Phase 5

PUBLIC HEALTH AWARENESS COMPAIGN ANALYSIS

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TEAM ID	1280
PROJECT NAME	PUBLIC HEALTH AWARENESS COMPAIGN ANALYSIS

INTODUCTION:

In the realm of public health awareness campaign analysis, our journey has traversed an intricate path, weaving through the essential stages of data processing, design thinking, and the development phase. As we approach the final submission, our efforts culminate in a comprehensive and strategic culmination of these pivotal stages. The initial phase ushered in a meticulous handling of raw data, extracting insights, and preparing the groundwork for comprehensive analysis. Subsequently, our journey embraced design thinking, where innovation and human-centric strategies intertwined, paving the way for transformative approaches to campaign design and execution. The development phase saw the amalgamation of these insights and strategies into a tangible structure, refining data, and crafting actionable initiatives.

In this final submission, we merge the outcomes of these phases, encapsulating the distilled essence of data-driven decision-making, user-centric design, and technology-driven execution. The convergence of data processing, innovative methodologies from design thinking, and the refinement of strategic approaches has forged a robust framework aimed at delivering impactful and targeted public health campaigns. This synthesis marks not only the culmination of our efforts but also signifies the foundation

upon which effective and ethically conscious public health initiatives can be erected. This final submission serves as a testament to the journey undertaken, solidifying a comprehensive methodology poised to make a transformative impact in the realm of public health awareness.

2. Problem Statement:

In the landscape of public health awareness, our problem statement is a beacon illuminating the critical need to bridge the gap between information dissemination and behavioral change. Addressing the challenge of fostering proactive health-oriented actions within diverse communities, our focus revolves around the inefficiency in current awareness campaigns to instigate tangible, lasting transformations. Specifically, the issue lies in the disparate impact of generic, one-size-fits-all approaches. Our pursuit delves into the inadequacy of traditional campaigns in resonating with and engaging diverse demographics, failing to provoke substantial behavioral shifts. The problem encompasses the need for innovative, personalized strategies that transcend demographic boundaries, adapting to various audience segments. This inefficiency in eliciting meaningful responses within populations underscores our mission to craft a more tailored, impactful approach in driving behavioral change for improved public health outcomes.

3.Project objective:

1. Data Processing Objective:

   Goal: To preprocess and refine raw data from diverse sources, ensuring accuracy, consistency, and usability for subsequent analysis.

   Objective: Enhance data quality, address missing values, outliers, and inconsistencies, and transform data into a structured format suitable for analysis and insights generation.

2. Design Thinking Objective:

Goal: To innovate and design human-centric, targeted strategies for effective public health campaigns.

Objective: Employ a user-centered approach, leveraging innovative thinking to create personalized, engaging, and actionable initiatives that resonate with diverse demographics and drive behavioral change.

3. Development Phase Objective:

Goal: To integrate insights from data processing and design thinking into a functional campaign framework.

Objective: Refine data-driven decisions, leverage innovative strategies, and establish a comprehensive structure for campaign execution. This includes technology integration, ethical considerations, and the formulation of actionable campaign plans based on insights derived.

The collective aim across these phases is to synthesize data-driven insights with innovative, human-centric approaches, leading to the creation of an actionable framework for public health awareness campaigns. This overarching objective aligns data processing, design thinking, and development phases toward crafting impactful initiatives aimed at fostering positive behavioral changes in diverse communities for improved public health outcomes.

Design thinking process:

1. Empathize: Surveyed and engaged diverse community groups to understand their health-related behaviors and needs.

2. Define: Identified challenges including low engagement among younger demographics and disparities in health literacy.

3. Ideate: Brainstormed innovative solutions like gamification of health content and targeted social media campaigns.

4. Prototype:Developed low-fidelity mock-ups for social media posts, mobile app interfaces, and draft content structures for varied campaign approaches.

These all the steps done on the design thinking phase that gives the total approach of the project.

