Original Article

Design and Evaluating Psychometric Properties of the Eye Care Behaviors Assessment Instrument

Rahmat Chatripour, Awat Feizi[1], Fereshteh Zamani-Alavijeh[2], Afsaneh Naderi Beni[3], Maryam Amidi Mazaheri[4]

Department of Health Education and Promotion Student Research Committee, School of Health, Isfahan University of Medical Sciences, Isfahan, Iran, [1]Department of Biostatistics and Epidemiology, School of Health, Isfahan University of Medical Sciences, Isfahan, Iran, [2]Departments of Health Education and Promotion, School of Health, Isfahan University of Medical Sciences, Isfahan, Iran, [3]Department of Ophthalmology, School of Medicine AND Eye Research Center, Isfahan University of Medical Sciences, Isfahan, Iran, [4]Departments of Health Education and Promotion, School of Health, Isfahan University of Medical Sciences, Isfahan, Iran

Address for correspondence:
Dr. Maryam Amidi Mazaheri, Departments of Health Education and Promotion, School of Health, Isfahan University of Medical Sciences, Isfahan, Iran.
E-mail: maryamamidi@hlth.mui.ac.ir

Abstract

Background: Eye health is essential for quality-of-life. The present study aimed to design an eye care behaviors assessment instrument for the student community and evaluate its psychometric properties. **Methods:** The present mixed-method cross-sectional study was conducted in two sections using Creswell and Plano Clark methods for instrument development. The study was conducted in Isfahan, Iran, in 2021. The first section (textual analysis and qualitative research) explained and developed the instrument's fundamental items. This section included in-depth, semistructured interviews with 21 students and eight experts. The second section measured the psychometric properties of the instrument. Twenty students assessed the instrument's qualitative and quantitative face validity in this section. The instrument's content validity ratio (CVR) and content validity index (CVI) were evaluated. In addition, exploratory factor analysis (performed by 251 students) was used to establish construct validity. Internal and test–retest reliability was determined using Cronbach's alpha and intraclass correlation coefficients (ICC), respectively. **Results:** During face and content validity assessment, a 37-item questionnaire was finalized. Exploratory factor analysis led to the identification of three factors, including "examinations and glasses-related behaviors," "symptom-related behaviors," and "screen-related behaviors." The three extracted factors accounted for 37.9% of the variance. Cronbach's alpha was equal to 0.874 when evaluating internal consistency, and the ICC value for the total score of the questionnaire was 0.885 (0.810–0.941), indicating excellent test–retest reliability. **Conclusions:** These results demonstrate the questionnaire's validity and reliability. This instrument assesses the prevalence of university students' most significant eye health risk behaviors. Consequently, it helps prevent eye problems.

Keywords: *Eyes, psychometric, self-care, students*

Introduction

Eye self-care is a set of acquired and voluntary health behaviors that aid in maintaining good health, preventing disease, and reducing pain and eye health issues through adopting a healthy lifestyle.[1,2]

Approximately 36 million blind and 217 million visually impaired people exist worldwide.[3] Nonetheless, approximately 80% of cases of moderate-to-severe visual impairment (MSVI) are preventable.[4] Therefore, focusing on eye care behaviors is essential to prevent blindness and visual impairments.[4,5]

Consequently, it appears necessary to take preventative measures and practice self-care for eye health at all ages. Nonetheless, student age is one of the most appropriate age groups for optimal attention to the issue of prevention and eye self-care.[6–8] Because self-care at a young age reduces the likelihood of developing eye problems, it is important to focus on preventing and reducing the incidence of eye problems beginning at a young age.[9]

Self-care is crucial to eye health, as evidenced by the literature.[10] Consequently, it is necessary to assess and quantify the state of eye care, and identifying the factors related to eye self-care in young children is essential.

Indeed, instruments with adequate validity and reliability can determine the eye health status of a community's members and provide the correct decision for implementing eye health measures. In recent years, measuring the severity of eye problems and the treatment process has been considered, and several instruments exist in this field.[11,12] The researchers discovered no suitable and dependable instruments in the scientific literature for measuring the

How to cite this article: Chatripour R, Feizi A, Zamani-Alavijeh F, Beni AN, Mazaheri MA. Design and evaluating psychometric properties of the eye care behaviors assessment instrument. Int J Prev Med 2023;14:35.

