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DEMOCRATIC TEACHING STRATEGIES FOR SKIN CANCER PREVENTION

The University of Arizona

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DEMOCRATIC TEACHING STRATEGIES
FOR SKIN CANCER PREVENTION

by

Joanne Landau Carlson

A Thesis Submitted to the Faculty of the
COLLEGE OF NURSING
In Partial Fulfillment of the Requirements
For the Degree of
MASTER OF SCIENCE

In the Graduate College
THE UNIVERSITY OF ARIZONA

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STATEMENT OF AUTHOR

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APPROVAL BY THESIS DIRECTOR

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April 22, 1985
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ABSTRACT

A quasi-experimental study was conducted to determine if democratic teaching strategies (responsibility, natural and logical consequences, and encouragement) were effective in promoting positive self-care behaviors for skin cancer prevention. Twenty-eight women participated in the study. Thirteen women were taught sun awareness by democratic teaching strategies and 15 women by authoritarian methods.

Pre- and posttests were given to measure skin cancer prevention self-care behaviors. ANCOVA was done to statistically control for the variance in the pretest scores. The results of the study did not significantly support the hypothesis that democratic teaching strategies promote positive self-care behaviors for skin cancer prevention. Group means indicated that both experimental and control groups had more negative behaviors after the intervention. Item analysis revealed that overall, more positive behavior changes occurred in the experimental group than the control group.

CHAPTER 1

INTRODUCTION

Health education is not a new concept in nursing care. Initially, teaching focused on disease processes and cure. Currently, the trend is to promote health promotion and illness prevention (Conway-Rutkowski, 1982; Grasser and Craft, 1984; Polland and Brennan, 1978).

Sun awareness is an important area of health education. Many people think the sun makes them healthy and a tan is a sign of good health. The sun's effects are primarily deleterious except for a few conditions like asthma, painful joints, acne, and psoriasis (Sense in the Sun, 1976). The most dangerous effect of the sun is skin cancer. The American Cancer Society stresses prevention as the most important aspect of dealing with skin cancer (Cancer Facts and Figures, 1984, 1983).

Purpose of the Study

The purpose of this study was to determine the effectiveness of democratic teaching strategies on self-care behaviors for skin cancer prevention. A traditional method of teaching with an information pamphlet was compared to another method of teaching using principles from individual psychology: responsibility, natural and logical consequences, and encouragement (Dreikurs and Soltz, 1964).

Significance of the Problem

The problem of health education is significant to the profession of nursing. The literature has conflicting results from health education research. Several authors state there is a positive correlation between knowledge and compliance (Conte, Brandzel, and Whitehead, 1974; Hecht, 1974; Loustau and Blair, 1981). Other authors cite information giving is not sufficient to obtain clients' compliance. Results of studies showed that clients who are not motivated are not compliant (Deberry, Jefferies, and Light, 1975; Miller, Johnson, Garrett, Wickoff, and McMahon, 1982; Leech, 1982; Wilson-Barnett and Osborne, 1983). Information giving may not be a successful method of teaching for those clients who are not receptive to the ideas.

Current teaching methods need to be reevaluated for effectiveness and newer methods must be tested. The consumers of nursing care and accrediting bodies are demanding that professional nurses become more efficient and effective in teaching clients about their health status and requisite knowledge for self-care and safe functioning. The need for research on the process of education is apparent as such research can help nurses to understand the relationships between education methods, learning, and the process of compliance (Conway-Rutkowski, 1982).

Theoretical Framework

The goal of health education is to promote positive changes in clients' behavior. Democratic teaching strategies promote

the individual's freedom to choose by using participation as a model for decision making. Democratic teaching tries to function in such a way that decisions and learning come about as part of sharing and integrating knowledge (Litwack, Litwack, and Ballar, 1980).

Democracy exists in relationships among equals. The freedom within a democracy also implies responsibility. Freedom without responsibility is anarchy (Dreikurs and Soltz, 1964). Responsibility for self enables clients to become actively involved in promoting their own well-being, thus being effective in self-determination (Litwack et al., 1980).

Natural and logical consequences are other elements in learning (Dreikurs and Soltz, 1964). Natural consequences represent the pressure of reality occurring without any intervention by the educator or client. Change is promoted because the client is taught what will naturally occur if he does not change certain health behaviors.

Logical consequences are predetermined events imposed by the educator or client himself. They promote change when natural consequences are too abstract or will not occur until negative health behaviors have been practiced for many years. Logical consequences are not to be threatened or imposed, for they are not punishment. Logical consequences are just an artificial consequence.

Encouragement, a fourth element of the democratic style, is a continuous process. The aim of encouragement is to give the client a sense of self-respect and a sense of accomplishment (Dreikurs and Soltz, 1964). Encouragement promotes change by influencing the client of his

own personal rewards for changing his behavior. Encouragement is not external praise or rewards.

The Carlson Sun Awareness pamphlet uses democratic teaching strategies to promote skin cancer prevention self-care behaviors. The goal of the pamphlet is to use the four strategies together to promote responsibility for self-care and to make the information meaningful to the learner. Figure 1 depicts the theoretical framework for the study.

Hypothesis

There will be a difference of behavior scores between those subjects who receive instruction on self-care behaviors for skin cancer prevention utilizing the democratic teaching strategies of responsibility, natural and logical consequences, and encouragement, and those subjects who receive instructions utilizing the traditional authoritarian teaching style.

Definition of Terms

Skin Cancer Prevention Self-Care Behaviors - Health care acts practiced by individuals to promote well-being for skin cancer prevention.

Democratic Teaching Strategies - A mutual interaction process designed to help learners become responsible and effective in self-determination (Litwack et al., 1980). The strategies are responsibility, natural and logical consequences, and encouragement.

