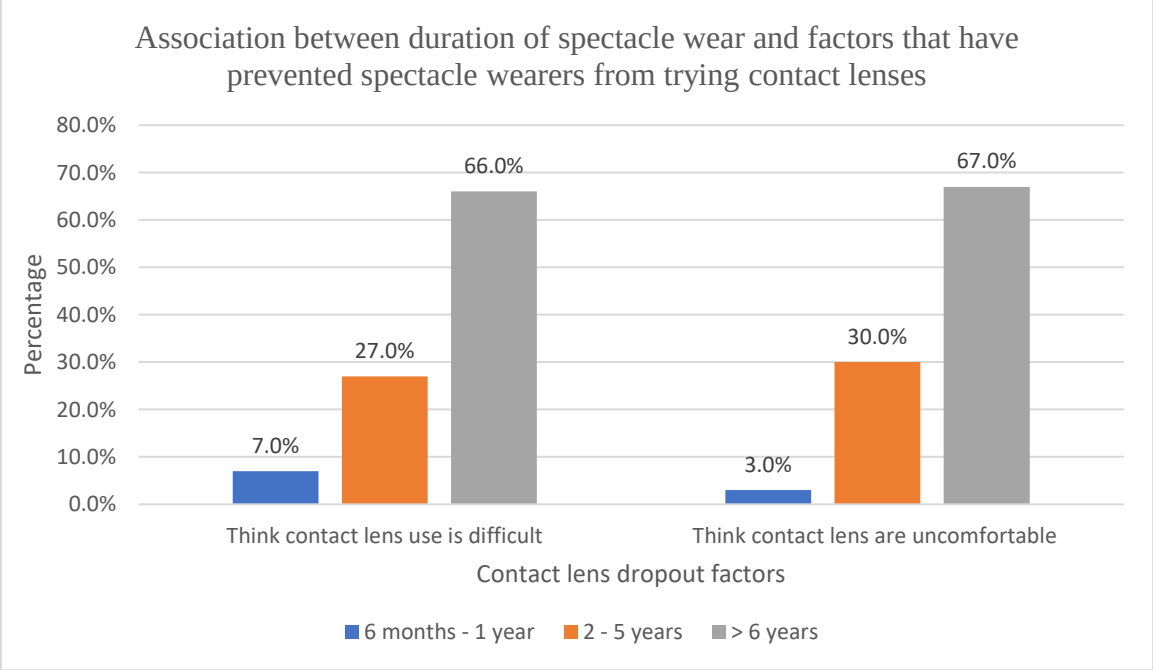

Figure 8 shows the association between the duration of spectacle wear and factors that have prevented spectacle wearers from trying contact lenses including thinking contact lens use is difficult and uncomfortable.

Table 3 Shows factors that have prevented spectacle wearers from trying contact lens wear based on gender, age, and education level.

Variable	Cost	Not available at my optometrist	Fear of side effects	Think that contact lens wear is uncomfortable	Not enough knowledge about contact lenses	Not an ideal candidate for contact lenses	Think that using contact lenses is difficult	Spectacles are comfortable	Was not recommended by my eye-care practitioner	Other	Total
Gender											
Male	11 (16.4%)	1 (1.5%)	11(16.4%)	10 (14.9%)	8 (11.9%)	1 (1.5%)	8 (11.9%)	12 (17.9%)	4 (6.0%)	1 (1.5%)	67 (100.0%)
Female	9 (8.0%)	2 (1.8%)	12 (10.7%)	20 (17.9%)	14 (12.5%)	3 (2.7%)	21 (18.8%)	20 (17.9%)	10 (8.9%)	1 (0.9%)	112 (100.0%)
Age											
18-29	5 (17.9%)	0 (0.0%)	3 (10.7%)	3 (10.7%)	3 (10.7%)	0 (0.0%)	2 (7.1%)	8 (28.6%)	3 (10.7%)	1 (3.6%)	28 (100.0%)
30-39	4 (14.3%)	0 (0.0%)	5 (17.9%)	7 (25.0%)	3 (10.7%)	0 (0.0%)	5 (17.9%)	2 (7.1%)	1 (3.6%)	1 (3.6%)	28 (100.0%)
40-49	5 (15.2%)	1 (3.0%)	6 (18.2%)	2 (6.1%)	5 (15.2%)	3 (9.1%)	5 (15.2%)	2 (6.1%)	4 (12.1%)	0 (0.0%)	33 (100.0%)
> 50	6 (6.7%)	2 (2.2%)	9 (10.0%)	18 (20.0%)	11 (12.2%)	1 (1.1%)	17 (18.9%)	20 (22.2%)	6 (6.7%)	0 (0.0%)	90 (100.0%)
Education Level											
Primary School/SEA	4 (14.8%)	1 (3.7%)	2 (7.4%)	4 (14.8%)	4 (14.8%)	1 (3.7%)	5 (18.5%)	3 (11.1%)	3 (11.1%)	0 (0.0%)	27 (100.0%)
Secondary School/O/A Levels	7 (8.8%)	1 (1.3%)	10 (12.5%)	16 (20.0%)	8 (10.0%)	1 (1.3%)	16 (20.0%)	15 (18.8%)	6 (7.5%)	0 (0.0%)	80 (100.0%)
University Degree/Masters/PhD	5 (9.8%)	1 (2.0%)	7 (13.7%)	7 (13.7%)	6 (11.8%)	2 (3.9%)	7 (13.7%)	9 (17.6%)	5 (9.8%)	2 (3.9%)	51 (100.0%)
Skills Training	3 (18.8%)	0 (0.0%)	3 (18.8%)	3 (18.8%)	3 (18.8%)	0 (0.0%)	1 (6.3%)	3 (18.8%)	0 (0.0%)	0 (0.0%)	16 (100.0%)
None	1 (33.3%)	0 (0.0%)	1 (33.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (33.3%)	0 (0.0%)	0 (0.0%)	3 (100.0%)
N/A	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (50.0%)	0 (0.0%)	0 (0.0%)	1 (50.0%)	0 (0.0%)	0 (0.0%)	2 (100.0%)

To identify the factors that have contributed to the cessation of contact lens wear.

As seen in Figure 9, among previous contact lens wearers, the most common reason for contact lens dropout was discomfort (57.5%) followed by inconvenience (37.5%) and thirdly, difficulty handling contacts lenses (32.5%). As seen in Table 4, the major reason for contact lens dropout was discomfort for both male (28.1%) and female (23.7%) participants. The chief reasons for contact lens dropout based on age range were discomfort (20.0%) and contact lens wear being time-consuming to maintain (20.0%) for 18–29-year-olds. It was discomfort for participants between 30-39 (26.7%), 40-49 (27.3%) and those over 50 years of age (28.6%). Discomfort was the major barrier for participants with primary (100.0%), secondary (24.4%) and tertiary (22.2%) education. Those with skills training indicated discomfort (28.6%), preference for spectacles (28.6%) and inconvenience (28.6%) were reasons for stopping contact lens usage. The participant with no education indicated discomfort and inconvenience as reasons for contact lens wear cessation. Based on the material of the contact lenses, the major reason for dropout for those who wore hydrogel lenses was an inconvenience (20.0 %) while for Silicone Hydrogel wearers, it was discomfort (36.1%).

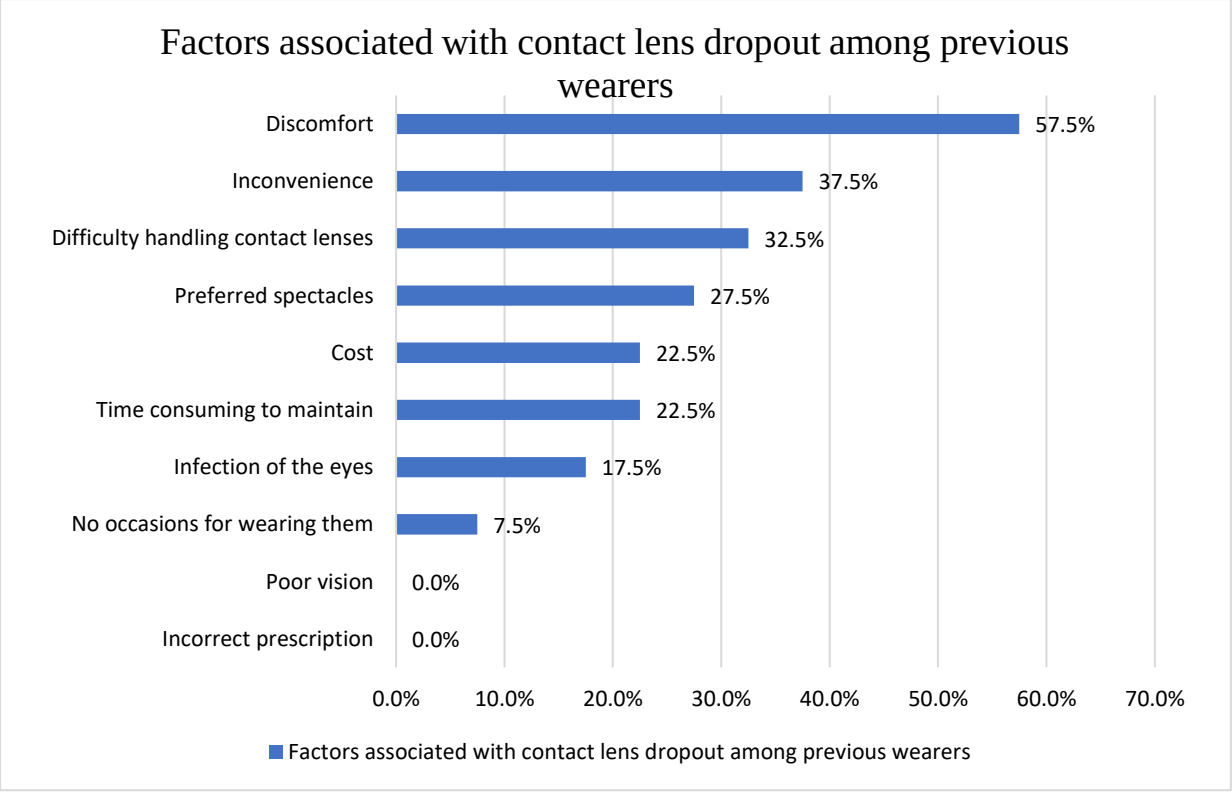

Figure 9 Bar chart represents factors that have contributed to contact lens dropout among previous contact lens wearers.

As seen in Figure 10, among contact lens dropouts who chose that they preferred spectacles, the majority were females (55.0%). However, the relationship between gender and preference for spectacles was not statistically significant (p= 0.393). As seen in Figure 11, the association between age and factors leading to contact lens dropout which includes a preference for spectacles and contact lenses being time-consuming to maintain was assessed. The majority of participants who indicated 'preferred spectacles' were equally between the ages of 18-29 (36.0%) and 30-39 (36.0%). The relationship between age and 'preferred spectacles' was insignificant (p=0.564). Those who chose 'time-consuming to maintain' were mainly 18-29 years of age (56.0%). There was a significant relationship between age and the factor 'time consuming to maintain' where the p-value was p=0.036. There was a correlation of r= -0.49 indicating a moderately negative correlation. As seen in Figure 12, as the length of spectacle wear increased, a greater percentage of participants chose inconvenience and difficulty handling contact lenses as a reason for dropout. However, there was no significant relationship between the duration of spectacle wear with dropping out of contact lenses due to inconvenience (p=0.178) and difficulty handling contact lenses (p=0.400).

