Journal of Engineering and Applied Sciences 13 (Special Issue 1): 2496-2499, 2018
ISSN: 1816-949X

Level of UV Light Awareness and its Relation to the Factors and Information Sources Contributing to Sunglass-Purchase Among Women in Their 30 and 40's

[1]Ji Min Kim, [2]Suk-yul Jung and [3]Su-youn Park
[1]Department of Apparel Design, Konkuk University, 143-701 Seoul, Republic of Korea
[2]Department of Biomedical Laboratory Science, Molecular Diagnostics Research Institute, Namseoul University, 331-707 Cheonan, Republic of Korea
[3]Department of Clothing and Textiles, Konkuk University, 143-701 Seoul, Republic of Korea

Abstract: This study aims to identify the level of UV light awareness and how it relates to the factors and information sources contributing to sunglass-purchase. The responses from a total of 273 female consumers in their 30 and 40's were utilized for analysis. The survey consists of questions on lifestyle, demographic characteristics, sunglasses preferences, sunglass-purchasing behaviors which include questions on factors contributing to sunglass-purchase and UV awareness. The data collected from the survey was analyzed using the program SPSS Ver. 22.0. Applied statistical methods were technical statistical analysis, frequency analysis, F-test and Duncan test. The majority of respondents were found to be well aware of harmful effects of sun exposure on eyes and vision health. The most commonly chosen influential factor in purchasing sunglasses was to protect eyes and vision from the sun's UV rays. For the question on the most utilized information outlets, the largest number of respondents answered that they retain information about the sunglasses from their previous purchase while the least utilized information was the specialized publications such as research studys or news articles. This result implies that while the safety and functional features of sunglasses and the consumer's individual experiences play an important role in motivating sunglass-purchase, making effort to read about them is not necessarily influential to the purchase decisions. The sunglass manufacturers and relevant service providers can apply the findings of this study to their marketing strategies to increase their customer satisfaction and therefore sales or service quality.

Key words: Purchasing factors, source of information, sunglasses, UV light awareness, women in their 30 and 40's, influential, service

INTRODUCTION

Sunglasses are one of the most functional and transformative fashion items that can easily slip on and off for maximum versatility. They go with jeans and formal dresses and can be worn all the year round. Many consumers are well aware of fashion related aspects of sunglasses but often neglect to acknowledge the health benefits of wearing them. It is important to note that the most practical purpose of wearing sunglasses beside fashion is to protect eyes from harmful UV light exposure which can cause long lasting damages to the eyes.

According to a report by the Vision Council in 2015 while only one in four American adults rarely or never wear sunglasses when going outside and people in their 30 and 40's are reportedly less likely to use sunglasses for UV protection and more likely to use them to look good or to be fashionable, sunglasses are still the top option among UV eye protection options including sunscreen, hat and shade. Other studies, Koch *et al.* (2017) and Annonymous (2015) find that the level of UV protection is amongst the most important purchase decision factors and considered extremely or very important when deciding which sunglasses to choose. Thus, it is necessary to know how significant people's concerns about the effects of UV lights on the health of eyes are when compared to other factors contributing to actual sunglass-purchase.

Since, not all sunglasses are made equal and offer the same qualityand protection, consumers seek information and advice about sunglasses from various resources to choose the right pair for their individual needs (Zhu and Zhang, 2010). The source of information may include sales persons, online reviews, product websites, media adverts, trends, celebrity styles, newspaper articles, research papers, shop displays and close friends, relatives and families.

Corresponding Author: Ji Min Kim, Department of Apparel Design, Konkuk University, 143-701 Seoul, Republic of Korea

As the consumers choice of information can greatly influence their purchasing decisions, it is important for manufacturers to identify the most and least used information channels to execute effective marketing strategies and campaigns. This effort can lead to improved customer satisfaction and eventually to increased sales.

In this regard, this study aims to determine the level of UV light awareness in relation to the damages to the eyes among the South Korean women in their 30 and 40's and how it relates to the factors leading to their sunglass-purchase. Furthermore, this study strives to identify the source of information that the consumer groups typically rely on when making their purchasing decisions.

MATERIALS AND METHODS

Study samples and duration: This study conducted on/offline surveys with South Korean female consumers aged between 30 and 49 from Seoul and metropolitan areas. To qualify for the survey, the participants have to own at least one pair of sunglasses and have purchased at least one pair for themselves.

The survey questionnaires were distributed and retrieved between July 11th and August 2nd, 2015 and the average survey duration was 15 min. Of all the retrieved survey responses, incomplete or unreliable responses were eliminated and a total of 273 responses were used for data analysis.

Measuring tools: The survey consists of 22 questions on lifestyle (Park, 2010, 2013), 5 questions on demographic characteristics, 7 questions on sunglasses preferences (Cho *et al*., 2006), 8 questions on sunglass-purchasing behaviors (Kim, 2003; Lee *et al*., 2009) which include questions on factors contributing to sunglass-purchase and 5 questions on UV awareness (Jung, 2006).

