

# Power BI: Turning Data into Actionable Insights



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## Step-by-step guide to install **Power BI Desktop** (the free version for Windows):

### System Requirements

Before installing, make sure your system meets these requirements:

- Operating System:** Windows 10 / 11 (64-bit)
- RAM:** Minimum 4 GB (8 GB recommended)
- Disk Space:** At least 1.5 GB free
- .NET Framework:** Version 4.7.2 or later

Power BI Desktop is ***not available for macOS*** directly — Mac users can use it via a **virtual machine** or Power BI Service (web version).

### Download Power BI Desktop

You have **two easy options**:

#### **Option 1: Microsoft Store (Recommended)**

1. Open the **Microsoft Store** on your Windows computer.
2. Search for “**Power BI Desktop**”.
3. Click **Install** or **Get**.
4. The store will automatically manage updates for you.

#### **Option 2: Download from Official Website**

1. Go to the official Microsoft Power BI download page:  
⇒ <https://powerbi.microsoft.com/desktop>
2. Click **Download free** → then select **Advanced download options** (if you need a specific version).
3. Choose the correct file:
  1. PBIDesktopSetup-x64.exe for 64-bit Windows (recommended)
  2. PBIDesktopSetup.exe for 32-bit Windows
4. Run the installer and follow on-screen instructions.

**Note: You have to register via Outlook ID.**

## Launch Power BI Desktop

- After installation, open **Power BI Desktop** from your Start menu.
- On the welcome screen, sign in with your **Microsoft account** (or skip sign-in).
- You'll see the **Home interface** with options to:
  - **Get Data** (from Excel, SQL, CSV, etc.)
  - **Transform Data**
  - **Create Visualizations**

# Introduction

**Power BI** is a powerful business analytics tool by Microsoft that serves several key purposes:

**Data Visualization:** Allows users to create interactive reports and dashboards that present data in visually appealing formats.

**Data Integration:** Connects to various data sources, including Excel sheets and cloud-based platforms, transforming them into coherent and meaningful insights.

**Business Intelligence:** Enhances decision-making by providing tools for advanced data analysis and interpretation.

**Collaboration:** Enables users to easily share reports and dashboards, promoting teamwork and knowledge sharing within organizations.

**Real-time Analysis:** Supports real-time data monitoring, allowing businesses to respond quickly to changing conditions.

In bioinformatics, massive datasets from genomics, proteomics, and clinical studies are hard to interpret. **Power BI** helps transform these complex results—like gene clusters, disease risk scores, and ML predictions—into clear, interactive visual dashboards.

**Today, I'll show how Power BI can go beyond business analytics to explore and visualize biological and healthcare data interactively.**

### **Power BI Desktop:**

Power BI Desktop resides on the local system and is used to build and publish reports.

### **Power BI Web service:**

It resides on the web as a website and is used to build reports, create dashboards, and share them with other users.

### **Power BI App:**

It is an app version of Power BI, which is used to view and share reports and dashboards.

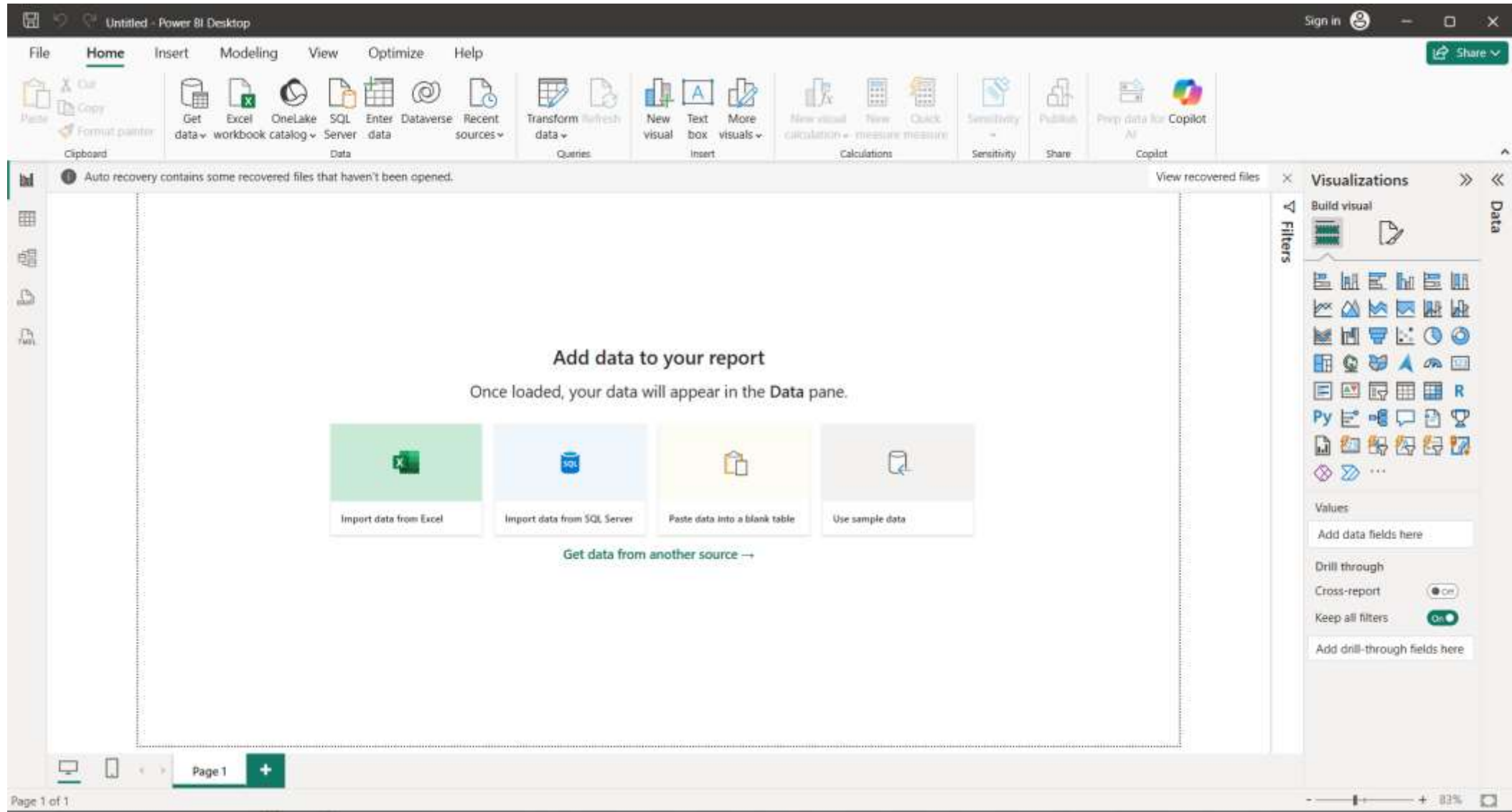
#### **Import**

- ☐ Power BI creates a copy of data from the source and stores it in the Power BI data model.
- ☐ We need to refresh the report in order to get the current data from the source.
- ☐ Once data is stored in the model, any change in the data source won't affect the Power BI report unless you refresh it.
- ☐ Import is available from multiple data platforms

#### **Direct Query**

- ☐ In this mode data is not stored in the Power BI data model and Power BI fetches data on the fly from the data source.
- ☐ Data is always updated.
- ☐ Direct query is only available for a subset of database platforms supported by the Power BI: SQL Server, Azure SQL database, Azure SQL data warehouse, Oracle, Teradata and SAP Hanna, etc.

- Enables **interactive dashboards**, **real-time updates**, and **data-driven insights**.
- Designed for business — but powerful for **bioinformatics**, **genomics**, and **clinical research** too.





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Sample Characteristic[bmi]

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2	SRR36171	Homo sapiens	<a href="http://purl.ACINW009">http://purl.ACINW009</a>	55 year	female	<a href="http://purl">http://purl</a>	29.8	type II diab	European	Prodo Lab: OK	10th_C17_	type II diab	<a href="http://purl.obolibrary.org/obo/MONDO_0005148">http://purl.obolibrary.org/obo/MONDO_0005148</a>									
3	SRR36171	Homo sapiens	<a href="http://purl.ACCG268">http://purl.ACCG268</a>	22 year	male	<a href="http://purl">http://purl</a>	32.95	normal	African Am	Prodo Lab: OK	baseline-0	normal	<a href="http://purl.obolibrary.org/obo/PATO_0000461">http://purl.obolibrary.org/obo/PATO_0000461</a>									
4	SRR36171	Homo sapiens	<a href="http://purl.ACCR015A">http://purl.ACCR015A</a>	51 year	male	<a href="http://purl">http://purl</a>	35.8	type II diab	Hispanic o	Prodo Lab: OK	baseline-0	type II diab	<a href="http://purl.obolibrary.org/obo/MONDO_0005148">http://purl.obolibrary.org/obo/MONDO_0005148</a>									
5	SRR36171	Homo sapiens	<a href="http://purl.ACEK420A">http://purl.ACEK420A</a>	53 year	female	<a href="http://purl">http://purl</a>	22	normal	European	IIDP	not OK	baseline-0	normal	<a href="http://purl.obolibrary.org/obo/PATO_0000461">http://purl.obolibrary.org/obo/PATO_0000461</a>								
6	SRR36171	Homo sapiens	<a href="http://purl.ACEL337">http://purl.ACEL337</a>	29 year	male	<a href="http://purl">http://purl</a>	23	normal	European	Prodo Lab: not OK	baseline-0	normal	<a href="http://purl.obolibrary.org/obo/PATO_0000461">http://purl.obolibrary.org/obo/PATO_0000461</a>									
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12	SRR36172	Homo sapiens	<a href="http://purl.ACCR015A">http://purl.ACCR015A</a>	51 year	male	<a href="http://purl">http://purl</a>	35.8	type II diab	Hispanic o	Prodo Lab: OK	Single-cell	type II diab	<a href="http://purl.obolibrary.org/obo/MONDO_0005148">http://purl.obolibrary.org/obo/MONDO_0005148</a>									
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Lawlor, Nathan, et al. "Single-cell transcriptomes identify human islet cell signatures and reveal cell-type-specific expression changes in type 2 diabetes." *Genome research* 27.2 (2017): 208-222.