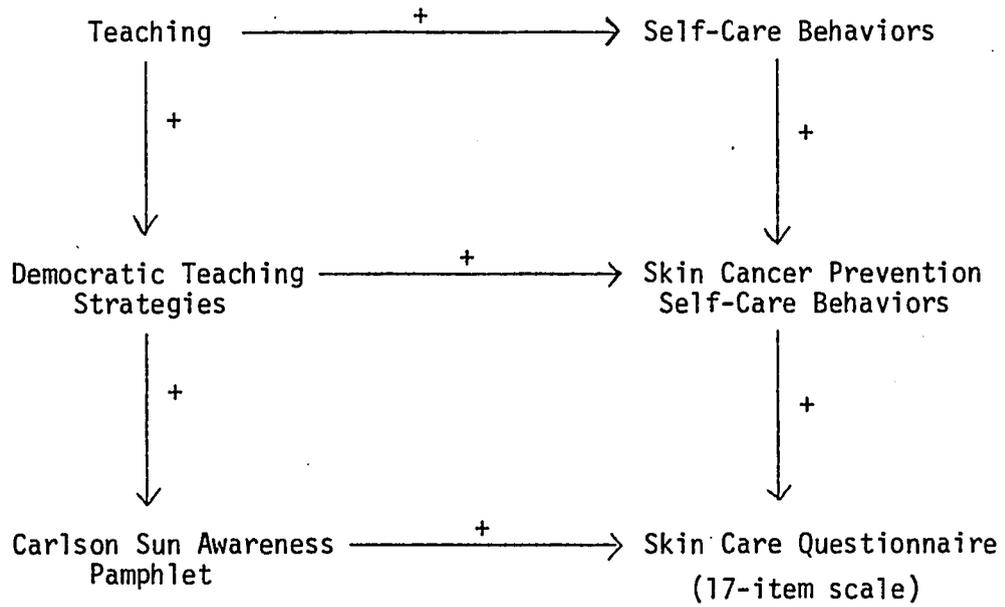


Figure 1. Theoretical Framework for Study

Summary

The present study was designed to compare two methods of teaching currently used in health education. Authoritarian teaching, a traditional and older method, is employed by giving information with the expectation that learners will use this knowledge to change current behaviors. Democratic teaching, a newer and more innovative technique, is used to share the learning process with the learners and actively involve them in making decisions towards changing maladaptive behaviors.

CHAPTER 2

REVIEW OF LITERATURE

Skin cancer is the most prevalent of all cancers. This review of literature discusses skin cancer, the causes, and the associated risk factors. Preventive measures and educational strategies aimed at promoting compliance are described.

Cancer of the Skin

There are three main types of skin cancer: basal cell carcinoma, squamous cell carcinoma, and melanoma. The American Cancer Society, in their booklet "Cancer Facts and Figures, 1984" (1983), estimated 400,000 new cases of nonmelanoma cancers. Survival from basal and squamous cell carcinomas are assured with early detection and treatment. There were 1900 estimated deaths from these cancers in 1984 (Cancer Facts and Figures, 1984, 1983).

Malignant melanoma is less common, yet more ominous. The incidence of melanoma in 1984 was 18,000 and the mortality rate was 5500 (Cancer Facts and Figures, 1984, 1983). Three-fourths of all skin cancer related deaths are caused by malignant melanoma. The five year survival rate is 68 percent (Cancer Facts and Figures, 1984, 1983).

People who live in areas that have significant year-round exposure to ultraviolet (UV) light are at high risk for skin cancer.

Epidemiological studies identify southern Arizona as having the highest incidence of skin cancer in the United States, and second highest in the world (Schreiber, Moon, Meyskens, and Mudron, 1983). The risk of getting skin cancer is 20 to 30 percent higher in this area (Relling and Dorr, 1983). In 1981, 615 nonmelanoma skin cancers and 27.2 melanoma per 100,000 population were detected in southern Arizona (Schreiber et al., 1983).

Most skin cancer is attributed to overexposure to UV light. Suberythema1 damage caused by UV light exposure is the most potent cause of skin cancer in laboratory animals and clinical evidence supports it as the major factor contributing to skin cancer in humans (Watson, 1983). Southern Arizona receives high intensities of UV radiation all year round due to its latitude (32 degrees N), altitude (2410 feet), clear skies and high sun intensity. The mean annual number of clear days is 193 and the mean annual percent of sunlight is 86 percent (Moon and Levine, 1983).

Melanin, the pigment that colors the skin, protects it from UV radiation. Large amounts of melanin, as in black skin, can be exposed for long periods of time without change. Ultraviolet resistant skin is characterized by many large melanin granules scattered throughout the epidermis, increased absorption of visible light, and an active tyrosinase system (Becker and Vaile, 1981). The chemical reactions produced by light when entering the skin are not known, but the combination in black skin appears to block the formation of skin

cancer. Melanin pigmentation acquired through tanning does not afford this protection (Azizi, Kushelevsky, and Schewach-Millet, 1984).

People at highest risk for skin cancer can be readily identified. Light complected, red-haired freckled people and normally pigmented, blue-eyed blondes are most vulnerable. Blacks are least vulnerable (Kakande and Samnakay, 1982).

Another risk factor is age. There is an increase in solar related cancer with age (Becker and Vaile, 1981). It is rarely detected before puberty. The majority of skin cancer is diagnosed in individuals 30 to 70 years old, with the peak incidence in the fifth decade of life (Kakande and Samnakay, 1982).

More men get skin cancer than women (Kakande and Samnakay, 1982). Whether this is because men tend to work outdoors more than women, is not clear. There is a tendency for an individual with one solar related skin cancer to develop others (Becker and Vaile, 1981).

The last risk factor is occupational exposure. Coal tar, pitch, creosote, arsenic compounds, and radium have been identified as carcinogenic (Cancer Facts and Figures, 1984, 1983).

Prevention of the Sun's Effects

Sunscreen or sunshade use is the primary method of protection from UV radiation recommended. Sunscreen consists of one or more UV radiation-absorbing chemicals that act as filters to decrease the penetration of UV radiation to the skin (Azizi et al., 1984). Sunshades or blocks are opaque materials that reflect all incident light rays (Relling and Dorr, 1983).

The sun protection factor (SPF) of a sunscreen is directly proportional to the sunscreen's protective potential. The SPF is the ratio of UV radiation exposure required to produce minimal sunburn with the sun barrier preparation to that required in the case of untreated skin ("Sunscreen, photocarcinogenesis, melanogenesis, and psoralens," 1981; Relling and Dorr, 1983). The estimated time for safe sun exposure is the SPF x 20 minutes (Azizi et al., 1984). The efficiency of the SPF decreases after perspiring or swimming. Therefore, proper usage necessitates repeated applications.

A second preventive measure is avoidance. Two-thirds of the day's UV exposure occur during a four hour period (Green, 1982). It is recommended that the sun be avoided between 10 a.m. and 3 p.m. When avoidance is impossible, protective clothing like long sleeves, pants, hats, and sunglasses are encouraged. Sunbathing is discouraged. A tan does not indicate a state of health.

