

## Original Research Article

# Routine for cleaning and maintaining spectacle among regular spectacle wearers

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### ABSTRACT

**Background:** The objective of the study was to evaluate routine for cleaning and maintaining eyewear among regular spectacle wearers.

**Methods:** The observation questionnaire-based study was conducted among 170 students who has visited our university ophthalmology OPD. The selected participants were asked to response to a pretested, pre validated questionnaire related to routine for cleaning and maintaining eyewear via goggle form over a period of 6 months. The written consent was taken from each participant prior to enrolled for the study.

**Results:** of total 170, 30% participants were male and 70% were female with mean age of 21.06±2.10 years. 39% participants were using spectacle for 2-5 years. 63.53% participants were prescribed spectacle to correct refractive error. 90% participants responded that they used to clean their glasses regularly. 61.76% responded that they used to wear spectacle by holding with both hands. 45.29% used to remove their spectacle by holding the spectacle at temple with one hand which is wrong way. 44.12% responded that they clean their glasses when needed while 35.88% clean their glasses before use and 20% participants clean their glasses before and after use.

**Conclusions:** Inadequate knowledge about the wearing/removal or handling techniques, cleansing and maintenance of eyewear were found even in the prolonged spectacle user. Proper instructions about the spectacle performance, repair and regular follow up should be provided to the patient. Counselling by the optician, optometrist or ophthalmologist at the time of prescribing eyeglasses can possess better understanding among the eyeglass's wearers.

**Keywords:** Eyeglasses, Eyewear, Maintenance of eyewear, Spectacle care

### INTRODUCTION

Despite the increasing popularity of contact lenses and refractive surgery.<sup>1,2</sup> Spectacles continue to be the most preferred cost-effective modality for correction of refractive errors in the world.<sup>3-5</sup> The novice wearer is concerned about the comfort and cosmetic appearance rather than the quality of vision. Spectacles or eyeglasses are frames bearing lenses worn in front of the eyes, usually to enhance vision.<sup>4,6</sup> Other reasons for spectacle wear include eye protection, to conceal eyes defects and as a fashion accessory.<sup>5</sup> Despite inherent merits such as control over their use, spectacles do pose some significant challenges. For example, spectacles are not readily affordable by many who require them and can be a source

of ocular discomfort especially when incorrectly prescribed.<sup>4,5,7</sup> There has been abuse of spectacle dispensing due to a lack of standardization, superfluous prescriptions and distribution by individuals who have no professional experience in eye care or dispensing.<sup>8,9</sup> Care of the spectacle, lens and frames, is mandatory to extend the life of one's eye wear and ensures good quality vision.<sup>10</sup> Unfortunately, many of the wearers are not aware of these precautions.<sup>10,11</sup> Some people however, will not use glasses even when prescribed by a specialist. Several factors determine compliance with prescribed glasses. These include, belief and attitude of user, parent (if children) and the community as a whole. It may also depend on level of income, education and social status.<sup>11</sup> Acceptance of glasses for the correction of refractive

errors are mostly preferred by the student.<sup>12</sup> A greasy finger print, smudge, debris, dust or moisture can affect the quality of vision through the spectacles.<sup>13,14</sup> Similarly, alignment of the frame is also essential to keep the lenses centered in the pupillary area.<sup>3</sup> The frame gets dirty from sweat and everyday dirt. Dirt can destroy the finish; result in dermatitis or rashes at areas of contact like side of nose, back and top of ears.<sup>15</sup> Hence proper care and maintenance of the spectacles are mandatory to ensure clarity in the visual perception, especially among constant users with long wearing time as in high refractive errors.<sup>10</sup> This study was all focused on spectacles wearer student's involvement towards the care and maintenance of eyewear and their attitude and practices. The awareness regarding spectacle care, cleaning and maintenance was taken into account. When the beliefs and attitude are known, efforts can be geared towards altering them or strengthening them.

