

THE RISK

1 OUT OF 5



Americans will develop skin cancer by age 70.

20%

OF AMERICANS WILL DEVELOP SKIN CANCER BY THE AGE OF 70

MORE THAN 2 PEOPLE DIE OF SKIN CANCER EVERY HOUR



5+

SUNBURNS DOUBLES YOUR RISK FOR MELANOMA

MELANOMA EARLY DETECTION FIVE-YEAR SURVIVAL RATE (U.S.)

98%

Skin Cancer

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PREVIEW



01

Data Source & Loading

02

Explanatory Analysis

- The most common skin cancer
- Relationship between age & cancer
- Gender difference

03

Three Minute Story

Data Source & Loading

01

DATA SOURCE



Kaggle | Skin Cancer MNIST: HAM10000

<https://www.kaggle.com/kmader/skin-cancer-mnist-ham10000>

01

Environment Set-up

```
import matplotlib.pyplot as plt  
import matplotlib.style as style
```

```
import numpy as np  
import pandas as pd  
import os  
import seaborn as sns
```

```
style.use('seaborn-poster') #sets the size of the charts  
style.use('ggplot')
```

01

Data Process

```
df =  
pd.read_csv('examples/HAM10000_metadata.  
a.csv')  
df.head(10)
```

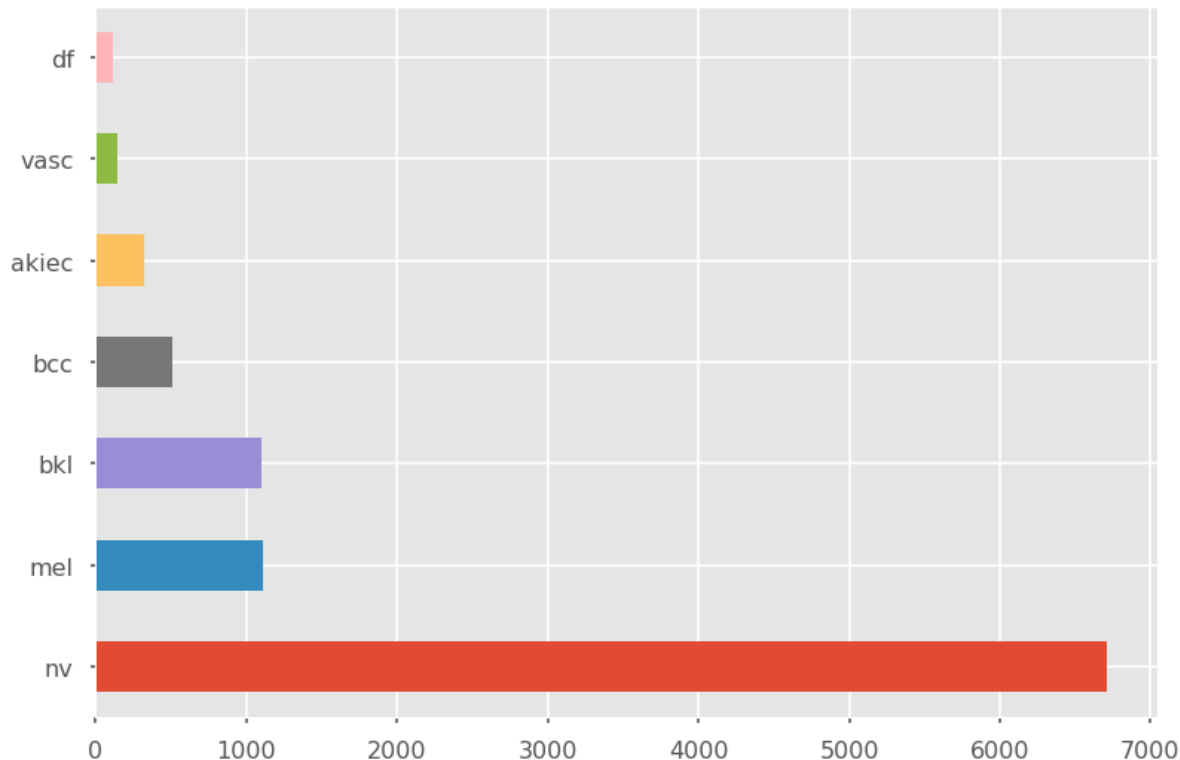
	lesion_id	image_id	dx	dx_type	age	sex	localization
0	HAM_0000118	ISIC_0027419	bkl	histo	80.0	male	scalp
1	HAM_0000118	ISIC_0025030	bkl	histo	80.0	male	scalp
2	HAM_0002730	ISIC_0026769	bkl	histo	80.0	male	scalp
3	HAM_0002730	ISIC_0025661	bkl	histo	80.0	male	scalp
4	HAM_0001466	ISIC_0031633	bkl	histo	75.0	male	ear
5	HAM_0001466	ISIC_0027850	bkl	histo	75.0	male	ear
6	HAM_0002761	ISIC_0029176	bkl	histo	60.0	male	face
7	HAM_0002761	ISIC_0029068	bkl	histo	60.0	male	face
8	HAM_0005132	ISIC_0025837	bkl	histo	70.0	female	back
9	HAM_0005132	ISIC_0025209	bkl	histo	70.0	female	back