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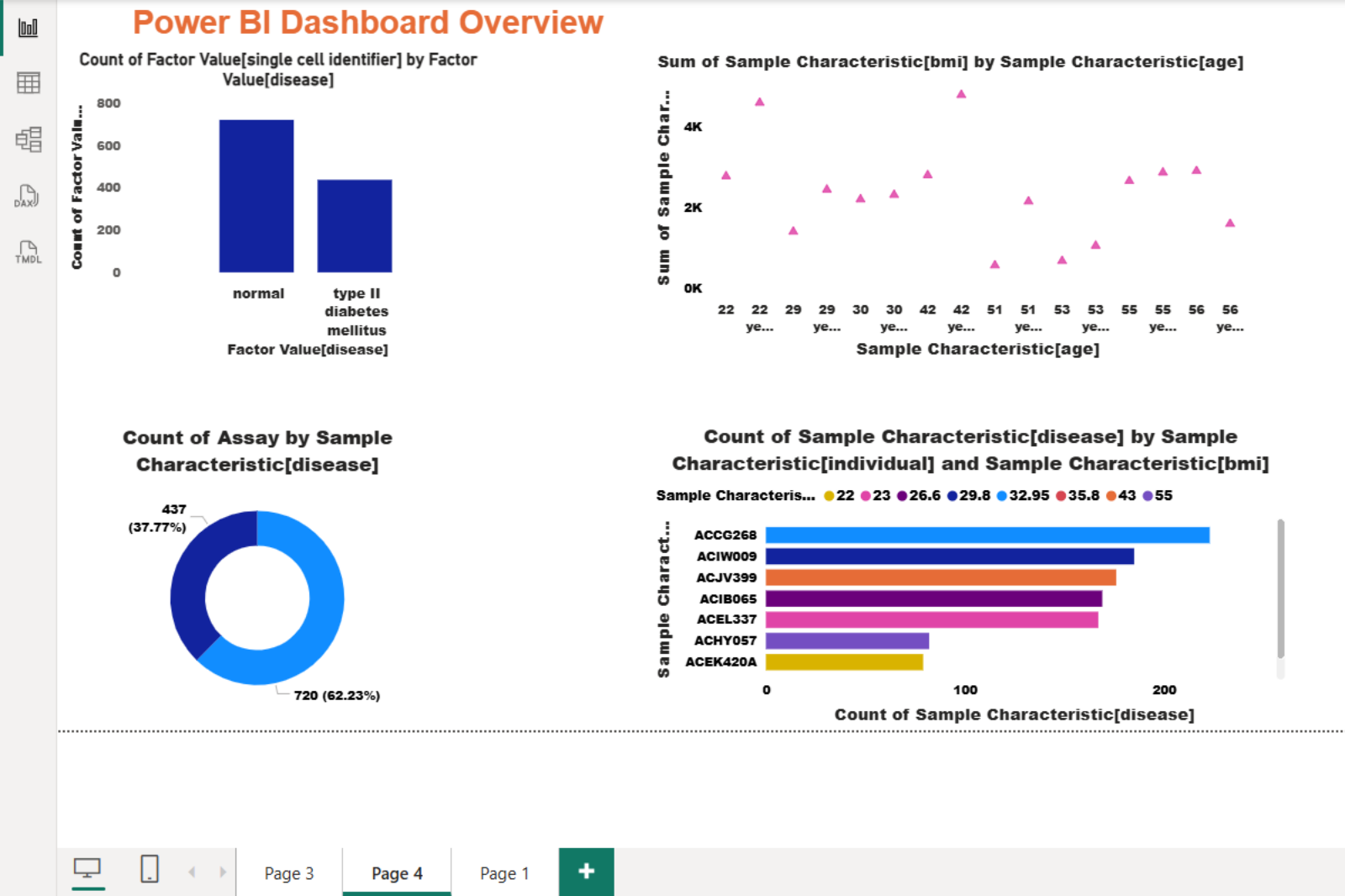
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ExpDesign-E-ENAD-27\_demo

☐ Assay

☐ Factor Value Ontology Term[disease]

☐ Factor Value[disease]

☐ Factor Value[single cell identifier]

☐ Sample Characteristic Ontology Term[organism]

☐ Sample Characteristic Ontology Term[sex]

☐ Sample Characteristic[age]

☐ Sample Characteristic[ancestry category]

☐ Sample Characteristic[biomaterial\_provider]

☒ Sample Characteristic[bmi]

☐ Sample Characteristic[disease]

☐ Sample Characteristic[individual]

☐ Sample Characteristic[organism]

☐ Sample Characteristic[sex]

☐ Sample Characteristic[single cell quality]





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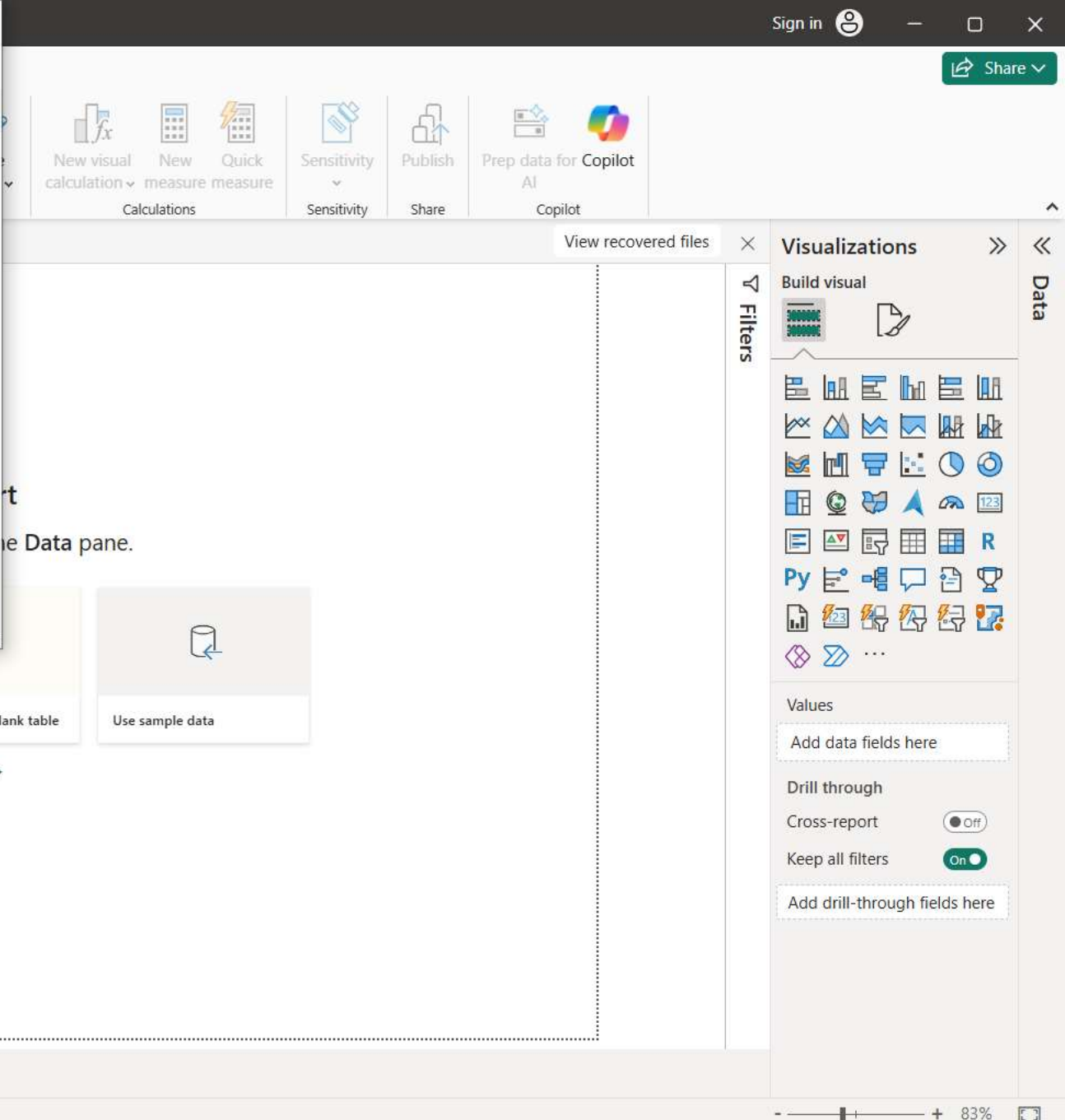
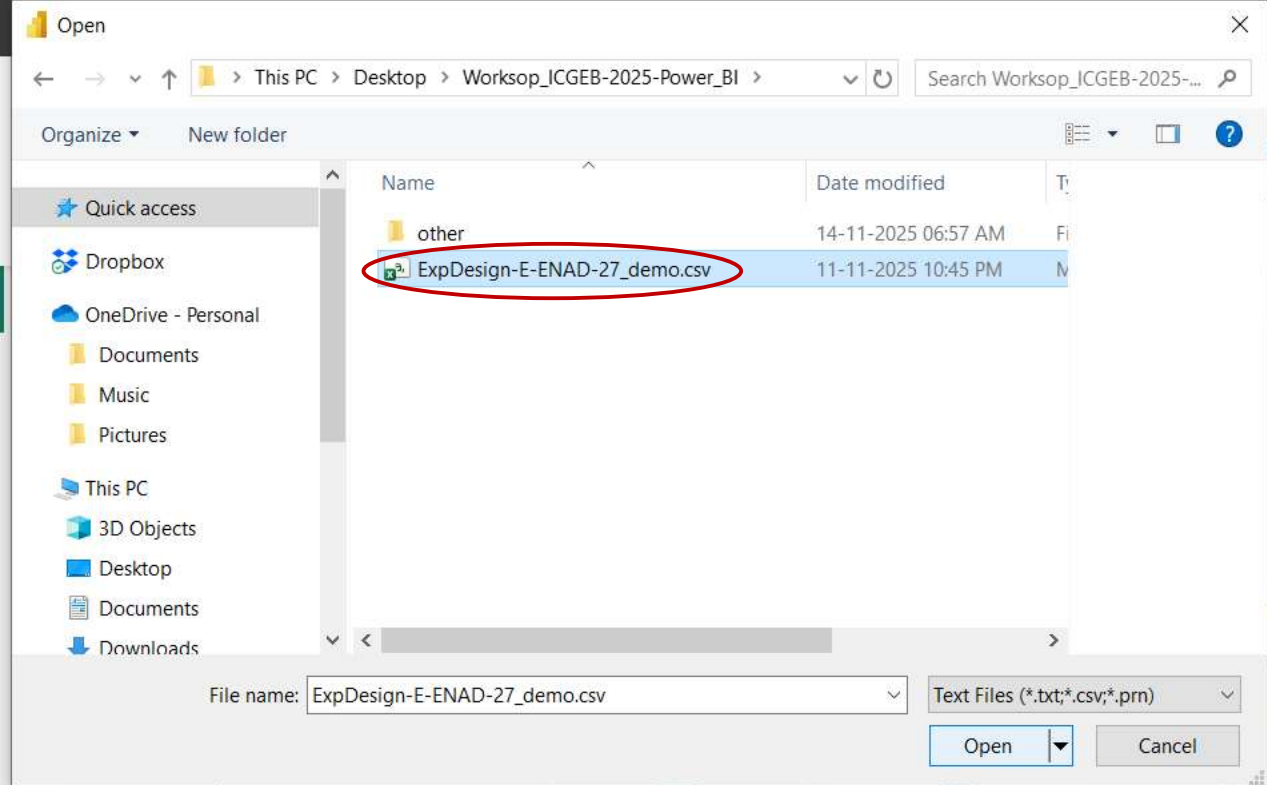
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Power BI Dashboard