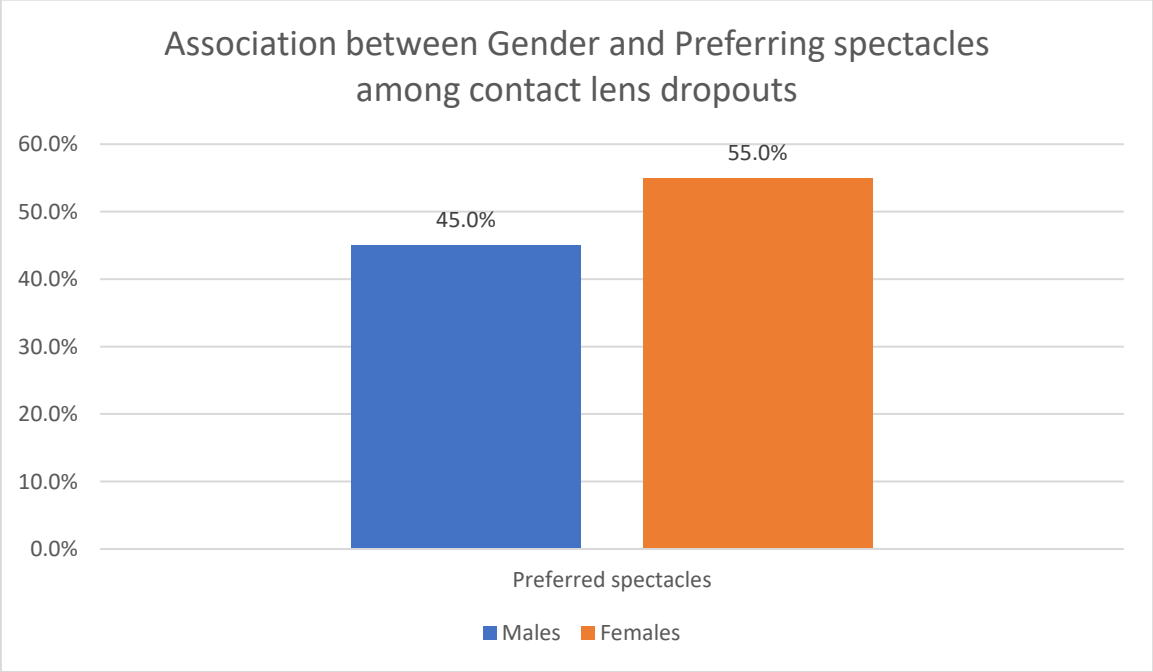

Figure 10 shows the association between gender and preference for spectacles among previous contact lens wearers

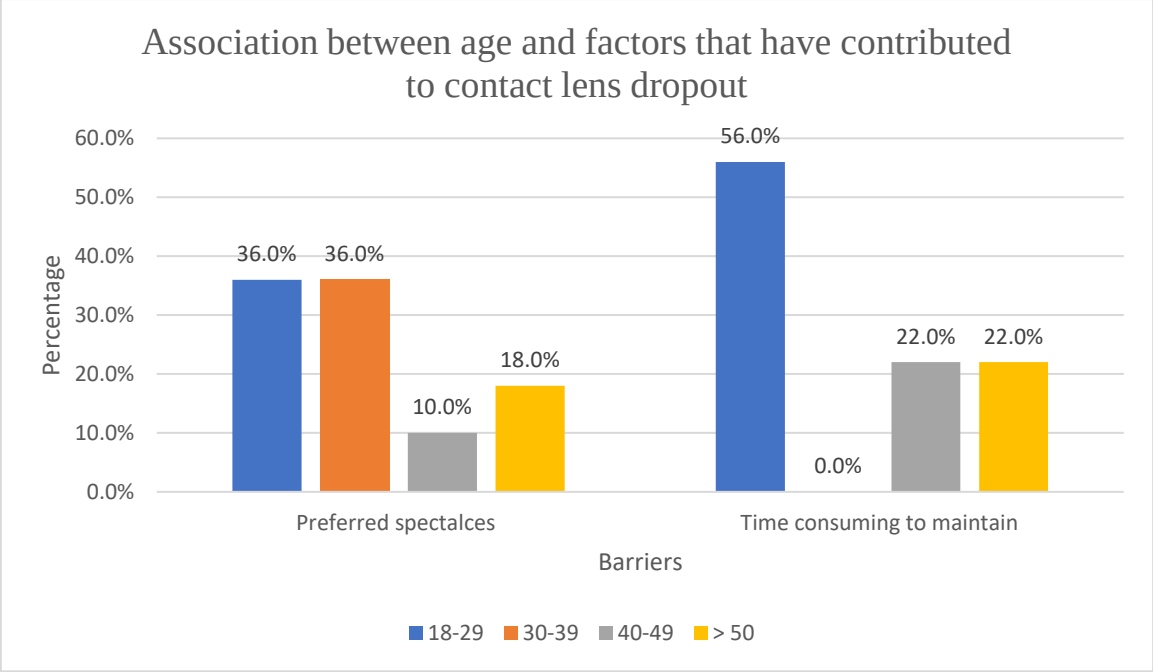

Figure 11 shows the association between age and factors that have led to dropout among previous contact lens wearers.

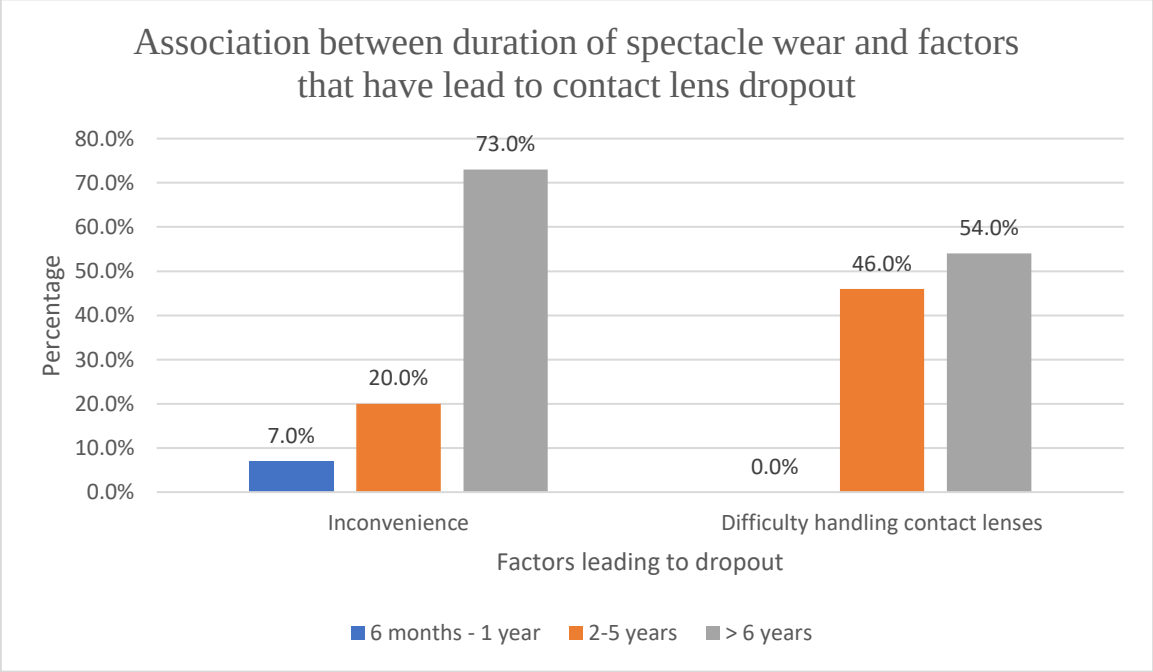

Figure 12 shows the association between the duration of spectacle wear and factors that lead to contact lens dropout including inconvenience and difficulty handling contact lenses.

Table 4 Participant responses for each barrier based on age, gender, education level and material among previous contact lens wearers.

Variables	Discomfort	No occasions for wearing them	Time consuming to maintain	Cost	Preferred spectacles	Difficulty handling contact lenses	Inconvenience	Infection of the eyes	Fear of contracting Covid-19 from CL-wear	Total
Gender										
Male	9 (28.1%)	1 (3.1%)	4 (12.5%)	0 (0.0%)	5 (15.6%)	4 (12.5%)	6 (18.8%)	2 (6.3%)	1 (3.1%)	32 (100.0%)
Female	14 (23.7%)	2 (3.4%)	5 (8.5%)	9 (15.3%)	6 (10.2%)	9 (15.3%)	9 (15.3%)	5 (8.5%)	0 (0.0%)	59 (100.0%)
Age										
18-29	5 (20.0%)	0 (0.0%)	5 (20.0%)	2 (8.0%)	4 (16.0%)	4 (16.0%)	4 (16.0%)	1 (4.0%)	0 (0.0%)	25 (100.0%)
30-39	8 (26.7%)	1 (3.3%)	0 (0.0%)	4 (13.3%)	4 (13.3%)	4 (13.3%)	7 (23.3%)	2 (6.7%)	0 (0.0%)	30 (100.0%)
40-49	6 (27.3%)	2 (9.1%)	2 (9.1%)	2 (9.1%)	1 (4.5%)	3 (13.6%)	2 (9.1%)	3 (13.6%)	1 (4.5%)	22 (100.0%)
> 50	4 (28.6%)	0 (0.0%)	2 (14.3%)	1 (7.1%)	2 (14.3%)	2 (14.3%)	2 (14.3%)	1 (7.1%)	0 (0.0%)	14 (100.0%)
Education level										
Primary School/SEA	1 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (100.0%)
Secondary School/O/A Levels	11 (24.4%)	2 (4.4%)	5 (11.1%)	6 (13.3%)	5 (11.1%)	7 (15.6%)	6 (13.3%)	3 (6.7%)	0 (0.0%)	45 (100.0%)
University Degree/Masters/PhD	8 (22.2%)	1 (2.8%)	4 (11.1%)	3 (8.3%)	4 (11.1%)	5 (13.9%)	6 (16.7%)	4 (11.1%)	1 (2.8%)	36 (100.0%)
Skills Training	2 (28.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (28.6%)	1 (14.3%)	2 (28.6%)	0 (0.0%)	0 (0.0%)	7 (100.0%)
None	1 (50.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (50.0%)	0 (0.0%)	0 (0.0%)	2 (100.0%)
Contact lens Material										
Hydrogel	10 (18.2%)	3 (5.5%)	8 (14.5%)	6 (10.9%)	7 (12.7%)	7 (12.7%)	11 (20.0%)	2 (3.6%)	1 (1.8%)	55 (100.0%)
Silicone hydrogel	13 (36.1%)	0 (0.0%)	1 (2.8%)	3 (8.3%)	4 (11.1%)	6 (16.7%)	4 (11.1%)	5 (13.9%)	0 (0.0%)	36 (100.0%)

Participant's source of information regarding contact lenses.

As seen in Figure 13, the participants' major source of information regarding contact lenses was optometrist/ ophthalmologist (58.0%). The second most common source was from family and friends (19.3%). As seen in Table 5, Optometrist/ Ophthalmologist was also the major source of information regardless of gender and education level. Based on age, optometrist/ ophthalmologist was the main source of information for participants except for those over 50 years old where the major source of information was from family and friends (42.9%). Upon performing statistical analysis using the chi-squared independent test with a significant level of 0.05, the results showed no statistically significant associations between the source of information concerning gender ($p = 0.375$) and education ($p = 0.319$). The results, however, when compared to the data for age ($p = 0.023$) were statistically significant.

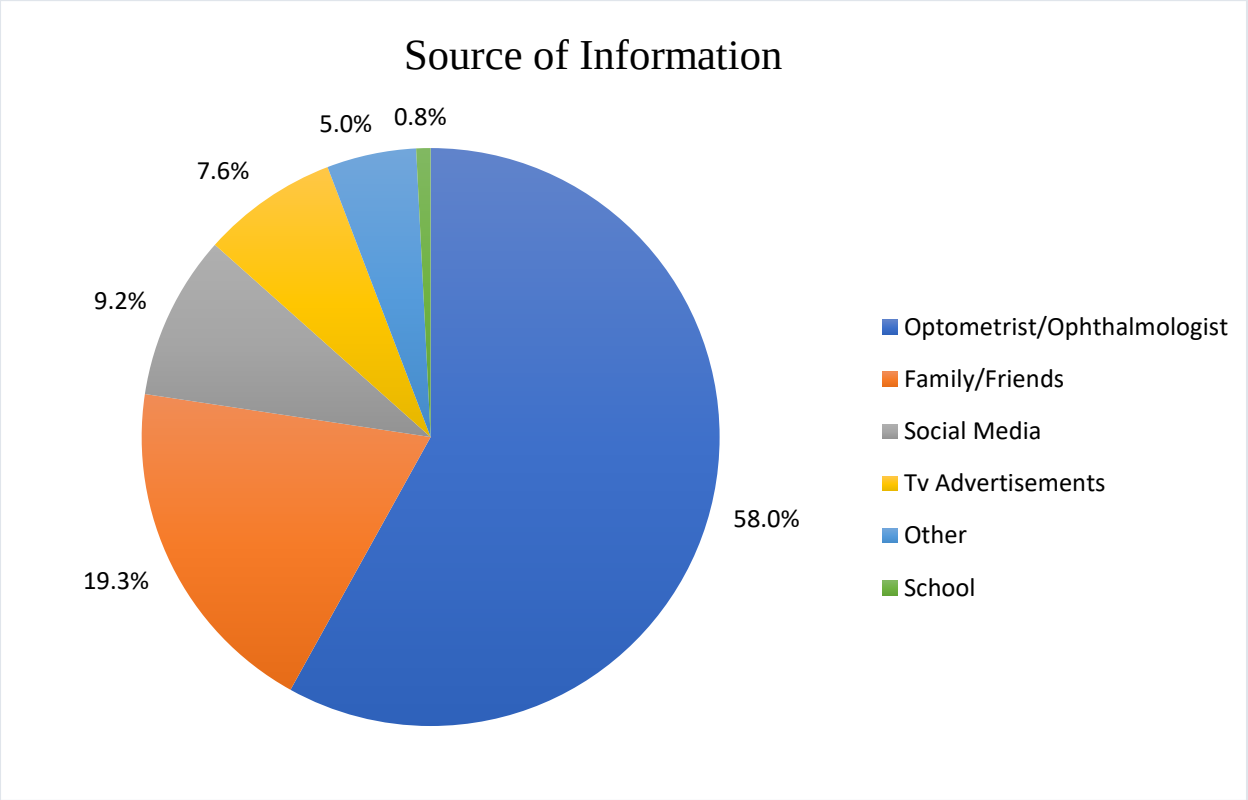

Figure 13 Pie chart showing participants' source of information that brought awareness to contact lens wear.