Data analysis: The data collected from the survey was analyzed using the program SPSS Ver. 22.0. Applied statistical methods were technical statistical analysis, frequency analysis, F-test and Duncan test.

RESULTS AND DISCUSSION

UV light awareness: Survey results of UV light awareness a mong the respondents are as shown in Table 1. For daily sun exposure, the largest number of respondents (58.6%) answered "1-3 h a day", followed by 28.6% of "<1 h a day". When asked about the effects of sunlight on eyes and vision health, 80.2% chose "Harmful" or "Very Harmful" while only a small portion of respondents (5.1%) said it does not cause serious harm. For the question on the season during which UV light damages the eyes and vision health the most, 72.9% answered during "summer" when sunlight is most strong and intense, while 11.4% chose during "winter". When asked if UV light damages eye sight, 87.5% answered "Absolutely Yes" or "Yes." For the question on the relationship between the darkness of sunglass lens and the level of UV protection, 37.0% said "Related" followed by 31.5% "Not Related", 15% "Not Sure", 11.4%, "Very Much Related" and 5.1% "Not Related At All".

Table 1: UV light awareness

UV awareness	N	Percentage
Daily sun exposure		
<1 h	78	28.6
1-3 h	160	58.6
3-5 h	19	7.0
More than 5 h	16	5.9
Effects of sunlight on eyes and vision health		
Very harmful	95	34.8
Harmful	124	45.4
Yes	40	14.7
Not very harmful	14	5.1
Most affected season by UV light exposure		
Spring	23	8.4
Summer	199	72.9
Autumn	20	7.3
Winter	31	11.4
UV light damages eye sight		
Absolutely yes	106	38.8
Yes	133	48.7
Maybe	30	11.0
No	4	1.5
Relationship between the darkness of sunglass lens and the level of UV protection		
Not related at all	14	5.1
Not related	86	31.5
Not sure	41	15.0
Related	101	37.0
Very much related	31	11.4
Total	273	100.0

Factors contributing to sunglass-purchas: Factors contributing to sunglass-purchase by consumer group are as shown in Table 2. The consumer groups utilized in this study have been adapted from a previous publication of the researchers (Jung *et al*., 2017).

When asked about the most motivating factors in making sunglass-purchases "to protect eyes and vision from the sun's UV rays" was the most commonly chosen factor by all the consumer groups, followed by "to own a different style" "to follow a new trend" and "to relieve stress" for the ostentation/brand-oriented group and "to relieve stress", "impulse buying" and "to own a different style" for the fashion/individuality-oriented group. While a small number of respondents from the fashion-indifferent group and conservative/practicality-oriented group chose factors related to impulse buying, fashion

Table 2: Factors contributing to sunglass-purchase by consumer group

Consumer group/Factors	Ostentation/brand oriented (n = 74)	Fashion-Indifferent (n = 52)	Fashionability/attractiveness oriented (n = 71)	Conservative/practicality oriented (n = 76)	F-values
To protect eyes and vision from the sun's UV rays	4.24	4.27	4.42	4.14	1.06
To use discount periods	3.31	3.08	2.99	3.22	1.13
To relieve stress	2.78B	2.29C	3.39A	2.68B	14.40***
Impulse buying	2.23B	1.83C	3.18A	2.14BC	25.61***
To follow a new trend	2.95A	1.69C	2.87A	2.08B	19.70***
To be seen as a well off	1.95A	1.37B	2.14A	1.83A	7.04***
Everybody owns a pair	2.58A	1.85B	1.73B	1.88B	9.86***
Recommended by others	1.92	1.54	1.55	1.86	2.30
For collection	1.62B	1.08C	2.23A	1.36B	24.73***
To own a different style	3.22B	2.15D	3.70A	2.61C	19.22***

***p<0.001, A>B>C>D represents the results of Duncan test

Table 3: Source of information leading to sunglass-purchase by consumer group

Consumer group/Source of information	Ostentation/ Brand-oriented (n = 74)	Fashion-indifferent (n = 52)	Fashionability/ Attractiveness-oriented (n = 71)	Conservative/ Practicality-oriented (n = 76)	F-values
Information from last sunglass purchase	3.72B	3.31C	4.11A	3.07C	13.13***
Trends or celebrity styles	3.74A	2.65C	3.52A	3.04B	13.55***
Shop displays	3.49AB	2.88C	3.59A	3.24B	7.81***
On/offline media adverts or reviews	3.28A	2.73B	3.25A	2.74B	5.99**
Store catalogues or sunglass brand's newsletters	2.80B	2.37C	3.24A	2.99AB	7.22***
Specialized publications such as research papers or news articles	2.62A	1.96C	2.75A	2.30B	8.72***
Recommendations from sales persons	2.86BC	2.60C	3.35A	3.07AB	5.28**
Recommendations from friends, families or neighbors	3.23BC	2.85C	3.99A	3.59AB	10.57***

** p<0.1, ***p<0.001, A>B>C represents the results of Duncan test

and ostentation "to use discount periods" and "to relieve stress" were some of the influential factors that these two groups scored similar to the other groups.