### ExpDesign-E-ENAD-27\_demo.csv

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DelimiterComma

Data Type DetectionBased on first 200 rows

Assay	Sample Characteristic[organism]	Sample Characteristic Ontology Term[organism]	Sample Characteristic[individual]	Sample Charact
SRR3617192	Homo sapiens	http://purl.obolibrary.org/obo/NCBITaxon_9606	ACIW009	55 year
SRR3617193	Homo sapiens	http://purl.obolibrary.org/obo/NCBITaxon_9606	ACCG268	22 year
SRR3617194	Homo sapiens	http://purl.obolibrary.org/obo/NCBITaxon_9606	ACCR015A	51 year
SRR3617195	Homo sapiens	http://purl.obolibrary.org/obo/NCBITaxon_9606	ACEK420A	53 year
SRR3617196	Homo sapiens	http://purl.obolibrary.org/obo/NCBITaxon_9606	ACEL337	29 year
SRR3617197	Homo sapiens	http://purl.obolibrary.org/obo/NCBITaxon_9606	ACHY057	30 year
SRR3617198	Homo sapiens	http://purl.obolibrary.org/obo/NCBITaxon_9606	ACIB065	56 year
SRR3617199	Homo sapiens	http://purl.obolibrary.org/obo/NCBITaxon_9606	ACIW009	55 year
SRR3617200	Homo sapiens	http://purl.obolibrary.org/obo/NCBITaxon_9606	ACJV399	42 year
SRR3617201	Homo sapiens	http://purl.obolibrary.org/obo/NCBITaxon_9606	ACCG268	22 year
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SRR3617203	Homo sapiens	http://purl.obolibrary.org/obo/NCBITaxon_9606	ACEK420A	53 year
SRR3617204	Homo sapiens	http://purl.obolibrary.org/obo/NCBITaxon_9606	ACEL337	29 year
SRR3617205	Homo sapiens	http://purl.obolibrary.org/obo/NCBITaxon_9606	ACHY057	30 year
SRR3617206	Homo sapiens	http://purl.obolibrary.org/obo/NCBITaxon_9606	ACIB065	56 year
SRR3617207	Homo sapiens	http://purl.obolibrary.org/obo/NCBITaxon_9606	ACIW009	55 year
SRR3617208	Homo sapiens	http://purl.obolibrary.org/obo/NCBITaxon_9606	ACJV399	42 year
SRR3617209	Homo sapiens	http://purl.obolibrary.org/obo/NCBITaxon_9606	ACHY057	30 year
SRR3617210	Homo sapiens	http://purl.obolibrary.org/obo/NCBITaxon_9606	ACIB065	56 year
SRR3617211	Homo sapiens	http://purl.obolibrary.org/obo/NCBITaxon_9606	ACIW009	55 year

Extract Table Using Examples

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### Visualizations

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ExpDesign-E-ENAD-27\_demo

Assay

Factor Value Ontology Term[disease]

Factor Value[disease]

Factor Value[single cell identifier]

Sample Characteristic Ontology Term[organism]

Sample Characteristic Ontology Term[sex]

Sample Characteristic[age]

Sample Characteristic[ancestry category]

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Sample Characteristic[bmi]

Sample Characteristic[disease]

Sample Characteristic[individual]

Sample Characteristic[organism]

Sample Characteristic[sex]

Sample Characteristic[single cell quality]



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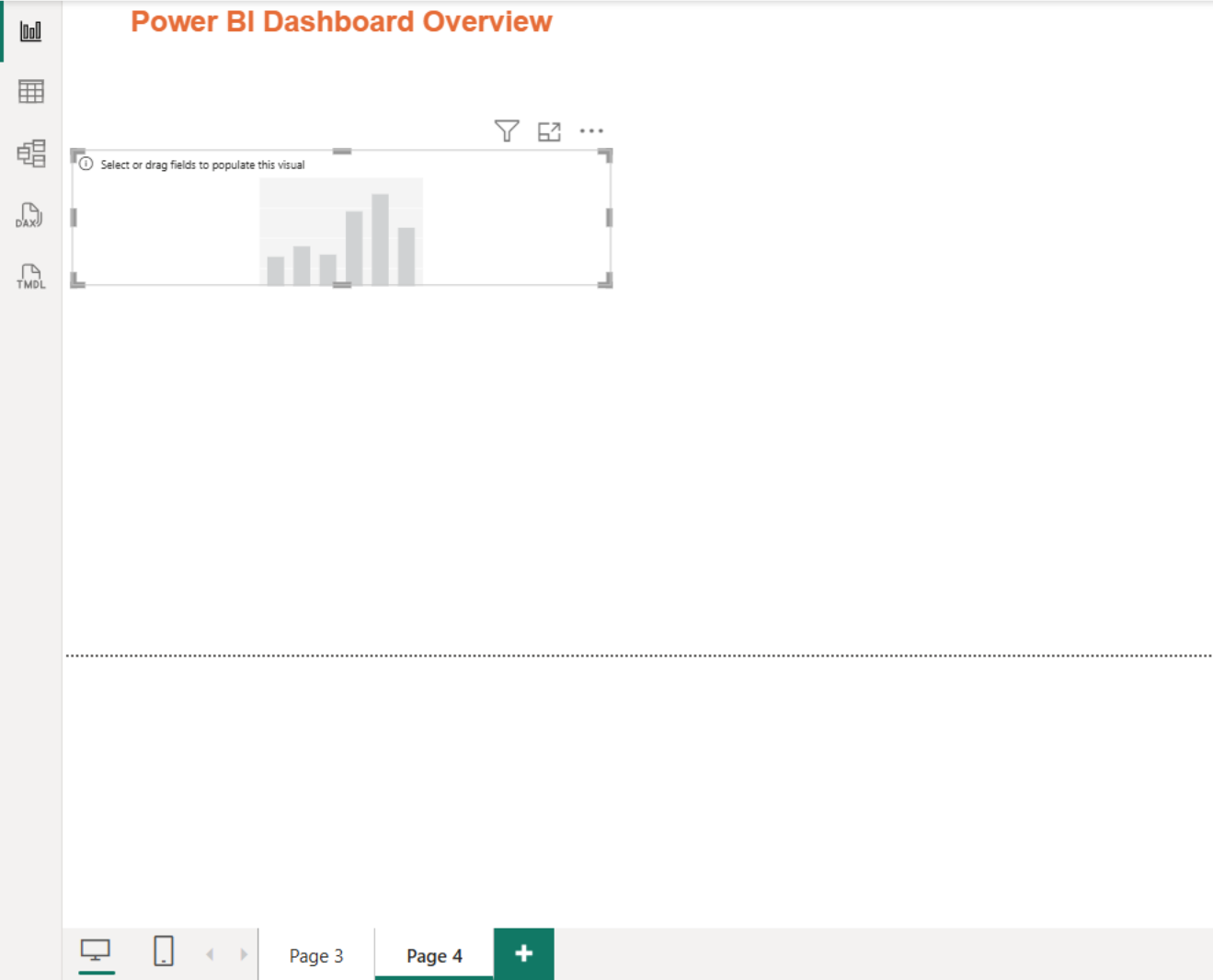
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ExpDesign-E-ENAD-27\_demo

Assay

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Sample Characteristic[bmi]

Sample Characteristic[disease]

Sample Characteristic[individual]

Sample Characteristic[organism]

Sample Characteristic[sex]

Sample Characteristic[single cell quality]



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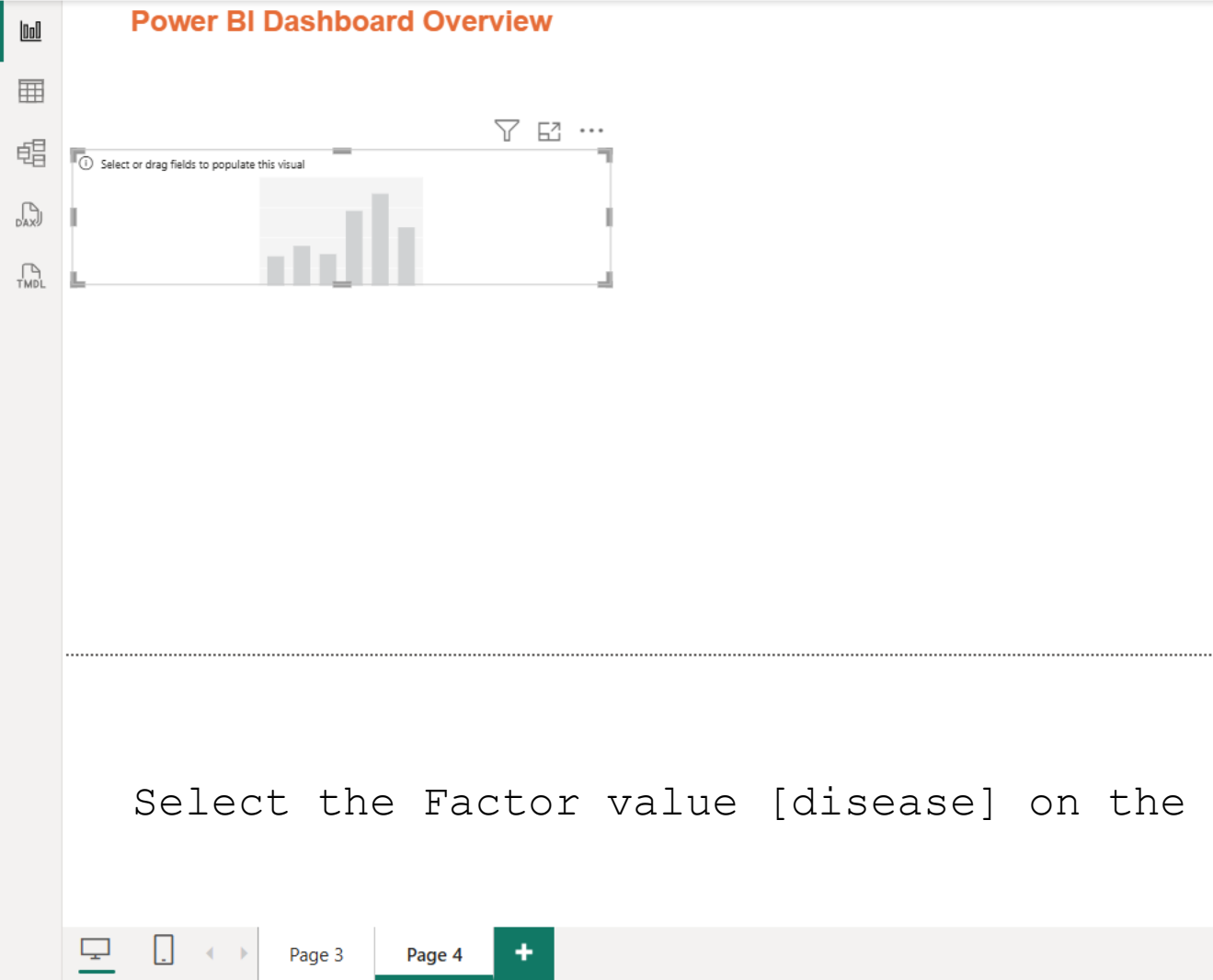
Get data Excel OneLake SQL Server Enter data Dataverse Recent sources