Table 5 Participant's source of information regarding contact lenses based on age, gender, and education level.

Variable	Optometrist/ Ophthalmologist	Social Media	TV advertisements	Family/Friends	School	Other	Total	P-value
Gender								
Male	30 (68.2%)	5 (11.4%)	2 (4.5%)	5 (11.4%)	0 (0.0%)	2 (4.5%)	44 (100.0%)	0.375
Female	39 (52.0%)	6 (8.0%)	7 (9.3%)	18 (24.0%)	1 (1.3%)	4 (5.3%)	75 (100.0%)	
Age								
18-29	18 (69.2%)	3 (11.5%)	1 (3.8%)	2 (7.7%)	1 (3.8%)	1 (3.8%)	26 (100.0%)	0.023
30-39	22 (73.3%)	2 (6.7%)	2 (6.7%)	3 (10.0%)	0 (0.0%)	1 (3.3%)	30 (100.0%)	
40-49	19 (67.9%)	2 (7.1%)	2 (7.1%)	3 (10.7%)	0 (0.0%)	2 (7.1%)	28 (100.0%)	
> 50	10 (28.6%)	4 (11.4%)	4 (11.4%)	15 (42.9%)	0 (0.0%)	2 (5.7%)	35 (100.0%)	
Education Level								
Primary School/SEA	5 (62.5%)	1 (12.5%)	0 (0.0%)	2 (25.0%)	0 (0.0%)	0 (0.0%)	8 (100.0%)	0.319
Secondary School/O/A Levels	29 (51.8%)	6 (10.7%)	5 (8.9%)	13 (23.2%)	0 (0.0%)	3 (5.4%)	56 (100.0%)	
University Degree/Masters/PhD	26 (65.0%)	3 (7.5%)	2 (5.0%)	6 (15.0%)	1 (2.5%)	2 (5.0%)	40 (100.0%)	
Skills Training	7 (58.3%)	1 (8.3%)	2 (16.7%)	2 (16.7%)	0 (0.0%)	0 (0.0%)	12 (100.0%)	
None	2 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (100.0%)	
N/A	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (100%)	1 (100.0%)	

Participants' willingness to try contact lenses versus gender, higher knowledge, and awareness amongst non-contact lens wearers.

Out of the 79 spectacle wearers who have never worn contacts, there were participants (41.8%) willing to wear contact lenses in the future, containing (50.0%) of males and (36.7%) of females whilst the remaining participants (58.2%) have indicated they have no willingness to wear contact lenses, comprised of (50.0%) of males and (63.3%) of females. According to education, most of respondents who were willing and unwilling to try contact lenses had background in secondary education followed by university education. Concerning the source of information, those who indicated that they were willing and unwilling to try contacts, were of the category that heard about its origin at the optometrist/ophthalmologist followed by family and friends. Table 6 below shows further comparisons. Descriptive statistics were tabulated to compare the relationship between the participants' willingness to try contacts with the 3 variables shown in the table below. The chi-square test showed no statistically significant differences between willingness and gender (p = 0.246), education (p = 0.467) and source of information (p = 0.851).

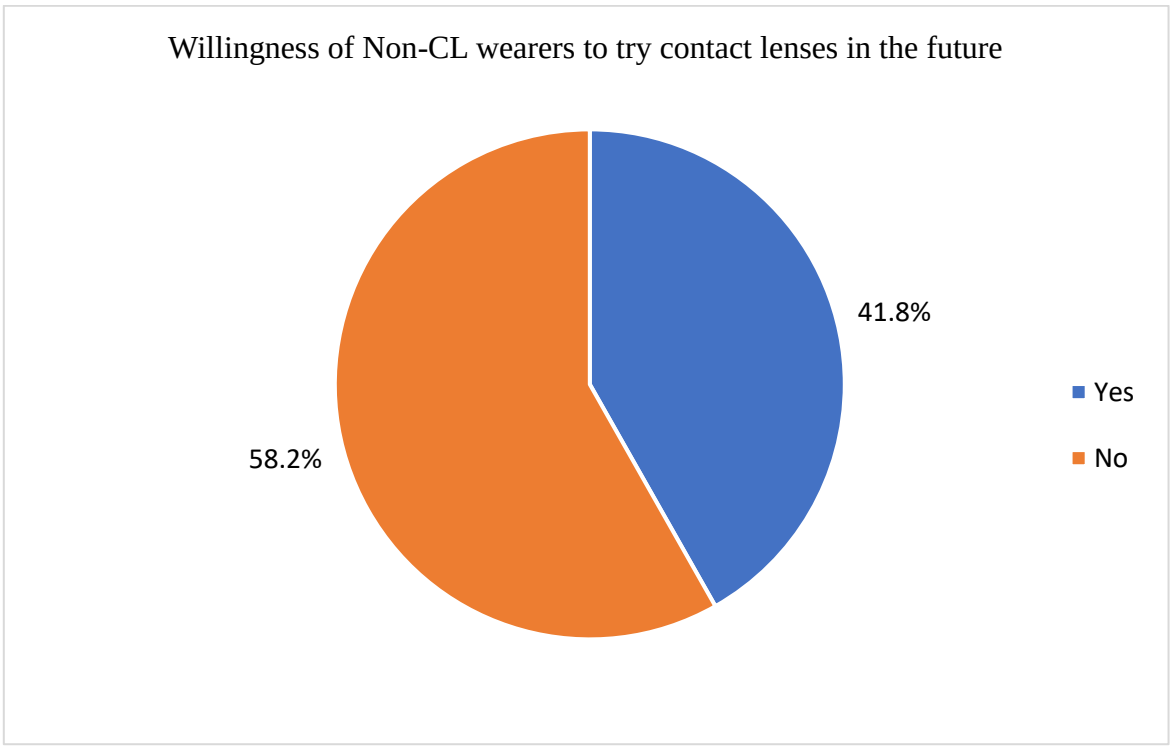

Figure 14 Pie chart showing the willingness of spectacle wearers who have never worn contact lenses to try contact lenses in the future.

Table 6 Participants' willingness to try contact lenses versus gender, higher knowledge, and awareness amongst non-contact lens wearers.

Variables	Willingness to try contact lenses in the future			
	Yes	No	Total	P-value
Gender				
Male	15 (50.0%)	15 (50.0%)	30 (100.0%)	0.246
Female	18 (36.7%)	31 (63.3%)	49 (100.0%)	
Education				
Primary School/SEA	3 (42.9%)	4 (57.1%)	7 (100.0%)	0.467
Secondary School/O/A Levels	15 (38.5%)	24 (61.5%)	39 (100.0%)	
University Degree/Masters/PhD	13 (56.5%)	10 (43.5%)	23(100.0%)	
Skills Training	2 (25.0%)	6 (75.0%)	8(100.0%)	
None	0 (0.0%)	1 (100.0%)	1(100.0%)	
N/A	0 (0.0%)	1 (100.0%)	1(100.0%)	
Sources of Information				
Optometrist/Ophthalmologist	16 (43.2%)	21 (56.8%)	37(100.0%)	0.851
Social Media	5 (55.6%)	4 (44.4%)	9(100.0%)	
Tv Advertisements	3 (42.9%)	4 (57.1%)	7(100.0%)	
Family/Friends	7 (33.3%)	14 (66.7%)	21(100.0%)	
School	0 (0.0%)	0 (0.0%)	0(0.0%)	
Other	2 (40.0%)	3 (60.0%)	5(100.0%)	

Participants' willingness to retry contact lenses versus gender, higher knowledge, and awareness amongst previous contact lens wearers.

Out of the 40 individuals that indicated they were previous contact lens wearers, most respondents positively responded to the proposition to retry contact lenses in the future (62.5%). This was the opinion of (64.3%) of males and (61.5%) of females. However, among those participants who had no desire to resume contact lenses wear (37.5%), this comprised of (35.7%) of males and (38.5%) of females. In terms of educational background and source of information, similar results were found among those willing and unwilling to retry contact lenses with the majority of the responses coming from those who had secondary and university level education and those who had been introduced to contact lenses by their optometrist/ophthalmologist. Statistical analysis showed that the associations between willingness to retry contacts and gender (p= 0.864), education (p = 0.615) and source of information (p= 0.588) were not statistically significant.

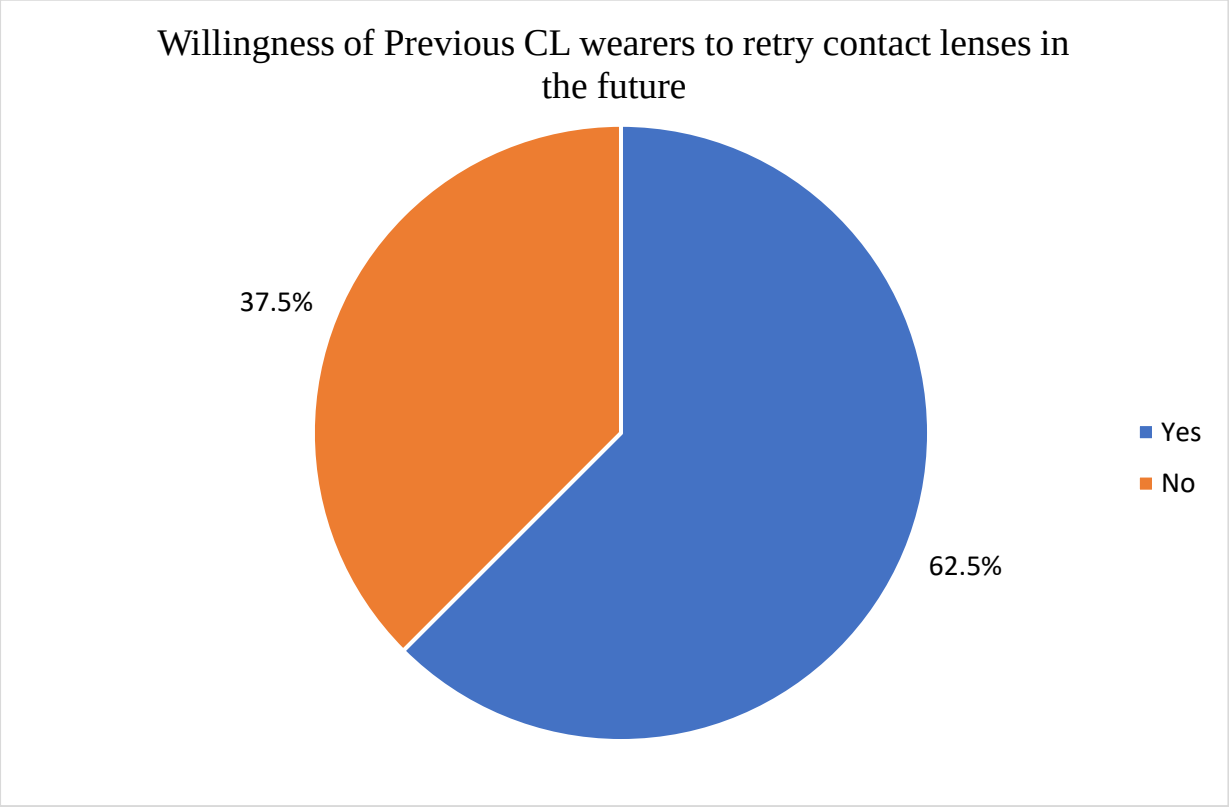

Figure 15 Pie chart showing the willingness of spectacle wearers who have previously worn contact lenses to retry contact lens wear in the future.

Table 7 Comparison between participants' willingness to retry contact lenses versus gender, education, and source of information.