Lastly, skin inspection on a regular basis is suggested. Knowledge of skin moles, changes in size or color, development of any unusual pigmented areas and a sore that does not heal can aid in early detection of skin cancer. Basal and squamous cell carcinomas are characterized by a pale, waxlike, pearly nodule or a red scaly sharply outlined patch (Cancer Facts and Figures, 1984, 1983). Melanomas are usually dark brown or black pigmentations that begin like a small nodule. They increase in size, change color, and can become ulcerated and bleed easily after slight injury (Cancer Facts and Figures, 1984, 1983).

Education

Since most skin cancer is induced by UV radiation, then theoretically, most skin cancer is preventable. Currently, education is the most powerful method for the promotion of skin cancer prevention and early detection (Hilborne and Wolf-Greenberg, 1983). Few educational programs have been successful in changing individual's behavior as dissemination of information has not proven to be effective.

Several researchers have attempted to change people's behavior utilizing an authoritarian approach of providing information or facts about skin cancer, risk factors, and preventive behaviors. Schreiber et al. (1983) utilized the avenues of newspapers, television, and public forums to disseminate information. This was not effective in reducing the incidence of skin cancer in southern Arizona. The Arizona Sun Awareness Project is a program aimed at increasing public awareness about prevention and detection. It provides ongoing skin cancer education to health professionals and the public.

Putnam and Yanagisako (1982) mailed skin cancer comic books to residents in Hawaii. Readers of the comic book were more knowledgeable than nonreaders, but only one significant ($p < .005$) relationship existed which was the use of sunscreen. Some positive results did occur with readers more likely to practice preventive and detection behaviors than nonreaders.

Johnson and Lookingbill's (1984) efforts were not as successful. They provided informational pamphlets, a listing of available sunscreen products, and a free sample of sunscreen in central Pennsylvania.

A four-week follow-up showed knowledge had improved, but not sunscreen use. Less than half (41%) used the free sample.

There is a great need to change the idea of patient education to self-care education. McCaughrin (1981) defined patient education as having the intent to change an individual's behavior from acts that are detrimental to one's health to those that are conducive to present and future health through the dissemination of information. This method has not been very successful. Self-care education allows the learner to determine the desired outcomes in accordance with his own decisions at which risks he chooses to avoid (Lewin, 1978). The aim is to decrease dependency and promote responsibility for self-care. Reed-Ash (1983) stated that preventive health care is not only teaching, but includes aspects of counseling and advocacy. The addition of these aspects should improve the probability that individuals will choose self-care behaviors that will maintain and promote health.

The democratic approach to learning uses several techniques. Utilizing a variety of techniques increases the resources available to the learners. It allows them to personally integrate the information so it becomes meaningful rather than simply memorizing facts (Ostmoe, Van Hoozer, Scheffel, and Crowell, 1984).

Democratic teaching utilizes techniques of individual psychology. Individual psychology is based on several assumptions. It is assumed that man is basically active and relatively free in the determination of his behavior. He is both active and responsible. Man is both purposive and striving. He makes decisions to engage in activities that

are meaningful to him (Dinkmeyer and Dreikurs, 1963). Techniques are designed to emphasize personal responsibility for one's behavior, making information meaningful through natural and logical consequences, and providing encouragement.

Little research has been done to explore the effects of these techniques on changing health behavior. Hagermann (1982) attempted to improve toothbrushing behavior of 10 children with these strategies. The experimental group showed significant improvement measured by decreased plaque scores. It is important to apply the democratic teaching strategies to other areas of self-care.

Summary

Traditional authoritarian methods of information giving have not been very successful in changing people's skin cancer prevention behaviors. The effects of information pamphlets, use of media and provision of free samples of sunscreen have been researched. Lack of positive results in this area suggests alternative methods for changing the public's health behaviors need to be explored.

Democratic teaching strategies are attempts at altering people's behavior towards more positive health care behaviors. One study has shown these strategies to be effective. Democratic teaching strategies make the information meaningful to the client and promote responsibility for self-care.

CHAPTER 3

RESEARCH METHODOLOGY

This chapter describes the design, sample and setting, instrument and statistical analysis for this study. Intact groups were used in a quasi-experimental design in an attempt to determine the effectiveness of democratic teaching strategies. Skin cancer prevention was taught to two groups. Democratic teaching effectiveness was compared to authoritarian teaching effectiveness in changing subjects' behavior.

Sample and Setting

Three intact groups of women were used to comprise the sample. The groups were recruited from women's organizations in a southwestern city. The groups were chosen because of accessibility. Data from the two smaller groups (n=13) were combined to equal the one larger group (n=15). The groups were randomly assigned to experimental and control interventions. The intervention was conducted at the groups' regularly held meeting. Only those subjects who returned the posttest to the investigator were included in the final sample.

The criteria for inclusion in the study were:

1. Eighteen years of age or older,
2. Able to read and write English,
3. No previous diagnosis of skin cancer.

Protection of Human Subjects

The study was approved by the College of Nursing Ethical Review subcommittee for use with human subjects and was deemed exempt from University review (Appendix A). A disclaimer was used for obtaining consent from subjects (Appendix B).

Data Collection Instrument

A skin care questionnaire for self-report was developed by the investigator (Appendix C). Demographic data and information regarding behavior for skin cancer prevention and detection was obtained by a questionnaire of 17 completion, circle the best answer and Likert-type statements. Items included in the questionnaire were obtained from the literature. Three peers, graduate students in nursing, reviewed the questionnaire for content on behavior in the sun, sunscreen use and detection behaviors, and clarity. Internal consistency and reliability were examined after the data were collected.

Revision of Sun Awareness Pamphlet

The experimental group received a Sun Awareness pamphlet revised by the investigator (pocket). The Carlson Sun Awareness pamphlet provided the same information as the Arizona Sun Awareness Project's pamphlet but used democratic teaching strategies. The front page of the pamphlet is a personal risk factor test that promotes responsibility for self-care. The clients answer the seven questions either yes or no and this helps them identify their own risk of getting skin cancer. It makes the information meaningful to them for their own self-care and well-being.

The inside page provides factual information for preventive behaviors, natural and logical consequences and encouragement. Natural consequences are the short- and long-term results of sun exposure. Logical consequences are self-induced behaviors if overexposure occurs. Encouragement identifies what benefits will occur if preventive self-care behaviors are adhered to.