Transform data Refresh data Queries

New visual Text box More visuals Insert

New visual calculation New measure Quick measure Calculations

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### Filters

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X-axis

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### Data

Search

ExpDesign-E-ENAD-27\_demo

- ☐ Assay
- ☐ Factor Value Ontology Term[disease]
- ☐ Factor Value[disease]
- ☐ Factor Value[single cell identifier]
- ☐ Sample Characteristic Ontology Term[organism]
- ☐ Sample Characteristic Ontology Term[sex]
- ☐ Sample Characteristic[age]
- ☐ Sample Characteristic[ancestry category]
- ☐ Sample Characteristic[biomaterial\_provider]
- ☐ Sample Characteristic[bmi]
- ☐ Sample Characteristic[disease]
- ☐ Sample Characteristic[individual]
- ☐ Sample Characteristic[organism]
- ☐ Sample Characteristic[sex]
- ☐ Sample Characteristic[single cell quality]

Select the Factor value [disease] on the X-axis

File Home Insert Modeling View Optimize Help Format Data / Drill

Paste Cut Copy Format painter Clipboard

Get data Excel OneLake SQL Server Enter data Dataverse Recent sources

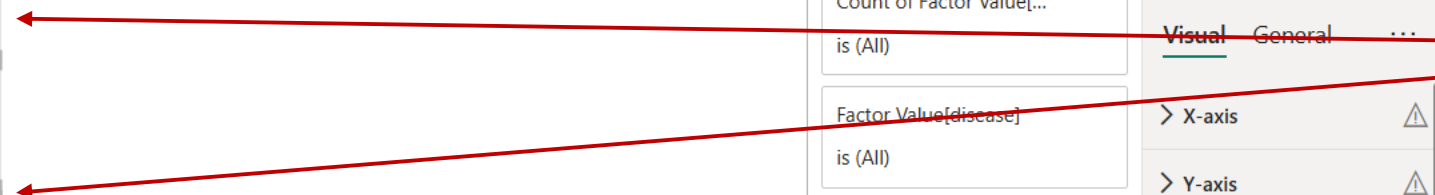
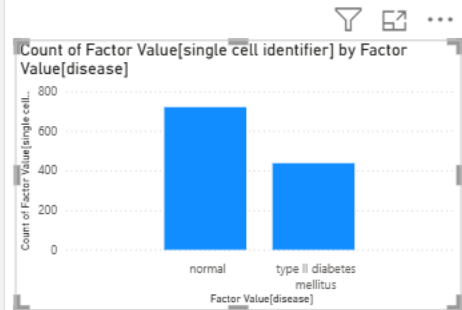
Transform data Refresh data Queries

New visual Text box More visuals Insert

New visual calculation New measure Quick measure Calculations

Sensitivity Publish Prep data for Copilot AI Copilot

## Power BI Dashboard Overview



Select the Factor values (disease) on the X-axis and Factor values (single cell identifier) on the Y-axis to know the normal vs type I diabetes mellitus on the Stake column Chart

**Filters**

Search

Filters on this visual

- Count of Factor Value[...]
- is (All)
- Factor Value[disease]
- is (All)

Add data fields here

Filters on this page

Add data fields here

Filters on all pages

Add data fields here

**Visualizations**

Format visual

Search

Visual General

- X-axis
- Y-axis
- Legend
- Small multiples
- Gridlines
- Zoom slider
- Columns
- Ribbons
- Data labels
- Total labels
- Plot area background

**Data**

Search

ExpDesign-E-ENAD-27\_demo

- Assay
- Factor Value Ontology Term[disease]
- ☒ Factor Value[disease]
- ☒ Factor Value[single cell identifier]
- Sample Characteristic Ontology Term[organism]
- Sample Characteristic Ontology Term[sex]
- Sample Characteristic[age]
- Sample Characteristic[ancestry category]
- Sample Characteristic[biomaterial\_provider]
- Sample Characteristic[bmi]
- Sample Characteristic[disease]
- Sample Characteristic[individual]
- Sample Characteristic[organism]
- Sample Characteristic[sex]
- Sample Characteristic[single cell quality]

FileHomeInsertModelingViewOptimizeHelpFormatData / DrillShare

PasteCutCopyFormat painterClipboard

Get dataExcelOneLakeSQL ServerEnter dataDataverseRecent sources

Transform dataRefresh dataQueries

New visualText boxMore visualsInsert

New visual calculationNew measureQuick measureCalculations

SensitivityPublishPrep data for Copilot AICopilot

Power BI Dashboard Overview

Count of Factor Value[single cell identifier] by Factor Value[disease]

normal

type II diabetes mellitus

Factor Value[disease]

Filters

Search

Filters on this visual

Count of Factor Value[... is (All)

Factor Value[disease] is (All)

Add data fields here

Filters on this page

Add data fields here

Filters on all pages

Add data fields here

Visualizations

Format visual

Search

VisualGeneral

Title

Text

Count of Factor Valu

Heading

Heading 3

Font

DIN

14

Text color

Background color

Horizontal alignment

Text wrap

On

Data

Search

ExpDesign-E-ENAD-27\_demo

Assay

Factor Value Ontology Term[disease]

Factor Value[disease]

Factor Value[single cell identifier]

Sample Characteristic Ontology Term[organism]

Sample Characteristic Ontology Term[sex]

Sample Characteristic[age]

Sample Characteristic[ancestry category]

Sample Characteristic[biomaterial\_provider]

Sample Characteristic[bmi]

Sample Characteristic[disease]

Sample Characteristic[individual]

Sample Characteristic[organism]

Sample Characteristic[sex]

Sample Characteristic[single cell quality]

Page 3

Page 4

FileHomeInsertModelingViewOptimizeHelpFormatData / DrillShare

PasteCutCopyFormat painterClipboard

Get dataExcelOneLakeSQL ServerEnter dataDataverseRecent sourcesData

Transform dataRefresh dataQueries

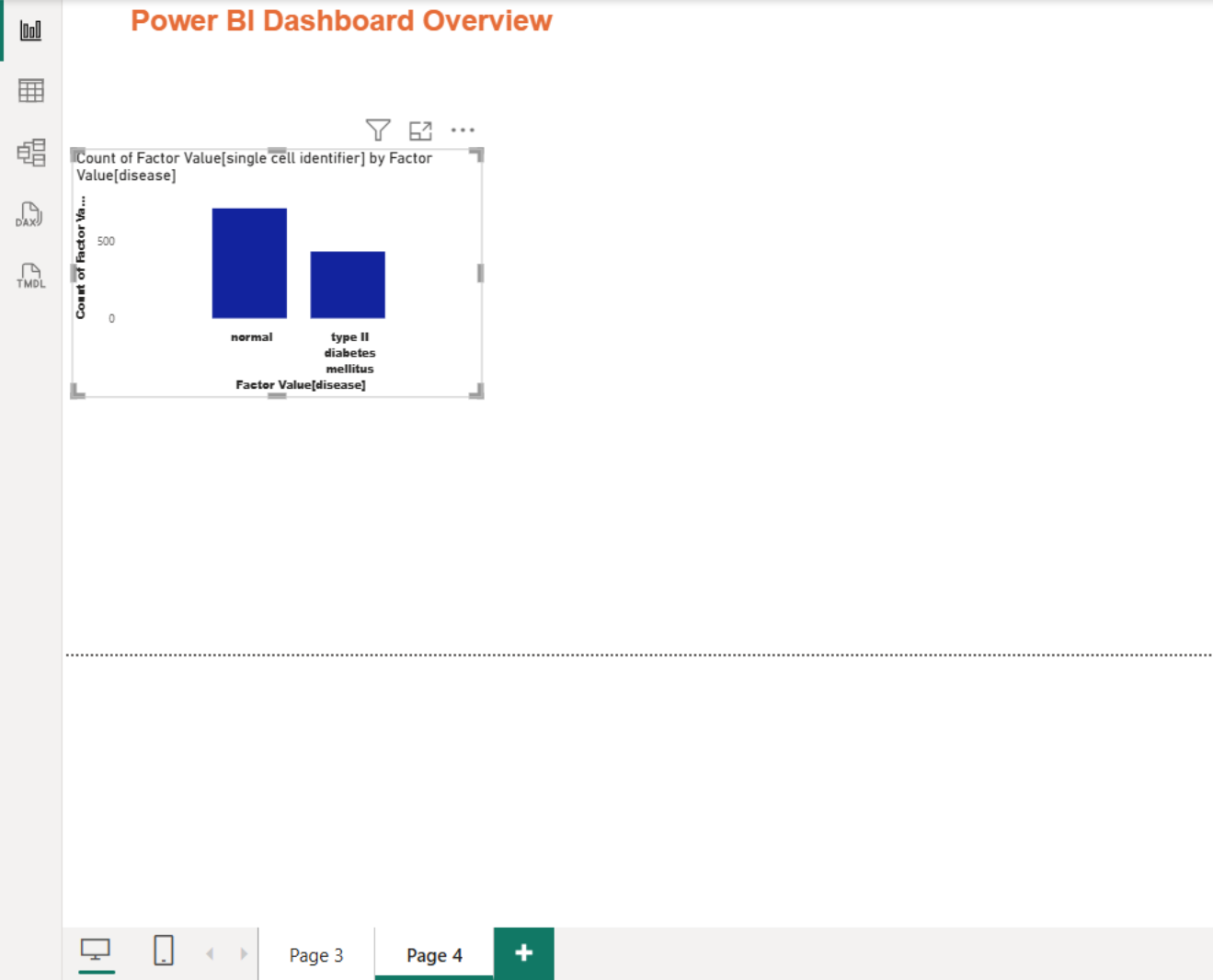
New visualText boxMore visualsInsert

New visual calculationNew measureQuick measureCalculations

SensitivitySensitivity

PublishShare

Prep data for CopilotAICopilot



Filters

Search

Filters on this visual

Count of Factor Value[...]  
is (All)

