

Evaluations of prescriptions and frames purchased from online eyewear vendors

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Background

The purpose of this study was to evaluate the accuracy of online orders of eyewear based on a number of adjustment and suitability parameters of selected frames in comparison with the morphological features of the individuals in the study.

Methods

The study was conducted from September 2011 to January 2012. Four volunteers with only a basic knowledge in optics were selected to represent a set of clients who had previously had an eye exam and were already wearing vision correction devices, but wanted to try purchasing their prescription glasses online. A number of sites were identified, but only four popular sites selling glasses online were selected based on the following criteria: they were well-constructed sites, they were attractive and popular due to marketing and advertising efforts in Canada, and they had been in existence for more than two consecutive years. The four sites selected for the exploratory study were:

Clearly Contacts

(www.clearlycontacts.ca)

Frames Direct

(www.framesdirect.com)

39Dollarglasses

(www.39dollarglasses.com)

Eyebuydirect

(www.eyebuydirect.com).

We asked each participant to order the same specific prescription (lenses and frames) from each of the four sites, matching certain particulars that were provided to them. The participants were then left on their own during the entire online ordering process. The 16 online purchases (4 participants × 4 sets of glasses) were filmed on video. For each volunteer, the only interference from a member of the research team occurred at the very end of the process, when finalizing the purchase by credit card. The volunteers were given no other details or assistance.

For the study, four prescriptions were specifically prepared to represent a variety of

needs from the perspective of lens and frame choice. Two prescriptions were prepared for distance correction (monofocal) and the other two were prepared for progressive (multifocal) lenses. The four sites were analyzed in an exploratory, critical and subjective manner by the research team. After watching all the video recordings of the purchasers, a subjective evaluation of the 16 visits was carried out, based on user-friendliness of the site. Lastly, an analysis of the actual glasses received by the four volunteers was done. In total, 16 frames and 32 lenses were analyzed against professional standards.

Results

Adherence to the prescription: Out of the 32 lenses ordered, considering refractive criteria only, six of them (19%) contained strength errors — that is they did not adhere to the prescription ordered.

Interpupillary distance (PD) measurements:

Seven of the 32 frames (22%) did not adhere to the accepted tolerance of roughly 1mm compared to the PD indicated by the subjects when placing their orders. When comparing the filled prescriptions with the 'patients' actual values, 12 (38%) were faulty. Note that only one observer managed to take his PD measurement correctly.

In total, 13 sets of glasses out of 16 (81%) did not adhere to the prescription or the PD measurement sent when ordering.

Focal height and lens centering: For progressive lenses, six of the eight sets of glasses received should have been redone prior to shipping to the customer. For the monofocal lenses, the decentrations were determined in an entirely random manner by the websites since there was inadequate information requested to enable them to correctly position the lenses. Centration of a monofocal lens reflects head posture, the pantoscopic angle and the prescription; however, two of the three parameters of this measurement are absent from the websites visited.

Frame adjustment: The participants were asked to wear the frames they had ordered for evaluating the adjustment in terms of, among other things, the alignment of the frame on the face, the camber and facet angle of the nose pads, pantoscopic angle, arm spread, ear contour and pressure on the petrous bone, behind the ear. Thirteen out of 16 sets of frames did not receive a passing grade over 70% for meeting basic comfort and position criteria.

The participants were free in terms of choosing frames and were limited by cost. As previously mentioned, we had specified the types of frames and lenses, but nothing more. The average price, based on 16 orders, was \$216 with the average price for the monofocal lens at \$187, and progressive lenses at \$252. The lowest price was \$26 (simple vision) while the highest amounted to \$495 (progressive).

Conclusion

This report confirms the opinion of a number of stakeholders in the field of oculo-visual care: the public is not well served by online ordering sites for prescription glasses. In addition, this analysis of popular websites clearly shows that, by wishing to circumvent the traditional dispensing process for frames and ophthalmic lenses, in light of the legislation, regulations, standards and tolerances in effect in this field and in this country the public does not have the professional guarantees they are entitled to.

Products were evaluated using parameters standardized by the American National Standards Institute (ANSI) and the International Organization for Standardization (ISO). In terms of adhering to the prescription, regarding the desired adjustments for minimal wearing comfort, and considering the PD measurement taken by the subjects themselves, we arrive at a 94% failure rate.

Only one single pair of glasses was acceptable according to our reference criteria.

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