Data collection:

1. Digital Surveys and Forms: Use online surveys for efficient data llection.

2. Mobile Data Collection Apps: Gather real-time data via mobile apps.

3. Deploy IoT sensors for environmental insights: IoT Sensors for Environmental Data

 4. Wearable Devices for Health Data: Encourage wearable device use for health metrics.

5. Social Media Listening Tools: Monitor social media conversations and sentiment.

6. Data Scraping from Online Sources: Extract data from websites and social media.

7. Geospatial Data with GPS: Collect location-based data through GPS.

8. Machine Learning for Data Extraction: Automate data extraction using

9. Chatbots and Virtual Assistants: Engage users for data collection via AI chatbots.

10. Blockchain for Data Security: Ensure secure data transactions with blockchain.

11. QR Codes and NFC Tags: Simplify data entry with QR codes and NFC.

12. Gamified Data Collection: Enhance engagement with gamification elements.

13. Crowdsourcing Data Collection: Leverage crowdsourcing for diverse

data sources.

14. API Integrations for External Data: Import data from external sources via APIs.

15. Cross-Platform Data Integration: Create a unified dataset from various sources

VISUALISATION:

Visualization are done by the ibm cognos

1. **IBM Cognos Dashboards:**Used IBM Cognos to create interactive dashboards presenting campaign performance metrics.

2. **Visual Data Representation:** Leveraged diverse visualization types for clear representation of trends and audience engagement.

3. **Customization and Interactivity:** Enabled user interaction, allowing data filtering and deeper insights exploration.

4. **Real-time Reporting:** Displayed updated campaign metrics and performance in real-time for prompt decision-making.

5. **Design Principles Adherence:** Ensured clarity, readability, and user-friendly interfaces in visualizations.

6. **Multi-Source Data Integration:** Integrated various data sources for a comprehensive view of campaign performance.

7. **Mobile Compatibility:** Ensured adaptability and responsiveness of visualizations across devices for on-the-go insights.

Development phase:

importing libraries and loading the data:

import pandas as pd

```python
import numpy as np

import seaborn as sns

import matplotlib.pyplot as plt

#Loading the data

data = pd.read_csv('/kaggle/input/mental-health-in-techsurvey/survey.csv')
```

OUTPUT:

FINDING THE MISSING VALUES:

```python
 if data.isnull().sum().sum() == 0 :

 print ('There is no missing data in our dataset')

else:

 print('There is {} missing data in our dataset '.format(data.

isnull().sum().sum()))
```

output:

There is 1892 missing data in our dataset

CHECKING THE GENDER:

```python
print(data['Gender'].unique())

print('')
```

```
print('-'*75)

print('')

#Check number of unique data too.

print('number of unique Gender in our dataset is :'

, data['Gender'].nunique())
```

output:

```
['Female' 'M' 'Male' 'male' 'female' 'm' 'Male-ish' 'maile' 'Trans-female'
'Cis Female' 'F' 'something kinda male?' 'Cis Male' 'Woman' 'f' 'Mal'
'Male (CIS)' 'queer/she/they' 'non-binary' 'Femake' 'woman' 'Make'
'Nah'
'All' 'Enby' 'fluid' 'Genderqueer' 'Female ' 'Androgyne' 'Agender'
'cis-female/femme' 'Guy (-ish) ^_^' 'male leaning androgynous' 'Male
'
'Man' 'Trans woman' 'msle' 'Neuter' 'Female (trans)' 'queer'
'Female (cis)' 'Mail' 'cis male' 'A little about you' 'Malr' 'p' 'femail'
'Cis Man' 'ostensibly male, unsure what that really means']
---------------------------------------------------------------------------
number of unique Gender in our dataset is : 49
```

check for duplicated data

```
if data.duplicated().sum() == 0:

 print('There is no duplicated data:')
```

else:

 print('Tehre is {} duplicated data:'.format(data.duplicated().sum()))

 #If there is duplicated data drop it.

 data.drop_duplicates(inplace=True)

print('-'*50)

print(data.duplicated().sum())

output:

There is 4 duplicated data:

