

Assessing Computer Proficiency of Patients Undergoing Cataract Surgery

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INTRODUCTION

Technology now facilitates many of our daily activities. Ongoing technological development creates opportunities for new software and devices to assist older people in many areas of their lives including health care. Teleophthalmology has been shown to be an effective management tool for a range of ocular conditions and has been recommended by the Royal College of Ophthalmologists as part of cataract surgery preoperative assessment.[1,2,3] The success of telemedicine may depend on good computer and information technology skills in our predominantly elderly cataract patients.

METHODS

63 consecutive patients attending for cataract surgery in January 2021 at Ninewells Hospital, Dundee were invited to participate in this study. Baseline demographics were recorded. Each participant anonymously completed the abbreviated Computer Proficiency Questionnaire (CPQ-12) [4], and answered Likert scale, closed and open questions related to their experiences and perception of information technology and Internet. The understanding of 11 commonly used computer terms was assessed. Five of these terms are found in standard NHS Near Me video clinic appointment letters (marked with an asterisk). Multivariate regression analysis was performed in STATA13 (StataCorp LP, College Station, TX, USA) to measure the association between CPQ-12 and gender, age and Scottish Index of Multiple Deprivation (SIMD 2020) as a surrogate marker of social status.

RESULTS

Table 1. Baseline Demographics

% Female	49
Mean age (min,max)	74(32-90)
SIMD5 Rank [N]	
1	7
2	16
3	9
4	16
5	13
Ethnicity [%]	
White	100
First language [%]	
English	100
Employment [N]	
Employed	8
Unemployed	1
Retired	53
Disability [N]	
None	31
Hearing	16
Speech	0
Poor Mobility	21
Learning Difficulty	1

Table 2. CPQ-12 results

CPQ-12 Domain	Mean Result [SD]
Computer Basics (1-5)	3.7 [1.6]
Printer (1-5)	3.0 [1.8]
Communication (1-5)	3.4 [1.8]
Internet (1-5)	3.4 [1.8]
Calendar (1-5)	2.2 [1.7]
Entertainment (1-5)	2.6 [1.8]
TOTAL (5-30)	18.2 [8.4]