Variables	Willingness to retry contact lenses in the future			P-value
	Yes	No	Total	
Gender				
Male	9 (64.3%)	5 (35.7%)	14 (100.0%)	0.864
Female	16 (61.5%)	10 (38.5%)	26 (100.0%)	
Education				
Primary School/SEA	1 (100.0%)	0 (0.0%)	1(100.0%)	0.615
Secondary School/O/A Levels	10 (58.8%)	7 (41.2%)	17(100.0%)	
University Degree/Masters/PhD	11 (64.7%)	6 (35.3%)	17(100.0%)	
Skills Training	3 (75%)	1 (25%)	4(100.0%)	
None	0 (0.0%)	1 (100.0%)	1(100.0%)	
N/A	0 (0.0%)	0 (0.0%)	0(100.0%)	
Sources of Information				
Optometrist/Ophthalmologist	20 (62.5%)	12 (37.5.0%)	32(100.0%)	0.588
Social Media	1 (50%)	1 (50%)	2(100.0%)	
Tv Advertisements	2 (100.0%)	0 (0.0%)	2(100.0%)	
Family/Friends	1 (50%)	1 (50%)	2(100.0%)	
School	0 (0.0%)	1 (100.0%)	1(100.0%)	
Other	1 (100.0%)	0 (0.0%)	1(100.0%)	

Participants' response to considering contact lenses as an alternate modality with increased knowledge of its benefits.

Interestingly, the response generated from this survey showed that the study population's opinion was almost split down the middle with just over half (50.4%) agreeing that their view on contact lenses would be improved with more knowledge, thus changing from using spectacles while those in minority (48.7%) would not change their current choice of spectacle wear regardless of being educated about the advantages on contact lenses. (See Figure 16 below). Between both groups, previous contact lens wearers (61.5%) responded more positively to having an improved opinion than non-contact lens wearers (45.6%) and non-contact lens wearers (54.5%) were more dominant than the previous CL wearers (38.5%) who indicated they would not change their choice in spectacles. (Figure 17 below)

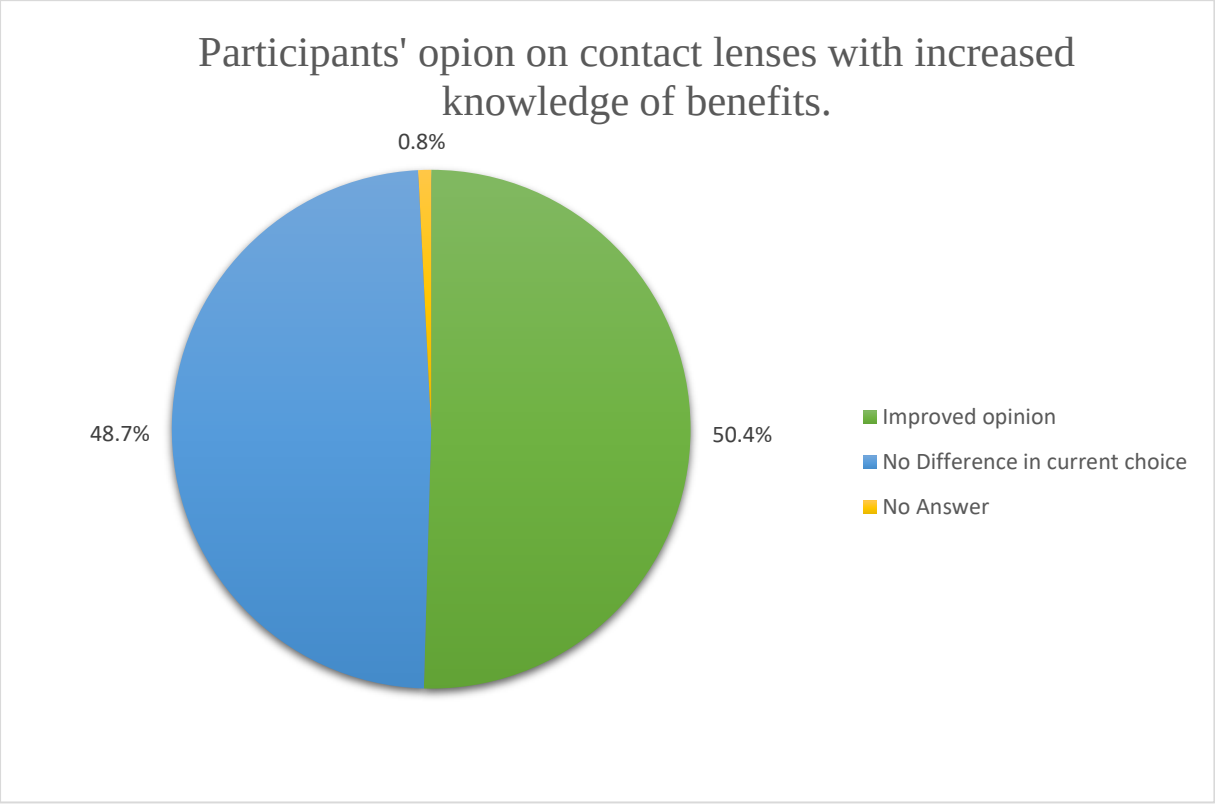

Figure 16 Pie chart represents participants' opinion of contact lenses with increased knowledge of benefits.

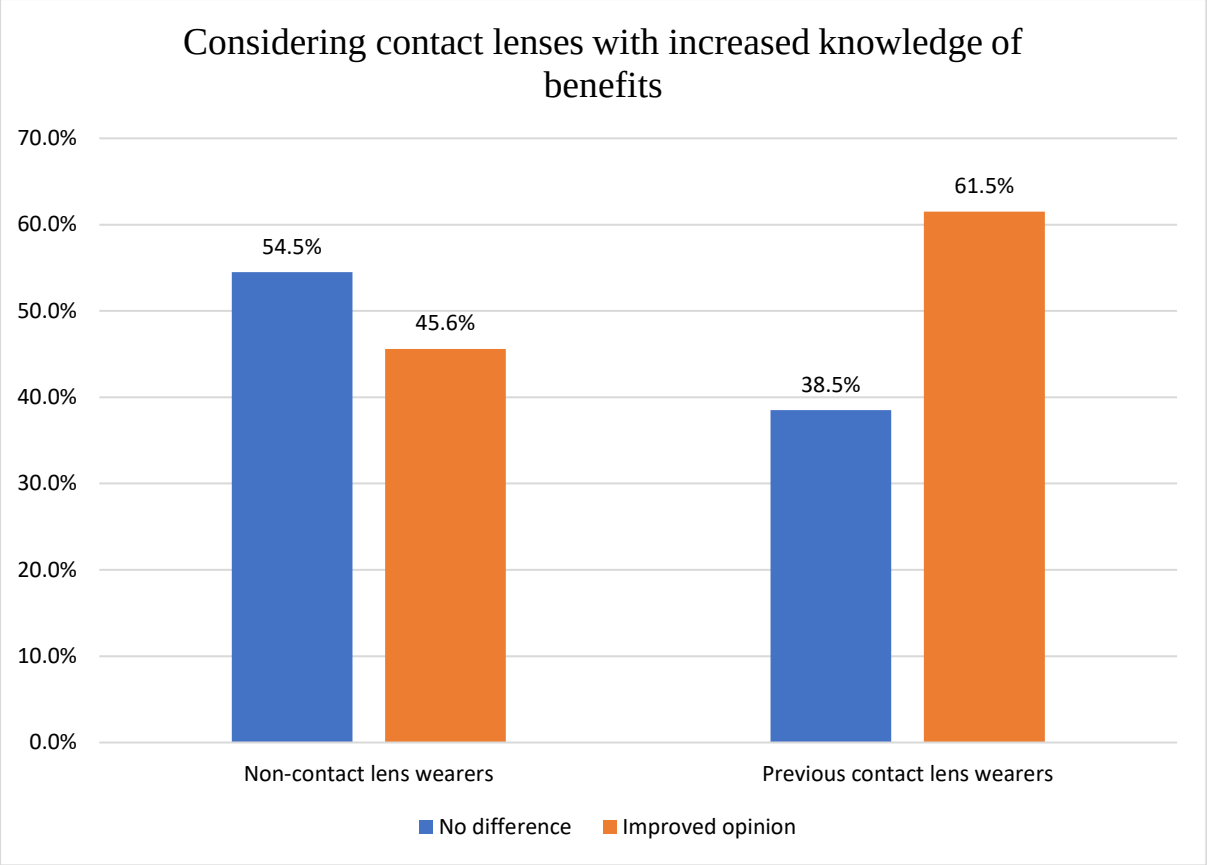

Figure 17 Column chart represents the views of participants regarding considering contact lenses upon receiving increased knowledge about their benefits.

Participants' response to Contact lens usage once factors are resolved.

In response to whether spectacle wearers would reconsider trying contact lenses if their concerns mentioned above were resolved, most of the previous contact lens wearers (57.1%) were more accepting of the idea of using contact lenses again compared to the non-contact lens wearers (34.8%) who were open to reconsidering their stance against trying this modality. Mostly non-contact lens wearers (65.2%) were opposing the idea of wearing contact lenses regardless of rectifying their concerns.

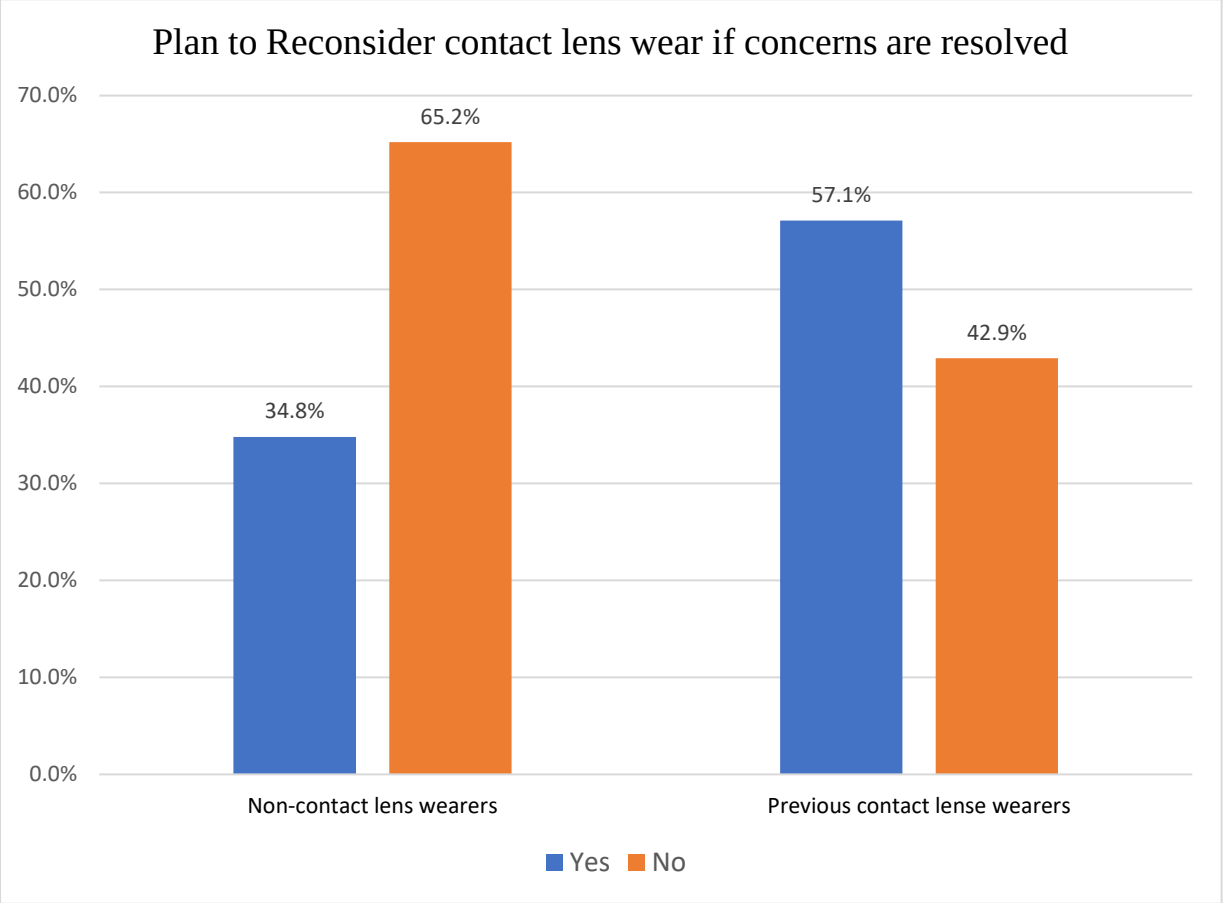

Figure 18 Column chart represents spectacle wearers' acceptance to reconsider trying contact lenses if their barrier of concerns we resolved.

