Optometry Unit Department of Clinical Surgical Sciences,

Faculty of Medical Sciences, St Augustine,

The University of the West Indies.

TITLE: Visual function and quality of life in artificial eye wearers in Trinidad and Tobago.

STUDENTS: Portia Soondar- 814001300

Jordan Harry- 816019963

SUPERVISOR: Dr. Niall Farnon MCOptom FIACLE

DATE OF SUBMISSION: 15/07/21

ACKNOWLEDGEMENT

With tremendous gratitude, we would like to extend our sincerest thanks to everyone who has provided us with support, guidance and meaningful advice during this research project.

We would like to particularly express our gratitude to Dr. Niall Farnon and Mr. Reyaz Khan for taking the time to provide us with their assistance throughout this research project which is the first of its kind in Trinidad and Tobago. Also, we would like to give a special thanks to Mr. Reyaz Khan for allowing us to use his facility, Precise Prosthetics Ltd, to conduct our research.

Thank you and May God bless you.

TITLE OF RESEARCH

Visual function and quality of life in artificial eye wearers in Trinidad and Tobago.

ABSTRACT

Aim: This research investigates the visual function and quality of life in artificial eye wearers in Trinidad and Tobago. The purpose of conducting such research is to analyse issues and difficulties in which these said patients face coping and adjusting to their prosthetic eye and the initial loss of their eye.

Method - The observational, cross-sectional study utilised a non-probability sampling technique to select appropriate candidates to partake in the study. The participants were given a questionnaire which gathered information about their Quality of Life and Visual Function concerning their artificial eye use. 17 participants took part in the survey and the data collected was analysed using multiple linear regression to assess the relations between quality of life, visual functions, management routines and demographic parameters.

Result –The highest cause of anophthalmia was trauma which made up 47.1% of all cases in this study. A correlation was found between the cause of anophthalmia and depression and sadness with a significance p value of 0.015. Discharge frequency and emotional state were found to be significant as well, p value of 0.028. Age and vision in the other eye had a significant relation of 0.048 with the majority of participants reporting excellent vision in the other eye and no issues with visual function task.

Conclusion - From the findings of the data collected it can be concluded that while anophthalmic patients do experience emotional distress which can affect their quality of life, patients had however reported normal visual function and ability to conduct everyday tasks which means they can still maintain a decent visual function and quality of life post anophthalmia.

TABLE OF CONTENT

INTRODUCTION

The eyes are frequently the first feature of a person's face that people notice. A person's emotions are profoundly affected by the loss of one eye, and it is linked to the development of social anxiety, which can disrupt their life and lead to psychological suffering (1). Evisceration which is the removal of intraocular contents of the globe, enucleation the removal of the globe and parts of the optic nerve, or exenteration the removal of the globe and parts of the optic nerve are all options for dealing with the loss or absence of an eye and for anophthalmic patients, ocular prosthesis are a critical therapy option (2, 3). According to a study conducted in New Zealand, there is one anophthalmic person for every 1440 people, and based on this ratio, the global population of anophthalmic individuals is estimated to be five million (4). Since there are no local statistics on anophthalmic persons in Trinidad and Tobago, this study serves as the first disseminated data set. A distributed questionnaire is used to assess the visual function and quality of life of artificial eye wearers in this observational study.

RELEVANCE TO PUBLIC HEALTH

Individuals can and do suffer from eyesight loss, whether it is whole or partial. Artificial eye wearers frequently encounter psychological and physical issues as a result of their loss of vision, as well as low self-esteem, which can lead to melancholy, anxiety, tension, and a negative self-image. These factors have a direct impact on an individual's quality of life, causing them to be unable to appropriately care for their general health, resulting in various health problems.

The study gathers useful data on challenges faced by artificial eye wearers, which will aid in providing afflicted persons with the necessary care and counselling. This is the first study of its sort in Trinidad and Tobago, and it will provide the required knowledge to those working in the sector, as well as the health system and the general public, to appropriately handle such difficulties.

LITERATURE REVIEW

Individuals who have just lost an eye are most concerned about the health of their remaining eye, coping with monocularity, and receiving sound guidance. These people were mostly concerned about their looks and restricted visual range, especially if their occupations required them to interact with the public. Peripheral vision, depth perception, comfort, retention, loss of balance, and postoperative discomfort were all less of a concern in patients with first eye loss to present. The health of the remaining eye, as well as watering, crusting, and discharge, were the participants' top current worries. (5)

Psychological effects of eye loss.

The database of the New Zealand Artificial Eye Service shows that individuals who participated in the research experienced significant stress levels relative to concerns about their appearance while their anxiety was due to discharge and visual perception concerns, 77% of participants reported being content with the way they appeared to others but found themselves uncomfortable when stared at and also shied away from being photographed. This may indicate low self-esteem or poor self-image.

According to Pine et al., who discovered that after at least two years, practically all worries with appearance, discharge, and appearance at the time of eye loss greatly decrease. Therefore, duration since eye loss was another key factor influencing the psychological wellbeing of participants (6). This shows that even while psychological support may be more important just after a person loses their sight, this study has revealed that many seasoned users of prosthetic eyes also have a considerable need.

In general, those who use prosthetic eyes don't seem to experience depression, anxiety, or stress any differently than the general population. For instance, the mean for stress is 9.46, anxiety is 3.76 (SD 5.9), and depression is 5.66 (SD 7.74) in the United Kingdom (SD 0.4). 16 These numbers can be contrasted with the study subjects' averages 6.01 (SD 7.93), 4.7 (SD 6.33), and 8.89). (SD 8.32). However, as shown in earlier studies 5,11, a disproportionately high number of people experienced significant or extremely high degrees of depression, anxiety, or stress. This is crucial because more than two out of every five anophthalmic patients in the research (37%) had moderate to severe sadness, anxiety, or stress (7).

Visual Function Effect of Eye loss

The loss of binocular vision reduces the affected person's horizontal visual field by about 10 to 20% of the full binocular horizontal visual field. As a result of this, monocular vision individuals tend to make more head and eye movements than binocular individuals to compensate for the reduced visual field. It has also been observed that when locating an object, these individuals may take up to 25% longer to accurately pinpoint the object (5, 6). Binocular vision cues such as vergence and disparity are lost when binocular vision is lost. Where vergence refers to the ability of the two eyes to focus on an object and disparity refers to when an object is projected at different angles on each eye. Monocular cues such as linear perspective, motion parallax, and relative size differences remain after the loss of binocular visual information. Anophthalmic people rely solely on monocular cues, with limited depth perception, which is important at distances of less than 10m, and especially at distances of less than 1m (7).

RESEARCH HYPOTHESIS

1) If a patient has an artificial eye, then they suffer from a lower QOL and diminished Visual function.

2) The more time a patient has spent with their artificial eye the less likely they are to suffer from quality-of-life issues and visual function problems.

Aims/Objectives

This cross-sectional study investigates the visual function and quality of life in artificial eye wearers in Trinidad and Tobago. The study focuses on factors that may contribute to a decrease in visual function or quality of life in this group of persons. The study explores the physical and visual limitations of the group, their management regiment and their emotional state concerning life with an artificial eye. The study will also provide local data on artificial eye wearers as there are no statistics within the public domain.

METHODOLOGY

Study setting:

This research was conducted at "Precise Prosthetics Ltd" based in Caroni Savannah Road, Chaguanas, Trinidad. The research area was chosen as an area of study as a result of their clinic being the only location in the country that fits ocular prosthetics and due to this particular situation, they will have access to an extensive database of patients within the study population.

Study design:

This research project will be an analytical non-experimental cross-sectional study.

Study population:

This study was composed of participants of anophthalmic patients of all ages who wore ocular prosthetics and were citizens/permanent residents of Trinidad and Tobago.

Study sample:

This study utilised a non-probability sampling technique to select candidates within the inclusion criteria.

Sample size calculation:

The potential sample size was generated using Raosoft's sample size calculator. With a total population size of 500, the software created a sample of 96 with a 9 percent error margin and a 95 percent confidence interval. However, the global COVID-19 epidemic prevented this generated sample size of 96 participants from being reached; however, 17 participants took part in the research.