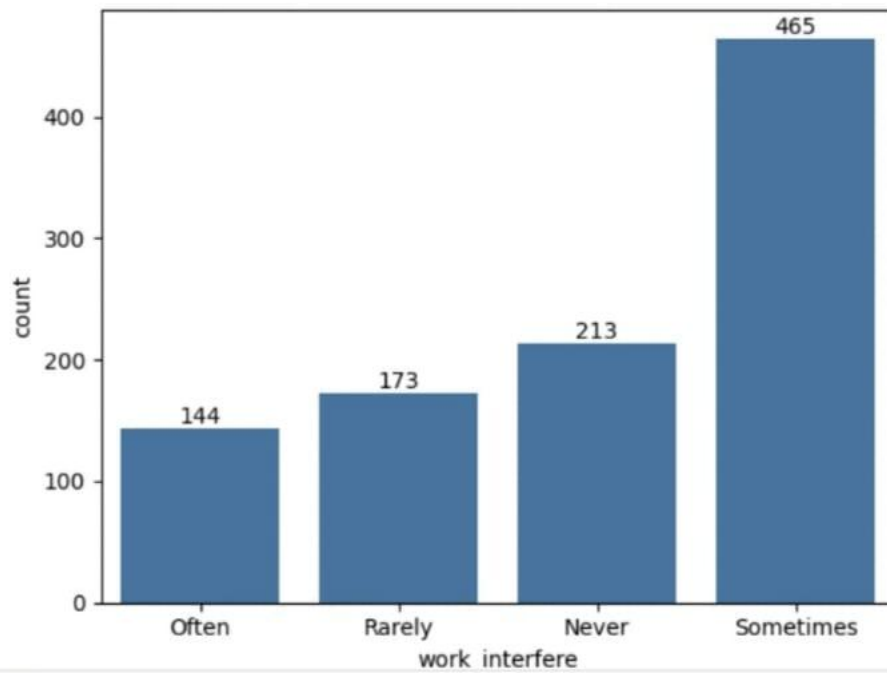## Plotting the graph in relation with work interfere and country.

 #Plot **work_interfere**

ax = sns.countplot(data = data , x = 'work_interfere');
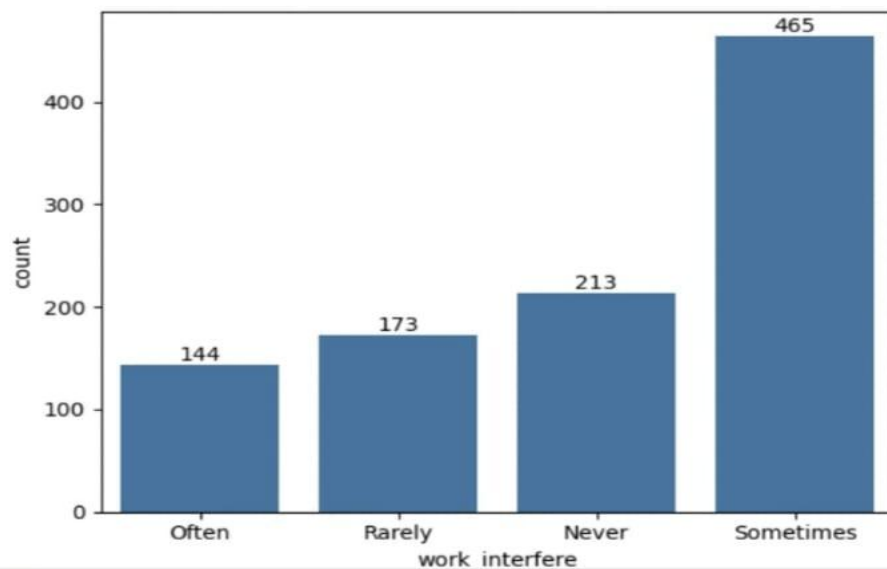
#Add the value of each parametr on the Plot

ax.bar_label(ax.containers[0]);

ax = sns.countplot(data=data, x='work_interfere');

ax.bar_label(ax.containers[0]);

OUTPUT:

