# Does the awareness of the health risks from tanning differ in an 18-30 year-old age group compared to a 31-55 year-old age group?

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**Abstract.** Purpose: Indoor and outdoor tanning are popular activities in American culture. However, over-exposure to ultraviolet (UV) radiation is of considerable concern for public health. This study compared the perceptions of the harmful effects of tanning, as well as attitudes and behaviors, between two age groups. Results may be helpful in determining the need for continuing education in our communities and schools and encouraging public policy regarding tanning bed use. Methodology: A 29-item survey was designed and administered to a sample of Wichita State University students. Data was analyzed using Chi-Square and compared responses of the two age groups, as well as between genders. The sample size included one hundred and nine 18-30 and forty-one 31-55 year-old college students. There were 104 females and 46 males. Results: An association was found between age and 1) whether most of their friends try to get a tan; 2) whether they only wear sunscreen when someone tells them to; 3) whether they felt good about wearing sunscreen in the summer months; 4) knowledge that those with light colored eyes and blonde hair are at greatest risk. In general, females feel good about wearing sunscreen, agree that getting even one sunburn can increase one's risk of skin cancer and disagree that the risk of skin cancer is low in tanning salons compared to males in the study. Conclusions: Data suggests that young people may engage in risky behavior because other young people are engaging in that same behavior, only wear sunscreen when told to, and feel less comfortable wearing sunscreen to protect themselves from UV radiation than older adults. Because this study had a small sample size, with more than twice the number of 18-30 year-olds completing the survey than 31-55 year-olds, caution should be used in generalizing the results. Further research should attempt to include a larger number of participants, with study groups being similar in number, gender and ethnic background. Geographical differences could also be studied.

## 1. Introduction

The sun is a necessary source of energy for all living organisms. Ultraviolet light from the sun enables the body to produce vitamin D, which plays an important role in the formation of blood cells, immune function, and the development of the skeletal system [1]. Aside from solar UV exposure, tanning beds emit UVA and UVB radiation as well. Tanning beds predominately emit UVA radiation, which is thought to be least damaging of the UV radiation spectrum. Nevertheless, in recent years, manufacturers have produced tanning beds that emit higher levels of UVB to mimic the natural solar energy, thus speeding up the tanning process [2]. Over-exposure to UV radiation has been increasing in prevalence in the last two decades, and is associated with the development of skin cancer, eye damage (e.g. cataracts), and suppression of the immune system. Between two and three million non-melanoma skin cancers and approximately 132,000 malignant melanomas occur globally each year. The World Health Organization (WHO) states that 1 in every 3 cancers diagnosed worldwide is a skin cancer [2]. Thus, skin cancer is a major health concern. In Western countries, artificial tanning has been thought to play an important role in the increased prevalence of skin cancer since the 1970's, with the rate of skin cancer increasing 4% annually [1]. UV over-exposure also contributes substantially to premature skin aging. Recent studies have shown that 90% of teenage girls, who frequent tanning salons, admit to knowing that tanning is a health risk, yet continue to use them anyway [3].

## 2. Methodology and Results

Methodology: A survey was designed to assess the attitudes, awareness, and behaviors regarding the health risks posed by tanning. Following approval by the Institutional Review Board (IRB) of Wichita State University, the survey was administered to one hundred nine students aged 18-30 years and forty-one students aged 31-55 years. Statements ranged from the frequency of sunburns from artificial tanning and sunbathing, to one's attitudes toward tanning. For example, participants were asked to respond to statements about how being tan makes them feel, whether or

not one looks healthier with a tan, and how they feel about being pale when their friends have a tan. In addition, statements addressed one's awareness of the health risks involved in ultraviolet exposure, who is an at risk population for developing skin cancer, if a person can die from melanoma, and if the best way to prevent a sunburn is to get a base tan first. Data was analyzed using Pearson Chi-Square.

Results*:* More students aged 18-30 years agreed or strongly agreed to the statement, "most of my friends try to get a tan" compared to the 31-55 year-olds (p=.016). More of the 18-30 year-olds agreed or strongly agreed to the statement, "I only wear sunscreen if someone tells me to wear it," compared to students aged 31-55 years (p=.026). Less of the 18-30 year-olds agreed or strongly agreed to the statement, "when I do wear sunscreen I feel good about wearing it during warmer months of the year;" compared to the 31-55 year-olds (p=.003). Less of the 18-30 year-olds agreed or strongly agreed to the statement, "redheads, blondes, and those with light colored eyes are at greatest risk for skin cancer" compared to the 31-55 year-olds (p=.004). (Table 1)

Table 1: Awareness of health risks and behavior of tanning*

| | 18-30 years | | 31-55 years | |
|---|---|---|---|---|
| | Agree | Disagree | Agree | Disagree |
| ▪Most friends tan | 55% | 27% | 46% | 24% |
| ▪Wears sunscreen if someone tells me | 19% | 61% | 7% | 76% |
| ▪Feels good about SPF warm months | 38% | 27% | 56% | 17% |
| ▪Redheads, blondes are greatest risk | 36% | 29% | 41% | 27% |

(p< .05), * "Agree" includes both "strongly agree and agree." "Disagree" includes both "strongly disagree and disagree."

Females in the study tended to feel good about wearing sunscreen, agreed that getting even one sunburn can increase one's risk of skin cancer and disagreed that the risk of skin cancer is low in tanning salons compared to males in the study.

## 3. Conclusions

Over-exposure to ultraviolet radiation from the sun or irradiation from a tanning bed is of considerable public health concern, being a major risk factor in the increased incidence of skin cancer, cataracts, and immune suppression. This study suggests that young people tend to perceive their friends as wanting to get a tan, only utilize sunscreen if prompted to, and don't feel good about wearing sunscreen in the warmer months. A lack of awareness that skin pigmentation affects cancer risk may indicate a gap in the knowledge of major risk factors from over-exposure to UV radiation among adolescents and young adults. However, the study group was small and there was more than twice as many 18-30 year-olds as 31-55 year-olds. The group also had a greater number of females (104) compared to males (46). Caution should be used in generalizing the results to other groups. Further research should attempt to include a larger number of participants, with study groups being similar in number, gender and ethnic background. Geographical differences could also be studied. Perhaps this study and others will encourage more preventive efforts in schools and can influence the passage of laws that set limits on commercial tanning bed use.

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