Factor Value[disease]  
is (All)

Add data fields here

Filters on this page

Add data fields here

Filters on all pages

Add data fields here

Visualizations

Format visual

Search

VisualGeneral

Zoom sliderOff

Columns

Apply settings to

Categories

All

Color

Color

Transparency

0 %

BorderOff

Layout

Data

Search

ExpDesign-E-ENAD-27\_demo

Assay

Factor Value Ontology Term[disease]

Factor Value[disease]

Factor Value[single cell identifier]

Sample Characteristic Ontology Term[organism]

Sample Characteristic Ontology Term[sex]

Sample Characteristic[age]

Sample Characteristic[ancestry category]

Sample Characteristic[biomaterial\_provider]

Sample Characteristic[bmi]

Sample Characteristic[disease]

Sample Characteristic[individual]

Sample Characteristic[organism]

Sample Characteristic[sex]

Sample Characteristic[single cell quality]

**To know the correlation between Age and BMI on the scatter plot: Select the variable “Age” for the X-axis and “BMI” for the Y-axis to visualize the plot**

FileHomeInsertModelingViewOptimizeHelpFormatData / Drill

PasteCutCopyFormat painterClipboard

Get dataExcelOneLakeSQL ServerEnter dataDataverseRecent sourcesData

Transform dataRefresh dataQueries

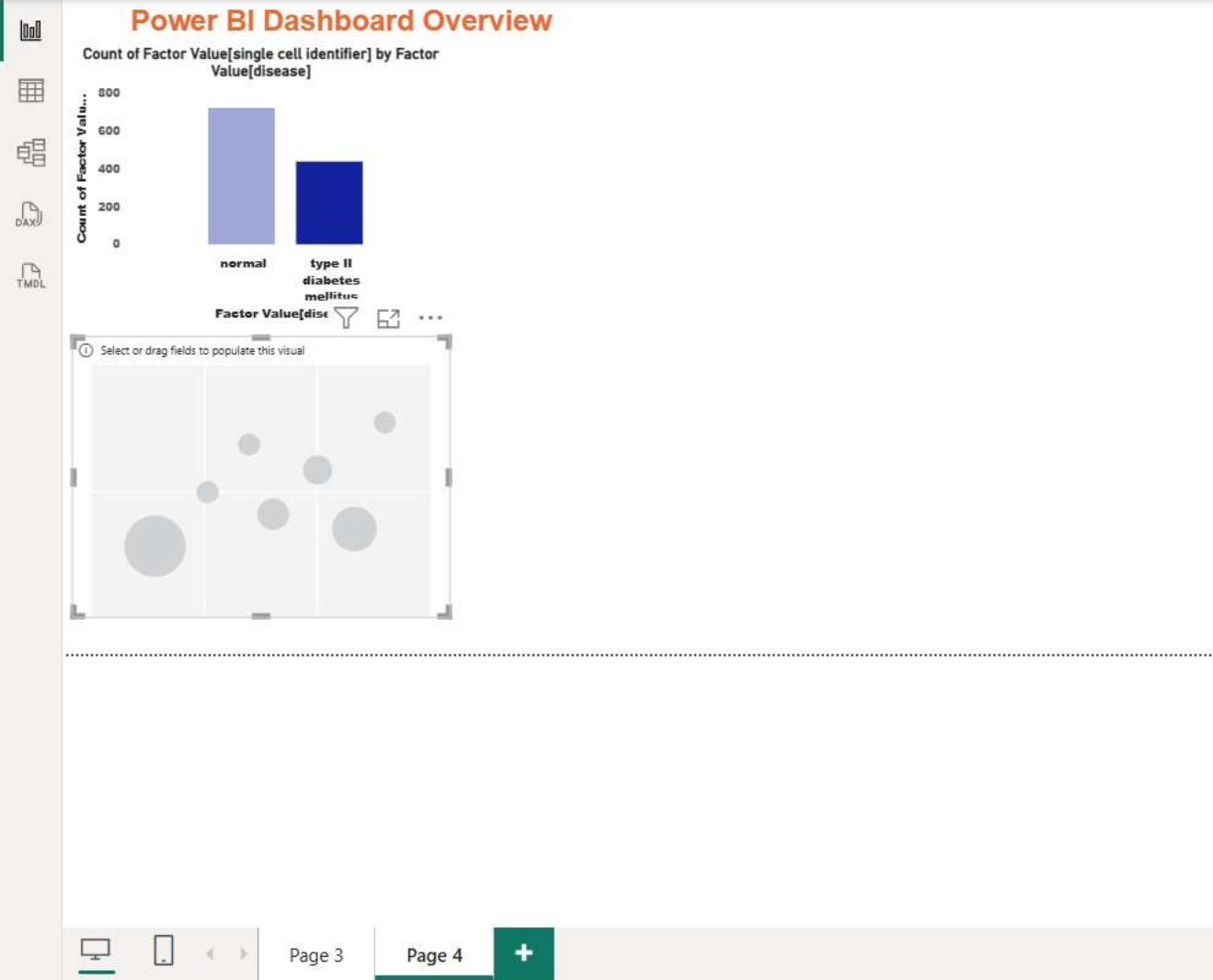
New visualText boxMore visualsInsert

New visual calculationNew measureQuick measureCalculations

SensitivitySensitivity

PublishShare

Prep data for Copilot AICopilot



Filters

Search

Filters on this visual

Add data fields here

Filters on this page

Add data fields here

Filters on all pages

Add data fields here

Visualizations

Build visual

Scatter chart

Values

Add data fields here

X Axis

Add data fields here

Y Axis

Add data fields here

Legend

Add data fields here

Size

Add data fields here

Data

Search

ExpDesign-E-ENAD-27\_demo

☐ Assay

☐ Factor Value Ontology Term[disease]

☐ Factor Value[disease]

☐ Factor Value[single cell identifier]

☐ Sample Characteristic Ontology Term[organism]

☐ Sample Characteristic Ontology Term[sex]

☐ Sample Characteristic[age]

☐ Sample Characteristic[ancestry category]

☐ Sample Characteristic[biomaterial\_provider]

☒ Sample Characteristic[bmi]

☐ Sample Characteristic[disease]

☐ Sample Characteristic[individual]

☐ Sample Characteristic[organism]

☐ Sample Characteristic[sex]

☐ Sample Characteristic[single cell quality]



File Home Insert Modeling View Optimize Help Format Data / Drill

Paste Cut Copy Format painter Clipboard

Get data Excel OneLake SQL Server Enter data Dataverse Recent sources Data

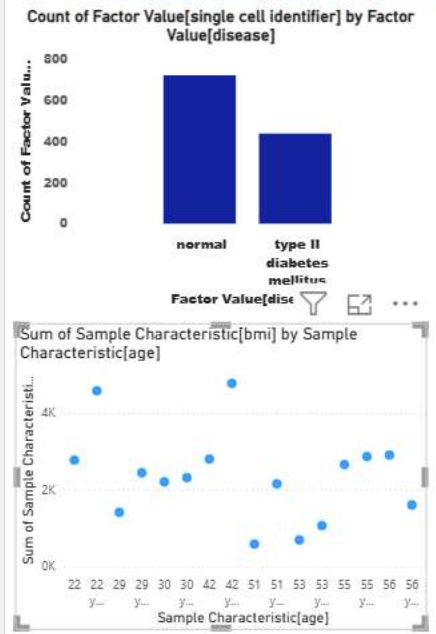
Transform data Refresh data Queries

New visual Text box More visuals Insert

New visual calculation New measure Quick measure Calculations

Sensitivity Share Copilot

## Power BI Dashboard Overview



Select the sample characteristic [age] on the X-axis and sample characteristic [bmi] on the Y-axis to know the Correlation of BMI with age on the scatter plot

Filters Visualizations Data

Search

Filters on this visual

Sample Characteristi... is (All)

Sum of Sample Chara... is (All)

Add data fields here

Filters on

Add data fields here

Filters on all pages

Add data fields here

Build visual

Sample Characteristic[age]

Sum of Sample Characteristic[bmi]

Legend

Add data fields here

Size

Add data fields here

ExpDesign-E-ENAD-27\_demo

- ☐ Assay
- ☐ Factor Value Ontology Term[disease]
- ☐ Factor Value[disease]
- ☐ Factor Value[single cell identifier]
- ☐ Sample Characteristic Ontology Term[organism]
- ☐ Sample Characteristic Ontology Term[sex]
- ☒ Sample Characteristic[age]
- ☐ Sample Characteristic[ancestry category]
- ☐ Sample Characteristic[biomaterial\_provider]
- ☒ Sample Characteristic[bmi]
- ☐ Sample Characteristic[disease]
- ☐ Sample Characteristic[individual]
- ☐ Sample Characteristic[organism]
- ☐ Sample Characteristic[sex]
- ☐ Sample Characteristic[single cell quality]