#Plot Genders column after cleaning and new categorizing

ax = sns.countplot(data=data, x='Gender');
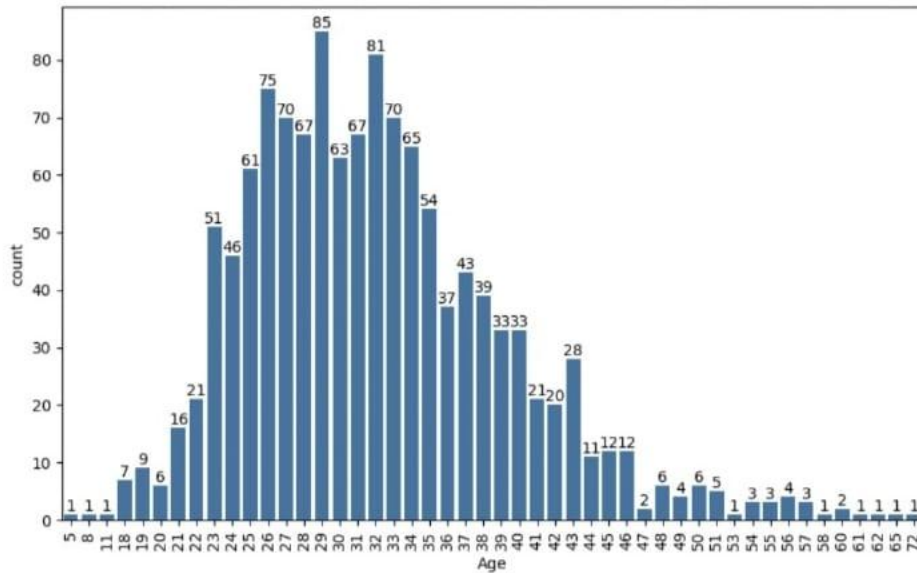
ax.bar_label(ax.containers[0]);

OUTPUT:
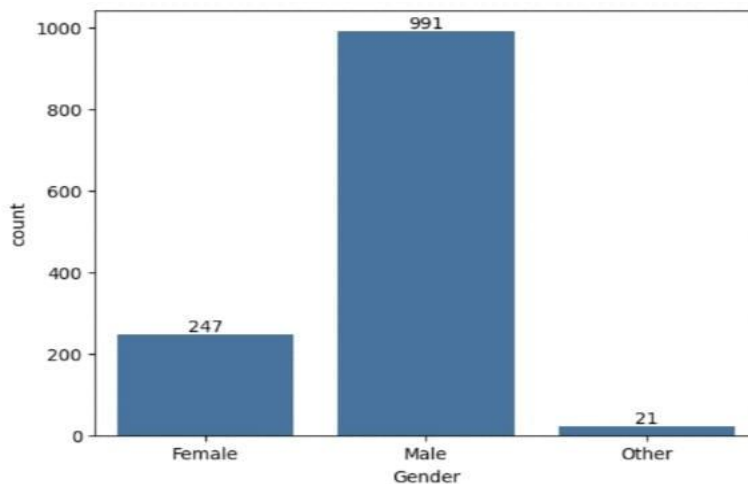
data['Age'].unique()

#Let's see the Age distribution in this dataset.

plt.figure(figsize = (10,6))

age_range_plot = sns.countplot(data = data, x = 'Age');

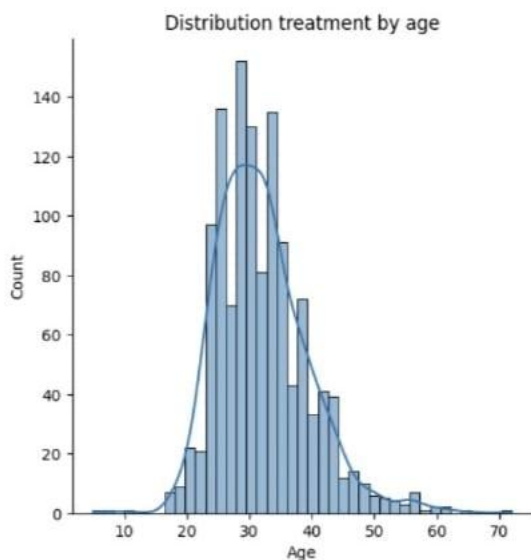age_range_plot.bar_label(age_range_plot.containers[0]);

plt.xticks(rotation=90);