Access this article online

Website: www.ijpvmjournal.net/www.ijpm.ir

DOI: 10.4103/ijpvm.ijpvm_181_22

Quick Response Code:

performance of healthy community members, particularly students, in eye self-care and preventing eye impairments and injuries.

Due to the significance of eye care behaviors and the absence of measuring instruments, the present study was conducted to design and evaluate the psychometric properties of the eye care behaviors questionnaire in a student population sample.

Methods

Study design

The current cross-sectional mixed-method study was methodological. It was carried out in Iran for seven months, from October 2020 to May 2021, among Persian-speaking students at Isfahan University of Medical Sciences. The Creswell and Plano Clark tool design methods were used to create the study.[13] It began with a systematic review of texts and a qualitative study. Then, the instrument's psychometric properties were evaluated.

Phase 1: Design of an eye care tool

Based on a qualitative study, the following items were designed and explored for the current instrument: (a) Reviewing scientific texts; (b) Obtaining expert (ophthalmologist, optometrist) and participant (students and experts) opinions; (c) Combining the results of reviewing texts with the opinions of experts and participants.

In-depth semi-structured interviews were conducted with 21 students (8 face-to-face and 13 telephone interviews) and eight experts for the present qualitative study.

Phase 2: Psychometric properties of the eye self-care tool

Face validity

The questionnaire was communicated to 20 students with varying levels of education to evaluate its face validity, and they were asked to comment on the clarity and readability of each item.

Quantitative face validity assessment

On a 5-point Likert scale ranging from "not important at all" (score 1) to "very important" (score 5), the same 20 individuals were asked to rate the significance of each item. Consequently, the item impact score was determined for each item.

Content validity

To evaluate the content validity using the qualitative method, the initial questionnaire was distributed to 10 specialists, including seven specialists in health education and promotion, one ophthalmologist, and two optometrists, who were asked to provide their corrective opinions regarding the use of appropriate words, adherence to Persian grammar, the suitable placement of items, and appropriate scoring.

Quantitative content validity assessment

The CVR and CVI of the instrument were calculated to evaluate the content validity of the quantitative method or the compatibility between the instrument's content and the study objectives.

Content validity ratio

Ten experts were given a 42-item questionnaire to determine the CVR. The panel of experts was then asked to provide their opinions on each item alongside the other items in the form of three options: "essential," "useful but not essential," and "not essential." CVR was computed for each item using the formula CVR = $[N_e - (N/2)]/(N/2)$, where N_e represented the number of panelists who indicated "essential" and N represented the total number of panelists.[14] The items exceeding 0.62 were subsequently retained as per the Lawshe table.[15]

Content validity index

On a 4-point Likert scale, the same ten experts were asked to comment on each item separately for three criteria: (a) simplicity, (b) specificity and (c) clarity for calculating the CVI. Based on the formula, CVI was then calculated (the number of professionals who answered 3 and 4, divided by the total number of professionals). An item was deemed acceptable if its CVI value was greater than 0.79; it was questionable and required correction if the value fell between 0.79 and 0.7, and it was unacceptable and removed if the value fell below 0.7.[15]

Lastly, the necessity and relevance of the questions were determined by examining the validity of the content using qualitative and quantitative techniques. Per the experts' recommendations, the questions that required editing (simplicity and clarity) were revised.

Reliability

A revised questionnaire based on the face and content validity stage was sent to 38 students to determine the instrument's reliability. The participants were then instructed to complete each questionnaire item carefully. The Cronbach's alpha coefficient was calculated to determine the instrument's internal reliability. Cronbach's alpha values greater than 0.70 were considered acceptable.[16]

The test–retest reliability was determined by calculating the ICC. Thus, the questionnaire was sent to the same individuals 14 days later for a retest. The two-way mixed method utilized ICC (along with a 95% confidence interval for ICC). A coefficient greater than 0.70 was deemed highly stable.[13,17]

Construct validity assessment

Exploratory factor analysis was performed on 251 members of the statistical population to determine construct validity.

