Impact of developed information package on UV protection for knowledge gain among women consumer

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■ **ABSTRACT :** The present study examines the impact of developed information package of UV protection through appropriate textiles among women consumers of Udaipur city of Rajasthan. This study is a follow up study based on the findings of previous study on consumer survey to assess knowledge about UV radiation and its harmful effects on human conducted by the researcher herself on 180 sample subjects comprised of working women and college going girls of Udaipur city which emphasized the need to develop information package on UV protection through textiles and generate awareness programme for women consumers. Total 30 women consumers were selected for imparting knowledge and generating awareness through developed information package on UV protection. Pre and post-test research design was used for present study. Findings revealed that the respondents were having very low knowledge about all the aspects of UV protection. Significant improvement in the knowledge was found as a result of awareness generation programme through developed information package as the pre-test score increased from 31.33 to 68.66 per cent with gain in knowledge of about 37.33 per cent.

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Ultraviolet radiation is the one form of radiant energy coming out from the sun (*http://www.indiantextilejournal.com*) Although ultraviolet radiation is invisible to the human eye, most people are aware of effects of UV on the skin, called Suntan and Sunburn. In addition they also cause long term skin damage and cancer. Skin is the largest organ in the human body and constitute three basic layers epidermis (outer), Corium(middle) and Cutis(lower). The skin is the interfacial contact zone of human being with the atmosphere and acts as a protective barrier. The harmful UV radiations are absorbed completely by the epidermis (*www.skincarencure.com)*. Excessive UV radiation weakens the body's immune system in addition to causing cancer. The UV index is designed to provide the public with a numerical indication of the maximum potential solar UVR level during the day; the higher the number, the higher the solar UVR hazard. The UVR is usually highest around midday but the temperature is often highest later in the afternoon. UV-Index is a measure of the maximum daily level of ultraviolet radiation (UVR). When the UV level reaches 3 or higher a combination of five sun protection measures (sun protective clothing, hat, sunglasses, sunscreen and

shade) may be required for personal protection (*www.arpansa.gov.au*). These radiations can cause a range of effects from simple tanning to highly malignant skin cancers, if unprotected (Saravanan, 2007). All skin types can be damaged by exposure to UV radiation. People with skin types that are less likely to burn can still receive enough UV exposure to risk developing skin cancer (Jou *et al.*, 2012).

Findings of WHO (2003) revealed that the most serious consequences of overexposure to UV radiation are skin cancer and cataracts. Environmental levels of UV radiation may suppress cell-mediated immunity and thereby enhance the risk of infectious diseases and limit the efficacy of vaccinations. Both of these act against the health of poor and vulnerable groups, especially children of the developing world (WHO, 2003).

The preliminary study conducted by researcher on consumer survey of 180 respondents comprised of working women and college going students to assess their knowledge about UV hazards and protection measures adopted by them revealed that majority of respondents had awareness about UV radiation and its effect on human health and used to wear over clothing also for getting sun protection but the important technical aspect in textile structure, construction, clothing designs etc. were found lacking among them to safeguard their health.

Clothing has the ability to protect the skin from incident solar radiation because the fabric from which it is made can reflect, absorb and scatter solar wavelengths. The ultraviolet protective factor of fabric is strongly dependent on the physical and chemical structure of the fibres. Natural fibres like cotton, silk, and wool have lower degree of absorption of ultraviolet radiation than synthetic fibres. Natural fibres like cotton, silk, and wool have lower degree of absorption of ultraviolet radiation than synthetic fibres. Darker colored fabrics can offer more protection than lighter colored fabrics for the same fabric structure and dye (WHO, 2003). Various textile qualities affect the UV protection factor of a finished garment; important elements are the fabric porosity type, colour, weight and thickness (Hoffmann *et al.*, 2001).

Sarkar (2004) Observed positive correlation between the weight of the fabric and their UPF values. Similarly, thicker fabrics offered more protection from ultraviolet rays (Sarkar, 2004). In view of this, the researcher felt the need to generate awareness among masses about hazards of UV radiations and appropriate selection of textile to get maximum UV protection through clothing and developed a training booklet as part of information package to generate awareness among college going students and working women about UV protection through appropriate textiles. The present study examines the impact of developed Information package on knowledge gain among women consumer.