Participant's response to contact lens usage ever since the Covid-19 pandemic.

The data within this study also addressed the pressing concerns correlating with the Coronavirus pandemic and its influence on contact lens wear. This section required participants to indicate whether the Covid-19 virus can be contracted by wearing contact lenses to which almost half of the respondents (49.6%) reported that they strongly disagree with its possibility. When evaluated according to having ever worn contact lenses or not (See Figure 19 below), a similar trend of responses from both groups was seen, moving from many who strongly disagreed with the statement and the virus's contractility from utilizing contact lenses to fewer participants agreeing and strongly agreeing.

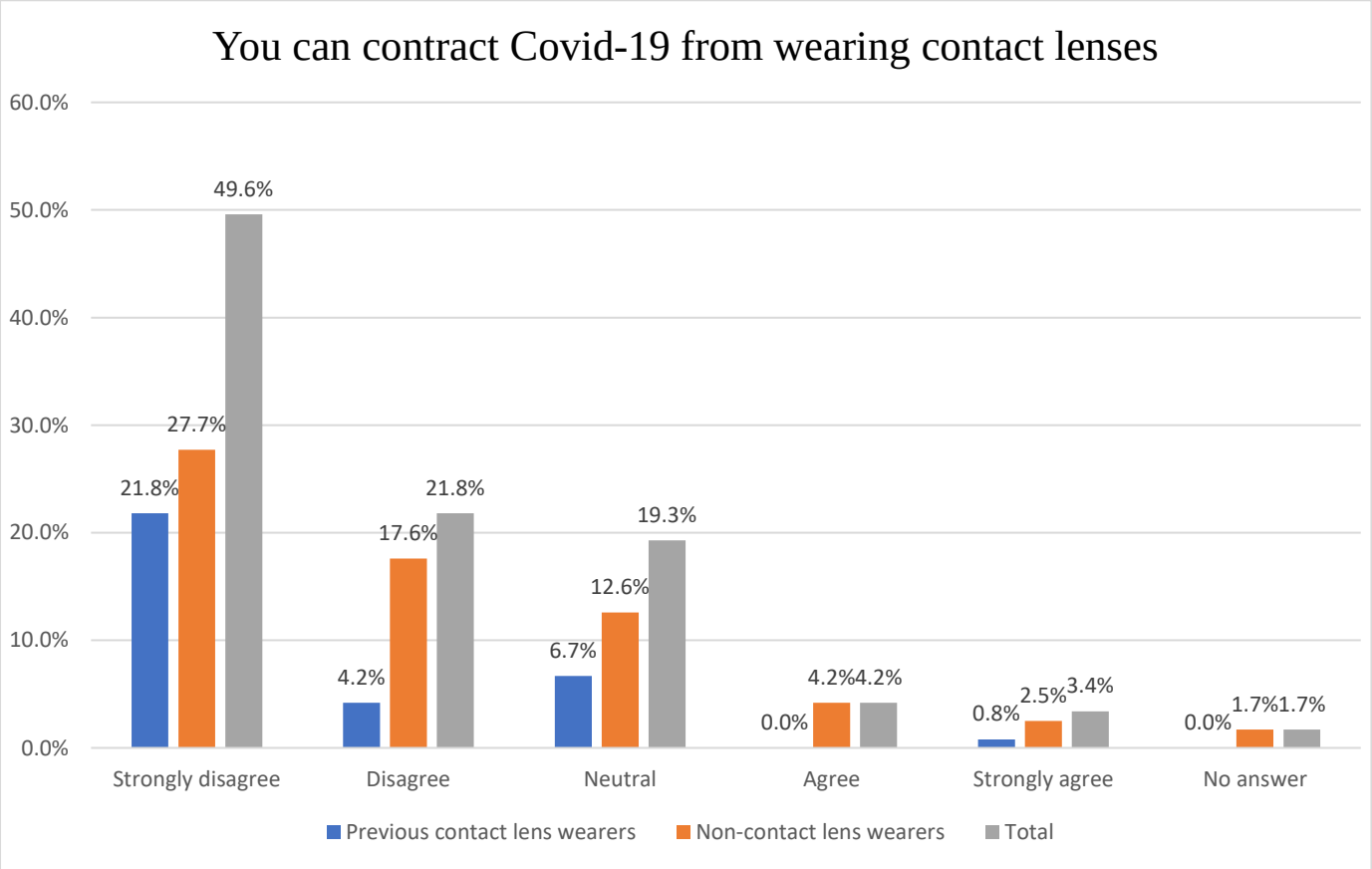

Figure 19 Column showing participants' response regarding Covid-19 spreading from contact lens wear.

Discussion:

Demographics and Patient Characteristics

A total of 119 participants took part in the study. There was a greater number of female participants (63.0%) than male participants (37.0%). This is similar to the study done by Ayanniyi et al[11] to determine the attitude and awareness of spectacle wearers to alternatives to corrective eyeglasses, where there was a higher proportion of female participants (56.5%) compared to males (43.5%). Other studies also showed a similar trend of having a higher percentage of female participants[4, 8, 14, 17].

The highest percentage of participants had at least secondary school education (47.1%), followed by university education (33.6%). In contrast, the majority of the participants in the study done by Ayanniyi et al[11] in Nigeria had tertiary education (70.6%) with a smaller percentage of participants having up to secondary education (22.0%). Additionally, the study done by Sengor et al[8] in Turkey had a higher proportion of participants with primary school education (46.5%) compared to secondary school education (45.0%). This difference can be due to the difference in the education systems of each country, the availability of primary, secondary and tertiary education and its affordability.

There was a relatively close distribution of participants of all age groups in the study. The highest percentage of participants were over 50 years of age (29.4%). This is unlike the study done by Tchiakpe et al[4] where the highest age group was between 21-25 years(61.7%). This is likely due to the study being done in a university setting as it involved 120 undergraduate students. Hence, the majority of the participants were younger. Additionally, the study done by Sengor et al[8] also had the majority of participants being younger in age as most participants were between the ages of 18-30 years (68.9%). This difference may be due to a larger number of participants in the study as it included 917 participants.

The majority of participants in this study were of East Indian descent (59.7%) and African descent (26.9%). These two ethnicities were expected to be the majority according to the 2011 Census which indicated that East Indians (35.4%) and Africans (34.2%) were the two largest ethnic groups in Trinidad and Tobago. However, there was a much higher percentage of East Indian participants than expected. This may be due to the use of the Chaguanas borough which has a higher percentage of East Indians (53.5%) compared to Africans (25.3%)[24].

Among the participants who indicated their profession, the highest percentage of participants fell within government worker/public service (16.1%) followed by business owner/self-employed (14.3%) and manager/supervisor (12.6%).

The majority of participants wore spectacles for more than 6 years (57.1%) which is similar to the study done by Tchiakpe et al[4]. However, most participants had worn spectacles for 1-5 years in the study done by Ayanniyi et al[11]. The majority of participants were satisfied with their spectacles as most had rated the comfort as excellent (52.9%), comfortable (37.8%) and satisfactory (8.4%). This is similar to the study done by Tchiakpe et al[4] where the majority of participants were satisfied with their spectacles (78.0%). Among the participants, the majority had never worn contact lenses previously (66.4%) while the others were previous wearers (33.6%). This is unlike the study done by Sengor et al[8] which included participants who had never tried contact lenses, current contact lens wearers and previous contact lens wearers. Among the previous contact lens wearers, there was an equal number of participants who wore hydrogel and silicone hydrogel lenses in this study. The highest percentage of participants only wore contact lenses for less than 6 months (40.0%), before discontinuing contact lenses. Compared to the study done by Dumbleton et al[17], the majority of participants wore contact lenses for 6-12 months. In this study, the main reason indicated by previous contact lens wearers for starting contact lens wear was to improve their appearance (27.5%). Similarly, the participants in the study done by Tchiakpe et al[4] stated that their main reason for contact lens wear would be aesthetic purposes.

Within this study, the female participants outweigh their male counterparts regarding the duration of spectacle wear. There was no relationship or correlation among these variables (See Figure 1). This outcome possibly occurred due to this study having more female participants and not enough male participants to equally compare the relationship between gender and duration of wear. When assessing the relationship between the participants' age vs duration of spectacle wear, there seems to be a significant relationship with a moderate positive correlation ($p<0.001$, $r=0.391$). This means that as the ages of the participants increased, the duration of spectacle wear seem to be higher. So naturally, we can see those between the ages of 18-29 were among the main participants who wore spectacles for 6 months - 1 year, followed by those approaching the pre-presbyopic stages within the 30-49 age range who made up the majority of participants that wore spectacles for 2 years – 3 years and finally, those over 50 years already experiencing presbyopia were the majority that wore spectacles for > 6 years (Figure 2).

Findings also revealed that as the duration of spectacle wear increased, participants' comfort level with spectacles started to decline from excellent to uncomfortable thus the relationship was statistically significant with a weak negative correlation ($p= 0.040$, $r= -0.257$) (Figure 3). One might wonder, why must one suffer the slow decrease in the comfort of spectacles as the years increase and not just opt to try another alternative such as contact lenses.

To identify the factors that have prevented spectacle wearers from trying contact lenses.

Among the participants who have never tried contact lenses, the major factor that prevented them from trying contact lenses was the comfort of spectacles (40.5%). This was unlike other studies where the major factor was a fear of complications[4, 11], a lack of adequate information[14] and the belief that contact lens use is difficult[8] or a hassle[25]. A possible reason for the differences may be due to the differences in the source of information regarding contact lenses among participants. In this study, the major source of information included eye care providers such as optometrists and ophthalmologists. Hence it may be assumed that participants were given reliable information. The studies done by Ayanniyi et al[11] and Sengor et al[8] explained that the reason for the factors preventing contact lens usage among spectacle wearers could be due to a lack of information or obtaining information from unreliable sources such as the participants' social circles respectively. Similar to this study, the study done by Abokyi et al[14] also had the majority of their participants obtaining information from eye care providers. However, a lack of information was the major barrier. The study explained that this may be due to a lack of time to educate patients efficiently as eye care providers must cater to many patients. This can explain the other barriers found in this study as many participants also thought that contact lenses are uncomfortable (38.0%) and difficult to use (36.7%). Many also had a fear of side effects (29.1%) and stated that they did not have enough knowledge (27.8%) about contact lenses.

Additionally, participants indicated that contact lenses were not recommended by their eye care practitioner (17.7%). This was an unexpected result as this indicates that some practitioners may not be discussing all the available options for refractive error correction with their patients. The study done by Naroo et al[26] showed that a lack of recommendation of contact lenses by an eye care provider was the main reason for presbyopic spectacle wearers not trying contact lenses. Additionally, The study done by Zeri et al[27] also showed that most participants would consult an eye care provider when considering contact lenses.

However, among the adolescent participants who consulted an optometrist, less than half of the particpants were recommended contact lenses (40.4%). Similarly, the recommendation by opthtalmologists were even lower (27.8%). Therefore, this shows that eye care providers having a greater proactive approach towards educating patients about contact lenses can help to increase their interest in wearing them. However, there may be multiple reasons for eye care providers failing to mention contact lenses such as a lack of time to educate patients about contact lens wear due to a busy practice or a lack of experience by practitioners. According to the study done by Thite et al[28], the major barriers for prescribing multifocal lenses were an increase in chair time, a lack of readily available trial lenses and limited power range of the lenses. However, many advancements in contact lens materials, powers, modalities and availability not only allow for greater options to be available, but also enable more efficient fitting times. Therefore, it is also important for eye care providers to remain updated regarding the new contact lens products and improvements and hence, offer another form of correction that can help to improve the functioning of their patients' lives.

In this study, there was a statistically significant relationship between age and the factor 'Think contact lens is uncomfortable' among spectacle wearers who chose that barrier ($p= 0.002$, $r= 0.245$). This indicates that the older the participant in this study, the more likely they thought that contact lens wear is uncomfortable. This may be due to a lack of reliable information among older participants, particularly those over 50 years of age, as many got their information from family and friends as seen in Table 5. Additionally, age and the comfort of spectacles as a barrier were also significant ($p<0.001$, $r= 0.183$). Hence, the older the participant, the more likely they chose this factor. In this study, some participants were not recommended contact lenses by an optometrist (17.7%). It was seen that the majority who stated this factor were over 50 years as seen in Figure 6. However, there was no relationship between age and not being recommended by an optometrist.