The middle and back pages provided the same information as the Arizona Sun Awareness Project's pamphlet (pocket). This factual information was sun and sunscreen facts.

Data Collection Protocol

Two teaching methods were tested at regularly scheduled meetings. All subjects were asked to read the disclaimer and complete the questionnaire. The control group was given a Sun Awareness pamphlet prepared by the Arizona Sun Awareness Project (pocket). Permission was granted by the Arizona Sun Awareness Project to use their pamphlet (Appendix D). This pamphlet was read to the group by the investigator and was followed by a question and answer period. The experimental group received a Carlson Sun Awareness pamphlet (pocket) followed by a question and answer period.

A test-retest format was used. Two weeks after the sessions, the same questionnaire was mailed to all participants. A stamped, addressed envelope was provided to return the questionnaire to the investigator.

Analysis of Data

Descriptive statistics were used to analyze the demographic data. Means, percentages, range and standard deviations are reported where appropriate.

Analysis of covariance (ANCOVA) was used to analyze the data describing behavior. ANCOVA tested the significance of the differences between the posttest means of the two groups while holding the pretest scores constant. A level of .05 was considered significant.

Summary

This chapter described the methodology used for a quasi-experimental research study. A pretest-posttest format was used to measure the effect of democratic teaching strategies on skin cancer prevention self-care behaviors. Two groups of women were recruited as a sample. One group was given the Carlson Sun Awareness pamphlet using democratic teaching strategies while another group was given the Arizona Sun Awareness Project's pamphlet using authoritarian principles. ANCOVA was used to analyze the data which tested the significance of the differences between posttest means.

CHAPTER 4

PRESENTATION AND ANALYSIS OF DATA

This chapter presents the results of the data collected for the study and the analysis of the data. The reliability of the instrument used for data collection is also reported.

A quasi-experimental design was used to determine the effectiveness of democratic teaching strategies on self-care behaviors for skin cancer prevention. Skin cancer prevention was taught to two groups of women. The democratic teaching strategies of responsibility, natural and logical consequences, and encouragement were used to teach the experimental group. The authoritarian teaching method, transmission of facts, was used to teach the control group. A 17-item pretest and a posttest were given to each group.

Characteristics of the Sample

Forty-seven participants were recruited from women's organizations in a southwestern city. The groups were randomly assigned to experimental or control interventions. One woman did not meet the criteria because she had a prior history of skin cancer. Eighteen women (nine from each group) failed to return the posttest to the investigator. The final sample consisted of 28 women, 13 in the experimental group and 15 in the control group.

The mean age of the sample was 36 years with a standard deviation of 10.15. The range was 22 to 70 years. The mean age of the experimental group was 35.85 with a standard deviation of 10.97. The range was 27 to 70 years. The control group's mean age was 36.13 with a standard deviation of 9.78. The range was 22 to 51 years. The two groups' mean age and standard deviation are similar. The subjects in the experimental group had an older age range than the control group. Table 1 displays the data for age.

All of the respondents had completed at least 12 years of education. The mean was 14.82 with a standard deviation of 2.21. The range of years education was 12 to 19. The experimental group's mean was 15.77 with a standard deviation of 2.13. The range was 12 to 19 years. The control group's mean was slightly lower, 14.07 with a standard deviation of 2.09. The range was 12 to 17 years. Table 2 displays the data for years of schooling completed by subjects.

One-half of the respondents described their skin as burning moderately, then tanning gradually. The remainder of the respondents were divided into four categories. Seven percent described their skin as always burning and never tanning. Eighteen percent always burned, but did tan slightly. Fourteen percent burned minimally and tanned well. Eleven percent rarely burned and tanned very well. No one had very black skin that never burned.

The majority (31%) of the experimental group described their skin as burning moderately and tanning gradually. Twenty-three percent always burned and tanned slightly. Equal numbers of respondents (15%)

Table 1. Age of the Sample: Experimental and Control Groups

	Sample (n=28)	Experimental Group (n=13)	Control Group (n=15)
\bar{X}	36.00	35.85	36.13
SD	10.15	10.97	9.78
Range	22-70	27-70	22-51

Table 2. Years of Schooling Completed by Subjects

	Sample (n=28)	Experimental Group (n=13)	Control Group (n=15)
\bar{X}	14.82	15.77	14.07
SD	2.12	2.13	2.09
Range	12-19	12-19	12-17

were in the remaining three categories: always burn, never tan; burn minimally, tan well; rarely burn, tan very well.

The control group was similar to the experimental group. The majority of respondents (67%) burned moderately and tanned gradually. Equal numbers (13%) always burned, tanned slightly and burned minimally, and tanned gradually. Seven percent rarely burned and tanned very well. The control group was dissimilar in that no one was categorized as always burning, never tanning. Table 3 displays the frequency distribution for skin type of the subjects.

The majority (79%) of the subjects spent 0 to 25% of their time, per week, in the sun. The remainder (21%) spent 26 to 50% of their time, per week, in the sun. No one spent greater than 50% of their total week exposed to the sun.

More people in the experimental group (31%) spent a greater amount of time in the sun (26-50%) than the control group (13%) before the intervention. After the intervention, the experimental group (85%) spent less time in the sun (0-25%) than the control group (80%). After the intervention, the experimental group reported spending less time in the sun. After the intervention, the control group reported spending more time in the sun. Table 4 displays the amount of time respondents spent in the sun before and after the intervention.

Reliability of the Instrument

The Skin Care Questionnaire (Appendix C) was the instrument used to collect data. Reliability coefficients were done on the pre-

Table 3. Frequency Distribution for Skin Type

	Sample (n=28)		Experimental Group (n=13)		Control Group (n=15)	
	n	%	n	%	n	%
Always Burn, Never Tan	2	7	2	15	0	0
Always Burn, Tan Slightly	5	18	3	23	2	13
Burn Moderately, Tan Gradually	14	50	4	31	10	67
Burn Minimally, Tan Well	4	14	2	15	2	13
Rarely Burn, Tan Very Well	3	11	2	15	1	7
Never Burn, Skin Very Black	0	0	0	0	0	0
Total	28	100	13	100	15	100

Table 4. Time Per Week Spent in the Sun: Pre- and Posttests

Time in Sun	Pretest		Posttest	
	n	%	n	%
Experimental Group (n=13)				
0-25%	9	69	11	85
26-50%	4	31	2	15
Total	13	100	13	100
Control Group (n=15)				
0-25%	13	87	12	80
26-50%	2	13	3	20
Total	15	100	15	100

and posttest items 5 to 17. The pretest alpha was 0.59 and the posttest alpha was 0.78. A reliability coefficient above 0.70 is considered satisfactory (Polit and Hungler, 1983).