■ **RESEARCH METHODS**

The researcher organized two days awareness generation programme for 30 college going girls and 30 working women regarding developed information package on *UV protection through textiles* in the month of June 2016. The researcher explained the benefits of organizing the awareness generation training programme to the whole group in an informal manner. A two hours awareness programme was organized for two days as it was not possible to collect the sample of college going girls and working women together at one place. In the programme, poster, folders and power point presentations was used to impart the knowledge about UV radiations, their hazardous effects, beneficial effects
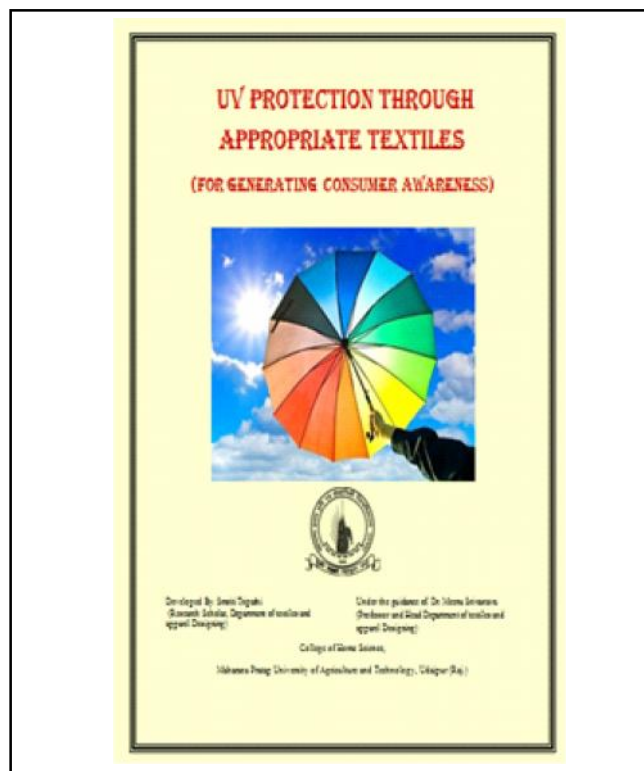
of sunlight, ultraviolet protection factor and appropriate textile for UV protection (including fabric, colour, weave and thickness of the fabrics). Interactive session took place for about 15 minutes in which respondents asked questions about their doubts and their queries were satisfied by the researcher. Developed special UV protective clothing was also shown to them and their characteristic style features with functional and constructional features were explained to them. An effort was also made to find out the existing knowledge of the respondents and gain in knowledge after conducting the awareness programme. Pre and Post-test was conducted to find out the gain in knowledge using the same self developed questionnaire. Based on the knowledge score obtained by the respondents, the mean scores were computed for the purpose of classifying the knowledge level into three categories namely low, medium and high levels. Five aspects were included i) Knowledge level about UV radiations, ii) Awareness about the harmful effects/problems caused by UV radiations, iii) Suitable fabric for UV protection, iv) Suitable colour for UV protection, v) Structural parameters.

■ RESEARCH FINDINGS AND DISCUSSION

This part contains the outcomes of the analysis done on socio-personal profiles of the respondents. The socio-personal profile of the respondents included age, educational status, occupations of the respondents, type of the family and monthly income of the family.

Socio personal profile of the respondents:

The details of the information related to this have been furnished in Table 1.