Additionally, it was expected that cost would be a barrier among younger participants rather than older participants as the older population may have greater financial stability. However, among participants who chose cost, the highest percentage were over 50 years old although the distribution was close. However, age and cost were not statistically significant in this study. Additionally, there was no association between gender and fear of side effects. Finally, as seen in Figure 8, as the duration of spectacle wear increased, patients were more likely to think that contact lens use is difficult or uncomfortable.

This may be due to participants being accustomed to the convenience of spectacles the longer the duration of wear. However, there was no significant relationship found between the duration of spectacle wear with thinking that contact lens use is difficult and uncomfortable.

To identify the factors that have contributed to the cessation of contact lens wear.

Among spectacle wearers who have worn contact lenses previously, the main reason for contact lens dropout was discomfort (57.5%). This is similar to the studies done by Dumbleton et al[17] and Young et al[21] as well as one of the studies done by Rueff[22] which compared the visual preference of presbyopes and non-presbyopes. However, this is unlike other studies where the major factor for contact lens dropout was poor vision.[13, 20, 22]. A possible reason for the differences in these factors can be due to the participants in the studies done by Sulley et al[13, 20] being new contact lens wearers. Both studies done by Sulley et al stated that these participants may have been keener in noticing differences in their vision in contact lenses compared to their spectacles and hence, poor vision was the main reason for dropout. In the study done by Rueff[22], vision and discomfort were the major factors for contact lens cessation as there was no significant difference between the two. However, vision was a major factor possibly due to the study involving only presbyopic participants. The study stated that presbyopes have a distinct visual demand compared to non-presbyopes and hence, vision at all distances is an important factor in contact lens dissatisfaction rather than solely discomfort. In this study, poor vision was not a factor that was stated as a reason for contact lens dropout among participants. It is interesting to note that the material of the contact lenses worn by participants who discontinued contact lens wear was an equal amount of hydrogel and silicone hydrogel lenses. It was expected that the majority of contact lens dropouts would have worn hydrogel lenses as silicone hydrogel lenses are a more superior material in terms of comfort as explained by Dumbleton et al[17]. In this study, among those who wore SiHy, discomfort was the main reason for contact lens dropout compared to those who wore hydrogel lenses as seen in Table 4. Hence, this may be due to non-compliance by participants or poor fitting rather than the material of the contact lenses.

Additionally, inconvenience (37.5%) and difficulty handling contact lenses (32.5%) were also major reasons for contact lens dropout in this study. This shows that there is a great need for improving the ease of use of contact lenses among patients. This can be addressed by the use of daily disposable lenses as this eliminates the need for contact lens solutions and cleaning products. As a result, the use of contact lenses become more efficient and less of a hassle while offering further advantages such as improved comfort, reduction in adverse effects as a new lens is worn each time, reduced concern regarding lens deposit buildup and overall improved vision[29]. Hence, offering different modalities and materials to patients, ensuring proper education regarding the use and caring for contact lenses and ensuring patients remain compliant can help to make contact lens wear uncomplicated and adaptable.

Among other study populations, discomfort was also a major factor resulting in contact lens dropout. In the study done by Sankaridurg et al[30], the incidence of adverse events and the rate of discontinuation of children with myopia being corrected with daily disposable silicone hydrogel lenses was investigated. Only a minimum number of participants experienced adverse effects but a greater amount of participants dropped out of contact lens wear than expected (29.2%). The study stated that the motivation of patients and their adaptation period to contact lenses are significant factors to be considered when determining successful contact lens wear. Hence, eye care providers need to address the concerns of patients during this period to help reduce dropout rates. In contrast, the study done by Li et al[31] which investigated the performance of soft daily disposable lenses among children and teens saw lens handling as chief a factor for contact lens dropout. However, the percentage of dropouts was low and those who maintained contact lens wear were able to improve the handling of the lenses with time.

In this study, there was a significant relationship between age and contact lenses being time-consuming to maintain among contact lens dropouts ($p=0.036$, $r= -0.49$). There was a negative correlation which showed that the older the participant, the less likely they dropped out of contact lens wear due to contact lens wear being time-consuming to maintain. As seen in Figure 11, the highest percentage of participants who chose this barrier were between 18-29 years old. This may be due to younger participants possibly having less time due to their academic obligations. Younger participants also preferred spectacles compared to the older participants as seen in Figure 11, but there was no relationship between age and preference for spectacles as a reason for contact lens dropout.

There was also no relationship between gender and preferring spectacles. It was also seen that the longer the duration of spectacle wear, the more likely participants chose inconvenience and difficulty handling contact lenses as the reason for dropout. This may also be due to such participants being accustomed to the convenience of spectacles. However, no significant relationship was found between the duration of spectacle wear and dropping out of contact lens wear due to contact lenses being an inconvenience or difficult to handle.

To assess the knowledge of contact lens wear among spectacle wearers who have never worn contact lenses and previous contact lens wearers.

- *Participant's source of information regarding contact lenses versus gender, age, and education.*

In this present study, while assessing the knowledge of participants based on the source of information regarding contact lenses, our data showed that optometrists and ophthalmologists were the leading source of information (58.0%) among participants, followed by family and friends (19.3%) (Figure 13). These findings reflect the results in the study done by Abokyi et al[14] which also found that eye-care practitioners (27.2%) and family/friends (22.4%) were the main sources of information among the popuation sampled in Ghana. However, their research conducted a further step in which they found that the source of information was not associated with an increase in knowledge of the benefits of contact lenses. Additionally, evidence from Sengor et al[8] showed that wearers received information from personal interactions with contact lenses (35.65%) whereas only a small number of participants received it from ophthalmologists (13.67%). Since eye care practitioners are tasked with the responsibility of deducing clinical diagnosis of refractive errors within persons, it is only fair that they dispense in-depth awareness of the benefits of various modalities including contact lenses through their consultations.

The quantitative study done by Falahati- Marvast et al[32] explained that providing the necessary information regarding contact lenses not only allows for better compliance, understanding and cooperation among contact lens wearers, but also helps to reduce eye care provider's workload, visits by contact lens wearers and prevents time from being wasted. Hence, this can aid in reducing the number of contact lens dropouts as well as allow for greater time and opportunity to educate spectacle wearers about the contact lens options and the benefits that are available.

It was found that apart from gender and education, only age was significantly associated with the source of information in which participants obtained their knowledge regarding contact lenses since our findings showed those over 50 years were more likely to receive information from friends and family (42.9%) (Table 5). This is supporting the evidence from previous observations found in Abokyi et al[14] which showed that persons above 40 are less knowledgeable than the younger adult groups who are more fashionably endearing. The findings of Tchiakpe et al[4] also showed that a large amount of undergraduate students obtained information through electronic media (45.3%) while a smaller percentage obtained information from eyecare practitioners (21.7%). Our findings, however, are contrary to the study done by Ayanniyi et al[11] who showed that an increase in education level lead to a greater exposure to contact lenses. A possible explanation for this can be a lack of ocular health education within the school systems of Trinidad and Tobago regarding contact lenses and optical aids. According to Abokyi et al, health education involves the instillation of knowledge to allow the voluntary reconstruction of health behaviors of an individual, thereby leading to health promotion[14]. What this means is that in an attempt to elevate the attitudes and perception of spectacle wearers towards the use of contact lenses, we must establish a proper delivery system of information involving alternative modalities to make the general population knowledgeable about the options they would have besides spectacles.

- *Participants' response to considering contact lenses as an alternate modality with increased knowledge of its benefits.*

Prior studies mentioned within the literature did not assess whether an increased in knowledge about the benefits of contact lenses would change an individual's opinion of contact lens wear, potentially persuading them to transition to contact lenses from their current choice of spectacles. As mentioned above in Figure 16, just about half of the participants indicated that their opinion on their current choice will be subject to change with an increase in knowledge (50.4%). One unanticipated finding was that majority of previous contact lens wearers in this study (61.5%) were among those who would be willing to reconsider contact lens wear compared to those who have never worn contact lenses (45.6%) (See Figure 17). A reason for this may be due to their familiarity with contact lenses amongst previous wearers and knowing that with the increase of knowledge, their compliance level would likely improve, reducing the factor of discomfort as indicated to be the main barrier for cessation.

With regards to non-contact lens wearers, being enlightened during consultations with their eye-care practitioners would help to increase their level of perception towards contact lenses, thereby, creating some form of familiarity to improve their willingness to try contacts. The study done by Mayers et al[33] showed that one way of improving the attitude of spectacle wearers was by offering complimentary contact lenses while patients were selecting their spectacle frame. The study showed that this led to an increase in the interest to wear contact lenses as many participants scheduled contact lens fitting appointments. There was a growth in sales as well as an increase in patient satisfaction with the service they received.

- *Participant's response to contact lens usage ever since the Covid-19 pandemic.*

According to Garcia-Ayuso et al[23], current evidence surrounding the association between contact lens wear and COVID-19 virus suggests no relationship of there being an increased risk of infection in individuals. As such, this present study tried to evaluate the effect that the pandemic had on the study population's opinion regarding the statement "*You can contract COVID from wearing Contact lenses*". It was interesting to note that almost half of the respondents (49.6%) strongly disagreed that it was a possibility and this was the opinion of both groups of participants (Figure 19). We can argue that the reason for this particular outcome was due to most knowing little about how contact lenses worked and associating their hygienic habits with their ability to prevent transference of infections to the ocular surface. Thus, it can be assumed that this study population's basic knowledge about contact lenses and protocols of Covid-19 have not affected their view of the modality concerning the virus. However, future studies gathering evidence on this newfound virus and its influence on contact lens usage are highly recommended within our study region since there are many questions still yet to be answered.

To evaluate the acceptance and willingness towards contact lens wear.

- *Participants' willingness to try contact lenses versus gender, higher knowledge, and awareness amongst non-contact lens wearers.*

Among the spectacle wearers who have never worn contact lenses, most of the participants were not interested in trying contact lenses in the future (58.2%). This is similar to the study done by Tchiakpe et al[4] and Ayanniyi et al[11]. A reason for the non-willingness of the participants of this study can be due to the majority of participants being at least satisfied with their spectacles as seen in Table 2. Tchiakpe et al[4] explained that it was not surprising that a high satisfaction in spectacle wear would lead to a greater unwillingness to try contact lenses as the majority of the participants were satisfied with their spectacle correction (78.0%). Additionally, in this study, the comfort of their spectacles was the major factor chosen by participants as the reason for not trying contact lenses (40.5%) as seen in Figure 5. The study done by Ayanniyi et al stated that the poor uptake of alternatives to spectacle correction could be due to the lack of information about them, and the idea that they would be expensive and would have complications[11]. It is therefore not surprising that these opinions would lead to participants being unwilling to try contact lenses as participants in this study also had similar ideas regarding contact lenses as many also indicated that they did not have enough knowledge about contact lenses (27.8%), thought contact lenses were expensive (25.3%) and had a fear of side effects (29.1%). Participants also thought that contact lens use is difficult (36.7%) and uncomfortable (38.0%), which may further contribute to their unwillingness.

Other study populations showed a more positive attitude towards contact lenses compared to this study. In the study done by Zeri et al[27], which assessed the attitude towards contact lenses among adolescents and parents, the majority of the adolescent participants were willing to try contact lenses. This may be due to participants being younger in age and therefore, self-conscious regarding their spectacles as well as wanting to perform better in different physical activities. The majority of the parents were also willing to allow their child to wear contact lenses. However, parents' main concerns regarding contact lens wear among adolescence included difficulty in following instructions and caring for the lenses, difficulty inserting them and damage to the eye. The parents who had these concerns were found to be more unwilling to allow contact lens wear among adolescents. Similarly, a study done in Hong Kong to investigate the attitude of caregivers towards different methods of myopia control found that caregivers were less willing to opt for orthokeratology for their children, as they were concerned about lens handling, eye injury during sleep and eye rubbing[34].

However, the study also showed that adult caregivers who were more knowledgeable about orthokeratology were more open to this method of myopia control[34]. Studies show that children are capable of contact lens handling just as efficiently as adults and contact lens wear in children provides no increased risk of complications[35, 36]. Additionally, the study done by Chamberlain et al[37] investigated the effectiveness of MiSight daily disposable soft lenses for myopia control. The participants had an overall positive attitude regarding contact lens wear compared to spectacle wear and most had rated contact lens insertion and removal as 'really easy' or 'kind of easy' over the course of the study (90.0%). Therefore, these studies showed the need for education of the population regarding contact lenses not only for adult wear but also for children and teens.