The same instrument was used for both pre- and posttests. Differences in the alpha may have been related to two factors. The posttest was the second exposure to the instrument and, therefore, the respondents were more familiar with the format and questions. A second factor was that respondents completed the posttest at home, at their leisure and may have spent more time completing the instrument. These two factors may account for the difference in alpha coefficients.

Analysis of Findings

The hypothesis stated there would be a difference of behavior scores between those subjects who received instruction on self-care behaviors for skin cancer prevention utilizing the democratic teaching strategies of responsibility, natural and logical consequences, and encouragement, and those subjects who received instructions utilizing the traditional authoritarian teaching style.

The pre- and posttest scores of the experimental and control groups are shown in Table 5. The higher score reflects more positive skin cancer prevention behaviors. The experimental group ($\bar{x} = 34.00$) began with more positive behaviors than the control group ($\bar{x} = 31.87$).

Both groups' posttest scores decreased reflecting less positive skin cancer prevention behaviors after the intervention. The experimental groups' mean score decreased by 1.23 to 32.77. The control groups' mean decreased by 1.40 to 30.47.

Table 5. Pre- and Posttest Scores on Skin Care Questionnaire

	Pretest		Posttest	
	\bar{x}	SD	\bar{x}	SD
Experimental Group (n=13)	34.00	6.67	32.77	10.63
Control Group (n=15)	31.37	7.37	30.47	7.73

ANCOVA was used to statistically control for the variance in the pretest scores of items 7 to 17 (Table 6). The pretest scores of the two groups were significantly (0.001) different. The main effects of the intervention were not significant (0.91) when the scores of the covariate were controlled. The posttest scores indicate the experimental group had significantly (0.001) higher skin care questionnaire scores than the control group. While the pre- and posttest scores were significantly different for experimental and control groups, the difference was attributed to pretest group differences rather than effects of the intervention.

Item-by-item comparison of items 7 to 17 revealed that changes did occur between pre- and posttest scores but the change was not significant (< 0.50). Table 7 shows the experimental group changed positively on seven items, negatively on three and had no change on one item. The control group changed positively on two items, negatively on seven, and no change on two items. Total change for the experimental group was +0.89. Total change for the control group was -1.57.

Summary

This chapter presented the characteristics of the sample, the reliability of the instrument and the analysis of findings. The final sample consisted of 28 women, 13 in the experimental group and 15 in the control group. The instrument was found to be reliable and the alpha coefficient for the posttest was 0.78.

Table 6. Control of Variance of Pretest Scores

(n=28)

Source of Variation	Sum of Squares	DF	Mean Square	F	Significance of F
Covariates	1184.80	1	1184.80	28.38	0.001
Prescores	1184.80	1	1184.80	28.38	0.001
Main Effects	0.58	1	0.58	0.01	0.91
Democratic Teaching Strategies	0.58	1	0.58	0.01	0.91
Explained	1185.38	2	592.70	14.20	0.001
Residual	1043.58	25	41.74		
Total	2228.96	27	82.55		

Table 7. Item-by-Item Change From Pre- to Posttest

Item	Change	
	Experimental	Control
7. Use sunscreen with SPF	+0.24	-0.20
8. Use facial sunscreen	+0.42	-0.20
9. Sunscreen before going outside	-0.03	-0.45
10. Work/play outside at noon	+0.39	0.00
11. Wear protective clothing	+0.33	+0.27
12. Lay in sun to tan	+0.20	-0.33
13. Use lipblock/balm	+0.03	-0.20
14. Sunscreen outdoors	0.00	-0.33
15. Reapply sunscreen	-0.48	-0.27
16. Overexposed	+0.10	0.00
17. Check for moles	<u>+0.35</u>	<u>+0.14</u>
Total	+0.89	-1.57

The hypothesis was not supported. Democratic teaching strategies did not significantly improve the self-care behavior scores for skin cancer prevention. The experimental and control groups' posttest scores were lower than the pretest scores. Item-by-item comparisons revealed that the experimental group had more positive changes in behavior on the posttest than the control group.

CHAPTER 5

CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS FOR FURTHER STUDY

This chapter discusses the results of the study in relationship to the theoretical framework and the literature review. Implications for nursing are also addressed, as are limitations of the study. Suggestions for areas of further study are recommended.

Findings in Relation to the Theoretical Framework

The goal of health education is to promote positive health behaviors for clients. The theoretical framework for this study suggests democratic teaching strategies will promote positive self-care behaviors for skin cancer prevention. Democratic teaching suggests clients take responsibility for self and, therefore, promote self-determination (Litwack et al., 1980). Democratic teaching strategies include responsibility, natural and logical consequences and encouragement (Dreikurs and Soltz, 1964).

Education is the primary method used to promote skin cancer prevention and early detection (Hilborne and Wolf-Greenberg, 1983). The dissemination of skin cancer prevention information has been attempted in an authoritarian manner and has met with limited success.

The democratic approach has not been used widely in health care. Hagermann's (1982) study, using democratic strategies, did

improve toothbrushing behavior in children. Hagermann's study supports the use of democratic teaching strategies for skin cancer prevention.

The theoretical framework postulated that the Carlson Sun Awareness pamphlet would promote positive self-care behaviors on the skin care questionnaire. The results of the study did not support the theoretical framework. The Carlson Sun Awareness pamphlet was the independent variable manipulated in the study. ANCOVA statistically controlled for the variance in the pretest scores of the experimental and control groups. Democratic teaching strategies did not significantly improve self-care behavior scores for skin cancer prevention among these subjects.

Conclusions

The skin care questionnaire is a new instrument developed for this study. The alpha coefficient (0.78) showed it to be reliable for internal consistency for this small sample of women. Further use of this instrument with other samples would validate its usefulness in measuring self-care behaviors for skin cancer prevention. The skin care questionnaire can be a valuable instrument in conducting studies related to prevention behavior.

A sample of 28 women was used to test the effectiveness of democratic teaching strategies on self-care behaviors for skin cancer prevention. The intervention was not statistically significant for this sample. Item-by-item comparisons revealed slight, but positive changes in self-care behavior of the experimental group. The control

group had more negative changes in behavior. Replication of this study with larger and more heterogeneous samples might give support for the use of democratic teaching strategies for skin cancer prevention.