Inclusion criteria:

All participants consisted of consenting anophthalmic patients of all ages with an ocular prosthetic who were citizens/permanent residents of Trinidad and Tobago.

Exclusion criteria:

Anophthalmic patients without an ocular prosthetic, candidates who resided outside the territory of Trinidad and Tobago and those that declined consent to participate in the study.

Ethical Approval:

This study was approved by the ethics committee of the University of the West Indies before the commencement of the research. All participants were required to fill out a consent form which outlined the objectives and procedure of the research; the participants were also informed that they were allowed to ask questions or bring up any concerns they had to the researchers. The research followed the tenets of the declaration of Helsinki.

Data collection:

The data for this research project was obtained via in-person interviews in the form of a questionnaire that persons in the study sample completed, before the candidates filled in their responses, they were prompted to give written consent using a form provided by the UWI ethics committee indicating their willingness to partake in the research.

Data analysis:

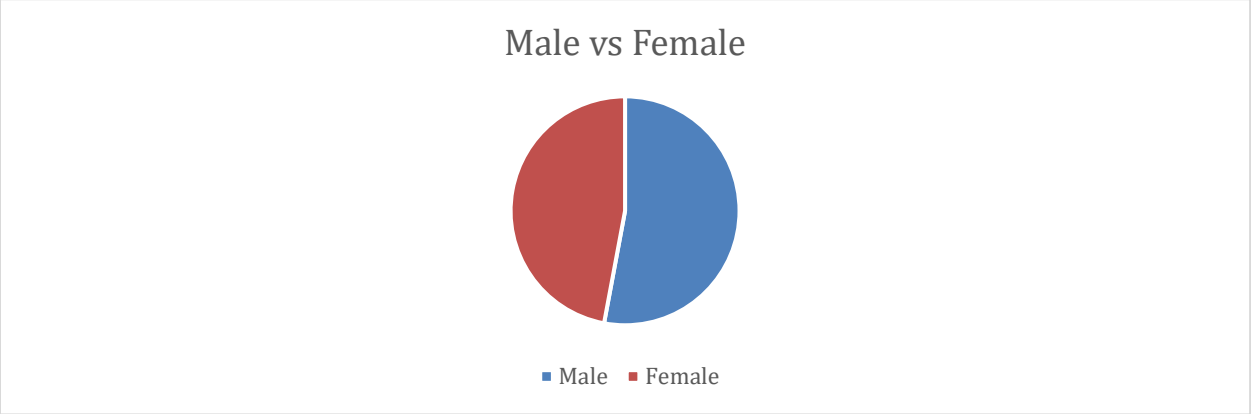
The Statistical Package for Social Sciences was used to analyze the study's data (SPSS). Cross Tabulations of the data were used to identify any significant connections by performing Chi-Squared tests on various relationships where a p-value <0.05 was considered significant. All inconsequential correlations were included in the appendix, while the statistically significant connections were emphasized in the findings. Before doing the analysis, the categories from the questionnaire were changed; all questions with more than three potential answers were condensed into three categories that contained all the options for ease of analysis due to the sample size, age of participants was grouped into the categories, < 18, 18-39 and >39 this was done as it represented different stages of aging: Youth, Adult and middle adult to senior adult. All binary questions were left unchanged. This resulted in either 3x3 or 2x3 Chi-Squared tables. Of the 50 questionnaires that were sent out a total of 47 persons were asked to participate in the study of which 17 took part having a refusal rate of over 60%. The total number of persons in the clinic was established to be 500 of which 3.4% took part in the survey.

Data protection:

Any information that may have breached patient confidentiality was not included in the study such as patient name, phone number, and home address. In cases where a patient was under the legal age limit to participate in the research, a parent guardian consent form was given out to grant the patient permission to partake. Access to the data collected was limited only to researchers involved in the project.

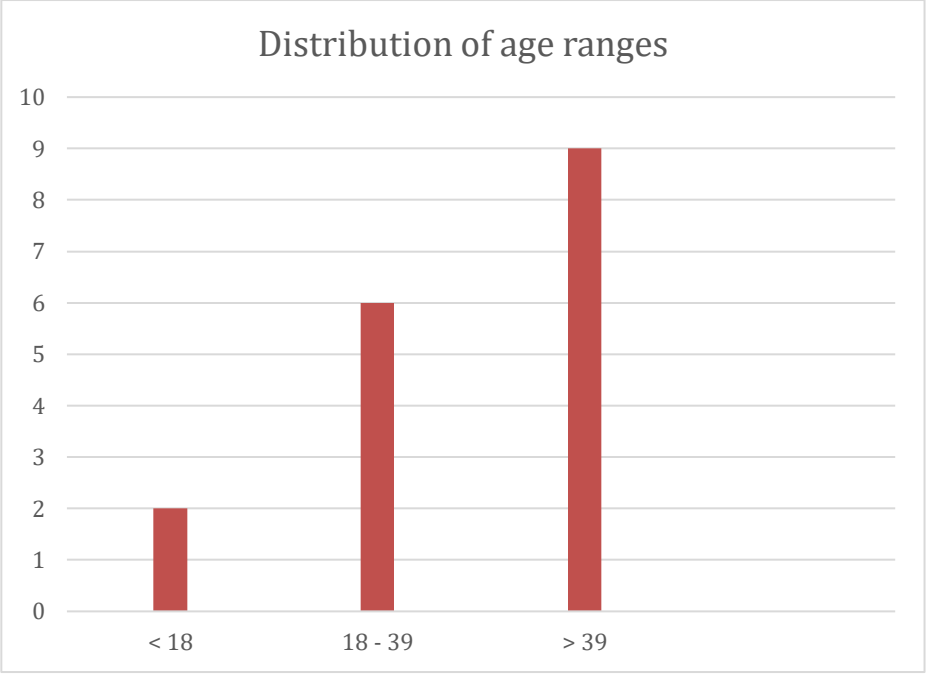
RESULTS

Figure 1. Pie chart showing the distribution of male and female participants in the survey.



Participants consisted of 9 males (52.9%) and 8 females (47.1%)

Figure 2. Bar chart showing the distribution of participants in different age ranges



The majority of participants were over 39 (52.9%) where there were 9 participants, 6 participants being 18 – 39 (35.3%) and 2 participants being less than 18 (11.8%).

Table 1. Showing frequency of cause of artificial eye wear

Cause of Artificial eye wear					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Trauma	8	47.1	50.0	50.0
	Congenital	4	23.5	25.0	75.0
	Surgical Complication	4	23.5	25.0	100.0
	Total	16	94.1	100.0	
Missing		1	5.9		
Total		17	100.0		

Most artificial eye wearers indicated that their cause of anophthalmia was trauma (47.1%) while congenital and surgical complications were equal at 4 participants each (23.5%).

Table 2. Cause of Artificial eye wear * Depression/Sadness, Stress or Anxiety after becoming an artificial eye wearer

		Depression/Sadness, Stress or Anxiety after becoming an artificial eye wearer		Total
		Yes	No	
Cause of Artificial eye wear	Trauma	3 (42.9%)	5 (55.6%)	8 (50.0%)
	Congenital	0 (0.0%)	4 (44.4.%)	4 (25.0%)
	Surgical Complication	4 (57.1%)	0 (0.0%)	4 (25.0%)
Total		7 (43.8%)	9 (56.3%)	16 (100.0%)

Most individuals who experienced depression/sadness etc... after acquiring artificial eyes were affected by traumatic reasons, accounting for 8 (50%) of the cases, while congenital and surgical complications accounted for 4 (25.0%) of the cases each.

Table 3. Discharge Frequency * Discomfort Due to discharge

		Discomfort Due to discharge		Total
		Yes	No	
Discharge Frequency	Daily	3 (50.0%)	0 (0.0%)	3 (27.3%)
	Weekly	3 (50.0%)	2 (40.0%)	5 (45.5%)
	Never	0 (0.0%)	3 (60.0%)	3 (27.3%)
Total		6 (54.5%)	5 (45.5%)	11 (100%)

In total, 6 (54.5%) of the respondents reported feeling discomfort, with an equal number reporting discomfort owing to discharge on a daily and weekly basis, with 3 (50.0%) participants each. 5 (45.5%) of the respondents do not suffer discomfort as a result of the discharge, including 3 (60.0%) who never experienced discharge and 2 (40.0%) who did so weekly but did not report any discomfort.