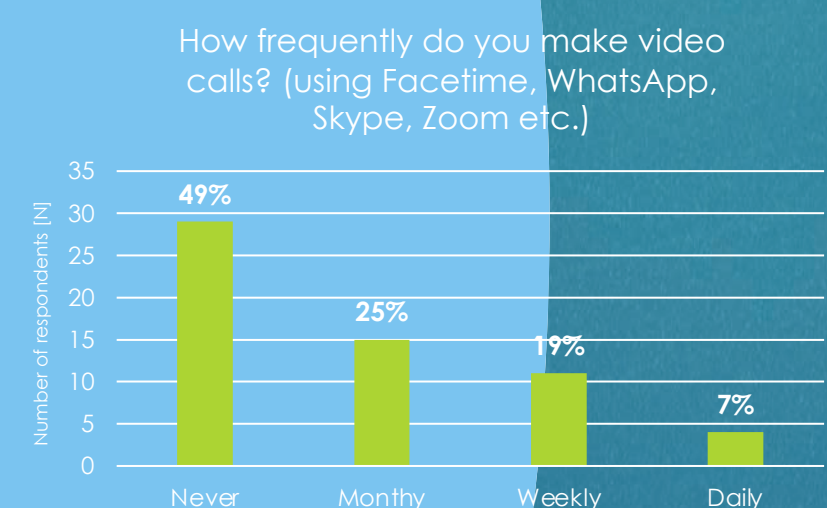
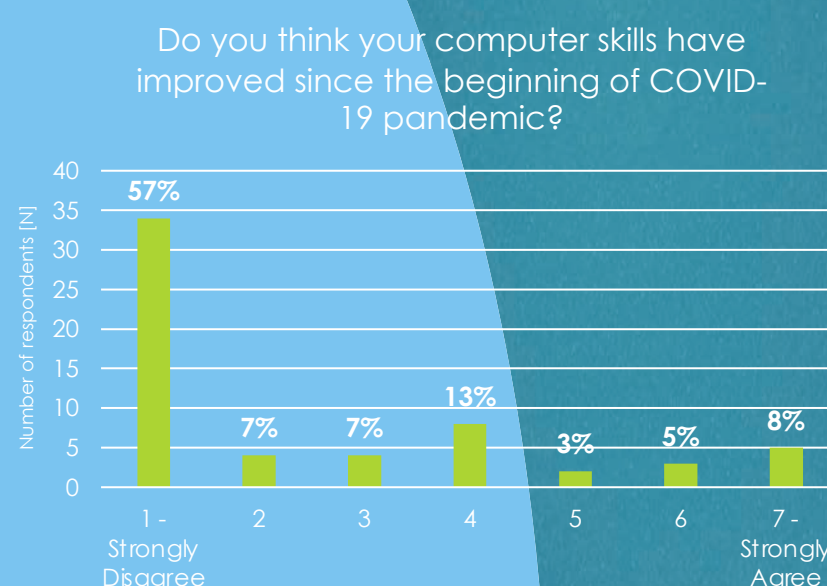
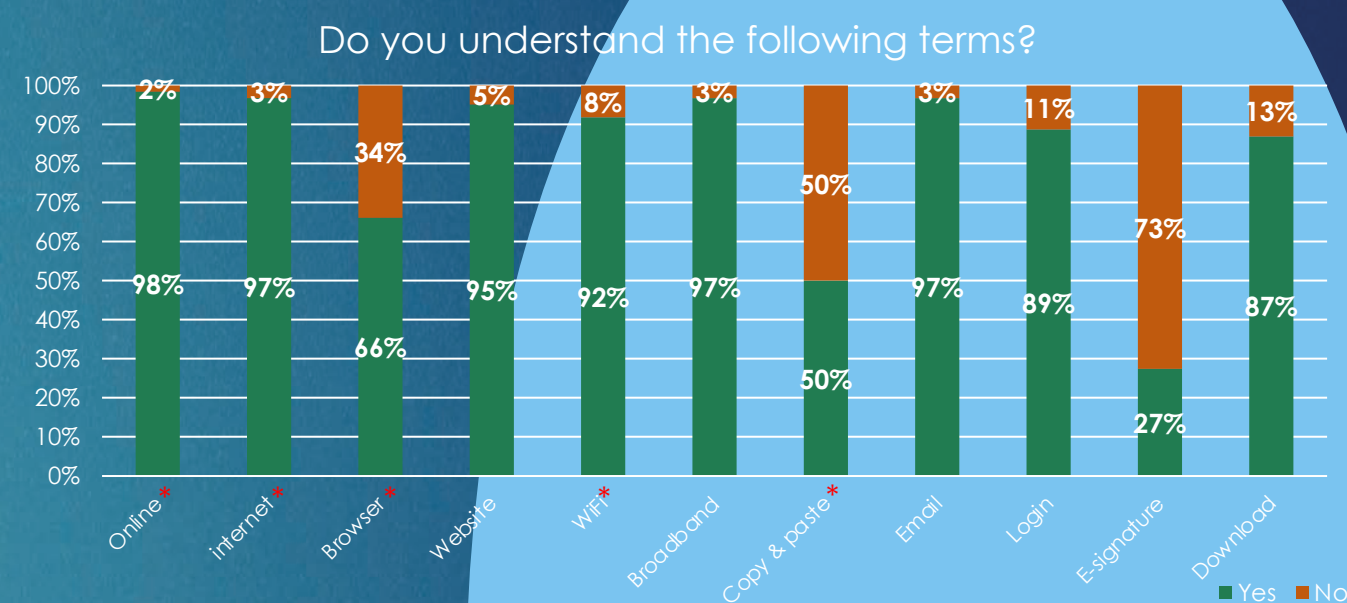


Table 3. Multivariate regression analysis to identify variables associated with lower CPQ-12

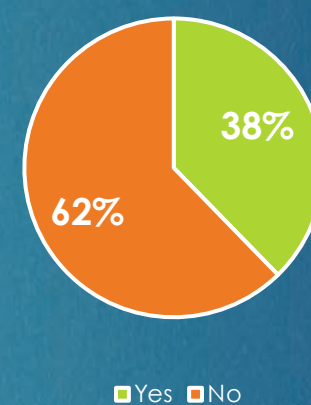
Parameter	Coefficients		95% CI		P value
	β	Standard error	Lower bound	Upper bound	
Age >75	-5.854	2.294	-10.45	-1.25	0.018
Gender	-0.885	2.335	-5.57	3.80	0.706
SIMD 2	5.332	4.083	-2.86	13.53	0.197
SIMD 3	7.170	4.634	-2.13	16.47	0.128
SIMD 4	4.053	3.975	-3.92	12.03	0.313
SIMD 5	7.649	4.136	-0.65	15.94	0.070