In this regard, a cross-sectional study was conceived and conducted. The following was the procedure for selecting the 251 samples: The names of the students were drawn randomly from a list of classes from a subset of our university's faculties using cluster sampling with multiple stages. The study's objectives were explained to the participants, who were then invited to participate. All participants gave their informed consent to take part in the current research. Electronic data entry was used to complete the questionnaire (sending the online questionnaire link to them).

The Kaiser–Meyer–Olkin (KMO) index was used to evaluate the adequacy of the sample. The KMO value greater than 0.6 indicated an adequate sample size.[18] Bartlett's test of sphericity was utilized to ensure that the correlation between the questionnaire items was factorable and reliable. The number of factors was then determined using the slope of the Scree plot diagram and eigenvalues, and the Varimax rotation method was used to determine factor interpretability [Figure 1].

Criterion validity

The criterion validity was determined by analyzing the correlation between each item and the corresponding and noncorresponding factor constructs. Each item with a correlation with corresponding constructs exceeding 0.3 and a correlation with a non-corresponding construct below 0.3 indicates the establishment of criterion validity.[19]

Other variables and statistical analysis

Age, gender, level of education, place of residence, level of education of parents, marital status, economic status, and refractive error status were also collected. This paper's qualitative and quantitative variables were expressed as frequency (percentage) and mean (SD), respectively. SPSS-25 (IBM Corp., Armonk, N.Y., USA) was used for data analysis.

Ethical considerations

Isfahan University of Medical Sciences approved this study's design (IR.MUI.RESEARCH.REC.1399.544) per its ethical guidelines. All participants were informed of the study's objectives and then invited to participate.

The names of the students were initially encoded. The data were stored in a secure location protected by a username and password.

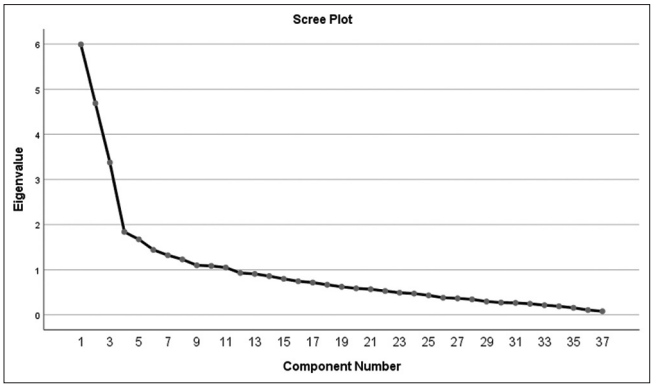

Figure 1: Scree plot of the exploratory factor analysis

Results

Content and face validity

We evaluated the perspectives on face validity and qualitative content validity. Thus, only a few items in the first version of the literature-based questionnaire design were modified. The item impact score was determined for each item. As a result, all questionnaire items with a score greater than 1.5 were retained. The panel of experts also evaluated each questionnaire item's necessity, simplicity, relevance, and clarity. Therefore, according to the Lawshe table, all items with a CVR score greater than 0.62 were retained. CVI was determined for each item. Thus, one item was assigned a CVI of 0.8, while the remaining items were assigned a CVI greater than 0.8.

Construct validity

The cross-sectional study on a sample of 251 people in the present study community revealed that 30% of the participants were male, and 69% were female. The mean age (±SD) was 22.6 ± 4.1 years (ranges from 18 to 49 years). Table 1 displays the study samples' gender, marital status, level of education, place of residence, parental education, and economic status distribution.

The KMO index value of 0.78 indicated that the sample size was sufficient for exploratory factor analysis. Bartlett's test was also statistically significant ($p < 0.0001$). Thus, the data's factorability was approved. Using the Scree plot and an eigenvalue greater than one, the number of factors was determined to be three [Figure 1 and Table 2]. According to the concepts of items for each factor, the results of reviewing the texts and combining the opinions of the audience and experts led to the identification of seven factors: "examinations and glasses-related behaviors," "symptom-related behaviors," and "screen-related behaviors." The three extracted factors explained the total variance of 37.9% of the original variables. Table 2 shows the variance explained by each factor.