Data given in the table indicates that the majority of the respondents (40%) belongs to the age group of 18-25 years, followed by the age groups 35-40 years (30 %). The data pertaining to education revealed that majority of the respondents (50%) were qualified upto graduates followed by postgraduates (30%). It was observed that the 70 per cent respondents belonged to nuclear families.Regarding occupation, the data revealed that 60 per cent the respondents belonged to student category while remaining 40 per cent were among the working category. The monthly income of the respondents was categorized into three groups. The findings of the study revealed that half of the respondents had monthly income of Rs. 25000-40000 /- per month,

Table 1 : Socio-personal traits of the respondents		(n = 30)
Socio-personal traits	Number of respondents	Percentage
Age (in years)		
18-25	12	40
25-30	6	20
30-35	3	10
35-40	9	30
Education		
Graduate	15	50
Post-Graduate	9	30
Doctorate	6	20
Occupation		
Service	12	40
Students	18	60
Type of family		
Nuclear	21	70
Joint	9	30
Monthly family income (Rs.)		
10000-25000	6	20
25000-40000	15	50
40000-55000	9	30

followed by 40000-55000/- rupee per month (30%).

Gain in knowledge :

The statistical data regarding the knowledge level of respondents are presented in Table 2.

Overall knowledge and mean scores of respondents in each category in pre-test and post-test :

Perusal of Table 2 indicates that in pre-test majority of respondents had low knowledge with the mean of 63.33 followed by 23.33 per cent of respondents in medium category and 13.33 per cent respondents in high. Post test revealed a great increase in knowledge as mean score of respondents falling in high category increased to 60 from 13.33.

Aspect wise knowledge and mean per cent score of respondents in each category in pre-test and post-test :

Data in Table 3 reveals information about knowledge of respondents on five different aspects of UV radiations and their mean per cent scores in pre-test and post-test.

Perusal of Table 3 reveals that in three aspects of UV radiation *i.e.* knowledge level about UV radiations, awareness about the harmful effects/problems caused

Table 2 : Distribution of respondents by overall knowledge and mean scores of each category in pre-test and post-test (n=30)				
Knowledge with score range	Number of respondents		Mean per cent score	
	Pre	Post	Pre	Post
Low (0-33.33)	19	2	63.33	6.66
Medium (33.33-6.66)	7	10	23.33	33.33
High (66.66 and above)	4	18	13.33	60

Table 3 : Distribution of respondents by different aspect wise knowledge and mean per cent score of each category in pre-test and post-test												
Aspects	Knowledge categories (Distribution of respondents)						Knowledge categories (Mean per cent score)					
	High (%)		Medium (%)		Low (%)		High (%)		Medium (%)		Low (%)	
	Pre-test	Post-test	Pre-test	Post-test	Pre-test	Post-test	Pre-test	Post-test	Pre-test	Post-test	Pre-test	Post-test
Knowledge level about UV radiations	7	23	4	5	19	2	23.3	77.7	8.88	11.11	13.33	2.22
Awareness about the harmful effects/ problems caused by UV radiations	5	16	10	12	15	2	13.33	53.33	20	26.66	13.33	2.22
Suitable fabric for UV protection	-	1	-	11	30	18	-	3.33	-	24.44	5.55	16.66
Suitable colour for UV protection	-	2	-	7	30	20	-	6.66	-	15.55	5.55	20
Structural parameters	5	17	8	11	17	2	16.66	56.66	17.7	24.44	18.88	2.22
Overall mean	5.66	14	7.3	15.3	37	14.6	10.6	39.5	9.33	20.44	11.33	8.66

Table 4 : Overall gain in knowledge of the respondents			
Items	Mean % scores	Gain in knowledge	't'
Pre test	31.33	37.33	2.51
Post test	68.66		

by UV radiations and structural parameters, the mean percentage score of respondents have increased considerably in high category during post test as is clear from data presented in pre and post test.

The respondents were found in category of very low in knowledge about Suitable fabric for UV protection and suitable colour for UV protection during pre testing as shown in their respective mean per cent score but after exposure to developed package, it increased to 20.44 for fabric and 15.55 for colour in medium knowledge category.

In high category overall mean increased to 39.5 from 10.6. Knowledge level in medium category has increased from 9.33 to 20.44 and has decreased to 8.66 from 11.33 in low knowledge category. This shows that there is significant increase in knowledge level of respondents. Also the respondents rated that they found the awareness programme very useful for them.