FileHomeInsertModelingViewOptimizeHelpFormatData / Drill

Paste

CutCopyFormat painter

Clipboard

Get data

Excel workbook catalog

OneLake Server Data

Enter data

Dataverse

Recent sources

Transform data

Refresh data

Queries

New visual

Text box

More visuals

Insert

New visual calculation

New measure

Quick measure

Calculations

Sensitivity

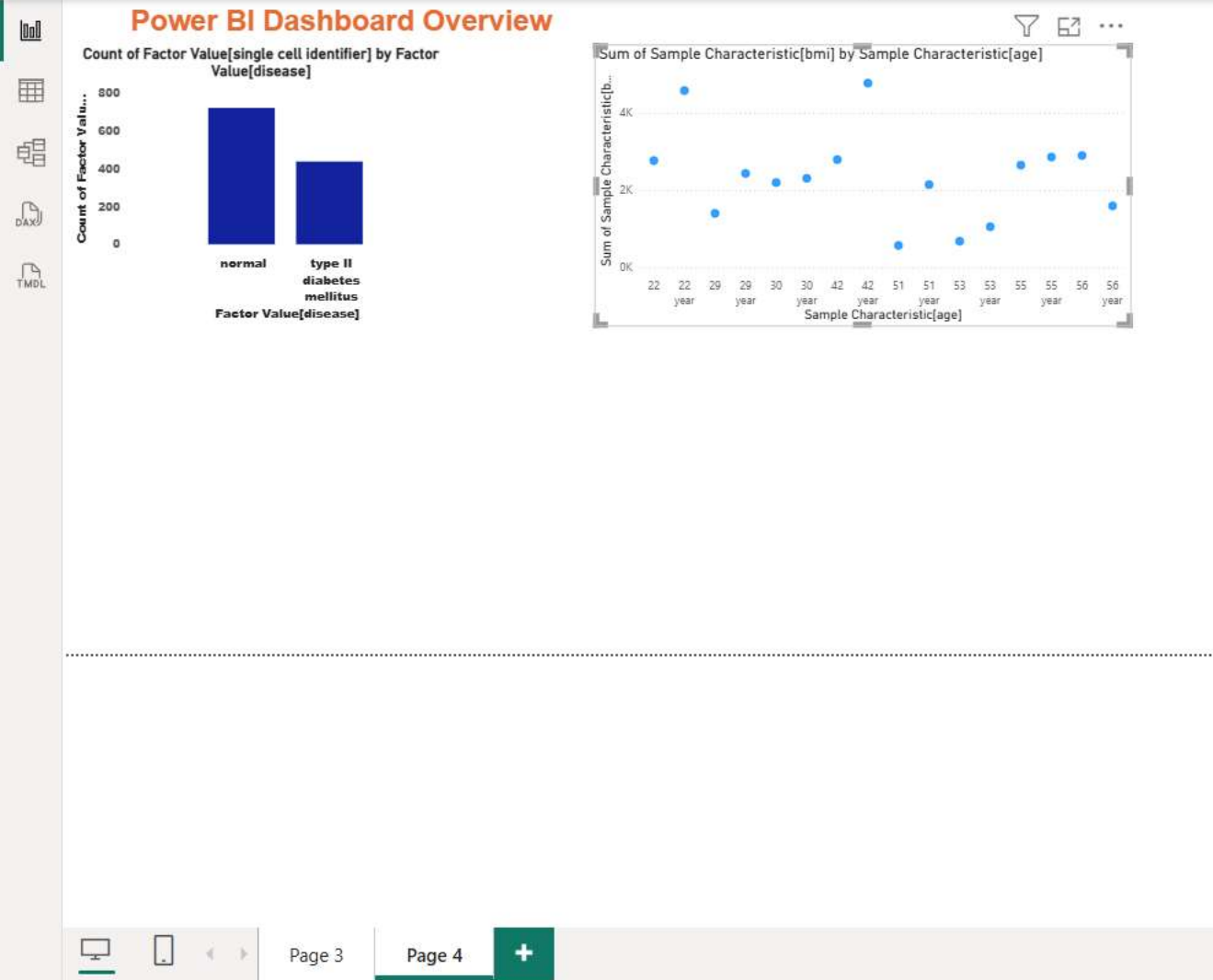
Sensitivity

Publish

Share

Prep data for Copilot AI

Copilot



Filters

Search

Filters on this visual

Sample Characteristi... is (All)

Sum of Sample Chara... is (All)

Add data fields here

Filters on this page

Add data fields here

Filters on all pages

Add data fields here

Visuals

Format your visual

Build visual

Visual icons grid

Values

Add data fields here

X Axis

Sample Characteristic[...]

Y Axis

Sum of Sample Chara...

Legend

Add data fields here

Size

Add data fields here

Data

Search

ExpDesign-E-ENAD-27\_demo

- ☐ Assay
- ☐ Factor Value Ontology Term[disease]
- ☐ Factor Value[disease]
- ☐ Factor Value[single cell identifier]
- ☐ Sample Characteristic Ontology Term[organism]
- ☐ Sample Characteristic Ontology Term[sex]
- ☒ Sample Characteristic[age]
- ☐ Sample Characteristic[ancestry category]
- ☐ Sample Characteristic[biomaterial\_provider]
- ☒ Sample Characteristic[bmi]
- ☐ Sample Characteristic[disease]
- ☐ Sample Characteristic[individual]
- ☐ Sample Characteristic[organism]
- ☐ Sample Characteristic[sex]
- ☐ Sample Characteristic[single cell quality]

FileHomeInsertModelingViewOptimizeHelpFormatData / Drill

Paste

Cut

Copy

Format painter

Clipboard

Get data

Excel workbook catalog

OneLake Server Data

Enter data

Dataverse

Recent sources

Transform data

Refresh data

Queries

New visual

Text box

More visuals

Insert

New visual calculation

Calculations

New measure

Quick measure

Sensitivity

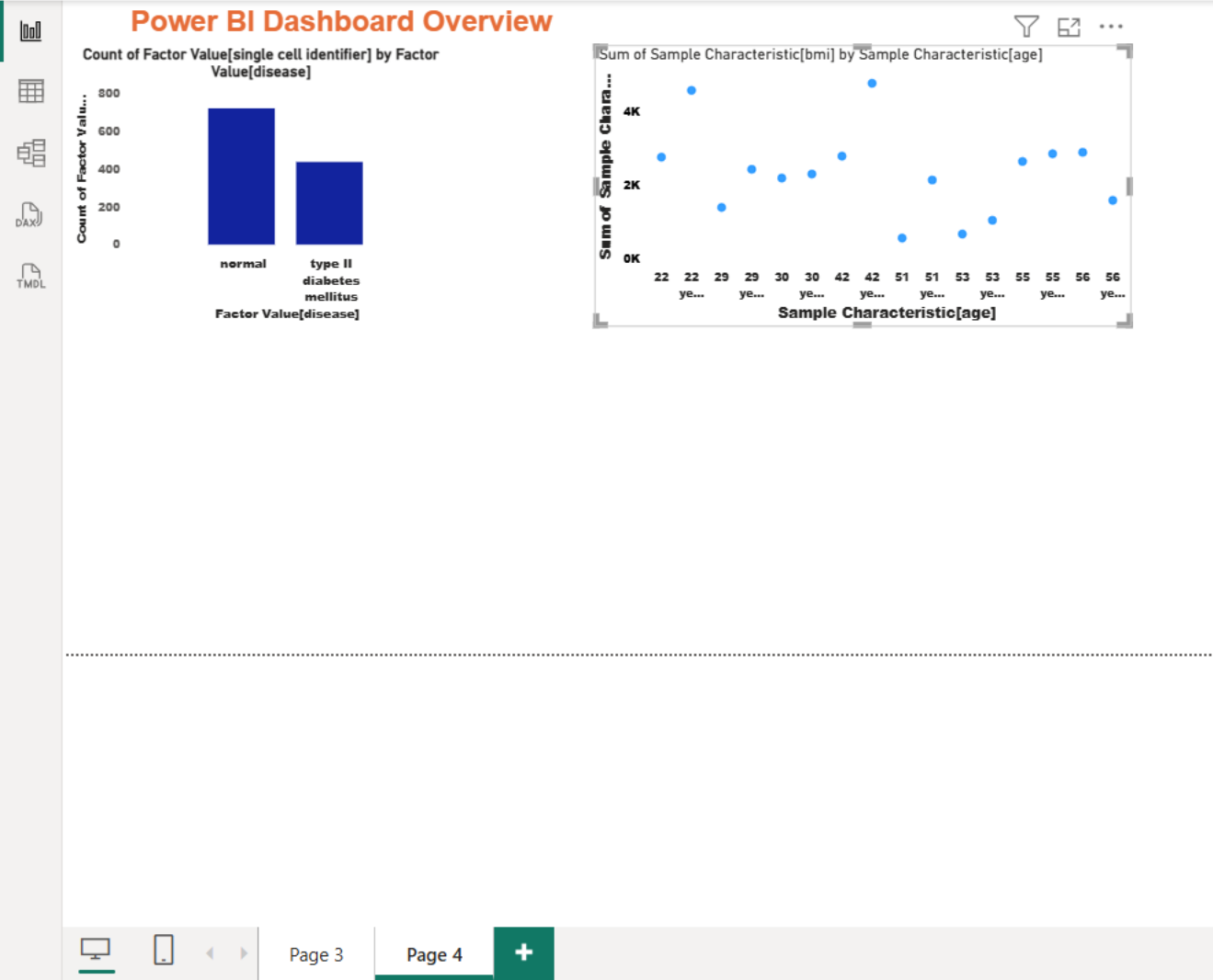
Sensitivity

Publish

Share

Prep data for Copilot AI

Copilot



Filters

Search

Filters on this visual

Sample Characteristi... is (All)

Sum of Sample Chara... is (All)

Add data fields here

Filters on this page

Add data fields here

Filters on all pages

Add data fields here

Visualizations

Format visual

Visual

Zoom slider

Markers

Apply settings to

Categories

All

Shape

type

Range scaling

Auto

Size multiplier

-10

Data

Search

ExpDesign-E-ENAD-27\_demo

Assay

Factor Value Ontology Term[disease]

Factor Value[disease]

Factor Value[single cell identifier]

Sample Characteristic Ontology Term[organism]

Sample Characteristic Ontology Term[sex]

Sample Characteristic[age]

Sample Characteristic[ancestry category]

Sample Characteristic[biomaterial\_provider]

Sample Characteristic[bmi]

Sample Characteristic[disease]

Sample Characteristic[individual]

Sample Characteristic[organism]

Sample Characteristic[sex]

Sample Characteristic[single cell quality]