Source of information leading to sunglass-purchase by consumer group: The most utilized information outlets by consumer group are as shown in Table 3. For the question on the source of information leading to actual sunglass-purchase, the largest number of respondents from all the consumer groups answered that they retain information about the sunglasses from their last purchase. "Trends or celebrity styles" was the most sought after information by the ostentation/brand-oriented group followed by other information outlets which scored more than 3.00 such as past purchases, shop displays, on/offline media adverts or reviews and recommendations from friends, families or neighbors. The fashion-indifferent group score <3.00 for all the information sources except for the information obtained from the last purchasing experience which scored 3.31. The fashionability/attractiveness-oriented group and the conservative/practicality-oriented group seemed more open to the recommendations from the people close to them, that the source scored 3.99 for the former and 3.59 for the latter group. The least utilized information by all the consumer groups was the specialized publications such as research papers or news articles.

CONCLUSION

The findings of this study were based on the results from a survey with 273 South Korean female consumers in their 30 and 40's residing in Seoul and metropolitan areas. More than four fifth of the respondents were economically active and had received at least some college education.

As more than 80% of the respondents were mindful of the hazards of UV exposure and its negative effects on eyes and vision health there was also high awareness of the importance of protecting eyes from UV lights; eight in ten agreed that sunlight is more than harmful to the eyes and vision health and causes damages to eye sight.

This may explain why all the consumer groups chose "to protect eyes and vision from the sun's UV rays" as the most influential factor leading to their actual sunglass-purchase with an average score higher than 4.00. Other motivating factors with more than 3.00 were discount price and different styles. This result demonstrates that acknowledging the harmful effects of UV exposure to the eyes has a meaningful impact on sunglass-purchase.

Unlike the respondent's high awareness of potential risks of UV light, the least utilized information by all the consumer groups was the "specialized publications such as research papers or news articles" which often offer

professional, objective fact-based information about the eye protection from UV light exposure and relevant health aspects of wearing sunglasses such as safety standards of sunglasses, lens classifications and selection of appropriate sunglasses. This result implies that safety and functional features of sunglasses play an important role in motivating sunglass-purchase but reading about them is not necessarily influential on the purchase decisions.

LIMITATIONS

There are number of limitations to the study as this study was based off of survey responses provided by a limited number of female participants aged between 30 and 49 who were randomly selected in the applicable regions, the results should not be broadly interpreted and there should be careful application to the general populace.

ACKNOWLEDGEMENT

Funding for this study was provided by Namseoul University.

REFERENCES

Annonymous, 2015. Protection for the naked eye: Sunglasses as a health necessity. The Vision Council, Alexandria, Virginia. http://studylib.net/doc/18312542/protection-for-the-naked-eye--sunglasses-as-a-health-nece.

Cho, H.G., B.Y. Moon, H.W. Kawk, J.S. Son and K.H. Kim *et al*., 2006. Survey of the brand and design recognition between domestic goods and foreign ones in the eye glasses industry. J. Korean Ophthalmic Optics Soc., 11: 207-215.

Jung, H.A., 2006. Study on harmfulness recognition degree of ultraviolet ray and behavioral use in sunblock. Master's Thesis, Sookmyung Women's University, Seoul, South Korea.

Jung, S.Y., J.M. Kim and S.Y. Park, 2017. Female consumer's sunglass-purchasing behaviors based on types of lifestyle and their priority. J. Adv. Res. Dyn. Control Syst., 9: 512-517.

Kim, H.K., 2003. A study on eyeware design: The case of adjustable eyewear tailored to new generation needs. Master's Thesis, Chung-Ang University, Seoul, South Korea.

Koch, S., S. Pettigrew, C. Minto, T. Slevin and M. Strickland *et al*., 2017. Trends in sun-protection behaviour in Australian adults 2007-2012. Aust. J. Dermatol., 58: 111-116.

Lee, J.M., H.R. Jo and W.Y. Jang, 2009. Study and research of seller's optical knowledge about sale of goggle or sun-glasses. J. Korean Ophthalmic Opt. Soc., 14: 1-10.

Park, J.H., 2010. A study on appearance management behaviors by the patterns of female lifestyle. Ph.D Thesis, Kyungsung University, Busan, South Korea.

Park, K.H., 2013. Differences of appearance management behaviors and life satisfaction among lifestyle groups. Fashion Text. Res. J., 15: 554-564.

Zhu, M. and X. Zhang, 2010. Impact of online consumer reviews on sales: The moderating role of product and consumer characteristics. J. Market., 74: 133-148.