This study concerned itself with teaching skin cancer prevention via democratic teaching strategies. These strategies could be used for other health promotion programs. Research needs to be conducted to validate the effectiveness of democratic teaching strategies for areas of health education.

Limitations

There are several limitations to this study. The results of this study must be interpreted with these limitations in mind.

The first limitation is the small sample size ($n=28$). The recommended sample size for this study was 40, 20 in each group. The experimental group only had 13. The small sample size was due to the significant number of respondents who failed to return their posttest to the investigator. A sample of this size may not be a true example of a population. A larger sample would be more indicative of a true population.

Secondly, the sample consisted of all women. The results of this study may only be applied to the female population because men's behaviors were not tested. The women may have been more receptive to changing their behaviors because the behaviors for skin cancer prevention also have positive cosmetic effects. Avoidance of the sun and the use of facial and body sunscreen also promote a youthful appearance

which is currently an important American value. Women tend to be more concerned about their youthful appearance than men.

The third limitation is that all respondents had completed high school or had college education. The democratic teaching strategies may only be effective with educated people. This is unlikely though, since democratic strategies are typically used with children. Therefore, education is probably not a significant factor.

Fourth, the strategies were used only for skin cancer prevention behaviors. The results cannot be generalized to other types of teaching material without further study.

Fifth, this study was conducted in a southwestern city where the incidence of skin cancer is high. Therefore, the information was relevant to the respondents. The results of this study may not have been similar in another geographic area. Democratic teaching strategies need to make the information relevant to the recipients of the information.

The last limitation is that the study only measured a short-term (two week) behavior change. Sun awareness behaviors need to be practiced over time to promote skin cancer prevention. The time limitation to complete this study prevented measurement of behavior change on a long-term basis. An initial behavior change does indicate learning occurred and these behaviors may be repeated in the future.

Implications

This study had positive implications for democratic teaching strategies. Democratic methods of promoting self-care for skin cancer prevention can be used in many settings by nurses. Nurses can promote primary prevention for skin cancer prevention through community programs, school health programs, health fairs and through medical facilities (i.e., hospitals, clinics, physicians' offices). Nurses can use the Carlson Sun Awareness pamphlet to educate clients individually or in groups.

Recommendations

The first recommendation is to repeat this study several times with larger samples and more diverse groups. Men, children, teenagers and heterogeneous groups need to be tested to see if democratic teaching strategies alter behavior significantly.

It is also recommended that an item be added to the tool to determine ethnic origin. Conclusions can then be drawn to determine if these strategies are more effective with different ethnic groups.

Studies should attempt to measure the change in health behaviors over a period of time. A longitudinal study would indicate if democratic teaching strategies are effective in changing behavior for a specific period of time.

APPENDIX A
HUMAN SUBJECTS APPROVAL



THE UNIVERSITY OF ARIZONA

TUCSON, ARIZONA 85721

COLLEGE OF NURSING

MEMORANDUM

TO: Joanne Landau Carlson
8237 E. Third Place
Tucson, AZ 85710

FROM: Ada Sue Hinshaw, PhD, RN ^{ASH} Katherine Young, PhD, RN
Director of Research Chairman, Research Committee

DATE: February 5, 1985

RE: Human Subjects Review:
Democratic Teaching Strategies for Skin Cancer Prevention

Your project has been reviewed and approved as exempt from University review by the College of Nursing Ethical Review Subcommittee of the Research Committee and the Director of Research. A consent form with subject signature is not required for projects exempt from full University review. Please use only a disclaimer format for subjects to read before giving their oral consent to the research. The Human Subjects Project Approval Form is filed in the office of the Director of Research if you need access to it.

We wish you a valuable and stimulating experience with your research.

ASH/fp

APPENDIX B
DISCLAIMER

APPENDIX B

DISCLAIMER

DEMOCRATIC TEACHING STRATEGIES FOR SKIN CANCER PREVENTION

You are being asked to participate voluntarily in a study entitled "Democratic Teaching Strategies for Skin Cancer Prevention." The purpose of this study is to collect information on the effectiveness of teaching skin cancer prevention.

Completion of a questionnaire indicates your consent and willingness to participate in the study. There are no costs or risks to you in your participation. The investigator will be available to answer any questions you may have while you are completing the questionnaire. A second questionnaire will be mailed to you approximately two weeks later with a stamped, addressed envelope. You are requested to complete the second questionnaire at home and mail it to the investigator. The questionnaire takes approximately five to 10 minutes to complete.

All information collected during the study will be kept confidential. If the results of this study are published, you can be assured you will not be identified by name. A summary of the results of this study will be provided to you upon request.

You may withdraw from this study at any time. If you have any questions, please contact the investigator at the address below. Thank you for your participation in this study.

Joanne Landau Carlson, B.S., R.N.
8237 East Third Place
Tucson, Arizona 85710
(602) 298-3843

APPENDIX C
SKIN CARE QUESTIONNAIRE

APPENDIX C

SKIN CARE QUESTIONNAIRE

Name _____ ID _____

Address _____

Phone _____

1. Age _____
2. Sex _____
3. Years of education completed _____
4. Have you ever had skin cancer? Yes _____ No _____
If yes, where? _____

Circle the answer that best describes your behavior.

5. After sun exposure:
 1. I always burn easily and never tan.
 2. I always burn easily and tan slightly.
 3. I burn moderately, then tan gradually.
 4. I burn minimally, always tan well.
 5. I rarely burn and always tan very well.
 6. I never burn and my skin is very black.
6. I spend an average of _____ of my time in the sun per week.
 1. 0-25%
 2. 26-50%
 3. 51-75%
 4. 76-100%
7. I use a sunscreen with a sun protection factor (SPF) of:
 1. I don't use sunscreen.
 2. 1-4.
 3. 5-8.
 4. 8-10.
 5. 11-15.

Circle the answer that best describes your behavior.

