

# Skin Cancer Knowledge, Attitudes And Behaviors In A Chinese-Speaking Sample

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## Abstract

**Background:** In individuals of Chinese descent, skin cancers are less common but are associated with greater morbidity and mortality compared to those in persons of other ethnic groups. However, skin cancer awareness and behaviors in this population are not well described.

**Objective:** To begin to understand skin cancer and sun protection knowledge, attitudes and behaviors in the Chinese speakers of San Francisco.

**Methods:** We conducted a cross-sectional survey analysis in the waiting rooms of outpatient primary care and dermatology clinics in San Francisco in 2013. Chinese-speaking participants responded to questions about demographics, skin cancer risk and history, knowledge, attitudes and behaviors related to skin cancer and sun protection.

**Results:** The sample included 58 Chinese speakers. Almost half of the Chinese speakers had poor understanding about skin cancer risk factors. Nonetheless, they were unlikely to have suffered sunburn in the past and to believe that suntans are attractive. The Chinese speakers were also unlikely to have seen a dermatologist or received skin screening.

**Conclusions:** Our results highlight an opportunity to improve skin health for Chinese speakers through targeted interventions.

## INTRODUCTION

Skin cancer, including basal cell carcinoma, cutaneous squamous cell carcinoma, and malignant melanoma, affects individuals of Asian descent less frequently than individuals of other ethnicities, although its incidence has been increasing in Asians since the 1960s<sup>1,2</sup>. Skin cancer outcomes are poorer in the Asian population compared with those of the general population in the US<sup>3–6</sup>. For example, melanoma in Asians is associated with advanced stages at the time of diagnosis and lower survival rates<sup>3,6,7</sup>. Differences in outcomes may result from delays in correct diagnosis<sup>8–10</sup> due to multiple factors, including inadequate access to healthcare, atypical presentation of skin cancer, and lower skin cancer awareness in minority individuals<sup>11,12</sup>. However, little is known about skin cancer awareness specifically in Chinese individuals living in the US. Thus, we aimed to learn about skin cancer and sun protection knowledge, attitudes, and behaviors in Chinese individuals by assessing Chinese-speaking individuals in

San Francisco.

## METHODS

We performed a cross-sectional survey of Chinese-speaking residents of San Francisco, California, presenting at clinics of the San Francisco General Hospital (SFGH) and Department of Public Health (DPH) between August 2013 and December 2013. A questionnaire was developed from previous surveys<sup>13,14</sup> and was translated from English to Chinese. The questionnaire addressed demographics, skin cancer risk factors, and previous history of skin cancer; knowledge about the risk factors associated with skin cancer; attitudes towards sun protection and tanning; frequency of sun protection behaviors; and counseling received from physicians about reducing skin cancer risk. To compare the responses of our sample about sun protection behaviors with those from a national sample, we obtained data from the 2011–2012 National Health and Nutrition Examination Survey Questionnaire (NHANES) on dermatology<sup>15</sup>.

Participants self-reported their ethnicity by responding to the question, “What is your ethnicity?” and a question about whether they speak a Chinese dialect. Individuals who identified their ethnicity as “Chinese”, “Taiwanese”, or “Hong Kongese” and responded “Yes” to the question “Do you speak Chinese or a Chinese dialect?” were considered “Chinese speakers” for the purposes of this study.

## RESULTS

There were 58 Chinese speakers in the analysis, and their demographics are shown in Table 1. The Chinese speakers consisted of 94.8% Mainland Chinese individuals, 3.4% Hong Kongese individuals, and 1.7% Taiwanese individuals. Ninety-one percent of these participants were current-generation immigrants. The overall response rate was 90.0%.

**Table 1**

Characteristics of survey respondents.

CHARACTERISTIC	CHINESE SPEAKERS (N=58), NO. (%)
<b>Age categories (years)</b>	
18-30	2 (3.45)
31-50	14 (24.14)
51-70	39 (67.24)
71-90	3 (5.17)
<b>Sex</b>	
M	21 (36.21)
F	37 (63.79)
<b>Highest Education level</b>	
Elementary school	9 (15.52)
Middle school	15 (25.86)
High school	24 (41.38)
College	8 (13.79)
Graduate school	1 (1.72)
<b>Race / Ethnicity</b>	<b>% of group</b>
Mainland Chinese	55 (94.8)
Hong Kongese	2 (3.4)
Taiwanese	1 (1.7)
<b>Generations since immigration</b>	
Current generation	53 (91.38)
1 generation ago	4 (6.90)
2 generations or more ago	0 (0.00)
Unsure	1 (1.72)
<b>Fitzpatrick scale</b>	
I-II	15 (25.86)
III-IV	38 (65.52)
V-VI	5 (8.62)
<b>Format of survey completion</b>	
Self Report	18 (31.03)
Interview	40 (68.97)
<b>Number of past blistering sunburns</b>	
0	41 (70.69)
1-5	10 (17.24)
6-10	4 (6.90)
>10	2 (3.45)

Responses to the survey questions are described in Table 2. In terms of skin cancer risk and detection, 28.0% of the Chinese speakers had suffered at least one sunburn. The vast

majority of the participants (90.0%) had never received physician counseling involving sun protection, including applying sunscreen and avoiding the sun at midday. Only 8.9% of the Chinese speakers had ever received skin screening by a physician.