Criterion validity

The correlation of each item with the corresponding and non-corresponding factor constructs was evaluated to determine criterion validity. Each item correlated with the corresponding construct greater than 0.3 but less than 0.3, indicating excellent criterion validity [Table 2].

Reliability results

Cronbach's alpha was 0.874 when used to evaluate internal reliability. The first, second, and third factors' computed

Table 1: Participants' characteristics

Variable	Category	Frequency (%)
Marital status	Single	214 (85.3)
	Married	29 (11.6)
	Divorced	1 (0.4)
Educational level	Associate degree	4 (1.6)
	Bachelor's	179 (71.3)
	Master's degree	17 (6.8)
	Doctor of Medicine	36 (14.3)
	PhD	13 (5.2)
Place of residence	City – province capital	131 (52.2)
	City – not province capital	108 (43.0)
	Village	10 (4.0)
Father's education	Below the bachelor's degree level	148 (59.0)
	Bachelor's degree	47 (18.7)
	Above the bachelor's degree level	54 (21.5)
Mother's education	Below the bachelor's degree level	162 (64.6)
	Bachelor's degree	60 (23.9)
	Above the bachelor's degree level	27 (10.8)
Economic status	Very low	11 (4.4)
	Average	140 (55.8)
	High	96 (38.2)
	Very high	1 (0.4)

Cronbach's alpha coefficient was 0.847 and 0.832, respectively. The ICC was reported separately for each question and extracted factor [Table 3].

Methods of scoring

This questionnaire consists of 37 items, of which items 1 and 19 contain four options; the answers to options A, B, and C each receive a score of 1, while the score for option D is 0. For questions 2 through 6, 10 through 18, and 22 through 35, the options are based on a 5-item Likert scale ranging from 0 to 4 ("never" to "always"), except for questions 22 through 35, which range from 4 to 0. Each question 9, 20, and 21 has six functional options, and the scoring range is from 5 (option a) to 0. Question 7 contains six functional options. The score for each option "A and B" is one point, while the score for the other options is zero. The answer to question 8's option "A" is worth one point, while the answers to the other options are worth 0. There are four functional options ranging from three (option A) to zero for questions 36 and 37.

Discussion

The current study was conducted due to the lack of a suitable instrument for measuring eye care behaviors. This 37-item questionnaire [Table 3] assessing eye care-related behaviors were derived from the findings of a qualitative study. Eye Health Care Scale-Question 37 was termed by the researchers considering the questionnaire's applicability to eye health. This instrument is a self-report that can be completed in 15 to 20 minutes.

The questions in the questionnaire were divided into three sections using psychometric steps, including A) examinations and glasses-related behaviors, which included twelve items.

The prevalence of people with eye problems who were unaware of their condition until an eye test revealed it demonstrated that eye problems were not always obvious to people. According to the findings of this and other studies, periodic examinations as a preventive measure are especially important in eye health care.[20,21]

B) Thirteen items are devoted to symptom-related behaviors on this questionnaire. Several studies report eye symptoms, but the crucial point is the unscientific and dangerous response to these symptoms. Numerous studies have identified self-medication as a health-threatening.[22,23] The majority of participants reported engaging in high-risk behavior when experiencing eye symptoms.

C) Screen-related behaviors, as the final section of the questionnaire comprised twelve questions. The screens in this section represent electronic devices such as mobile phones and laptops. Important because it increases the risk of eye problems, such as computer vision syndrome (CVS), in users of these devices. The participants' exposure to screen-related risky behaviors was prevalent, as reported by other studies.[7,24]

The percentage of the total variance explained by the questionnaire was 37.9%, ranging from 11.07% to 13.66% for the three factors; therefore, the result was acceptable. Due to the lack of a suitable instrument in this field, this instrument can be useful for preventing eye problems, which is an important matter. The highest percentage of variance was explained by the first factor, "examinations and glasses-related behaviors" (13.7%).