#In this plot moreover on Age distribution we can

see treatment distribution by age

plt.figure(figsize=(10, 6));

sns.displot(data['Age'], kde = 'treatment');

plt.title('Distribution treatment by age');

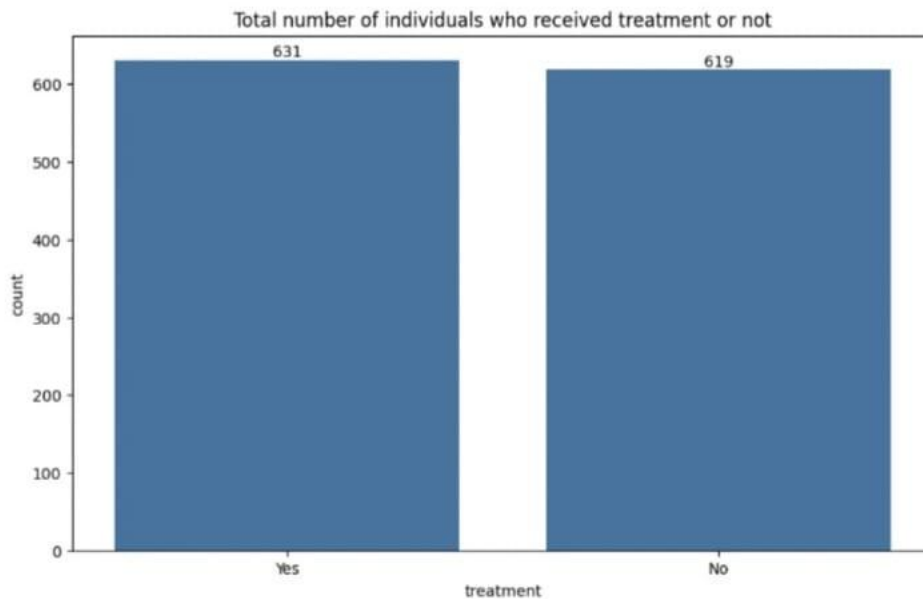#In this plot We can see Total number of individuals

who received treatment or not.

plt.figure(figsize = (10,6));

treat = sns.countplot(data = data, x =

'treatment');

treat.bar_label(treat.containers[0]);

plt.title('Total number of individuals who received

treatment or not');

Data Visualization on development phase

IBM COGNOS VISUALIZATION:

CHART-1

Chart Insights were computed because this visualization is based on
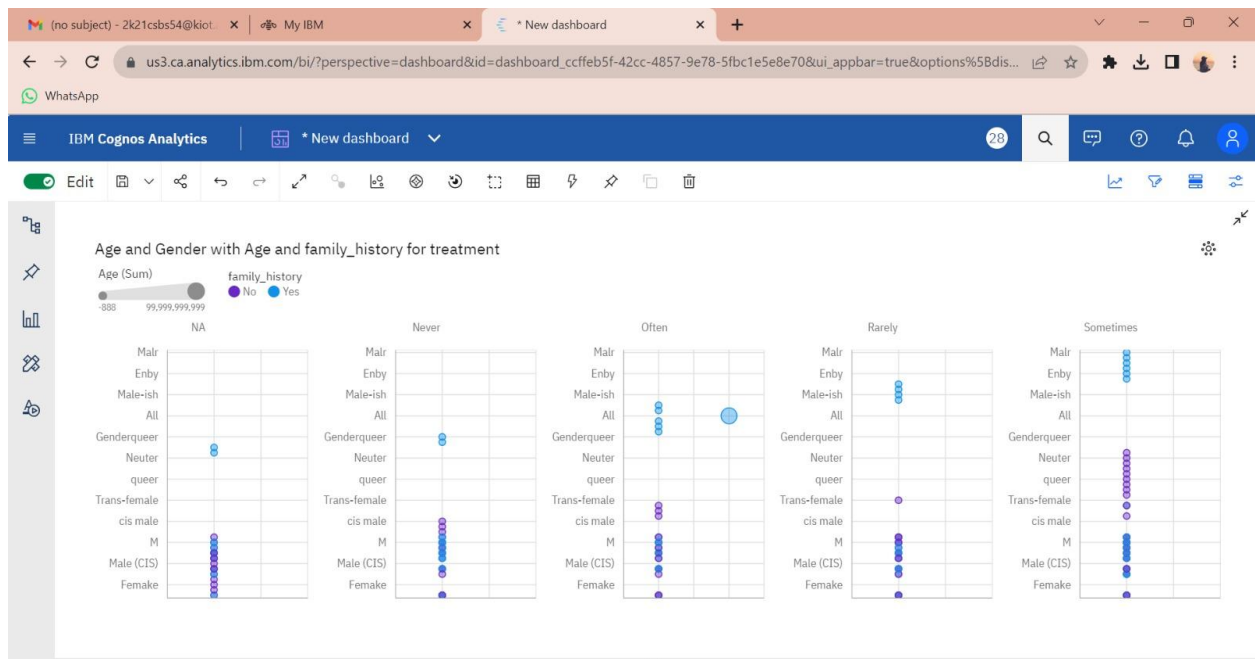
Age and gender.