Explanatory Analysis

Explanatory Analysis - Type

Different types of skin lesions

```
df['dx'].value_counts().plot(kind='barh')
```



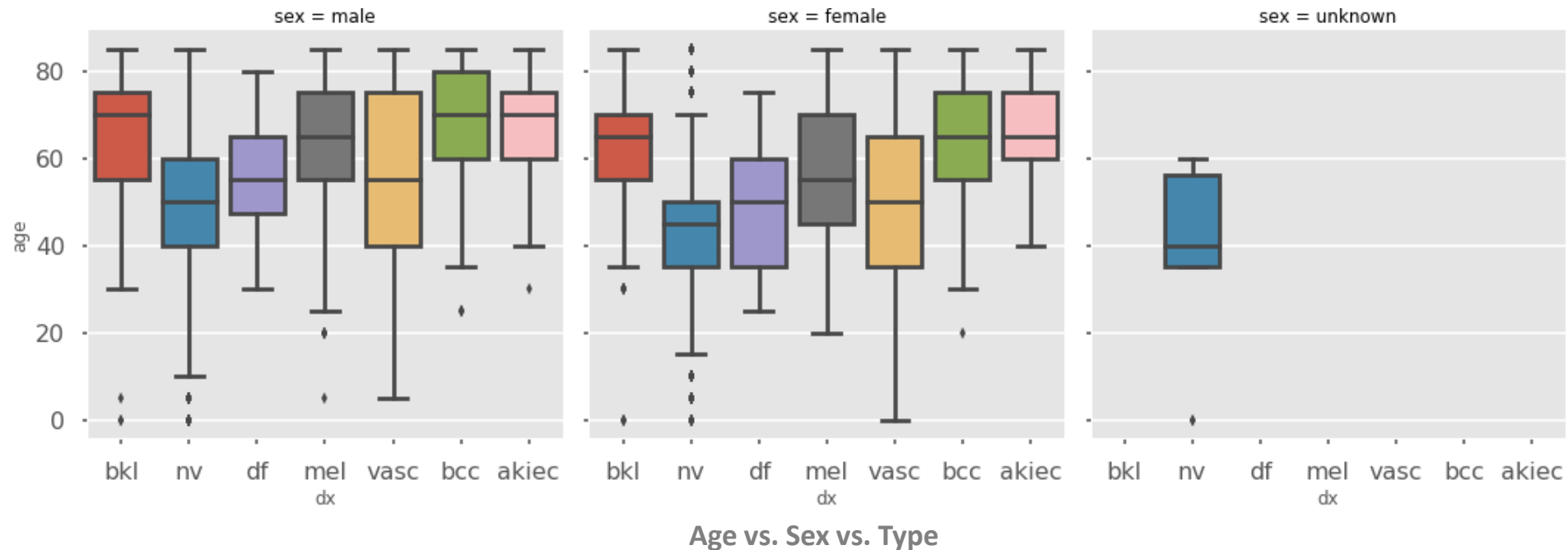
Explanatory Analysis - Age

Age distribution

```
sns.distplot(df.age.dropna()).set_title("Age Distribution")
```