The age range of the participants made the present questionnaire applicable beyond the school years.

Study properties

A) The present questionnaire items were designed based on the population's needs, culture, and other characteristics after qualitative research was conducted on the population. B) In the first part of the study, other behavioral factors, such as nutritional behaviors, cosmetics-related behaviors, and others, were collected, but this study did not extend to them due to its limitations. Therefore, adding these behaviors is beneficial for developing this instrument and increasing the percentage of variance explained.

Conclusions

These results obtained in this study demonstrate the questionnaire's validity and reliability. This instrument assesses the prevalence of the most significant eye health risk behaviors among university students. Consequently, it helps prevent eye problems. The questionnaire was completed as a self-report instrument, and its items are easily understood.

Table 2: The factor loadings on 37 items obtained from exploratory factor analysis, and corrected item-total correlation

Item number	[a]Extracted factors			Corrected item-total correlation		
	Factor 1	Factor 2	Factor 3	Factor 1	Factor 2	Factor 3
1	0.725			0.618	-0.069	0.095
2	0.865			0.785	-0.101	0.186
3	0.867			0.768	-0.078	0.144
4	0.901			0.818	-0.090	0.173
5	0.787			0.707	-0.079	0.203
6	0.656			0.558	0.017	0.161
7	0.618			0.481	-0.013	0.069
8	0.489			0.427	-0.070	0.081
19	0.292			0.290	-0.212	0.091
35	0.296			0.251	-0.004	0.071
36	0.246			0.262	-0.046	0.041
37	0.416			0.389	-0.085	0.033
22		0.664		-0.001	0.561	0.043
23		0.598		-0.043	0.520	0.075
24		0.613		-0.037	0.495	-0.030
25		0.652		-0.063	0.586	0.025
26		0.603		-0.055	0.510	0.041
27		0.637		-0.072	0.520	0.000
28		0.544		-0.039	0.447	-0.006
29		0.691		-0.058	0.623	0.023
30		0.595		-0.125	0.521	0.085
31		0.572		-0.079	0.476	0.037
32		0.322		-0.036	0.263	-0.162
33		0.528		-0.063	0.434	0.014
34		0.228		-0.067	0.192	-0.133
9			0.343	0.091	0.076	0.270
10			0.535	0.092	0.108	0.443
11			0.452	-0.028	0.188	0.338
12			0.400	0.131	-0.029	0.274
13			0.806	0.180	-0.029	0.633
14			0.833	0.206	-0.047	0.655
15			0.778	0.216	-0.074	0.618
16			0.691	0.241	-0.206	0.521
17			0.385	0.053	-0.218	0.252
18			0.431	0.150	-0.226	0.319
20			0.397	-0.012	0.220	0.347
21			0.443	0.040	0.232	0.420
Variance explained *(%)	13.66	13.26	11.07			

[a]Exploratory factor analysis incorporating Varimax rotation Factor loadings less than 0.2 are omitted for simplicity; *Explained variation resulted from factor analysis

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Deputy of Research and Technology of Isfahan University of Medical Sciences.

Conflicts of interest

There are no conflicts of interest.