**METHODS**

It was an observational questionnaire-based study. The study was conducted among 170 students who visited our ophthalmology OPD. Only those participants who wears spectacle constantly were enrolled in the study and the response was elicited with the help of a pretested, pre-validated questionnaire via Google form over a period of 6 months. Those who have any systemic disease or ocular disease, age less than 20 years and having refractive error without spectacle correction were excluded from the study. Written consent was undertaken from the study subjects. Data was analyzed with the help of Microsoft Excel. Descriptive analysis of data was performed including mean, standard deviation, frequency and percentages. Interpretations were expressed in the form of proportion and percentage.

**RESULTS**

In this study, total number of participants was 170, out of which 30% (50) were male and 70% (120) were female with mean age of 21.06±2.10 years. Out of total participants, 58.24% (99) participants were from medical stream and 41.76% (71) participants were from non-medical stream. It has been observed that majority of spectacle users were myopic (52%) followed by astigmatic (21%) and hypermetropic (19%).

Out of 170 participants, majority of participants 39% (67) were using spectacle for 2-5 years. The main reason for prescribing the glasses were defective vision responded by 63.53% (108) participants, 22.94% (39) were prescribed for headache, 10% (17) for computer use and 3.52% (06) were prescribed for protection purpose. When participants were asked about their PGP (present glass prescription), 55% (93) participants responded that they had changed their glasses ≤6 months back, 31% (53) participants responded 6 months-1 year back, 11% (19) responded 1-3 years back and 3% (05) responded >3 years back. The main reason of changing the glasses was

lens/frames breakage responded by 44.71% (76) participants followed by blurring of vision by 24.12% (41) participants, lens become old by 23.53% (40) participants and not change yet was responded by 7.64% (13) participants. Only 51.18% (87) participants go to check their spectacle regularly (Table 1).

**Table 1: Compliance of spectacle wear.**

Questions	Responses	N	%
<b>Duration of using spectacles</b>	<1 year	35	20.59
	2-5 year	67	39.41
	6-10 year	43	25.94
	>10 year	25	14.71
<b>Purpose of using glasses</b>	Blurring of vision	108	63.53
	Headache/eye strain	39	22.94
	Digital screen use	17	10
	Safety	06	3.52
<b>Duration of using present glasses</b>	<6 months back	93	54.74
	6 months -1 year back	53	31.17
	1 year-3 year back	19	11.18
	>3 year back	05	2.94
<b>Reason of changing the glasses</b>	Broken Lens/frames	76	44.71
	Blurring of vision	41	24.12
	Lens become older	40	23.53
	Not change yet	13	7.64
<b>Visit eye care practitioner to check the spectacle power regularly</b>	Yes	87	51.18
	No	83	48.82

This study showed that on misalignment of spectacle, majority of participants 38.24% (65) responded that they did self-adjustment of spectacle when they experienced any misalignment of spectacle (Table 2).

**Table 2: Spectacle adjustment in case of misalignment.**

Question	Response	N	%
<b>Intervention taken to aligned the misalignment of spectacle</b>	Aligned by self	65	38.24
	Approach to optician without self-adjustment	34	20
	Approach to optician with self-adjustment	58	34.12
	Do not mind	13	7.65

When participants were asked that they were informed about the care of glasses or not by their optometrist/doctor/optician, 87.06% (148) participants responded “yes” which was the maximum response elicited. While assessing the response on the cleansing of glasses, majority 90% (153) participants responded that they used to clean their glasses regularly. 44.12% (75)

responded that they clean their glasses when needed while 35.88% (61) clean their glasses before use and 20% (34) participants clean their glasses before and after use. The majority of participants 64% (109) used to clean their glasses with the help of selvet which was provided with the spectacle. When participants were asked about the storage where they kept the glasses, only 46.47% (79) responded that they kept their glasses in the spectacle case and 93.53% (159) participants responded they put off their spectacle while sleeping (Table 3).