Table 4. Discharge Frequency * Emotional State

		Emotional State			Total
		Poor	Average	Excellent	
Discharge Frequency	Daily	1 (100%)	0 (0.0%)	1 (10.0%)	2 (13.3%)
	Weekly	0 (0.0%)	3 (75.0%)	2 (20.0%)	5 (33.3%)
	Never	0 (0.0%)	1 (25.0%)	7 (70.0%)	8 (53.3%)
Total		1 (6.7%)	4 (26.7%)	10 (66.7%)	15 (100.0%)

Most of the respondents reported having an excellent emotional state when they did not experience any discharge which accounts for 7 of the participants. A total of 10 (66.7%) participants did report having an excellent emotional state even while 2 (20.0%) had discharge weekly and 1 (10.0%) daily. Only 1 (6.7%) of the total respondents reported having a poor emotional state and they also reported daily discharge.

Table 5. Age * Vision in Other Eye

		Vision in Other Eye			Total
		Poor	Average	Excellent	
Age	< 18	1 (33.3%)	0 (0.0%)	1 (12.5%)	2 (11.8%)
	18 - 39	1 (33.3%)	0 (0.0%)	5 (62.5%)	6 (35.3%)
	> 39	1 (33.3%)	6 (100.0%)	2 (25.0%)	9 (52.9%)
Total		3 (17.6%)	6 (35.3%)	8 (47.1%)	17 (100.0%)

The majority, 8 (47.1%) of respondents had reported excellent vision, while most, 6 (35.3%) of the respondents over 39 reported average vision and only 3 (17.6%) of participants reported poor vision.

Tables 6 – 13 Showing the frequency of responses for visual function questions

Reading books/newspapers					
		Frequency	Percent	Valid Percent	Cumulative Percent
	No difficulty	14	82.4	82.4	82.4
	Moderate difficulty	2	11.8	11.8	94.1
	A lot of difficulty	1	5.9	5.9	100.0
	Total	17	100.0	100.0	

Judging distance					
		Frequency	Percent	Valid Percent	Cumulative Percent
	No difficulty	12	70.6	70.6	70.6
	Moderate difficulty	4	23.5	23.5	94.1
	A lot of difficulty	1	5.9	5.9	100.0
	Total	17	100.0	100.0	

Reading prices & labels					
		Frequency	Percent	Valid Percent	Cumulative Percent
	No difficulty	13	76.5	76.5	76.5
	Moderate difficulty	2	11.8	11.8	88.2
	A lot of difficulty	2	11.8	11.8	100.0
	Total	17	100.0	100.0	

Reading signs on the road					
		Frequency	Percent	Valid Percent	Cumulative Percent
	No difficulty	14	82.4	82.4	82.4
	Moderate difficulty	2	11.8	11.8	94.1
	A lot of difficulty	1	5.9	5.9	100.0
	Total	17	100.0	100.0	

Recognizing other people					
		Frequency	Percent	Valid Percent	Cumulative Percent
	No difficulty	15	88.2	88.2	88.2
	Moderate difficulty	2	11.8	11.8	100.0
	Total	17	100.0	100.0	

Seeing people or objects to your side					
		Frequency	Percent	Valid Percent	Cumulative Percent
	No difficulty	11	64.7	64.7	64.7
	Moderate difficulty	5	29.4	29.4	94.1
	A lot of difficulty	1	5.9	5.9	100.0
	Total	17	100.0	100.0	

Difficulty seeing at night					
		Frequency	Percent	Valid Percent	Cumulative Percent
	No difficulty	15	88.2	88.2	88.2
	Moderate difficulty	2	11.8	11.8	100.0
	Total	17	100.0	100.0	

Avoiding objects/people while walking					
		Frequency	Percent	Valid Percent	Cumulative Percent
	No difficulty	14	82.4	82.4	82.4
	Moderate difficulty	3	17.6	17.6	100.0
	Total	17	100.0	100.0	

DISCUSSION

Trauma was cited as the primary cause of anophthalmia in the majority of artificial eye users (47.1%), whereas congenital and surgical problems each had four participants (23.5%). Similar studies were conducted in the UK and Brazil, where trauma was shown to be the most common cause of eye loss, with 50% and 39% of participants reporting that they had lost an eye as a result of trauma, respectively (1, 2). In research conducted in New Zealand by Keith R. Pine, the primary causes of eye loss in Korea, the United States of America, and New Zealand were compared. Trauma was overrepresented here as well, ranking first, then surgical complications, then congenital causes, which is identical to the findings of this research seen in Table 1 (3).

Most individuals who experienced depression/sadness etc... after acquiring artificial eyes were affected by traumatic reasons, accounting for 8 (50%) of the cases, while congenital and surgical complications accounted for 4 (25.0%) of the cases each. This is indicated in Table 2. depression and artificial eyewear were correlated, with a statistically significant value of less than 0.05. (.015). The relationship between the reason for wearing artificial eyes and depression was reported to be significant, but the relationship between the cause and emotional state did not, with a p-value of .883. The fact that 62.3% of respondents said they were in an excellent emotional state suggests that artificial eye wearers have accepted and moved past their experience, which may be the cause of the insignificant value. According to a study conducted in the UK, an ophthalmic patient's initial concerns about wearing artificial eyes subside after two years (4) and in this study that was conducted the average wear time was over five years, with 10 (58.8%) of respondents reporting having worn for that length of time. Only three (17.6%) respondents claimed to have worn artificial eyes for less than a year.

Discharge frequency and emotional state had a statistically significant relationship with a p-value of .028, of the respondent that reported to never experiencing discharge, 7 (46.7%) had an excellent emotional state with only 1 (6.7%) respondent reporting experiencing discharge daily and have a poor emotional state. There was also a significance seen in discharge frequency and discomfort due to discharge having a p-value of 0.046, of the 6 (54.5%) respondents that answered yes to experiencing discharge 3 (27.27%) experienced it daily and 3 (27.27%) weekly. Interestingly there was no significance between discharge frequency and how often the artificial eye is cleaned, what is the artificial eye cleaned with and the frequency of polishing. These findings are consistent with a UK study that found no correlation between cleaning frequency and outcomes, as well as with previous studies that suggested that cleaning regimens are frequently customized, showing that there is no standardized cleaning protocol for ocular prostheses (4-6).

Table 5. shows the relationship between age and vision in the other eye, the majority, 8 (47.1%), of respondents had excellent vision and all respondents over 39, 6 (35.3%) reported to have average vision. The significance between age and vision in other eye had a p-value of 0.048. This translated to visual function questions, where most participants reported having no difficulty with all the scenarios. This could be indicative of an adaptation to monocular vision. Of the 7 (47.1%) participants that responded to which activities they stopped doing after losing an eye, the majority, 5 (29.4%) indicated that they did not stop any activities, while 1 (5.9%) reported a reduction in frequent socialization and 2 (11.8%) reported that they stopped playing sports.

LIMITATIONS OF METHODOLOGY

Sampling issue - One location in the country to get ocular prosthetics may not be a proper representation of the entire country as persons from areas such as Tobago may not have reasonable access to the care or even persons from distant places in the country.

Issues relating to generalization - The fact that the prosthetics are made by a private practice and not in the general health care system the patients who are seeking help are the ones that can afford it and may not be the entire population.

Global Pandemic - Covid-19 has deterred people from making regular visits or even visiting the practice on the whole. This therefore affected the number of sample sizes obtained.

RECOMMENDATIONS

There's only one facility which produces and fits prosthetic eyes in Trinidad which is Precise Prosthetics; this, therefore, limited the number of samples and made it difficult to generalize the results. Moving forward we can increase the sample size by extending research to twin Island, Tobago. While conducting the survey, patients were hesitant to partake in the questionnaire although we stated that it would be anonymous most patients still had an issue with putting their name on the consent form. To combat this issue, we'll be more vocal about the confidentiality of the survey to encourage more patients to participate. Also, during our time of data collection the country was still facing high to moderate numbers of covid cases, which deterred people from visiting the facility in which the research took place. Now that covid has quieted down it is easier to move forward with data collection since people are more comfortable in the public.