CHART-2

Chart Insights were computed because this visualization is based on co workers with respect to the country.
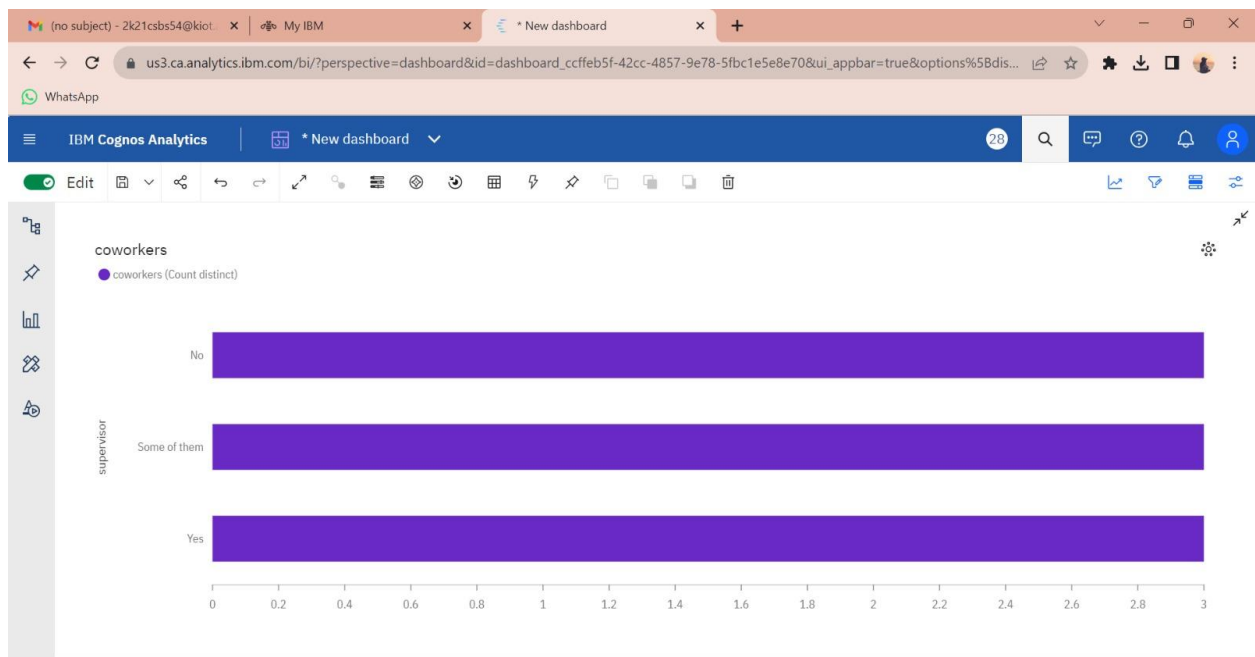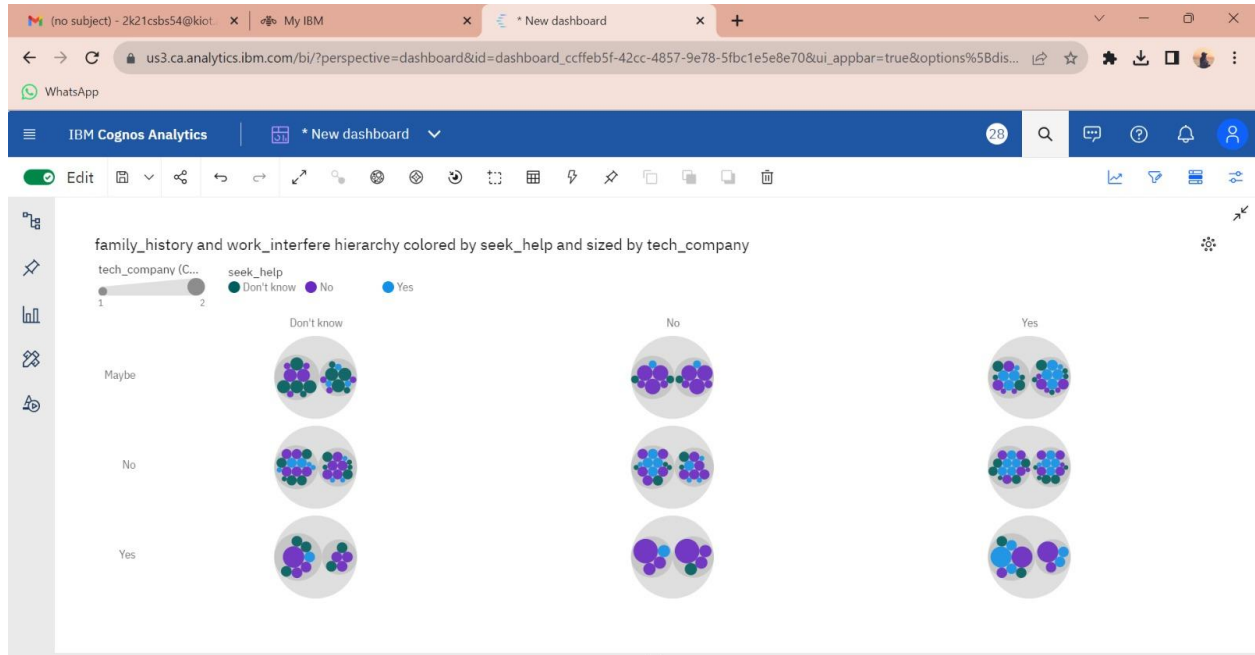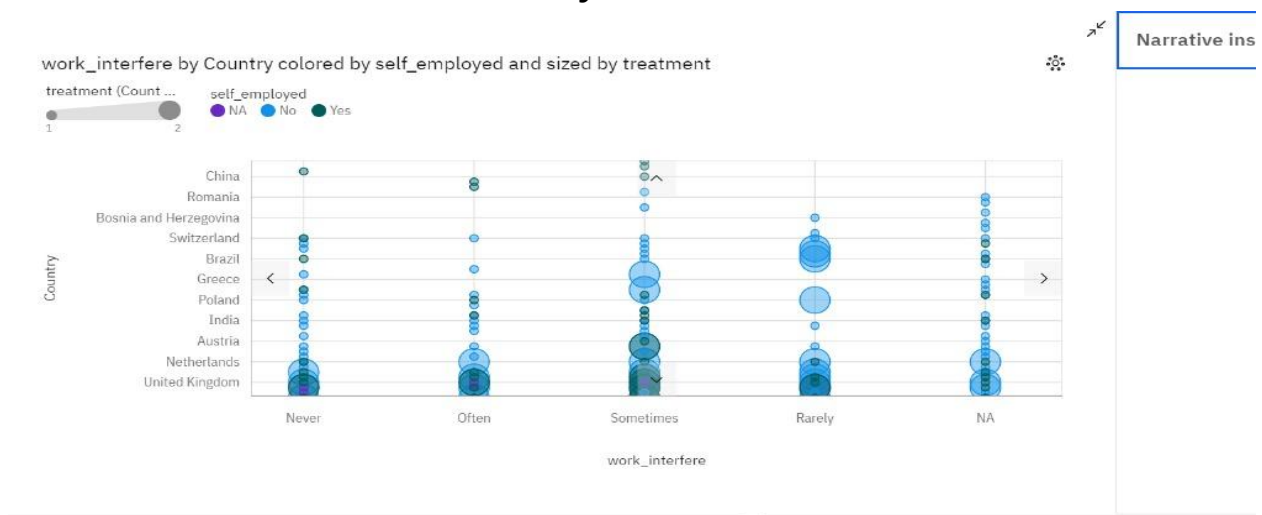
CHART- 3