**Table 2**

Response choices for items involving knowledge, attitudes and behaviors about skin cancer and sun protection.

ITEMS				MEDIAN (25 <sup>th</sup> , 75 <sup>th</sup> percentiles)
<b>Skin cancer-related knowledge (%)</b>	<b>Good</b>	<b>Average</b>	<b>Poor</b>	
My current understanding about ways to avoid skin cancer is: (%)	11.2	18.4	70.4	2.0 (1.0, 3.0)
	<b>Agree</b>	<b>Neither agree nor disagree</b>	<b>Disagree</b>	
Skin cancer is related to too much sun exposure	38.6	43.9	17.5	3.0 (3.0, 4.0)
Melanoma is the most dangerous type of skin cancer.	53.4	41.4	5.1	4.0 (3.0, 4.0)
Moles on people's skin often change in appearance.	31.0	39.7	29.3	3.0 (2.0, 4.0)
My skin will age more quickly if I spend time in the sun.	72.4	17.2	10.3	4.0 (3.0, 4.3)
I know what changes to look for in my moles that may be skin cancer	23.1		76.9	
<b>Attitudes about skin cancer (%)</b>				
A suntan makes me look more attractive	12.3	15.8	71.7	2.0 (1.0, 3.0)
<b>Behaviors involving skin cancer (%)</b>	<b>Most of the time</b>	<b>Sometimes</b>	<b>Rarely</b>	
I avoid being in the sun during the middle of the day	23.7	30.9	45.4	3.0 (1.0, 3.8)
I stay in the shade/move out of the sun	36.4	43.6	20.0	3.0 (3.0, 4.0)
I use high SPF sunscreen (>30)	12.8	12.1	74.6	1.0 (1.0, 3.0)
I wear clothes / hats to keep me protected from the sun	27.3	25.5	47.3	3.0 (1.0, 4.0)

When responding to questions about skin cancer knowledge, most Chinese speakers answered with “neither agree nor disagree”. In total, 70.4% of the participants reported that their knowledge involving skin cancer prevention was poor. Most (76.9%) did not know the changes to look for in a mole that may signify skin cancer, and 17.5% of the participants disagreed that skin cancer was related to sun overexposure.

In terms of sun protection attitudes, only 12.3% agreed that a suntan is attractive. When asked about their sun-protection behaviors, 36.4% reported that they seek shade or avoid the sun “Always” or “Most of the time”. Further, 27.3% reported that they wore clothes or hats to stay protected from the sun “Always” or “Most of the time”. Only 7.3% of the participants had ever used a tanning bed.

## DISCUSSION

Compared with non-Hispanic White NHANES participants, the Chinese speakers used a different pattern of sun protection. They more frequently wore long sleeves (27.3% Chinese speakers vs. 8.2% NHANES Whites) and stayed in the shade (36.4% Chinese speakers vs. 26.7% NHANES Whites) compared with the NHANES Whites, but used sunscreen less frequently (9.1% Chinese speakers vs. 35.2%

NHANES Whites).

In this study in San Francisco, we found that Chinese speakers reported poor understanding about skin cancer and were unable to identify risk factors for developing skin cancer. Nonetheless, the participants chose to sun protect because they are aware that sun exposure causes skin aging. Only a minority found tanned skin attractive. Our study is consistent with previous findings that minority individuals have lower levels of skin cancer awareness. Though they valued paler skin<sup>12</sup> and were less likely to have suffered blistering sunburns in the past, they were also unlikely to have received skin screening. They used staying in the shade and clothing more frequently than sunscreen for sun protection<sup>12,16,17</sup>, a pattern that is disparate from that of typical white Americans. Most of the participants had never received counseling about sun protection or how to check for atypical moles and skin cancer.

## **LIMITATIONS**

Because our study was exploratory in nature, there are limitations to our interpretations. We surveyed a small number of persons from a single city. Our sample included most commonly first-generation immigrants with low socioeconomic status, which is known to play a role in skin cancer awareness in ethnic minorities<sup>10</sup>.

## **CONCLUSIONS**

In conclusion, the Chinese speakers in our study had poor knowledge about skin cancer and were unlikely to have received skin screening. However, sun protection behaviors in this group may be as good or better than the average white American. These results highlight an opportunity to improve skin health for Chinese-speaking persons through targeted interventions, such as education and skin screening. It is possible that sun protection interventions highlighting the risk of skin aging may be more effective in this group than those highlighting skin cancer risk. These results also emphasize the importance of addressing ethnic<sup>18</sup> disparities in skin cancer with tailored skin cancer prevention messages that are developed based on the needs of specific communities.

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