Overall gain in knowledge of the respondents :

Table 4 and Fig. 1 clearly shows that the initial knowledge of the respondents was poor as their pre-test score was only 31.33 per cent. Significant improvement
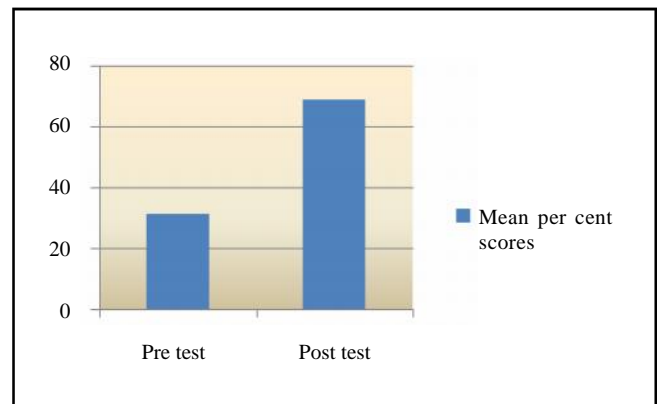

Fig. 1 : Mean per cent score of overall gain in knowledge of the respondents

in the knowledge of the respondents was found as a result of exposure of developed information package as the pre-test score increased from 31.33 to 68.66 per cent with gain in knowledge of about 37.33 per cent.

The findings are in agreement with the observations of Gaurav and Kamble (1995) and Vaishnav (2015) who highlighted that training is vital to enhance the knowledge level of an individual.

Conclusion :

It can be inferred from the above tables that significant improvement in the knowledge of respondents was found as a result of exposure to information package on UV protection through textiles as reflected through pre and post–test score data. Hence, it can be concluded that the developed information package was found very effective in improving the knowledge of the respondents about UV protection. Findings also revealed that respondents of the study were well aware of the harmful effect of UV radiations which shows that there is growing concern for the health among individuals. There is need to widespread the knowledge about UV protection through textiles by frequent organizing such type of information generating programmes among the masses to avoid the occurrence of health problems due to UV exposure of sunlight as the risks posed by ultraviolet radiation have become more dangerous in recent years and whole world is suffering from all kinds of pollution. Hussain and Jahan (2010) also emphasized that in India farmers and outdoor workers are less aware about the hazardous effect of UV radiation, there is need to aware them.

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■ REFERENCES

Gaurav, K.V. and Kamble, L.P. (1995). Training needs of rural women. *J. Extn. Edu.*, **14** : 93-95.

Hoffmann, K., Laperre, J., Avermaete, A., Altmeyer, P. and Gambichler, T. (2001). Defined UV protection by apparel textiles, *Archives Dermatol. J.*, **137** : 1089-1094.

Hussain, A. and Jahan, S. (2010). Protective textiles: protection against UV radiation.*Indian Textile. J.*,**129**(9):20-32.

Jou, P.C., Feldman, R.J. and Tomecki, K.J. (2012). Protection and sunscreens: What to tell patients. *Cleveland Clinic J. Med.,* **79** (6) : 427-436. Retrived from http://*www.ccjm.org*/ content/ 79/6/427.full on October 3rd 2013

Saravanan, D. (2007). UV protection textile materials. *AUTEX Res. J.*, **7** : 53-62.

Sarkar, A.K. (2004). An evaluation of UV protection imparted by cotton fabrics dyed with natural colorants, *BMC Dermatol.*, **4** : 15.

Vaishnav, S. (2015). Development of customized software on Warli folk art of Maharashtra for value addition. Ph.D. Thesis, Maharana Pratap University of Agriculture Technology, Udaipur, RAJASTHAN (INDIA).

■ WEBLIOGRAPHY

http://www.indiantextilejournal.com/articles/ FAdetails.asp?id=2837

www.skincarencure.com/photodermatology.htm

www.arpansa.gov.au/uvindex/daily/ausuvindex.htm

WHO (2003). INTERSUN, The Global UV Project-A Guide and Compendium. Retrieved July 3, 2014, from http://*www.who.int*/ *uv/publications/en/ Intersunguide.pdf*

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