In this study, there was no significant relationship between factors such as gender, higher level of education and source of information with the willingness to try contact lenses. This is similar to the study done by Tchiakpe et al[4] where there was no significant relationship between gender and preference to try contact lenses. The study done by Ayanniyi et al[11] also found that gender and higher education were not significantly associated with the willingness to use contact lenses. The study explained that although there was a significant relationship between education and high awareness of alternatives in spectacle correction, which signifies that a higher level of education can lead to greater knowledge about contact lenses, there was no relationship between education and greater willingness to wear contact lenses.

- *Participants' willingness to retry contact lenses versus gender, higher knowledge, and awareness amongst previous contact lens wearers.*

More than half of the previous contact lens wearers (62.5%) were willing to retry contact lenses in the future. This was a surprising outcome as discomfort (57.5%) was indicated to be the main factor that caused contact lens drop out amongst the previous contact lens wearers in this study. When evaluating the relationship that could affect the willingness among respondents, findings showed that there was no significant association between factors such as gender, higher education and source of information with their willingness to retry contact lenses (Table 7). Previous studies such as Sulley et al[13] mentioned that individuals do harbour intentions of retrying contact lenses, but such a decision ultimately relies on achieving their satisfactory concerns. The findings by Dumbleton et al[17] indicated that the reasons their participants were willing to retry contact lenses was due to the aesthetic appearance provided by contact lens wear.

Similarly, in the study done by Naroo et al[26] which included presbyopic patients who were non-contact lens wearers and previous contact lens wearers, they were asked to choose the main reason for wanting to wear contact lenses and this included work, exercise, leisure, and outdoor activities. Additionally, Rueff [22] reported that achieving better vision was the cause for resumption among presbyopes. It can be assumed that this study population is more accepting to retry the modality once they undergo changes to their contact lens dimensions and improved visual performance which is a solution to reduce discomfort as mentioned by Rueff [22].

- *Participants' response to Contact lens usage once factors are resolved.*

As seen in Figure 18, there were mixed opinions among the spectacle wearers who have never worn contact lenses and the previous contact lens wearers with regards to trying contact lenses in the future if their concerns regarding contact lens wear were resolved. Among the participants who have never tried contact lenses, the majority were unwilling to reconsider wearing contact lenses if their concerns were resolved (65.2%). Among previous contact lens wearers, the majority of participants were willing (57.1%). The difference between the opinions of the two groups may be a result of the previous contact lens wearers experiencing the many benefits of contact lenses and hence, would be more open to retrying contact lenses if the issues they experienced were resolved. As seen in Table 2, the participants started wearing contact lenses mainly to improve their appearance and confidence, to suit their lifestyle and to have better performance in different activities, all of which are benefits that contact lenses offer.

Many studies have indicated similar benefits that motivate people to try contact lenses[26, 38, 39]. Hence, contact lens dropouts may also want to experience these benefits once again. Similarly, in the study done by Sulley et al[13], lapsed contact lens wearers indicated that they would retry contact lenses if they experienced better vision and comfort, reduced cost of contact lenses and easier handling. With regards to non-contact lens wearers, this further emphasizes the importance of proper education, promoting the benefits and advantages that contact lenses have to offer as many are still uncertain about contact lens wear.

Overall review on the attitude and perception of spectacle wearers on contact lens usage.

The expected hypothesis states that there is a negative perception regarding contact lens wear among the general spectacle-wearing population of Trinidad and Tobago. However, from the evidence gathered in this study, we can infer that there was a negative attitude and perception amongst spectacle wearers who have never worn contact lenses as opposed to previous contact lens wearers who displayed a much more positive attitude and perception towards contact lens usage. Although most spectacle wearers were cognizant of contact lenses, those who have never worn contact lenses have not shown much willingness to try them in the future regardless of resolving their concerns or would not even consider trying them after acquiring more knowledge about its benefits. Previous contact lens wearers were very open to retrying contacts once the barriers that caused cessation were resolved and they had a greater williness to learn about the benefits of the lenses to ensure its success next time around. Due to the differences in attitude and perception between both groups towards contact lens usage, the hypothesis cannot be accepted. Granted that spectacles are continually helpful within the eye-care industry, they should not overshadow the benefits that contact lenses have to offer to individuals but become an equal modality option. According to Ayanniyi et al[11], 'social stigma and unfound belief of side effects from spectacles' scare individuals away from wanting to wear eyeglasses, resulting in poor refractive vision which adds to the overall rate of blindness from refractive errors found worldwide. Contact lenses provide inclusivity for those individuals and others who are not proper candidates for eyeglasses because of abnormal dystrophies or irregular astigmatisms and would remain with uncorrected refractive errors.

Limitations of Methodology:

a. Due to the ongoing global COVID-19 pandemic and country restrictions, the number of participants intercepted at the clinics was limited and their participation was affected by the social distance protocols.
b. The data collected from the questionnaires was solely based on the honesty of the participants when answering the questions and their willingness to respond to specific questions.
c. The information gathered from this research may not be used as generalized information for the whole country since it was conducted in a specific area and was based on the opinions and views of the participants in this specific area.
d. There was a greater number of female participants than male participants in this study and hence, gender may not have been effectively represented in this study.

Significance of study:

a. The participants:

   This research will allow participants to reflect on their choice of optical correction and possibly consider using contact lenses or retrying contact lenses and hence, experience the benefits that contact lens wear can offer.

b. Public health:

   This research will be beneficial to public health as contact lens education and awareness can be implemented by eye care providers toward patients. Also, there can be an improvement in the contact lens service provided by optometrists.

c. Community:

   This research will be beneficial to the community as it will help to increase awareness of contact lenses as they will be able to obtain further insight into the benefits of contact lenses. Additionally, this research will help to clarify misunderstandings that the community has. Hence, a more positive opinion regarding contact lenses can be achieved.

d. Research:

This research will add to the literature as new information may be obtained compared to previous studies. Additionally, this research will consider how the COVID-19 pandemic has affected the opinion regarding contact lenses and hence, will add a new perspective compared to studies which were done before the pandemic began. Furthermore, this study has not been done in Trinidad and Tobago and will therefore provide valuable information about the population's opinions towards contact lenses.

Conclusion:

This study set out to evaluate the barriers limiting spectacle wearers within this region from wanting to partake in contact lenses and the advantages it has to offer, paired with the attitude they possess towards the possibility of wearing CL in the future. Collectively, our findings showed that the perception of spectacle wearers who were previous CL wearers are more positive than those who have never worn contacts. We have shown that although cognizance is evident among spectacle wearers, it does not do much to increase their willingness to go out and access this new form of modality. Resolved with their current choice, the discomfort of CL, and lack of information have eschewed their minds on the positive effects contact lens conventionally provides. Since eye-care practitioners have been determined to be our population's main source of information regarding Contact lens usage, they have more responsibility to delegate discussions regarding the benefits of contact lenses during consultations with their patients and to control the narrative about contact lenses that are being broadcasted through mass media and educational institutions. Patients may also need more sessions regarding contact lens care and inquiries about their difficulties when away from the eye clinics. Also, individuals who find contact lenses to be a time-consuming task can be informed that there are alternative material options and modalities ranging from daily disposables to yearly use which can be conformed to their lifestyle.

Nevertheless, our data findings have encountered certain limitations during the process of this study, especially by the Covid-19 pandemic. While distributing questionnaires to participants, safety protocols and social distancing would have been in effect, which might have reduced our chances of meeting more persons who would have been interested in partaking. Also, this study ultimately included more females than males which could have contributed to the lack of significant relationships found amongst gender-related associations.

As the nature of this research was conducted within a limited study setting, the opinions gathered from the participants cannot be utilized as general information regarding all spectacle wearers within the country.

However, our study has shown promising results which can be added to the previous literature surrounding this topic globally. These findings can provide new insights into conducting more studies on the barriers that prevent contact lens usage with more emphasis on the knowledge about contact lenses as well as the opinions of eye-care practitioners on the effectiveness of their counselling sessions to prevent contact lens drop-out and promote usage. Also, to investigate the perceptions of persons in different parts of Trinidad & Tobago and branch out regionally. We believe that this study can provide a pathway for future research to explore more relationships that have not been covered, thereby bringing awareness and benefits of contact lens usage to the forefront of the population of Trinidad and Tobago.

Recommendations:

1. The source of information that brought awareness to contact lens wear was assessed and while the majority of participants obtained their information from reliable sources such as optometrists and ophthalmologists (58.0%), many participants obtained information via other means (42.0%). They may have encountered unreliable information that may have led to misconceptions regarding contact lens wear. Therefore, it is recommended that eye care providers be at the forefront of educating patients about contact lenses to provide accurate information and help patients make educated deductions regarding contact lenses.

2. The study showed that the majority of previous contact lens wearers dropped out as a result of discomfort (57.5%). This may have been due to non-compliance by patients. Hence it is recommended that contact lens care and maintenance always be reinforced in each clinical visit. Patients can also be provided with resources such as written instructions, videos, and websites rather than just verbal communication to help them remember the information presented. Additionally, many of these patients may have failed to continue contact lens wear due to a lack of communication by patients to indicate their issues. Hence it is recommended that patients always be questioned about specific issues that they may have as they may not mention these issues on their own which can be done during the aftercare and follow-up examinations. In doing so, this can help reduce dropout rates among contact lens wearers.

3. The findings of this study also indicated that most non-CL wearers have no willingness to try contact lenses in the future and a reason for this is due to them finding contact lenses difficult to use and spectacles more comfortable. The lack of knowledge about contact lens usage creates a sense of unfamiliarity, something the previous contact lens wearers are not affected by. A way to account for this can be to endorse health promotion via education, by perpetuating the advantages of contact lenses through mass media, flyers, and consultations. This raises the level of knowledge within the general population and coerces the need to be interested in the product. Since they would become aware of its conventional benefits, it increases their overall willingness to start wearing contacts.

4. This study also indicated a high percentage of participants who dropped out of contact lens wear due to inconvenience (37.5%) or contact lenses being time-consuming to maintain (22.5%). There was also a significant relationship between age and dropping out of contact lens use as it was time-consuming to maintain ($p=0.036$, $r=-0.49$). Similarly, non-contact lens wearers also thought that contact lens use was difficult (36.7%). Therefore, it is necessary to inform patients of the many options of materials and modalities that are available such as daily disposable lenses which make contact lens use more convenient and easier to adapt to their lifestyle.

Next Steps:

1. Further studies can be done to investigate the factors that have prevented spectacle wearers from trying contact lenses to expand the information and understanding of the attitudes of spectacle wearers towards contact lens wear.
2. Other studies should be done including other parts of the country as only one area was used to conduct this study. Therefore, a more accurate representation of the opinions of spectacle wearers in Trinidad and Tobago can be assessed.
3. Further studies can also be conducted in other Caribbean countries as there are not many regional studies that have been done regarding contact lenses.
4. Studies should be done to investigate to a greater extent the knowledge of the population regarding contact lenses. This can help further determine their understanding of what contact lenses are, their benefits and how they are used.
5. Research can be done on eye-care practitioners to evaluate the effectiveness of the counselling sessions to promote contact lens usage and prevent cessation in current wearers.

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Appendices:

- **Sample Size Calculation:**

Margin of error = 5%

Confidence level = 95%

Population Size of Chaguanas Borough= 83,516

Response Distribution = 50%

Sample Size = 383

- **Consent Form:**

THE UNIVERSITY OF THE WEST INDIES

ST. AUGUSTINE, TRINIDAD AND TOBAGO, WEST INDIES

CAMPUS RESEARCH ETHICS COMMITTEE

TELEPHONE: (1-868) 662-2002 ext. 82755 E-mail: campusethics@sta.uwi.edu

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CONSENT TO PARTICIPATE IN RESEARCH

Complete Protocol Title: Attitude And Perception of Spectacle Wearers Towards Contact Lens Wear

Principal Investigator: Dr. Niall Farnon

Co Investigator(s): Destiny Allert, Talisha Singh, , , , , , ,

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1. Identification of project

a. What is the purpose of this research?

The purpose of this research is to investigate the attitude and perception of spectacle wearers towards contact lens wear in various optometry clinics located in the Borough of Chaguanas, Trinidad and Tobago. It aims at understanding the factors that have prevented spectacle wearers from trying contact lenses. It will also assess the factors that have caused previous contact lens wearers to stop wearing contact lenses and evaluate how knowledgeable the population is about contact lenses and how willing they are to try contact lenses. This research will provide much insight into developing further understanding of the barriers towards contact lens wear and the reasons for the cessation of contact lens wear among the population and hence, this research will provide some direction towards helping address these issues. It is important that the population become aware that contact lenses are an available option for refractive error correction other than spectacle. Therefore, as an individual likely to benefit from the information we seek to evaluate in this research project, we would ask that you kindly consider participating in our study to help us understand the underlying reasons for the lack of interest in contact lenses among the spectacle wearing population.

b. How long it will take to complete this project?