	Never.....				Always
8. I use sunscreen on my face.	1	2	3	4	5
9. I apply sunscreen before going outside.	1	2	3	4	5
10. I work (or play) outside in the sun at noon.	1	2	3	4	5
11. I wear long sleeves and pants when I work (or play) outdoors.	1	2	3	4	5
12. I lay in the sun to deepen my tan.	1	2	3	4	5
13. I use lipblock or balm on my lips.	1	2	3	4	5
14. I use sunscreen during the time I am outdoors.	1	2	3	4	5
15. I reapply sunscreen during the time I am outdoors.	1	2	3	4	5
16. If I have overexposed my skin to the sun, I spend the next few days inside or covered up.	1	2	3	4	5
17. I check my body on a regular basis for changes in skin moles.	1	2	3	4	5

APPENDIX D
PERMISSION TO USE ARIZONA SUN AWARENESS PAMPHLET



The University of Arizona

1885

April 8, 1985

Joanne Carlson
College of Nursing
Campus

Der Joanne:

This letter is to authorize use of the brochure, Sun Awareness:
Living Well in Arizona as part of your thesis.

If you require additional information, please feel free to contact
me.

Sincerely,

A handwritten signature in black ink, appearing to read "K. Hazelkorn".

Karin S. Hazelkorn, Program Coordinator
Arizona Sun Awareness Project

KSH/nar

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SKIN CANCER

What can you do about it?

Follow these helpful hints:

1. Wear protective clothing of long sleeves, pants, wide brimmed hats, and sunglasses that screen out ultraviolet light.
2. Apply a sunscreen with a sun protection factor (SPF) of 15, or sunblock, 30 minutes before going outside and at frequent intervals.
3. Avoid the sun's peak hours of 10 a.m. to 3 p.m. when the sun's rays are strongest. Use sunscreen.
4. Work early or late in the day if you have to be out in the sun.

It is up to YOU to take care of your skin. The natural consequences of sun exposure are:

Premature aging of the skin
Wrinkling
Leathery and rough skin
Sunburn and peeling
SKIN CANCER

You can protect yourself after overexposure by:

Avoiding the sun while your skin heals.

Wear protective clothing while out in the sun.

Use sunscreen.

After following these few helpful hints, notice:

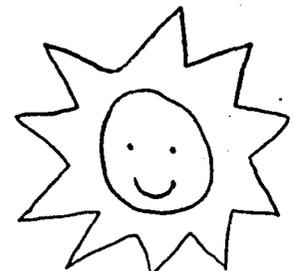
How soft and smooth your skin feels.

Be confident with the knowledge that your skin looks healthier and younger without a tan.

Tanning only ages your skin faster and produces a rough leathery appearance.

Be proud that you are doing all you can to prevent skin cancer.

Enjoy the sun SAFELY!



SUN FACTS

The accumulation of skin damage from the sun begins when we are babies. Therefore, parents should protect the skin of their children, just as they protect their own. Most skin cancer is detected in 30 to 70 year olds.

Keep in mind that a suntan is not a sign of health. Instead, it is a sign that your body is trying to defend itself from the burning rays of the sun. While a tan may help protect you from a sunburn, it does not protect you from premature aging or skin cancer.

The ultraviolet (UV) portion of sunlight is the leading cause of skin cancer. UV light cannot be felt and is invisible. Seventy to 80% of UV light can penetrate cloud cover and water. That's why it is important to protect your skin even on cloudy days and in the swimming pool. UV rays reflect off surrounding surfaces, like water, patio floors, sand and snow. You can still burn under a hat, beach umbrella or shade tree due to the reflecting light.

Skin cancer can be deadly! Early detection and treatment can cure most skin cancer.

WARNING SIGNALS ARE:

1. A sore that does not heal.
2. Change in size or color of a wart or mole.
3. Development of any unusual pigmented area.

If you have any of these warning signs....SEE YOUR DOCTOR!

SUNSCREEN FACTS

The first key to prevention of skin cancer and other damages is the use of SUNSCREEN.

In Arizona, use a sunscreen year-round for healthy and protected skin.

The sun protection factor (SPF) is directly proportional to the sunscreen's protective potential. The higher the number, the more protective it is. The estimated time for safe sun exposure is the SPF x 20 minutes. Doctors advise everyone who lives or visits in Arizona to use a sunscreen with a SPF of 15.

Lips should also be protected. Use of a special lipblock or balm with a SPF of 15 is suggested.

Sunscreens work best when applied 30 minutes before going out in the sun. Sunscreens should be applied to all exposed parts of the body. Don't forget your ears, back of your neck, throat, hands, balding spots on the head, and tops of your feet. Reapply the sunscreen at least every few hours in the summer, especially after swimming or perspiring heavily.

For further information:

ARIZONA SUN AWARENESS PROJECT

TUCSON, ARIZONA 85724

(602) 626-7935

SUN AWARENESS

Are you at risk for skin cancer?
Take this personal risk factor test and see.

Do you work outdoors? Yes No

Is your skin light? Yes No

Are your eyes light? Yes No

Do you sunburn or freckle easily? Yes No

Do you spend alot of time in the sun "working" on your tan? Yes No

Do you expose your body to the sun without the protection of long sleeves, pants or sunscreen? Yes No

Do you live in an area where the sun is very intense more than 3 months of the year? Yes No

If you answered Yes to any of the above questions, then YOU are at high risk for developing

SKIN CANCER

Joanne Landau Carlson, M.S., R.N.
College of Nursing
University of Arizona, 1985

Figure 2

Sunscreen Facts

The first key to prevention of skin cancer and other damages is use of **SUNSCREEN**.

In Arizona, use a sunscreen year-round for healthy and protected skin.

In sunscreens, the higher the number the better. Doctors advise everyone who lives in or is visiting in Arizona to use a sunscreen with a Sun Protection Factor of 15 (SPF 15).

Lips should also be protected. Use a special lipblock or balm with SPF 15.

Sunscreens work best when applied 30 minutes before going out in the sun.

That way the suncreening agent has time to react with your skin.

Sunscreens should be applied to every part of your body exposed to the sun.