Chart Insights were computed because this visualization is based on family history and work interfere hierarchy with respect to the tech company
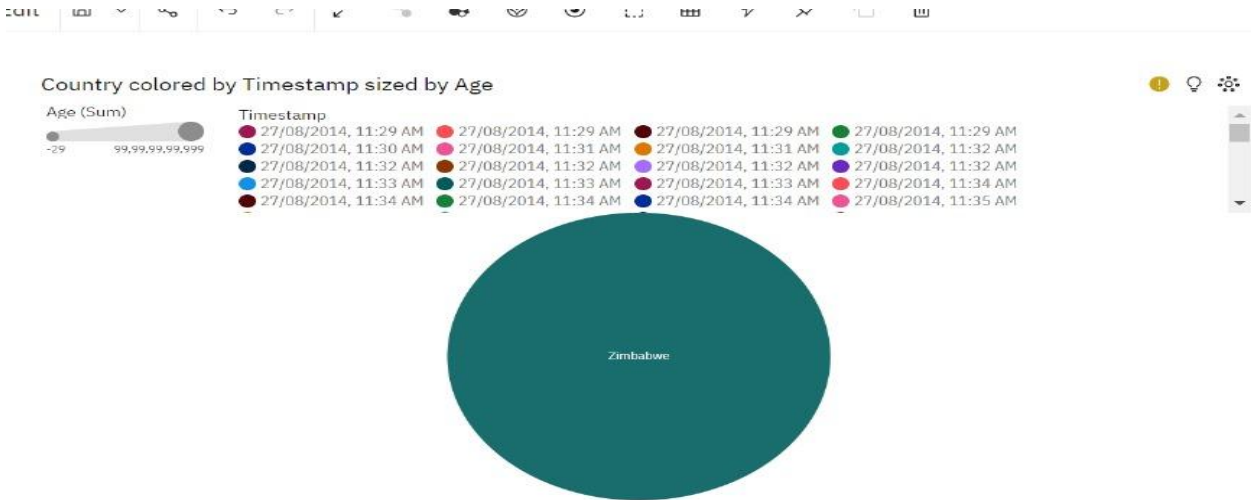

Visualization between country and work Interfere:

Visualization between country and gender:

Visualization between country and age:

Visualization between country, treatment and age

Insights from the analysis:

In the culmination of our project, the amalgamation of insights derived from rigorous data analysis holds the key to measuring campaign effectiveness and charting the course for future strategies. These insights serve as the compass guiding our endeavors, not only assessing the impact of our initiatives but also illuminating the path toward enhanced future strategies.

During the innovation phase, our focus on human-centric design and innovative thinking unearthed tailored, engaging initiatives. These initial insights into audience preferences, behaviors, and receptivity

to different campaign approaches underpin our ability to measure effectiveness. We can gauge campaign success by evaluating audience engagement metrics, behavioral changes, and the resonance of diverse strategies with distinct demographic segments.

Subsequently, the development phase further fortified these insights, integrating robust data findings and technological finesse into the fabric of our campaign framework. The learnings from analysis now enable us to navigate the roadmap for future strategies. Identifying successful tactics, understanding behavioral patterns, and recognizing the efficacy of different approaches serve as our compass in refining and optimizing future campaigns.

As we conclude this transformative journey, the insights garnered not only gauge the success of our past efforts but also crystallize a data-driven vision for future initiatives. They propel us toward crafting campaigns that are not only impactful but also adaptive, steering us toward the horizon of sustained behavioral change and improved public health outcomes.