FileHomeInsertModelingViewOptimizeHelpFormatData / Drill

Paste

Cut

Copy

Format painter

Clipboard

Get data

Excel workbook catalog

OneLake Server Data

Enter data

Dataverse

Recent sources

Transform data

Refresh data

Queries

New visual

Text box

More visuals

Insert

New visual calculation

Calculations

New measure

Quick measure

Sensitivity

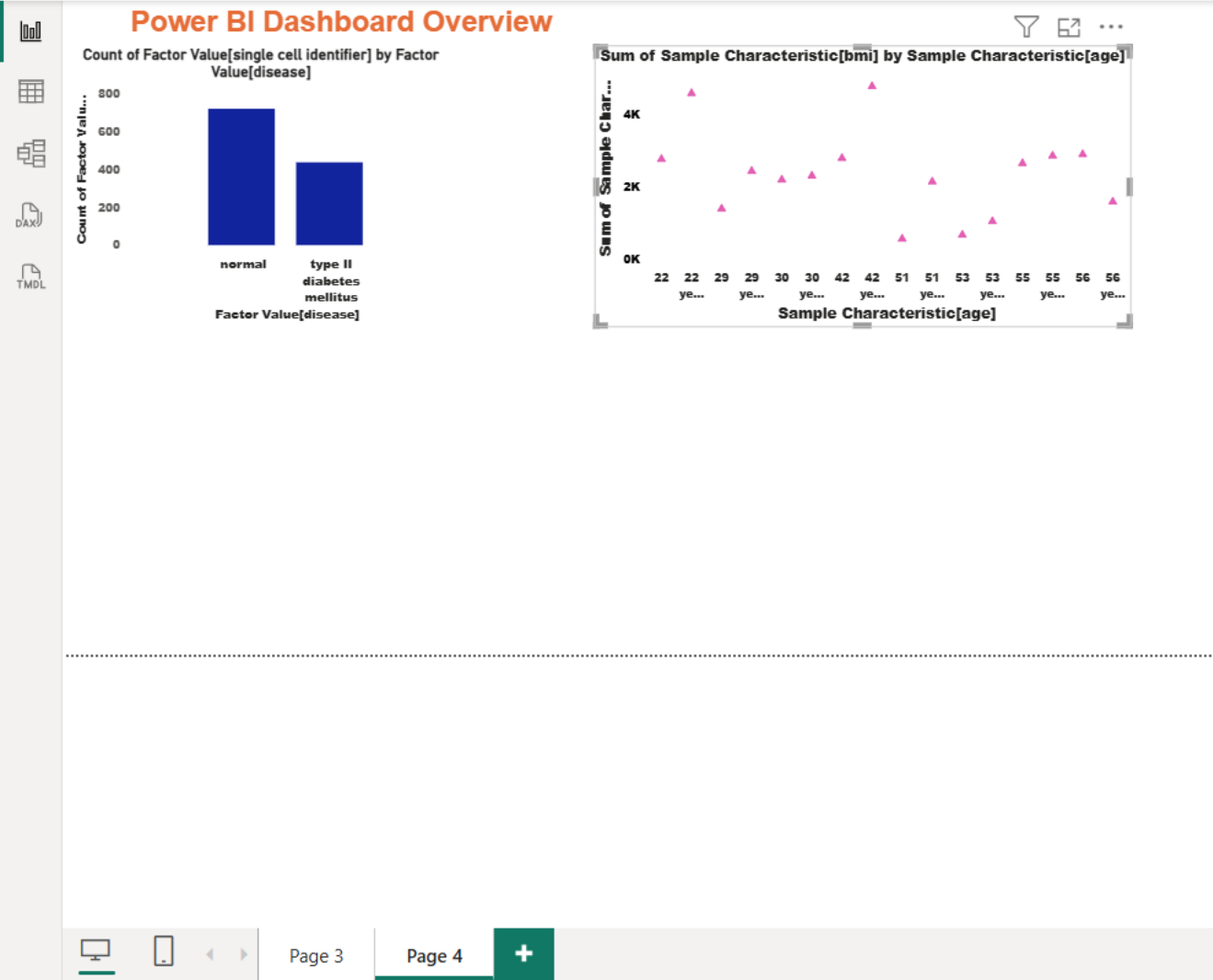
Sensitivity

Publish

Share

Prep data for Copilot AI

Copilot



Filters

Search

Filters on this visual

Sample Characteristi... is (All)

Sum of Sample Chara... is (All)

Add data fields here

Filters on this page

Add data fields here

Filters on all pages

Add data fields here

Visualizations

Format visual

Visual

Auto

Size multiplier

-10

Rotation

0°

Color

Color by category

Color

fx

Transparency

15 %

Border

Match fill color

Data

Search

ExpDesign-E-ENAD-27\_demo

Assay

Factor Value Ontology Term[disease]

Factor Value[disease]

Factor Value[single cell identifier]

Sample Characteristic Ontology Term[organism]

Sample Characteristic Ontology Term[sex]

Sample Characteristic[age]

Sample Characteristic[ancestry category]

Sample Characteristic[biomaterial\_provider]

Sample Characteristic[bmi]

Sample Characteristic[disease]

Sample Characteristic[individual]

Sample Characteristic[organism]

Sample Characteristic[sex]

Sample Characteristic[single cell quality]

## Disease Proportion (Simple Donut Chart)

### Fields:

- Legend:** Sample Characteristic[disease]
- Values:** Count of Assay (or Count of individual)

**Insight:** You'll get a clear visual showing **what percentage of samples** are *normal* vs *type II diabetes mellitus*.



File Home Insert Modeling View Optimize Help Format Data / Drill

Paste Cut Copy Format painter Clipboard

Get data Excel OneLake SQL Server Enter data Datasource Recent sources

Transform data Refresh data Queries

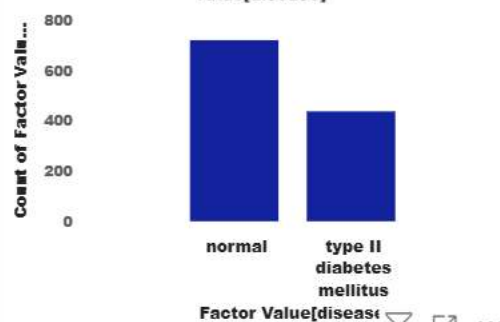
New visual Text box More visuals Insert

New visual calculation New measure Quick measure Calculations

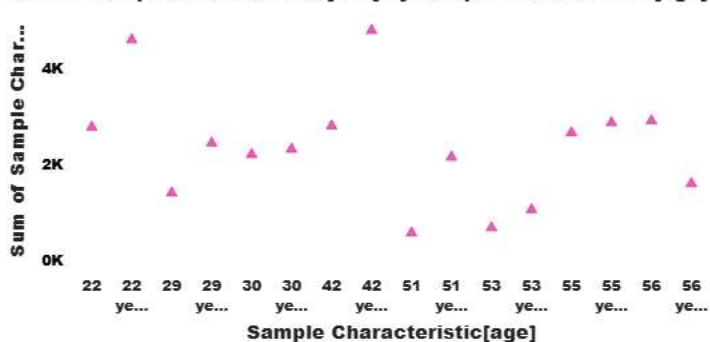
Sensitivity Publish Prep data for Copilot AI Copilot

## Power BI Dashboard Overview

Count of Factor Value[single cell identifier] by Factor Value[disease]



Sum of Sample Characteristic[bmi] by Sample Characteristic[age]



**Legend:** Sample Characteristic[disease]  
**Values:** Count of Assay (or Count of individual)

### Visualizations

Build visual

Filters

Donut chart

Legend

Add data fields here

Values

Add data fields here

Details

Add data fields here

Tooltips

Add data fields here

Drill through

Cross-report

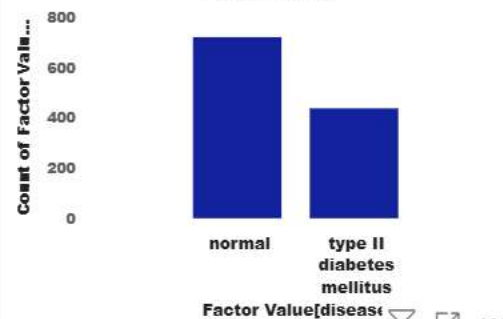
### Data

- Search
- ExpDesign-E-ENAD-27\_demo
- ☐ Assay
  - ☐ Factor Value Ontology Term[disease]
  - ☐ Factor Value[disease]
  - ☐ Factor Value[single cell identifier]
  - ☐ Sample Characteristic Ontology Term[organism]
  - ☐ Sample Characteristic Ontology Term[sex]
  - ☐ Sample Characteristic[age]
  - ☐ Sample Characteristic[ancestry category]
  - ☐ Sample Characteristic[biomaterial\_provider]
  - ☒ Sample Characteristic[bmi]
  - ☐ Sample Characteristic[disease]
  - ☐ Sample Characteristic[individual]
  - ☐ Sample Characteristic[organism]
  - ☐ Sample Characteristic[sex]
  - ☐ Sample Characteristic[single cell quality]

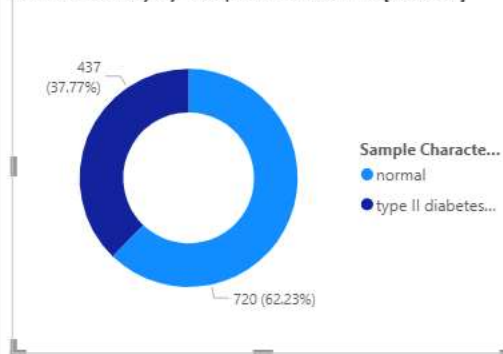


## Power BI Dashboard Overview

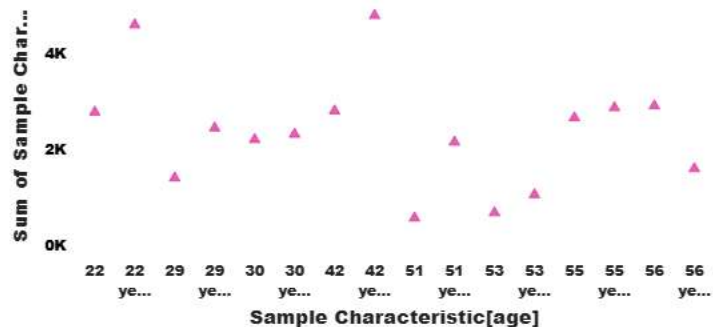
Count of Factor Value[single cell identifier] by Factor Value[disease]



Count of Assay by Sample Characteristic[disease]



Sum of Sample Characteristic[bmi] by Sample Characteristic[age]



Count of 'ExpDesign-E-ENAD-27\_demo'[Assay]

### Visualizations

Filters

Build visual



Legend

Sample Characteristic[...]