NEXT STEPS

Moving forward we will put measures in place to perform our research in Tobago in order to obtain more samples and be able to properly generalize the results. We collected samples in person by using a questionnaire, moving forward we will also perform telephone interviews and allow the patients the option to answer the questionnaire online to combat the problem of persons not moving around freely due to covid or any accessibility issues. Also, we would not limit our research to Precise Prosthetics ltd, where we gathered our samples and would make efforts to gather data from prosthetic eye wearers outside the clinic.

CONCLUSION

It can be concluded that trauma is the most common cause of anophthalmic patients in Trinidad and Tobago with the highest rate of depression and sadness coming from traumatic causes of anophthalmia. Most respondents experience discomfort due to discharge, but this does not degrade the emotional well-being of 93.4% of the participants to a poor emotional state. Of the respondents, the majority have average vision in their other eye and indicated that they have no issues conducting any of the tasks asked in visual function.

From the findings of the data collected it can be concluded that while anophthalmic patients do experience emotional distress which can affect their quality of life, patients had however reported normal visual function and ability to conduct everyday tasks which means they can still maintain a decent visual function and quality of life post anophthalmia.

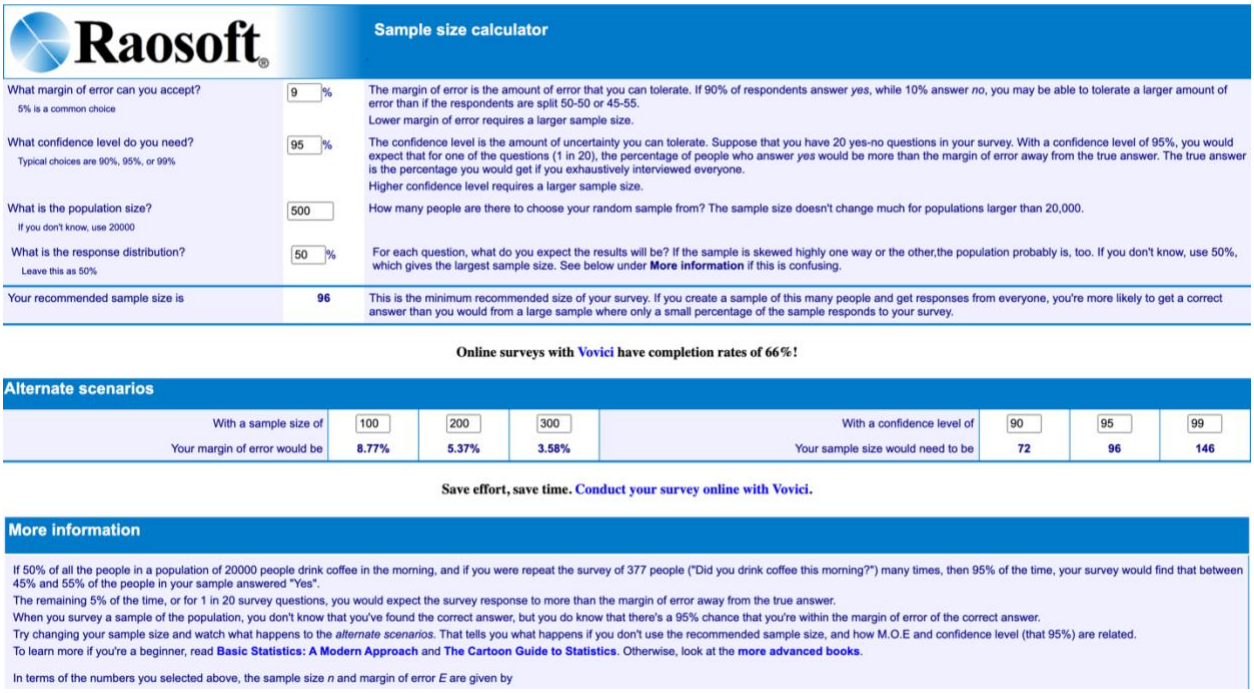
RFERENCES:

1. Hatamleh M, Abbariki M, Alqudah N, Cook A. Survey of Ocular Prosthetics Rehabilitation in the United Kingdom, Part 1: Anophthalmic Patients' Aetiology, Opinions, and Attitudes. The Journal of craniofacial surgery. 2017;28.
2. Hatamleh MM, Haylock C, Hollows P, Richmond A, Watson J. Prosthetic eye rehabilitation and management of completely blind patients. Int J Prosthodont. 2012;25(6):631-5.
3. Hatamleh MM, Watson J, Srinivasan D. Closed-eye orbital prosthesis: a clinical report. J Prosthet Dent. 2015;113(3):246-9.
4. Pine KR, Sloan BH, Jacobs RJ. Clinical Ocular Prosthetics. 2015 ed. Cham: Cham: Springer International Publishing AG; 2015.
5. Pine K, Sloan B, Stewart J, Jacobs RJ. Concerns of anophthalmic patients wearing artificial eyes. Clin Exp Ophthalmol. 2011;39(1):47-52.
6. Pine NS, Pine KR. Depression, Anxiety and Stress Indicators for Prosthetic Eye Wearers. Clinical ophthalmology (Auckland, NZ). 2020;14:1715-23.
7. Shapira Y, Worrell E, Litwin AS, Malhotra R. The UK National Artificial Eye Questionnaire Study: predictors of artificial eye wearers' experience Part 2 - visual function and quality of life. Eye (Lond). 2021.
8. Ihrig C, Schaefer DP. Acquired Monocular Vision Rehabilitation program. J Rehabil Res Dev. 2007;44(4):593-7.
9. Chow-Wing-Bom H, Dekker TM, Jones PR. The worse eye revisited: Evaluating the impact of asymmetric peripheral vision loss on everyday function. Vision Research. 2020;169:49-57.
10. Pine K. Response of the Anophthalmic Socket to Prosthetic Eye Wear 2012.
11. Goiato MC, dos Santos DM, Bannwart LC, Moreno A, Pesqueira AA, Haddad MF, et al. Psychosocial impact on anophthalmic patients wearing ocular prosthesis. International Journal of Oral and Maxillofacial Surgery. 2013;42(1):113-9.
12. Pine NS, de Terte I, Pine KR. An investigation into discharge, visual perception, and appearance concerns of prosthetic eye wearers. Orbit. 2017;36(6):401-6.
13. Bonaque-González S, Amigó A, Rodríguez-Luna C. Recommendations for post-adaption care of an ocular prosthesis: A review. Contact Lens and Anterior Eye. 2015;38(6):397-401.

APPENDIX

Sample size calculation

Attachment 1. Showing potential sample size that was generated using Raosoft's sample size calculator.



Raosoft®

Sample size calculator

What margin of error can you accept? 5% is a common choice	9 %	The margin of error is the amount of error that you can tolerate. If 90% of respondents answer *yes*, while 10% answer *no*, you may be able to tolerate a larger amount of error than if the respondents are split 50-50 or 45-55. Lower margin of error requires a larger sample size.
What confidence level do you need? Typical choices are 90%, 95%, or 99%	95 %	The confidence level is the amount of uncertainty you can tolerate. Suppose that you have 20 yes-no questions in your survey. With a confidence level of 95%, you would expect that for one of the questions (1 in 20), the percentage of people who answer *yes* would be more than the margin of error away from the true answer. The true answer is the percentage you would get if you exhaustively interviewed everyone. Higher confidence level requires a larger sample size.
What is the population size? If you don't know, use 20000	500	How many people are there to choose your random sample from? The sample size doesn't change much for populations larger than 20,000.
What is the response distribution? Leave this as 50%	50 %	For each question, what do you expect the results will be? If the sample is skewed highly one way or the other,the population probably is, too. If you don't know, use 50%, which gives the largest sample size. See below under **More information** if this is confusing.
Your recommended sample size is	**96**	This is the minimum recommended size of your survey. If you create a sample of this many people and get responses from everyone, you're more likely to get a correct answer than you would from a large sample where only a small percentage of the sample responds to your survey.