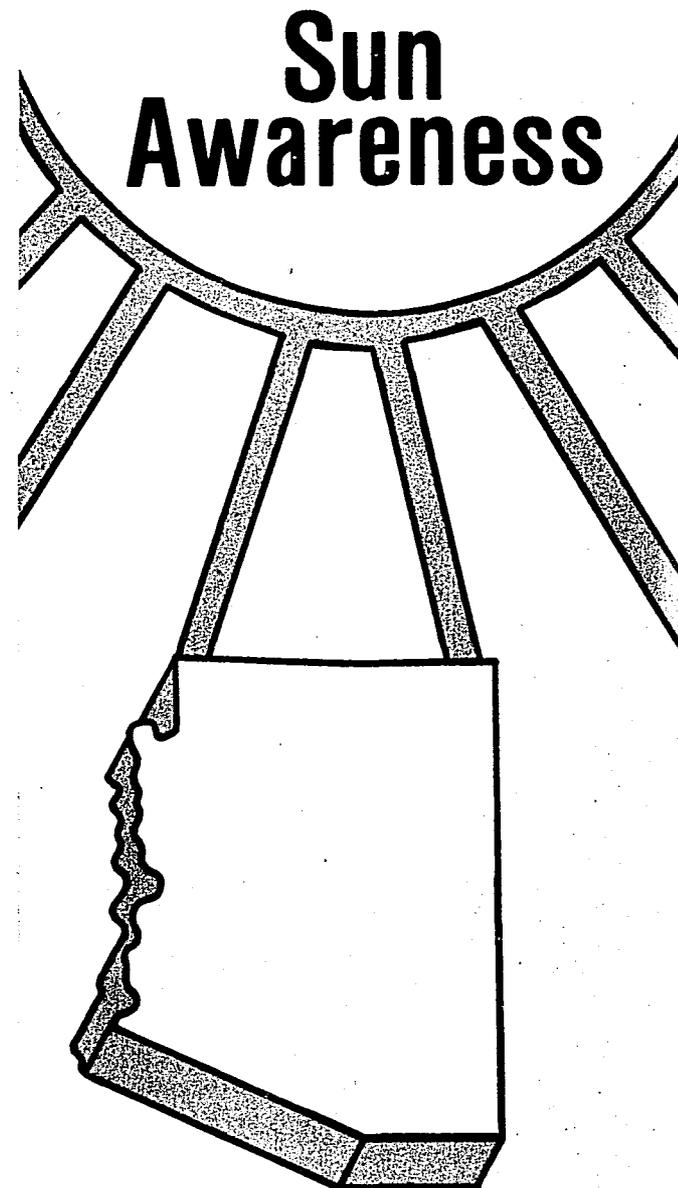
Don't forget your ears, back of your neck, throat, hands, balding spots on the head and tops of your feet.

Reapply the sunscreen at least every couple of hours in the summer and after you've been swimming or perspiring heavily.

For Further Information:
Arizona Sun Awareness Project
Tucson, AZ 85724
(602) 626-7935

The Arizona Sun Awareness Project is a skin cancer education program of the Arizona Cancer Center, a division of the University of Arizona College of Medicine.

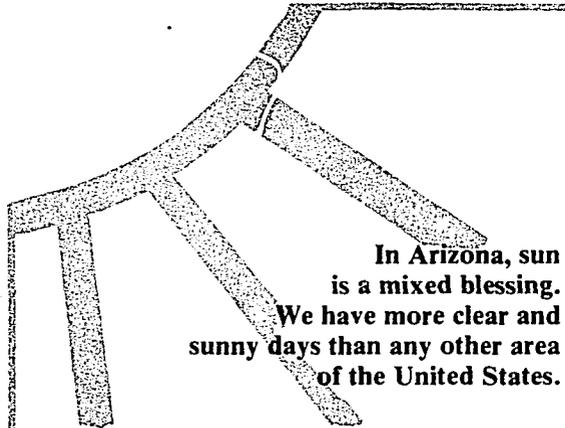
Arizona Sun Awareness Project
Arizona Cancer Center
Tucson, AZ 85724



Joanne Landau Carlson, M.S., R.N.
College of Nursing
University of Arizona, 1985

Figure 3

**Living
Well
in
Arizona**



In Arizona, sun is a mixed blessing. We have more clear and sunny days than any other area of the United States.

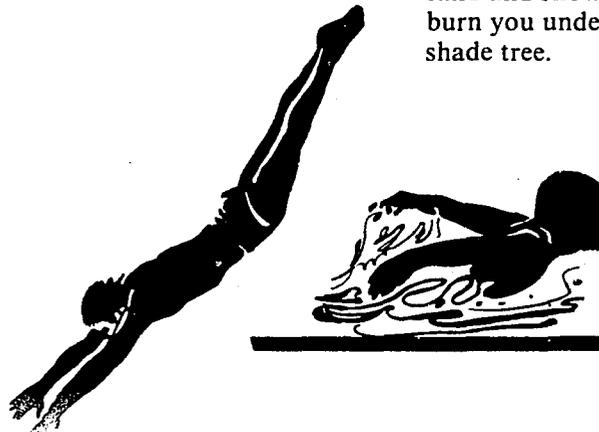
But this sun can also cause
wrinkling
premature aging of the skin
leathery and rough skin
sunburn
skin cancer

Skin cancer is a serious health problem. One form of skin cancer is potentially fatal.

Arizona has the highest rate of skin cancer in the United States, yet more than 95% of those cancers can be prevented.

Everyone in Arizona is at high risk for developing skin cancer due to the high sun intensity, latitude, altitude and clear skies.

You are at higher risk if you
work outdoors
have light skin
have light eyes
sunburn or freckle easily



It is possible to protect your skin while you work and enjoy outdoor activities.

Here's How:

1. Use a sunscreen with a high SPF (Sun Protection Factor). SPF 15 gives maximum protection.
2. Avoid the sun between 10 a.m. and 3 p.m. when the sun's rays are strongest. Work or play outdoors earlier or later whenever you can.
3. In addition to the sunscreen, cover up. Wear long sleeves, long pants, wide-brimmed hats and protective sunglasses that screen out ultraviolet light.
4. Know your skin moles (blemishes) and see a doctor when they change.

Sun Facts

The accumulation of skin damage from the sun begins when we are babies. Therefore, parents should protect the skin of babies and children, just as they protect their own.

Keep in mind that a suntan is not a sign of health. Instead it is a sign that your body is trying to defend itself from the burning rays of the sun.

While a tan may help protect you from sunburn, it does not protect you from premature aging, wrinkling or skin cancer.

The ultraviolet (UV) portion of sunlight is the leading cause of skin cancer. UV light is invisible and cannot be felt.

Even though it isn't visible, 70-80% of UV light can penetrate cloud cover and water. That's why it is important to protect your skin even on a cloudy day and in the swimming pool.

Remember that UV rays reflect off surrounding surfaces. Water, patio floors, sand and snow all reflect enough sunlight to burn you under a hat, beach umbrella or shade tree.