Received: 23 May 22 **Accepted:** 27 Oct 22
Published: 21 Mar 23

Table 3: Test-retest reliability evaluated by ICC

Factor name	Item No.	Description	ICC (95% CI)	ICC (95% CI)
Examinations and glasses-related behaviors	1	What kind of eyewear do you wear in the sun?	0.928	0.859 (.655-.913)
	2	Have you applied sunscreen in the last month?	0.863	
	3	Do you wear sunglasses during different seasons of the year?	0.953	
	4	During the day, do you wear sunglasses outdoors?	0.931	
	5	Do you wear sunglasses (glasses that protect your eyes from light) outside, even in the shade?	0.924	
	6	Do you wear sunglasses when it snows?	0.859	
	7	Where did you purchase the current pair of sunglasses that shield your eyes from the sun?	0.878	
	8	In the past year, have you had an ophthalmologist or optometrist evaluate the efficacy of your eye protection (in the sun)?	0.960	
	19	What type of glasses do you wear when using electronic devices with screens, such as mobile phones and laptops?	0.854	
	35	When you have eye problems, do you consult a specialist?	0.721	
	36	When was the last time you had your eyes examined by an ophthalmologist or optometrist?	0.930	
	37	How long has it been since you visited an ophthalmologist or optometrist for a check-up without any obligation (such as a certificate, education, or job requirement) or an eye problem?	0.848	
Which of the following symptoms do you have when you use or after you use electronic devices with screens (mobile phones, laptops, tablets)?				
Symptom-related behaviors	22	Eye irritation	0.820	0.928 (.884-.962)
	23	Heavy eyelids	0.903	
	24	Teary eyes	0.951	
	25	Dizziness while looking at the screen	0.791	
	26	Binocular vision problems	0.708	
	27	Blurred vision	0.878	
	28	Eye redness	0.888	
	29	Eye pain	0.877	
	30	Headache	0.786	
	31	Dry eyes	0.795	
	32	Does eye fatigue prevent you from using a screen?	0.906	
	33	Do you rub your eyes?	0.724	
	34	When you experience eye problems, do you use medicine or traditional remedies (such as tea, kohlrabi, and others)?	0.950	
screen-related behaviors	9	How many hours per day on average have you spent in the last week using electronic devices with screens (including cell phones, laptops, and tablets)?	0.803	0.804 (.684-.894)
	10	Do you maintain a distance of at least 40 centimeters between your eyes and the screen of your mobile phone? (1.5 times the length of an A4 sheet)	0.842	
	11	Do you maintain a distance of at least 40 centimeters between your eyes and other electronic devices with screens (including laptops and tablets)? (1.5 times the length of an A4 sheet)	0.879	
	12	Do you purposefully blink when using electronic devices with screens?	0.930	
	13	Do you close your eyes after using a screen-based electronic device (such as a mobile phone, laptop, or tablet) for 20 minutes?	0.861	
	14	Do you rest your eyes for at least 20 seconds after using an electronic device with a screen for 20 minutes (such as a mobile phone, laptop, or tablet)?	0.842	
	15	Do you look at a distance greater than six meters after using an electronic device with a screen for approximately 20 minutes?	0.884	
	16	While using electronic devices with screens, do you frequently blink (close your eyes completely and repeat)?	0.860	
	17	Do you use special software or accessories on your mobile phone to reduce the harmful effects on your eyes?	0.929	
	18	Do you use specific software (such as laptops and tablets) on your computer to reduce the harmful effects on your eyes?	0.856	

Contd...

Table 3: Contd...

Which of the following symptoms do you have when you use or after you use electronic devices with screens (mobile phones, laptops, tablets)?				
screen-related behaviors	20	How many hours per day, on average, did you use electronic devices with screens in low light during the previous week (including cell phones and laptops)?	0.974	0.804 (.684-.894)
	21	In the past week, on average, how many hours per day have you used electronic devices with screens in the dark (including cell phones and laptops)?	0.957	