Online surveys with Vovici have completion rates of 66%!

Alternate scenarios

With a sample size of	100	200	300	With a confidence level of	90	95	99
Your margin of error would be	**8.77%**	**5.37%**	**3.58%**	Your sample size would need to be	**72**	**96**	**146**

Save effort, save time. Conduct your survey online with Vovici.

More information

If 50% of all the people in a population of 20000 people drink coffee in the morning, and if you were repeat the survey of 377 people ("Did you drink coffee this morning?") many times, then 95% of the time, your survey would find that between 45% and 55% of the people in your sample answered "Yes".
The remaining 5% of the time, or for 1 in 20 survey questions, you would expect the survey response to more than the margin of error away from the true answer.
When you survey a sample of the population, you don't know that you've found the correct answer, but you do know that there's a 95% chance that you're within the margin of error of the correct answer.
Try changing your sample size and watch what happens to the *alternate scenarios*. That tells you what happens if you don't use the recommended sample size, and how M.O.E and confidence level (that 95%) are related.
To learn more if you're a beginner, read **Basic Statistics: A Modern Approach** and **The Cartoon Guide to Statistics**. Otherwise, look at the **more advanced books**.

In terms of the numbers you selected above, the sample size *n* and margin of error *E* are given by

ATTACHMENT 2. Showing Questionnaire Distributed

CONSENT FORM FOR SURVEYS/QUESTIONNAIRES

The following informed consent must be mandatorily obtained from any person invited to participate in a research study in the form of a survey or questionnaire.

1. **TITLE OF RESEARCH: Visual function and quality of life in artificial eye wearers in Trinidad and Tobago.**
2. **INVESTIGATOR: Principal investigator: Niall Farnon, Co-Investigators: Portia Soondar, Jordan Harry.**
3. **For this study, you will be completing a short survey about artificial eye wear in relation to quality of life and visual function.**
4. **If you have any questions before you complete this survey, please contact us, Portia.Soondar@my.uwi.edu, Jordan.Harry@my.uwi.edu**
5. **All responses you provide for this study will be completely confidential. When the results of the study are reported, you will not be identified by name or any other information that could be used to infer your identity.**
6. **By clicking "Yes" below, you acknowledge that you have read and understood that:**
   - **Your participation in this survey is voluntary. You may withdraw your consent and discontinue participation in the project at any time. Your refusal to participate will not in any way adversely impact upon you.**
   - **You have given consent to be a subject of this research and respond to the survey / questionnaire(s) as truly as possible**
   - **You do not waive any legal rights or release the University or the investigator from liability for negligence or misconduct.**
7. **Do you wish to participate in this study?**

- **Yes, I am consenting to participate**
- **No, I am NOT consenting to participate**

…….

Signature **Name** **Date**

Questionnaire number:

Visual function and quality of life in artificial eye wearers in Trinidad and Tobago, Questionnaire.

1. What gender are you?

Male	Female

2. To which age group do you belong?

18-24	25-39	40-60	Over 60

3. Please describe how you became an artificial eye wearer.

4. How long have you been wearing an artificial eye?

Less than a year	1 – 2 years	3 – 4 years	5 – 6 years	Over 6 years

5. How often do you clean your artificial eye?

Hourly	Daily	Weekly	Monthly	Never

6. How do you clean your artificial eye?

Soap and water	Water only	Other:

7. What do you use to lubricate your artificial eye?

Drops e.g. Refresh	Oil e.g. Silicone Oil	Ointment e.g. Tears again eye ointment	Other:

8. How often do you lubricate your artificial eye?

Hourly	Daily	Weekly	Monthly	Never

9. On a scale of 1 to 10 how difficult is it to insert and remove your artificial eye? (Slightly difficult) 1-10 (very difficult).

10. How often do you get your artificial eye polished?

Weekly	Monthly	Semi-Annually	Annually	Never

11. Is it more comfortable after it's polished?

Yes	No

12. Do you experience discharge?

Yes	No

13. How often do you experience discharge?

Hourly	Daily	Weekly	Monthly	Never

Describe your discharge.

Mild (light)	Moderate (thick)	Severe (neesds antibiotics)

14. Do you experience discomfort due to your discharge?

Yes	No

15. If yes, on a scale of 1 to 10 how severe is the discomfort? (Mild) 1-10 (severe).

16. On a scale of 1 to 10 how would you rate your emotional state? (Poor)1-10 (excellent)

17. Did you experience depression/ sadness, stress or anxiety when becoming an artificial eye wearer?

Yes	No

18. Overall, how would you say your vision is in your other eye? (Poor) 1 - 5 (excellent).

19. Do you currently drive?

Yes	No

20. Do you have difficulty doing any of these activities?

	No difficulty	A little difficulty	Moderate difficulty	Quite a bit of difficulty	A lot of difficulty
Reading books/newspapers	1	2	3	4	5
Judging distance	1	2	3	4	5
Reading prices & labels	1	2	3	4	5
Reading signs on the road	1	2	3	4	5
Recognizing other people	1	2	3	4	5
Seeing people or objects to your side	1	2	3	4	5
Difficulty seeing at night	1	2	3	4	5
Avoiding objects/people while walking.	1	2 1 2 3 4 3 5		4	5

21. What activities did you stop doing after losing an eye?

Attachment 3. Showing Research Approval

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

October, 13 2021

Mr. Niall Farnon, Portia Soondar, Jordan Harry,
Optometry Unit, Dept of Clinical Surgical Sciences, Faculty of Medical Sciences
Level #2, Training Centre Couva Hospital & Multi Training Facility
Sir Solomon Hochoy Highway Preysal, Couva.
Email: niall.farnon@sta.uwi.edu

Dear Mr. Niall Farnon ,

Ref: CREC-SA.1213/10/2021

Title: Visual function and quality of life in artificial eye wearers in Trinidad and Tobago

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

Digitally generated by UWIScholar

Attachment 4. Showing Questionnaire 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

---

CONSENT TO PARTICIPATE IN RESEARCH

Complete Protocol Title: Visual function and quality of life in artificial eye wearers in Trinidad and Tobago

Principal Investigator: Mr. Niall Farnon

Co Investigator(s): Portia Soondar, Jordan Harry , , , , , , , ,

---

1. Identification of project

a. What is the purpose of this research?
The purpose of this research is to assess the visual function and quality of life in artificial eye wearers in Trinidad and Tobago by examining factors which may contribute in decreased visual function and quality of life to these said patients.

b. How long it will take to complete this project?
Approximately 5-10 minutes to complete the research questionnaire.

c. Why am I selected for this research?
You were selected for this research because you are an artificial eye wearer and the research being conducted focuses on artificial eye wearers.

d. Why is this document for obtaining informed consent important?
This document for informed consent is important to the research because it acknowledges the participant's understanding of study that they will be involved in.

2. Description of Procedures

a. What am I expected to do in this study?
We expect you to fill out a questionnaire which is based upon your artificial eye wear.

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?
This study is entirely investigational in which you will have to participate one time in answering a questionnaire which may take up to 15 minutes. This questionnaire will be answered at "Precise prosthetics" Chaguanas.

c. How many participants are involved in the study approximately?
The number of participants involved in this study is unknown as the patient database is private information owned by "Precise Prosthetics".

3. Risks and Discomforts

a. What are the risks or discomforts that may result from my participation in the study?
There is little to no risk that may result from participation in this study.

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?
N/A

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, 12 2021
This document expires on:
October, 12 2022

c. Are there any potentially beneficial treatments or procedures that are withheld for the purpose of the study?
There are no beneficial treatments or procedures withheld for the purpose of the study.

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 may be terminated due to an unexpected nationwide lockdown by the government of Trinidad and Tobago due to COVID-19 as it may restrict the possibility of participants filling out the questionnaire.