Due to the lack of research done on this topic in Trinidad and Tobago and the Caribbean overall, this research aims to be the first of many to add to the records of our region. It will assess the interest of spectacle wearers on contact lenses wear as well as explore the population's awareness and attitude towards contact lens wear as an alternate form of correction. This evaluation will be done using questionnaires as the main data collecting form. We would then use the data collected to construct our data analysis so that we know the outcome of the hypothesis, the results, and implications of the findings and how well the knowledge of the population was represented. After this process is completed, the write up of the paper would take approximately 4-6 weeks. In total the research project is expected to have a duration of six months (6).

c. Why am I selected for this research?

Each individual partaking in this research must meet the inclusive criteria of this study such as individuals who are 18 years and older, habitual spectacle wearers for at least 6 months with no history of wearing contact lens or those who are contact lens dropouts. Therefore, should you fit these criteria, your participation will help us acquire relevant information from our target population.

d. Why is this document for obtaining informed consent important?

This consent is important as it protects the participation rights of the target population. It is important that each participant understands that he/she will have full autonomy to decide whether they would like to contribute to this research and that they will have the freedom to withdraw from completing the questionnaire without any liability. This will ensure that each participant is comfortable with their information being used for the benefit of the research and that they know that all information collected will remain private and confidential.

2. Description of Procedures

a. What am I expected to do in this study?

Participants are expected to fill out a questionnaire which will assess their awareness of contact lenses, barriers towards contact lens wear and their willingness to wear contact lenses.

b. Which procedures are investigational, which are routine? What is the expected duration, how frequently I have to participate and where will the activities take place?
The questionnaires will be distributed out to participants in the waiting room of various clinics to be filled out on site. Afterwards everyone's question paper will be recollected and stored with the investigators. Participant only need to fill out one (1) questionnaire sheet for this research. The expected time for filling out the questionnaire is 10 minutes.

c. How many participants are involved in the study approximately?
This study is expected to involve approximately 377 participants.

3. Risks and Discomforts

a. What are the risks or discomforts that may result from my participation in the study?
This research will not include any risks or discomfort to the participants.

b. What help and treatments are available if any adverse reactions occur? How can I access them? Is there any compensation available if serious adverse effects occur?
Not applicable

c. Are there any potentially beneficial treatments or procedures that are withheld for the purpose of the study?
Not applicable

4. Termination of Research

a. Are there any anticipated circumstances under which the study/participation may be terminated by the researchers without regard my consent?
The study does not involve any anticipated circumstances under which the study/participation may be terminated by the researchers without regard to your consent. However, you will be informed of any changes that arises.

5. Benefits

a. What are the benefits to me (and the wider society) by this study?
This research will allow participants to reflect on their choice of optical correction and possibly consider using contact lenses or retrying contact lenses and hence experience the benefits that contact lens wear can offer. This research will be beneficial to the public health as contact lens education and awareness can be implemented by eye care providers towards patients. Also, there can be an improvement of the contact lens service provided by optometrists as they will have better understanding on how to approach this population to increase the interest in contact lens wear, as well as reduce contact lens dropout by addressing their concerns. This research will be beneficial to the community as it will help to increase awareness of contact lenses as they will be able to obtain further insight into the benefits of contact lenses. Additionally, this research will help to clarify misunderstandings that the community has. Furthermore, this research can help add to the research and literature that has been done in this field of contact lenses.

6. Alternatives

a. Does this study involve more than minimal risk? Are there any appropriate alternative procedures or courses of treatment that might be advantageous to me?
This study does not involve more than minimal risk.

b. Do I have the right to pursue the alternatives?
Not applicable

7. Confidentiality

a. How will confidentiality be maintained regarding my data? Who will have access to the data, how the data will be reported and /or published?
Confidentiality will be maintained as no personal information will be collected. The data collected will be stored and safely secured in a computer which will be password protected. The data will only be accessed by the principal investigator and the co-investigators. The data will be deleted after 5 years. The results will be published on an appropriate peer reviewed journal and will not be traceable back to the participants in any way.

8. Cost and Payments

a. Are there any costs involved and are there any compensations provided?
There will be no compensation given for participation in this study.

9. Freedom to Withdraw

a. Do I have the freedom to withdraw from the study anytime?
Your participation in this study is voluntary and you are free to withdraw from the study at any time. The information collected from you will not be included in the study.

b. Will withdrawing from the study have any impact on my treatment?
Should you withdraw from the study or refuse to participate, your relationship with the investigators will not be impacted in any way, nor will your right to any other treatment or services available to you at the University of the West Indies or it's affiliated institutions nor the Optometry clinic that you are currently attending.

10. Opportunity to ask questions

a. Do I have to right to ask questions anytime during the study? Whom should I contact?
You have the right to ask any questions necessary before the study begins as well as during the study. Any further questions or concerns can be directed to the investigators at the following: Principal Investigator: Naill Farnon – Niall.Farnon@sta.uwi.edu Contact: 1(868) 225-1016 Co investigators: Destiny Allert- destiny.allert@my.uwi.edu Contact: 312-7032 Talisha Singh- talisha.singh@my.uwi.edu Contact: 478-7219 UWI Ethics Committee: Dr. Jenelle Johnson - campusethics@sta.uwi.edu

CONSENT

I have read and understood this explanation. The researcher has also explained the study to me. I have had a chance to ask questions and have them answered to my satisfaction. I agree to take part in this study. I have not been forced or made to feel like I had to take part.

By signing this document, I agree that I have read and received a copy of this document.

I must sign this Consent Form. I will be given a signed copy of the form to keep.

Print Name of Subject

_____

Signature of Subject Date

_____ _____

INVESTIGATOR'S STATEMENT AND SIGNATURE
I have explained the purpose of the research, the study procedures, including those that are investigational, the possible risks and discomforts, and the potential benefits, and have answered all questions regarding the study to the best of my ability. In my opinion, the participant understands these issues and has voluntarily agreed to participate in the study.

Signature of Person conducting the informed consent discussion Date

_____ _____

Role of person named above in the research project

_____

Signature of Second Witness Date

_____ _____

By Chairman:

This document was approved by Campus Ethics Committee on:
October, 19 2021
This document expires on:
October, 19 2022

- **Exemption Form:**

THE UNIVERSITY OF THE WEST INDIES
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October, 20 2021

Dr. Niall Farnon, Destiny Allert, Talisha Singh,
Optometry Unit, Department of Clinical Surgical Sciences
Faculty of Medical Sciences
Email: Niall.Farnon@sta.uwi.edu

Dear Dr. Niall Farnon,

Ref: CREC-SA.1212/10/2021

Title: Attitude And Perception of Spectacle Wearers Towards Contact Lens Wear

I am pleased to advise that your application for research on the above captioned topic has met the criteria for Exemption from Review from the Campus Research Ethics Committee, St. Augustine.

Sincerely,

Professor Jerome De Lisle
Chair
Campus Research Ethics Committee

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- **Questionnaire:**

University of the West Indies, St Augustine Campus

Faculty of Medical Sciences, Optometry Department

Year 3 Student Researchers: Talisha Singh, Destiny Allert

Supervisor: Dr. Niall Farnon

MCOptom FIACLE Head, Optometry Unit

Department of Clinical Surgical Sciences

Faculty of Medical Sciences

The purpose of this research is to investigate the attitude and perception of spectacle wearers towards contact lens wear. The research aims at understanding the factors that have prevented spectacle wearers from trying contact lenses. It will also assess the factors that have caused previous contact lens wearers to stop wearing contact lenses. The research also aims to understand how aware the population is about contact lenses and how willing they are to try contact lenses. This research will include spectacle wearers over 18 years of age who have never worn contact lenses and those who have previously worn contact lenses and stopped. No personal information will be asked ensuring that the information provided by participants remain anonymous and confidential. Your participation will only include the filling out of this questionnaire.

Participants will have the freedom to withdraw from completing the questionnaire without any liability. Questions can be asked to the researchers at any point in time during the participation in the questionnaire in order to clarify any concerns.

Further questions and concerns about the study can be directed to the principal investigator niall.farnon@sta.uwi.edu.

Campus Research Ethics Committee St. Augustine campusethics@sta.uwi.edu

Do you consent to taking part in this questionnaire?

- ☐ Yes
- ☐ No

Instructions: Please indicate with a tick √ where applicable near options that closely applies to your response and fill in the open-ended sections below:

Questions 1-8 to be answered by all participants

- **Section 1 - demographics**

1. Gender

   ☐ Male ☐ Female

2. Education level

   ☐ Primary School - SEA
   ☐ Secondary School -O/A-Levels
   ☐ University -Degree/Masters/PhD
   ☐ Skills Training
   ☐ None

3. Ethnicity

   ☐ African descent
   ☐ East Indian descent
   ☐ Hispanic
   ☐ Asian
   ☐ Caucasian
   ☐ Other: _____

4. Age

   ☐ 18-29
   ☐ 30-39
   ☐ 40-49
   ☐ >50

5. State is your occupation:

   ☐ Educator/ Counselor
   ☐ Government worker/ Public service
   ☐ Social work
   ☐ Transporter
   ☐ Manager / Supervisor
   ☐ Business Owner/ Self-employed
   ☐ Medical Professional
   ☐ Student
   ☐ Retired
   ☐ Contractor
   ☐ Other: _____

6. How long have you worn spectacles?

- ☐ 6 months – 1 year
- ☐ 2 years – 5 years
- ☐ > 6 years

7. Rate the comfort level of your current pair of spectacles on a scale of 1 to 5.

Rate the comfort of your current spectacles				
Poor	Uncomfortable	Satisfactory	Comfortable	Excellent
1	**2**	**3**	**4**	**5**

8. Have you ever worn contact lenses?

- ☐ Yes
- ☐ No

If your answer was No to question 8, answer questions 9 to 11

If your answer was Yes to question 8, answer questions 12 to 17

9. If your response was **No** to question 8, what are the reasons for not trying contact lenses? (Choose all that are applicable)

- ☐ Cost
- ☐ Not available at my optometrist
- ☐ Fear of side effects
- ☐ Think that contact lens wear is uncomfortable
- ☐ Not enough knowledge about contact lenses
- ☐ Not an ideal candidate for contact lenses
- ☐ Think that using contact lens is difficult
- ☐ Spectacles are comfortable
- ☐ Was not recommended by my eye-care practitioner
- ☐ Other: _____

10. As you have never worn contact lenses, will you be willing to try contact lenses in the future?

- ☐ Yes
- ☐ No

11. If you answered **No to question 10**, would you try contact lenses if your concerns were resolved?

- ☐ Yes
- ☐ No

12. If your response was **Yes** to having tried contact lenses previously, what are the reasons for stopping contact lens wear? (Choose all that are applicable)

- ☐ Discomfort
- ☐ No occasions for wearing them
- ☐ Time consuming to maintain
- ☐ Cost
- ☐ Preferred spectacles
- ☐ Difficulty handling contact lenses
- ☐ Inconvenience
- ☐ Infection of the eyes
- ☐ Incorrect prescription
- ☐ Poor vision
- ☐ Fear of contracting Covid virus from touching eyes
- ☐ Other: _____

13. What type of contact lens have you worn?

- ☐ Soft
- ☐ Silicone hydrogels
- ☐ Rigid gas permeable

14. How long did you wear contact lenses before stopping?

- ☐ < 6months
- ☐ 6 months – 1 year
- ☐ 2 years – 3 years
- ☐ > 4 years

15. What was the reason for wearing contact lenses when you first started?

- ☐ Unsatisfied with spectacles
- ☐ To improve confidence/appearance
- ☐ To have better performance in various activities like sports and exercise
- ☐ To suit your lifestyle
- ☐ Recommended by eye-care provider
- ☐ Convenient for job
- ☐ Other: _____

16. Since you have previously worn contact lenses, will you be willing to retry contact lens wear in the future?

- ☐ Yes
- ☐ No

17. If you answered **No to question 16**, would you try contact lenses if your concerns were resolved?

- ☐ Yes
- ☐ No

Questions 18 to 20 to be answered by all participants:

18. You can contract Covid from wearing Contact lenses.

☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree

19. What source of information introduced you to contact lenses?

- ☐ Optometrist/ophthalmologist
- ☐ Social media
- ☐ Tv advertisements
- ☐ Family/Friends
- ☐ School
- ☐ Other: _____

20. If you got to know more about the benefits of contact lenses what would be your opinion on wearing contact lenses as a replacement for your spectacles?

☐ Worse opinion ☐ No difference in current choice ☐ Improved opinion