**Table 3: Care and maintenance of spectacle.**

Questions	Responses	N	%
<b>Counselling regarding care of glasses</b>	Yes	148	87.06
	No	22	12.94
<b>Regular cleaning of glasses</b>	Yes	153	90
	No	17	10
<b>Preference for cleaning spectacle</b>	When needed	75	44.12
	Before use	61	35.88
	Both before and after use	34	20
<b>Accessory used to clean spectacle</b>	Selvet	109	64.12
	Multiple mean	34	20
	Ordinary cloth	13	7.65
	Tissue paper	10	5.88
<b>Storage for glasses</b>	Water	04	2.35
	Anywhere	84	49.41
	Spectacle case	79	46.47
	Pocket	05	2.94
<b>Removal of spectacle during sleep</b>	Purse	02	1.18
	Yes	159	93.53
	No	11	6.47

While evaluating the pattern used to wear the spectacle, it has been found that majority of participants 61.76% (105) responded that they used to wear spectacle by holding with both hand which is the appropriate way to put on the spectacle. Similarly, when they were asked about the way used to remove their spectacle, majority of participants 45.29% (77) used to remove their spectacle by holding the spectacle at temple with one hand which is wrong way while the appropriate way of removing the spectacle is by holding at temple with both hands which was responded by only 41.18% (70) participants (Table 4).

**Table 4: Pattern of using spectacle.**

Questions	Responses	N	%
<b>Pattern of wearing spectacle</b>	holding with one hand	65	38.24
	By holding with both hands	105	61.76
<b>Pattern of removing the spectacle</b>	By holding at temple with one hand	77	45.29
	By holding at temple with both hands	70	41.18
	By holding at bridge with one hand	23	13.53

## DISCUSSION

A large proportion of subject were wearing spectacle due to defective vision which was similar to the previous study.<sup>3,10</sup> Main reason for changing the eyewear was broken/ damaged glasses while in the previous study, blurring of vision remains the main reason. When participants were asked that they were informed about the care of glasses or not by their optometrist/doctor/optician, 87.06% participants responded “yes”, While in the previous study response rate was 52%. In the study conducted by Prabhu PB et al 70% approached an optician for adjustment of glasses when misaligned while 38.24% responded that they did self-adjustment of spectacle when misaligned in the current study.<sup>10</sup> It was observed that the spectacle case was used to keep the glasses for storage of eyewear by 46.47% participants in the current study which was quite more as compared to the previous study i.e., 32% participants.<sup>10</sup> On assessing the response on the cleansing of glasses, majority 90% responded that they used to clean their glasses regularly while it has been observed in the previous study that majority of participants cleaned their glasses only when needed.<sup>10</sup> 64% of participants used to clean their glasses with the help of selvet which was provided with the spectacle which was more as compared to the previous study where only 20% subjects responded the same. In this study, 61.76% were using the appropriate way to put on the spectacle which was less as compared to the previous study where 88% of participants use the correct way.<sup>10</sup>

Awareness about the care and maintenance of eyewear was high in this study but optician/optometrist/eye care professional needs to counsel their patients appropriately so that they can get the best quality vision and comfort.

## CONCLUSION

In order to gain the good visual outcomes, patient should be compliant with eye glasses and aware of how important prescribed glasses are for their vision? Once the patient came to understand the importance of wearing eye glasses, it will definitely increase the compliance rate of spectacle or eyewear. Inadequate knowledge about the wearing/removal or handling techniques, cleansing and maintenance of eyewear were found even in the prolonged spectacle user. Proper instructions about the spectacle performance, repair and regular follow up should be provided to the patient. Counselling by the optician, optometrist or ophthalmologist at the time of prescribing eyeglasses can possess better understanding among the eyeglasses wearers. Providing a small booklet within the spectacle case can be of great importance to make the patient aware/remember about the care and maintenance of eyewear.

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