5. Benefits

a. What are the benefits to me (and the wider society) by this study?
There is no direct benefit to participants, but participants will help provide data on the Quality of life and Visual function of Artificial eye wearers in Trinidad and Tobago as this is the first study of its type to be done within the country. The research can also be used as primary information which can help eye care professionals to provide better patient care for artificial eye wearers.

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?
N/A

b. Do I have the right to pursue the alternatives?
N/A

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?
Data access will be limited to the researchers and the staff at "Precise Prosthetics" whose patient database we will be using. The analyzed data will not include and participant names or other sensitive information. The anonymized data will be reported during a presentation and may be published on UWIScholar.

8. Cost and Payments

a. Are there any costs involved and are there any compensations provided?
There are no costs involved in this study and no compensation provided.

9. Freedom to Withdraw

a. Do I have the freedom to withdraw from the study anytime?
You are free to withdraw from this study at any point in time.

b. Will withdrawing from the study have any impact on my treatment?
Withdrawing from this study will have no consequence to you and the standard of care given

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 questions before the start of the study and you may direct these questions at any of the following persons. Mr. Niall Farnon - 1(868)-225-1016 Portia Soondar - 1(868)-365-9537 Jordan Harry - 1(868)-359-2509 Dr. Patricia Sealy - 1(868)-645-2640

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

ATTACHMENT 5. Showing Cross tabulated Data From Statistical Analysis Program

63	25	Experience Discharge * What is the artificial eye cleaned with
64	26	Experience Discharge * Lubrication of artificial eye
65	27	Experience Discharge * Frequency of lubrication
66	28	Experience Discharge * Frequency of Polishing
67	29	Discharge Frequency * Discharge Description
68	30	Discharge Frequency * Discomfort Severity
69	31	Gender * Emotional State
70	32	Gender * Depression/Sadness, Stress or Anxiety after becoming an artificial eye wearer
71	33	Gender * Cause of Artificial eye wear
72	34	Gender * Experience Discharge
73	35	Gender * Discharge Frequency
74	36	Gender * Discomfort Severity
75	37	Vision in Other Eye * Emotional State
76	38	Vision in Other Eye * Depression/Sadness, Stress or Anxiety after becoming an artificial eye wearer
77	39	Vision in Other Eye * Currently Drive
78	40	Vision in Other Eye * Reading books/newspapers
79	41	Vision in Other Eye * Judging distance
80	42	Vision in Other Eye * Reading signs on the road
81	43	Age * Frequency of lubrication /
82	44	Age * Insertion and Removal Difficulty
83	45	Age * Discharge Frequency
84	46	Age * Experience Discharge
85	47	Age * Emotional State
86	48	Age * Depression/Sadness, Stress or Anxiety after becoming an artificial eye wearer

Cause of Artificial eye wear * Depression/Sadness, Stress or Anxiety after becoming an artificial eye wearer

Crosstab

Count

		Depression/Sadness, Stress or Anxiety after becoming an artificial eye wearer		
		Yes	No	Total
Cause of Artificial eye wear	Trauma	3	5	8
	Congenital	0	4	4
	Surgical Complication	4	0	4
Total		7	9	16

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	8.381[a]	2	.015

a. 6 cells (100.0%) have expected count less than 5. The minimum expected count is 1.75.

Discharge Frequency * Discomfort Due to discharge

Crosstab

Count

		Discomfort Due to discharge		
		Yes	No	Total
Discharge Frequency	Daily	3	0	3
	Weekly	3	2	5
	Never	0	3	3
Total		6	5	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	6.160[a]	2	.046

a. 6 cells (100.0%) have expected count less than 5. The minimum expected count is 1.36.

Discharge Frequency * Emotional State

Crosstab

Count

		Emotional State			
		Poor	Average	Excellent	Total
Discharge Frequency	Daily	1	0	1	2
	Weekly	0	3	2	5
	Never	0	1	7	8
Total		1	4	10	15

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	10.856[a]	4	.028

a. 8 cells (88.9%) have expected count less than 5. The minimum expected count is .13.

Age * Vision in Other Eye

Crosstab

Count

		Vision in Other Eye			
		Poor	Average	Excellent	Total
Age	< 18	1	0	1	2
	18 - 39	1	0	5	6
	> 39	1	6	2	9
Total		3	6	8	17

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	9.602[a]	4	.048

a. 9 cells (100.0%) have expected count less than 5. The minimum expected count is .35.

Cause of Artificial eye wear * Emotional State

Count

		Emotional State			
		Poor	Average	Excellent	Total
Cause of Artificial eye wear	Trauma	1	2	4	7
	Congenital	0	1	3	4
	Complication	0	1	2	3
Total		1	4	9	14

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.171[a]	4	.883

a. 9 cells (100.0%) have expected count less than 5. The minimum expected count is .21.

Discharge Frequency * How often is the artificial eye cleaned

Count

		How often is the artificial eye cleaned		
		Weekly	Monthly	Total
Discharge Frequency	Daily	1	2	3
	Weekly	1	4	5
	Never	1	8	9
Total		3	14	17

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	.792[a]	2	.673

a. 5 cells (83.3%) have expected count less than 5. The minimum expected count is .53.

Discharge Frequency * What is the artificial eye cleaned with

Count

-		What is the artificial eye cleaned with			
		Soap and water	Water only	Other	Total
Discharge Frequency	Daily	2	0	1	3
	Weekly	2	2	1	5
	Never	6	1	2	9
Total		10	3	4	17

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.745[a]	4	.601

a. 8 cells (88.9%) have expected count less than 5. The minimum expected count is .53.

Discharge Frequency * Lubrication of artificial eye

Crosstab

Count

		Lubrication of artificial eye			
		Drops	Oil	Ointment	Total
Discharge Frequency	Daily	1	0	2	3
	Weekly	1	1	3	5
	Never	3	1	5	9
Total		5	2	10	17

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	.907[a]	4	.924

a. 8 cells (88.9%) have expected count less than 5. The minimum expected count is .35.

Discharge Frequency * Frequency of Polishing

Crosstab

Count

		Frequency of Polishing			
		Monthly	Semi-Annually	Annually	Total
Discharge Frequency	Daily	0	0	1	1
	Weekly	0	2	3	5
	Never	2	0	6	8
Total		2	2	10	14

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	5.320[a]	4	.256

a. 8 cells (88.9%) have expected count less than 5. The minimum expected count is .14.

Time wearing artificial eye * How often is the artificial eye cleaned

Crosstab

Count

		How often is the artificial eye cleaned		
		Weekly	Monthly	Total
Time wearing artificial eye	< 1 year	0	3	3
	1 - 5 years	0	4	4
	> 5 years	3	7	10
Total		3	14	17

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.550[a]	2	.279

a. 5 cells (83.3%) have expected count less than 5. The minimum expected count is .53.

Time wearing artificial eye * Frequency of lubrication

Crosstab

Count

		Frequency of lubrication			
		Daily	Bi-Weekly	Weekly	Total
Time wearing artificial eye	< 1 year	3	0	0	3
	1 - 5 years	2	0	2	4
	> 5 years	5	3	2	10
Total		10	3	4	17

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	5.100[a]	4	.277

a. 8 cells (88.9%) have expected count less than 5. The minimum expected count is .53.

Time wearing artificial eye * Insertion and Removal Difficulty

Crosstab

Count

		Insertion and Removal Difficulty			
		Slightly Difficult	Moderately Difficult	Very Difficult	Total
Time wearing artificial eye	< 1 year	2	1	0	3
	1 - 5 years	4	0	0	4
	> 5 years	9	0	1	10
Total		15	1	1	17

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	5.591[a]	4	.232

a. 8 cells (88.9%) have expected count less than 5. The minimum expected count is .18.

Time wearing artificial eye * Discharge Frequency Crosstabulation

Count

		Discharge Frequency			
		Daily	Weekly	Never	Total
Time wearing artificial eye	< 1 year	0	0	3	3
	1 - 5 years	1	1	2	4
	> 5 years	2	4	4	10
Total		3	5	9	17

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	3.551[a]	4	.470

a. 8 cells (88.9%) have expected count less than 5. The minimum expected count is .53.