References

1. Reisi M, Mostafavi F, Javadzade H, Mahaki B, Tavassoli E, Sharifirad G. Impact of health literacy, self-efficacy, and outcome expectations on adherence to self-care behaviors in Iranians with type 2 diabetes. Oman Med J 2016;31:52-9.
2. Khanna RC, Sabherwal S, Sil A, Gowth M, Dole K, Kuyyadiyil S, *et al*. Primary eye care in India-The vision center model. Indian J Ophthalmol 2020;68:333–9.
3. Flaxman SR, Bourne RRA, Resnikoff S, Ackland P, Braithwaite T, Cicinelli MV, *et al*. Global causes of blindness and distance vision impairment 1990–2020: A systematic review and meta-analysis. Lancet Glob Heal 2017;5:e1221–34.
4. Foster A, Resnikoff S. The impact of Vision 2020 on global blindness. Eye 2005;19:1133–5.
5. Williams LB, Prakalapakorn SG, Ansari Z, Goldhardt R. Impact and trends in global ophthalmology. Curr Ophthalmol Rep 2020;8:136–43.
6. Frerichs N, Moran J. Promoting Advancement of Eye Care, Nutrition and Oral Health in Underprivileged Youth. 2014.
7. Spitz M, Parikh A, Erzurum SA. The impact of corrective vision intervention in the lives of underserved youth. Invest Ophthalmol Vis Sci 2020;61:240.
8. Sengo DB, Dos Santos IIDB, Faquihe MF, Tomo HBJF, Muaprato AM, Puchar S, *et al*. The Prevalence of Visual Impairment and Refractive Errors among a Youth Population in Mozambique: Evidence of the Need for Intervention. Children. 2021;8:892.
9. Wong IYH, Koo SCY, Chan CWN. Prevention of age-related macular degeneration. Int Ophthalmol 2011;31:73–82.
10. Boadi-Kusi SB, Kyei S, Mashige KP, Hansraj R, Abraham CH, Ocansey S, *et al*. Awareness, knowledge and self-care practices toward glaucoma among final year health science university students in Ghana. Clin Exp Optom 2015;98:160–7.
11. Hays RD, Mangione CM, Ellwein L, Lindblad AS, Spritzer KL, McDonnell PJ, *et al*. Psychometric properties of the National Eye Institute–refractive error quality of life instrument. Ophthalmology 2003;110:2292–301.
12. Mackenzie PJ, Chang TS, Scott IU, Linder M, Hay D, Feuer WJ, *et al*. Assessment of vision-related function in patients with age-related macular degeneration. Ophthalmology 2002;109:720–9.
13. Direkvand-Moghadam A, Rashan N, Bahmani M, Taheri S. Development and psychometric properties of Iranian midwives job satisfaction instrument (MJSI): A sequential exploratory study. PLoS One 2022;17:e0262665.
14. Rodrigues IB, Adachi JD, Beattie KA, MacDermid JC. Development and validation of a new tool to measure the facilitators, barriers and preferences to exercise in people with osteoporosis. BMC Musculoskelet Disord 2017;18:540.
15. Björvell C, Thorell-Ekstrand I, Wredling R. Development of an audit instrument for nursing care plans in the patient record. Qual Heal Care 2000;9:6-13.
16. Tavakol M, Dennick R. Making sense of Cronbach's alpha. Int J Med Educ 2011;2:53.
17. Balogun J, Abiona T, Lukobo-Durrell M, Adefuye A, Amosun S, Frantz J, *et al*. Readability and test-retest reliability of a psychometric instrument designed to assess HIV/AIDS attitudes, beliefs, behaviours and sources of HIV prevention information of young adults. Health Educ J 2010;70:141–59.
18. Nelson JW, Cavanagh AM. Development of an international tool to measure nurse job satisfaction by testing the Healthcare Environment Survey beyond Jamaica and the United States to Scotland: A cross sectional study utilizing exploratory factor analysis. Int J Healthc Manag 2018;11:314–8.
19. Gironda RJ, Lloyd J, Clark ME, Walker RL. Preliminary evaluation of reliability and criterion validity of Actiwatch-Score. J Rehabil Res Dev 2007;44:223-30.
20. Dotan G, Skaat A, Gershoni A, Gaton DD. Periodic eye examinations among ophthalmologists: Attitudes, performance and barriers for compliance. Curr Eye Res 2022;47:944-8.
21. Funatsu H, Hori S, Shimizu E, Nakamura S. Questionnaire survey on periodic ocular examination in Japanese diabetic patients. Am J Ophthalmol 2003;136:955–7.
22. Bisika T, Courtright P, Geneau R, Kasote A, Chimombo L, Chirambo M. Self treatment of eye diseases in Malawi. African J Tradit Complement Altern Med 2009;6:23-9.
23. Gupta N, Vashist P, Tandon R, Gupta SK, Kalaivani M, Dwivedi SN. Use of traditional eye medicine and self-medication in rural India: A population-based study. PLoS One 2017;12:e0183461.
24. Mashalla YJ. Impact of computer technology on health: computer vision syndrome (CVS). Med Pract Rev 2014;5:20–30.