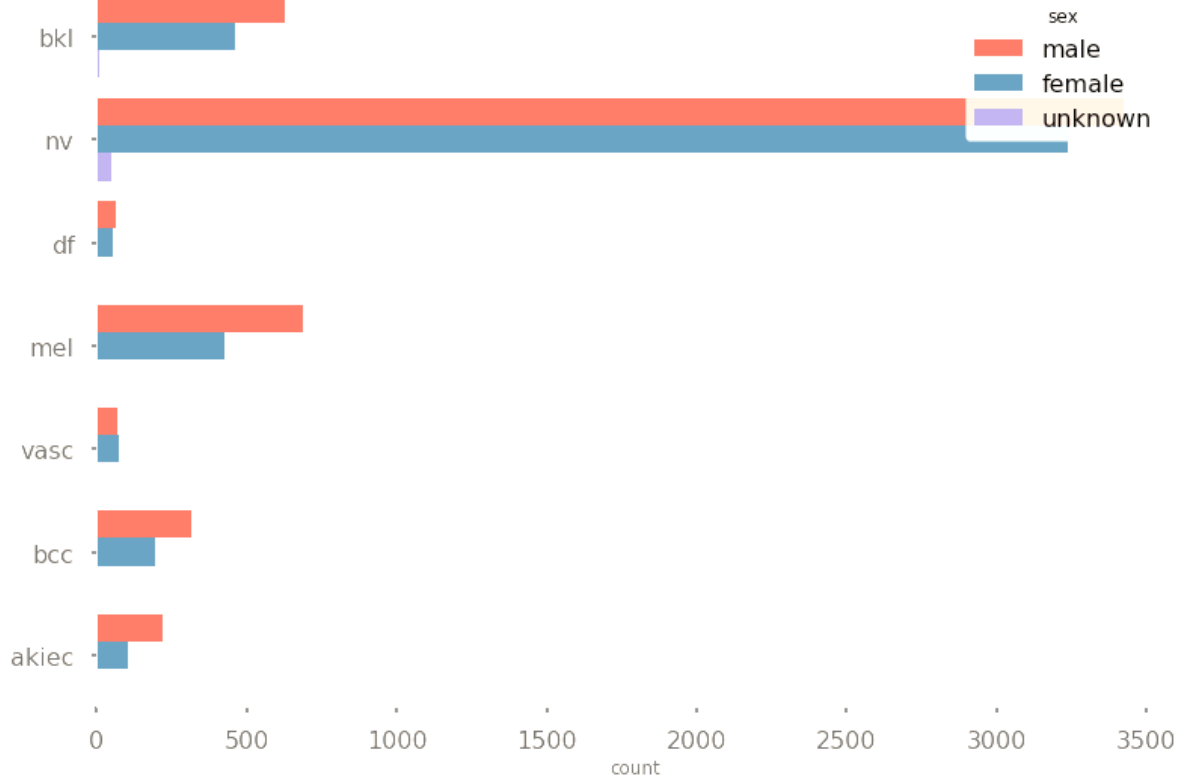


Explanatory Analysis – Gender Difference



```
sns.catplot(x="dx", y="age", col="sex", kind="box", data=df)
```

Explanatory Analysis – Gender Difference



Distribution of males and females

```
sns.countplot(y="dx", hue="sex", data=df)
```

Why melanoma strike men harder?

Fact	Men who knew this is true	Women who knew this is true
There is no such thing as a healthy tan.	56%	76%
A base tan cannot protect you from the sun's harmful rays.	54%	70%
Skin cancer can develop on skin that gets intermittent or less sun.	56%	65%

A survey conducted by the American Academy of Dermatology in 2016

Prevent Melanoma

- Stay out of the sun when the sun's rays are strongest (from 10 a.m. to 2 p.m.)
- Wear sunscreen year-round, even on cloudy days
- Wear long sleeves and pants when possible
- Avoid tanning beds
- Check your skin regularly and report changes to your doctor

Three Minute Story

Three Minute Story



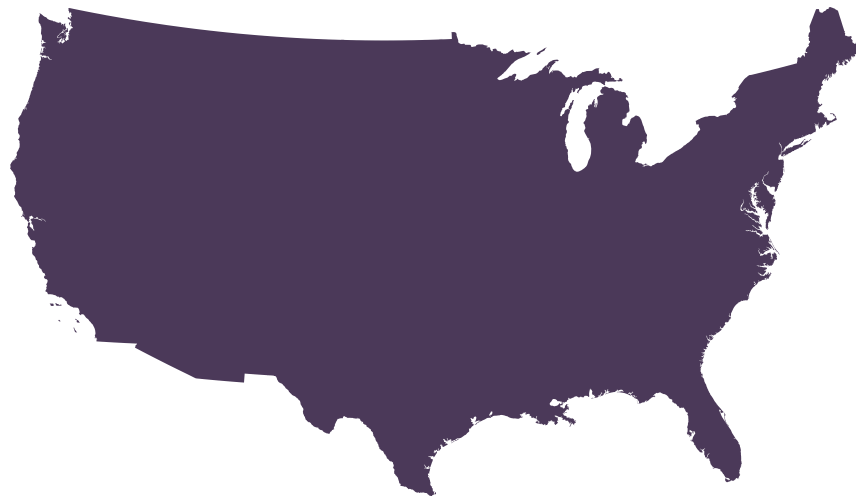
THE MOST COMMON SKIN CANCER



AGE AND SKIN CANCER



GENDER DIFFERENCE IN SKIN CANCER



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Thanks for Watching

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