Time wearing artificial eye * Emotional State

Crosstab

Count

		Emotional State			
		Poor	Average	Excellent	Total
Time wearing artificial eye	< 1 year	0	0	2	2
	1 - 5 years	0	0	3	3
	> 5 years	1	4	5	10
Total		1	4	10	15

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	3.750[a]	4	.441

a. 8 cells (88.9%) have expected count less than 5. The minimum expected count is .13.

Time wearing artificial eye * Depression/Sadness, Stress or Anxiety after becoming an artificial eye wearer

Crosstab

Count

		Depression/Sadness, Stress or Anxiety after becoming an artificial eye wearer		
		Yes	No	Total
Time wearing artificial eye	< 1 year	1	2	3
	1 - 5 years	2	2	4
	> 5 years	5	5	10
Total		8	9	17

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	.275[a]	2	.871

a. 5 cells (83.3%) have expected count less than 5. The minimum expected count is 1.41.

Time wearing artificial eye * Reading books/newspapers

Crosstab

Count

		Reading books/newspapers			
		No difficulty	Moderate difficulty	A lot of difficulty	Total
Time wearing artificial eye	< 1 year	3	0	0	3
	1 - 5 years	3	1	0	4
	> 5 years	8	1	1	10
Total		14	2	1	17

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.821[a]	4	.769

a. 8 cells (88.9%) have expected count less than 5. The minimum expected count is .18.

Time wearing artificial eye * Judging distance

Crosstab

Count

		Judging distance			
		No difficulty	Moderate difficulty	A lot of difficulty	Total
Time wearing artificial eye	< 1 year	3	0	0	3
	1 - 5 years	3	1	0	4
	> 5 years	6	3	1	10
Total		12	4	1	17

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.125[a]	4	.713

a. 8 cells (88.9%) have expected count less than 5. The minimum expected count is .18.

Time wearing artificial eye * Reading prices & labels

Crosstab

Count

		Reading prices & labels			
		No difficulty	Moderate difficulty	A lot of difficulty	Total
Time wearing artificial eye	< 1 year	3	0	0	3
	1 - 5 years	3	1	0	4
	> 5 years	7	1	2	10
Total		13	2	2	17

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.648[a]	4	.618

a. 8 cells (88.9%) have expected count less than 5. The minimum expected count is .35.

Time wearing artificial eye * Reading signs on the road

Crosstab

Count

		Reading signs on the road			
		No difficulty	Moderate difficulty	A lot of difficulty	Total
Time wearing artificial eye	< 1 year	3	0	0	3
	1 - 5 years	3	1	0	4
	> 5 years	8	1	1	10
Total		14	2	1	17

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.821[a]	4	.769

a. 8 cells (88.9%) have expected count less than 5. The minimum expected count is .18.

Time wearing artificial eye * Recognizing other people

Crosstab

Count

-		Recognizing other people		
		No difficulty	Moderate difficulty	Total
Time wearing artificial eye	< 1 year	3	0	3
	1 - 5 years	3	1	4
	> 5 years	9	1	10
Total		15	2	17

Chi-Square Tests

-	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.105[a]	2	.576

a. 5 cells (83.3%) have expected count less than 5. The minimum expected count is .35.

Time wearing artificial eye * Seeing people or objects to your side

Crosstab

Count

		Seeing people or objects to your side			
		No difficulty	Moderate difficulty	A lot of difficulty	Total
Time wearing artificial eye	< 1 year	3	0	0	3
	1 - 5 years	3	1	0	4
	> 5 years	5	4	1	10
Total		11	5	1	17

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.967[a]	4	.563

a. 8 cells (88.9%) have expected count less than 5. The minimum expected count is .18.

Time wearing artificial eye * Difficulty seeing at night

Crosstab

Count

		Difficulty seeing at night		
		No difficulty	Moderate difficulty	Total
Time wearing artificial eye	< 1 year	3	0	3
	1 - 5 years	4	0	4
	> 5 years	8	2	10
Total		15	2	17

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.587[a]	2	.452

a. 5 cells (83.3%) have expected count less than 5. The minimum expected count is .35.

Time wearing artificial eye * Avoiding objects/people while walking

Crosstab

Count

		Avoiding objects/people while walking		
		No difficulty	Moderate difficulty	Total
Time wearing artificial eye	< 1 year	2	1	3
	1 - 5 years	3	1	4
	> 5 years	9	1	10
Total		14	3	17

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.059[a]	2	.589

a. 5 cells (83.3%) have expected count less than 5. The minimum expected count is .53.

Experience Discharge * How often is the artificial eye cleaned

Crosstab

Count

		How often is the artificial eye cleaned		
		Weekly	Monthly	Total
Experience Discharge	Yes	2	5	7
	No	1	9	10
Total		3	14	17

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	.977[a]	1	.323

Experience Discharge * What is the artificial eye cleaned with

Crosstab

Count

		What is the artificial eye cleaned with			
		Soap and water	Water only	Other	Total
Experience Discharge	Yes	4	1	2	7
	No	6	2	2	10
Total		10	3	4	17

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	.210[a]	2	.900

a. 5 cells (83.3%) have expected count less than 5. The minimum expected count is 1.24.

Experience Discharge * Lubrication of artificial eye

Crosstab

Count

		Lubrication of artificial eye			
		Drops	Oil	Ointment	Total
Experience Discharge	Yes	1	2	4	7
	No	4	0	6	10
Total		5	2	10	17

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	3.789[a]	2	.150

a. 5 cells (83.3%) have expected count less than 5. The minimum expected count is .82.

Experience Discharge * Frequency of lubrication

Crosstab

Count

		Frequency of lubrication			
		Daily	Bi-Weekly	Weekly	Total
Experience Discharge	Yes	4	2	1	7
	No	6	1	3	10
Total		10	3	4	17

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.243[a]	2	.537

a. 5 cells (83.3%) have expected count less than 5. The minimum expected count is 1.24.

Experience Discharge * Frequency of Polishing

Crosstab

Count

		Frequency of Polishing			
		Monthly	Semi-Annually	Annually	Total
Experience Discharge	Yes	1	1	3	5
	No	1	1	7	9
Total		2	2	10	14

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	.498[a]	2	.780

a. 5 cells (83.3%) have expected count less than 5. The minimum expected count is .71.

Discharge Frequency * Discharge Description

Crosstab

Count

		Discharge Description		
		Mild (Light)	Moderate (Thick)	Total
Discharge Frequency	Daily	2	1	3
	Weekly	3	2	5
	Never	3	0	3
Total		8	3	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.589[a]	2	.452

a. 6 cells (100.0%) have expected count less than 5. The minimum expected count is .82.

Discharge Frequency * Discomfort Severity

Crosstab

Count

		Discomfort Severity		
		Mild	Severe	Total
Discharge Frequency	Daily	2	1	3
	Weekly	1	2	3
	Never	2	0	2
Total		5	3	8

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.311[a]	2	.315

a. 6 cells (100.0%) have expected count less than 5. The minimum expected count is .75.

Gender * Emotional State

Crosstab

Count

		Emotional State			
		Poor	Average	Excellent	Total
Gender	Male	0	2	6	8
	Female	1	2	4	7
Total		1	4	10	15

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.339[a]	2	.512

a. 5 cells (83.3%) have expected count less than 5. The minimum expected count is .47.

Gender * Depression/Sadness, Stress or Anxiety after becoming an artificial eye wearer

Crosstab

Count

		Depression/Sadness, Stress or Anxiety after becoming an artificial eye wearer		
		Yes	No	Total
Gender	Male	5	4	9
	Female	3	5	8
Total		8	9	17

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	.554[a]	1	.457

Gender * Cause of Artificial eye wear

Crosstab

Count

		Cause of Artificial eye wear			
		Trauma	Congenital	Complication	Total
Gender	Male	5	1	2	8
	Female	3	3	2	8
Total		8	4	4	16

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.500[a]	2	.472

a. 6 cells (100.0%) have expected count less than 5. The minimum expected count is 2.00.