AIM

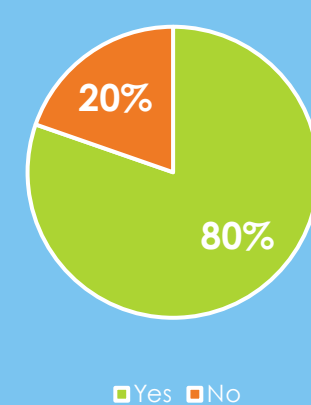
To assess computer skills and knowledge of patients undergoing cataract surgery at a university hospital.
To assess patients' perception of modern communication technology in healthcare.



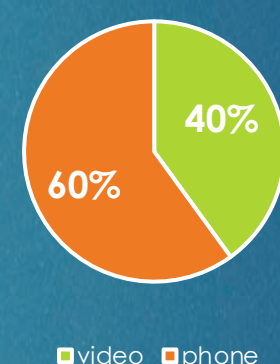
Would you feel comfortable signing a consent form for an operation online?



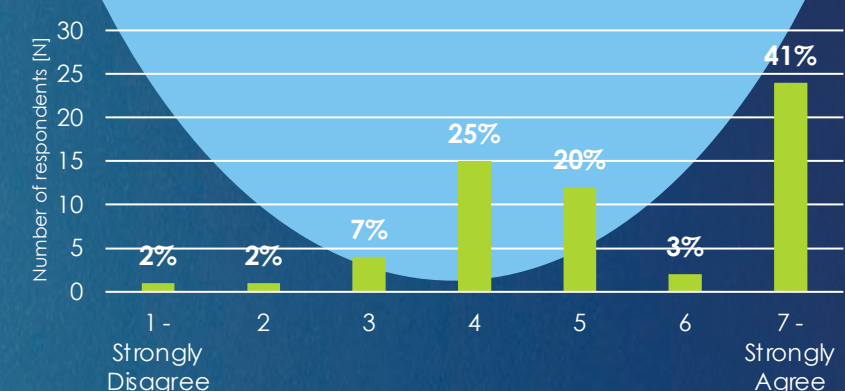
Do you have access to a device with a front facing camera?



Would you prefer a video or phone consultation?



Do you think technology (e.g. tablets, e-book readers) is helpful for people with visual impairment?



CONCLUSION

This is a pilot study into how practical and appropriate telemedicine would be for our cohort of cataract patients. We demonstrated variable levels of computer proficiency amongst the participants. Higher computer proficiency was found in patients aged below 75. No statistically significant correlation was found between CPQ-12 result and SIMD quintile rank or gender, although SIMD 1 (most deprived) versus SIMD 5 (least deprived) approached significance ($p = 0.07$). The patients had a good comprehension of commonly used computer terms except e-signature which was understood by only 27% of respondents. Technology was regarded as useful for people with visual impairment by 60% of participants who rated it at least 5 out of 7 on Likert scale. Majority of patients (80%) had access to a device with a front facing camera, however, only 23% of them make video calls on a daily or weekly basis. 62% of the respondents were not comfortable with signing consent forms electronically, stating their lack of confidence as the main reason against it. Over half of our patients (57%) strongly disagreed that their computer skills had improved since Covid-19 began. This study adds to the growing body of research into telemedicine. Further studies are needed to learn about older adults' computer skills and acceptance of telehealth technologies.

References:

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- Giardini ME, Livingstone IAT. Extending the Reach and Task-Shifting Ophthalmology Diagnostics Through Remote Visualisation. *Adv Exp Med Biol*. 2020;1260:161-174.
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- Boof WR, Charness N, Czaja SJ, Sharit J, Rogers WA, Fisk AD, Mitzner T, Lee CC, Nair S. Computer proficiency questionnaire: assessing low and high computer proficient seniors. *Gerontologist*. 2015 Jun;55(3):404-11.