Gender * Experience Discharge

Crosstab

Count

		Experience Discharge		
		Yes	No	Total
Gender	Male	2	7	9
	Female	5	3	8
Total		7	10	17

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.837[a]	1	.092

Gender * Discharge Frequency

Crosstab

Count

		Discharge Frequency			
		Daily	Weekly	Never	Total
Gender	Male	0	4	5	9
	Female	3	1	4	8
Total		3	5	9	17

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	4.869[a]	2	.088

a. 6 cells (100.0%) have expected count less than 5. The minimum expected count is 1.41.

Gender * Discomfort Severity

Crosstab

Count

		Discomfort Severity		
		Mild	Severe	Total
Gender	Male	1	1	2
	Female	4	2	6
Total		5	3	8

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	.178[a]	1	.673

Vision in Other Eye * Emotional State

Crosstab

Count

		Emotional State			
		Poor	Average	Excellent	Total
Vision in Other Eye	Poor	0	0	2	2
	Average	0	2	3	5
	Excellent	1	2	5	8
Total		1	4	10	15

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.138[a]	4	.710

a. 8 cells (88.9%) have expected count less than 5. The minimum expected count is .13.

Vision in Other Eye * Depression/Sadness, Stress or Anxiety after becoming an artificial eye wearer

Crosstab

Count

		Depression/Sadness, Stress or Anxiety after becoming an artificial eye wearer		
		Yes	No	Total
Vision in Other Eye	Poor	3	0	3
	Average	3	3	6
	Excellent	2	6	8
Total		8	9	17

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	4.958[a]	2	.084

a. 6 cells (100.0%) have expected count less than 5. The minimum expected count is 1.41.

Vision in Other Eye * Currently Drive

Crosstab

Count

		Currently Drive		
		Yes	No	Total
Vision in Other Eye	Poor	0	3	3
	Average	4	2	6
	Excellent	4	4	8
Total		8	9	17

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	3.620[a]	2	.164

a. 6 cells (100.0%) have expected count less than 5. The minimum expected count is 1.41.

Vision in Other Eye * Reading books/newspapers

Crosstab

Count

		Reading books/newspapers				
		No difficulty	2.00	4.00	A lot of difficulty	Total
Vision in Other Eye	Poor	1	1	0	1	3
	Average	2	3	1	0	6
	Excellent	6	1	1	0	8
Total		9	5	2	1	17

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	8.193[a]	6	.224

a. 12 cells (100.0%) have expected count less than 5. The minimum expected count is .18.

Vision in Other Eye * Judging distance

Crosstab

Count

		Judging distance			
		No difficulty	Moderate difficulty	A lot of difficulty	Total
Vision in Other Eye	Poor	1	1	1	3
	Average	5	1	0	6
	Excellent	6	2	0	8
Total		12	4	1	17

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	5.667[a]	4	.225

a. 8 cells (88.9%) have expected count less than 5. The minimum expected count is .18.

Vision in Other Eye * Reading signs on the road

Crosstab

Count

		Reading signs on the road			
		No difficulty	Moderate difficulty	A lot of difficulty	Total
Vision in Other Eye	Poor	2	0	1	3
	Average	5	1	0	6
	Excellent	7	1	0	8
Total		14	2	1	17

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	5.262[a]	4	.261

a. 8 cells (88.9%) have expected count less than 5. The minimum expected count is .18.

Age * Frequency of lubrication

Crosstab

Count

		Frequency of lubrication			
		Daily	Bi-Weekly	Weekly	Total
Age	< 18	1	0	1	2
	18 - 39	5	0	1	6
	> 39	4	3	2	9
Total		10	3	4	17

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	4.344[a]	4	.361

a. 8 cells (88.9%) have expected count less than 5. The minimum expected count is .35.

Age * Insertion and Removal Difficulty

Crosstab

Count

		Insertion and Removal Difficulty			
		Slightly Difficult	Moderately Difficult	Very Difficult	Total
Age	< 18	2	0	0	2
	18 - 39	5	0	1	6
	> 39	8	1	0	9
Total		15	1	1	17

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.770[a]	4	.597

a. 7 cells (77.8%) have expected count less than 5. The minimum expected count is .12.

Age * Discharge Frequency

Crosstab

Count

		Discharge Frequency			
		Daily	Weekly	Never	Total
Age	< 18	1	0	1	2
	18 - 39	1	2	3	6
	> 39	1	3	5	9
Total		3	5	9	17

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.099[a]	4	.718

a. 9 cells (100.0%) have expected count less than 5. The minimum expected count is .35.

Age * Experience Discharge

Crosstab

Count

		Experience Discharge		
		Yes	No	Total
Age	< 18	1	1	2
	18 - 39	3	3	6
	> 39	3	6	9
Total		7	10	17

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	.486[a]	2	.784

a. 5 cells (83.3%) have expected count less than 5. The minimum expected count is .82.

Age * Emotional State

-

Crosstab

Count

		Emotional State			
-		Poor	Average	Excellent	Total
Age	< 18	0	0	1	1
	18 - 39	1	1	4	6
	> 39	0	3	5	8
Total		1	4	10	15

Chi-Square Tests

-	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.531[a]	4	.639

a. 8 cells (88.9%) have expected count less than 5. The minimum expected count is .07.

Age * Depression/Sadness, Stress or Anxiety after becoming an artificial eye wearer

Crosstab

Count

		Depression/Sadness, Stress or Anxiety after becoming an artificial eye wearer		
		Yes	No	Total
Age	< 18	1	1	2
	18 - 39	2	4	6
	> 39	5	4	9
Total		8	9	17

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	.721[a]	2	.697

a. 6 cells (100.0%) have expected count less than 5. The minimum expected count is .94.

TABLE A. Showing Significance Values for all relations Computed

Reading prices & labels		Reading signs on the road		Recognizing other people		Seeing people or objects to your side		Difficulty seeing at Night		Avoiding objects/people while walking	
DF	P VALUE	DF	P VALUE	DF	P VALUE	DF	P VALUE	DF	P VALUE	DF	P VALUE
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	.618	4	.769	2	.576	4	.563	2	.452	2	.589
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	4	.261	N/A	N/A	N/A	N/A	N/A	N/A	2	.198
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Discomfort Due to discharge		**What is the artificial eye cleaned with**	**Currently Drive**		**Frequency of Polishing**		**Discharge Description**		**Reading books/newspapers**		**Judging distance**	
P VALUE	DF	P VALUE	P VALUE	P VALUE	DF	P VALUE	DF	P VALUE	DF	P VALUE	DF	P VALUE
N/A	N/A	N/A	N/A	N/A	4	.256	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.046	4	.601	N/A	N/A	4	.256	2	.452	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4	.769	4	.713
N/A	2	.900	N/A	N/A	2	.780	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	2	.164	N/A	N/A	N/A	N/A	6	.224	4	225
.350	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Insertion and Removal Difficulty		**Discharge Frequency**		**Experience Discharge**		**Emotional State**		**Depression/Sadness**		**Discomfort Severity**		
DF	P VALUE	DF	P VALUE	DF	P VALUE	DF	P VALUE	DF	P VALUE	DF	P VALUE	DF
4	.597	4	.718	2	.784	4	.639	2	.697	N/A	N/A	N/A
N/A	N/A	2	.088	1	.092	2	.512	1	.457	1	.673	N/A
N/A	N/A	N/A	N/A	N/A	N/A	4	**.028**	N/A	N/A	2	.315	2
4	.232	4	.470	N/A	N/A	4	.441	2	.871	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	4	.710	2	.084	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	2	.118	N/A	N/A	N/A	N/A	1

PARAMETER	VISION IN OTHER EYE		How often is the artificial eye cleaned		Lubrication of artificial eye		Frequency of lubrication	
Pearson Chi-Square	DF	P VALUE	DF	P VALUE	DF	P VALUE	DF	P VALUE
AGE (YEARS)	4	**.048**	2	.755	4	0.791	4	.361
GENDER	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Discharge Frequency	N/A	N/A	2	.673	4	.924	N/A	N/A
Time wearing artificial eye	N/A	N/A	2	.279	N/A	N/A	4	.277
Experience Discharge	N/A	N/A	1	.323	2	.150	2	.537
Vision in Other Eye	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Discomfort Severity	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A