Values

Count of Assay

Details

Add data fields here

Tooltips

Add data fields here

Drill through

### Data

Search

ExpDesign-E-ENAD-27\_demo

- ☒ Assay
- ☐ Factor Value Ontology Term[disease]
- ☐ Factor Value[disease]
- ☐ Factor Value[single cell identifier]
- ☐ Sample Characteristic Ontology Term[organism]
- ☐ Sample Characteristic Ontology Term[sex]
- ☐ Sample Characteristic[age]
- ☐ Sample Characteristic[ancestry category]
- ☐ Sample Characteristic[biomaterial\_provider]
- ☐ Sample Characteristic[bmi]
- ☒ Sample Characteristic[disease]
- ☐ Sample Characteristic[individual]
- ☐ Sample Characteristic[organism]
- ☐ Sample Characteristic[sex]
- ☐ Sample Characteristic[single cell quality]

FileHomeInsertModelingViewOptimizeHelpFormatData / Drill

Paste

Cut

Copy

Format painter

Clipboard

Get data

Excel workbook catalog

OneLake Server Data

SQL Server data

Enter data

Dataverse

Recent sources

Transform data

Refresh data

Queries

New visual

Text box

More visuals

Insert

New visual calculation

New measure

Quick measure

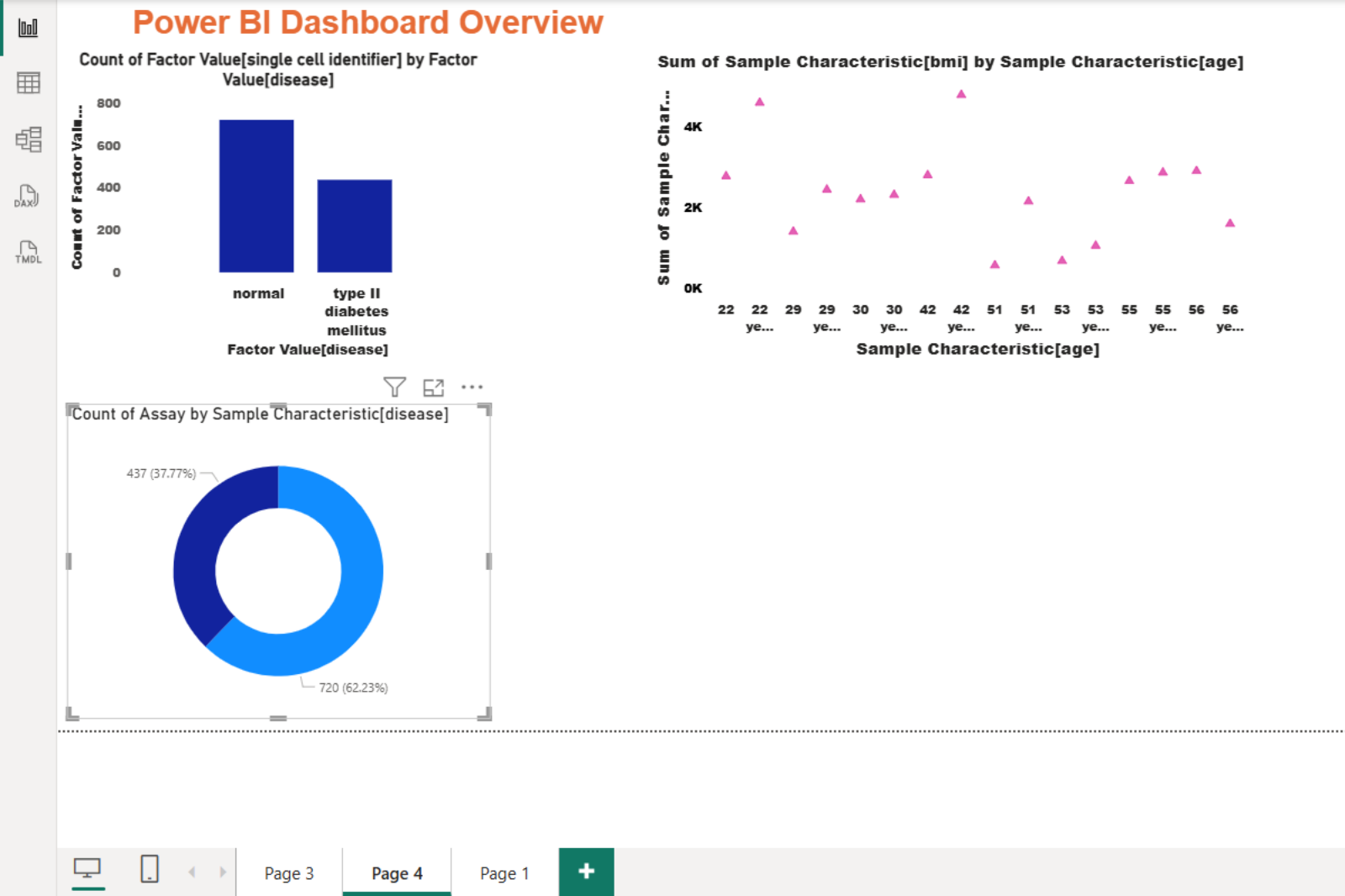
Calculations

Sensitivity

Share

Prep data for Copilot AI

Copilot



VisualizationsData

Format visual

Filters

Search

Legend

Options

Text

Title

Reset to default

Slices

Detail labels

Rotation

ExpDesign-E-ENAD-27\_demo

Assay

Factor Value Ontology Term[disease]

Factor Value[disease]

Factor Value[single cell identifier]

Sample Characteristic Ontology Term[organism]

Sample Characteristic Ontology Term[sex]

Sample Characteristic[age]

Sample Characteristic[ancestry category]

Sample Characteristic[biomaterial\_provider]

Sample Characteristic[bmi]

Sample Characteristic[disease

Sample Characteristic[individual]

Sample Characteristic[organism]

Sample Characteristic[sex]

Sample Characteristic[single cell quality]

FileHomeInsertModelingViewOptimizeHelpFormatData / Drill

CutCopyFormat painter

Clipboard

Get data

Excel workbook catalog

OneLake Server Data

SQL Server data

Enter data

Dataverse

Recent sources

Transform data

Refresh data

Queries

New visual

Text box

More visuals

Insert

New visual calculation

New measure

Quick measure

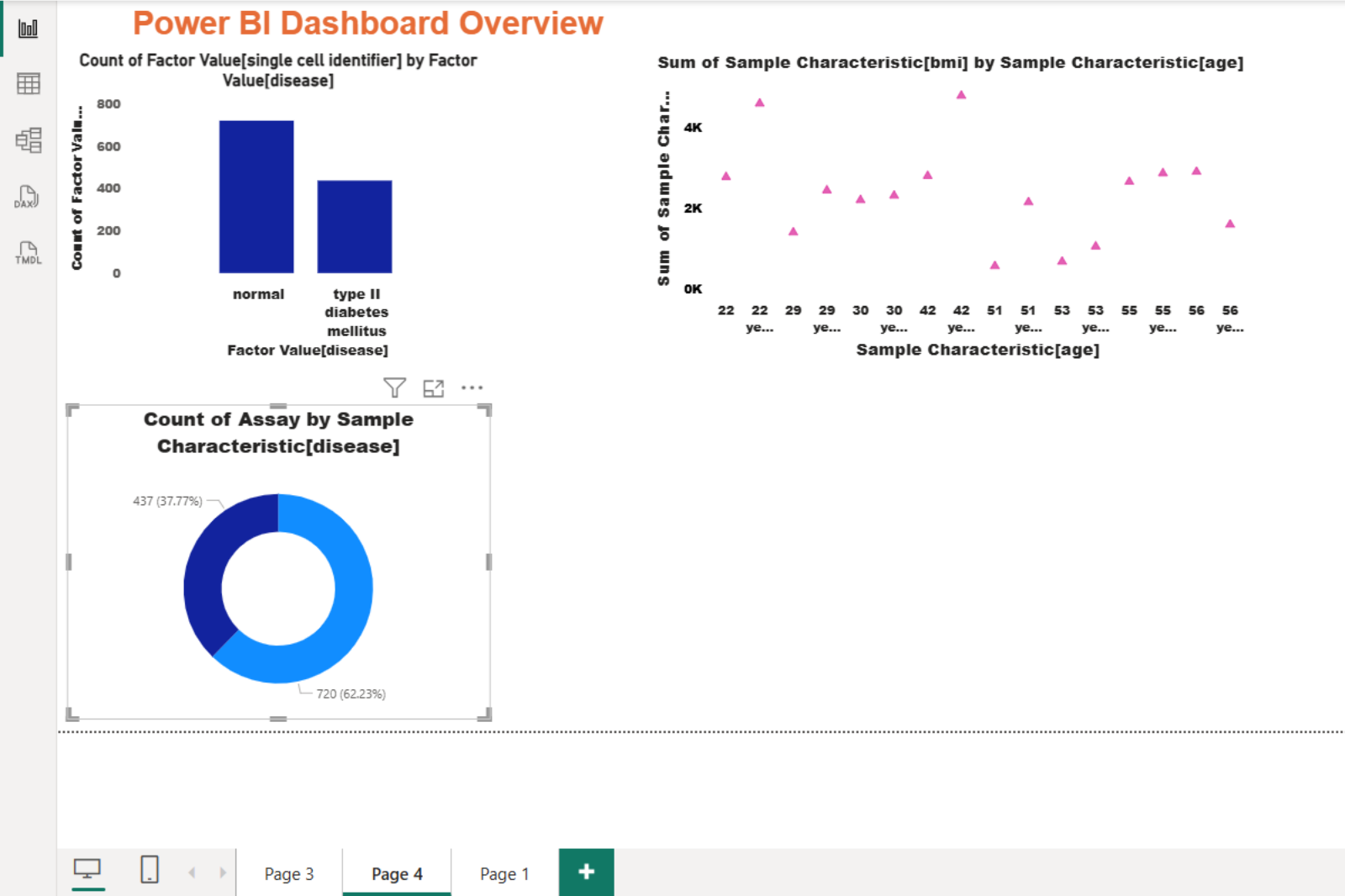
Calculations

Sensitivity

Share

Prep data for Copilot AI

Copilot



VisualizationsData

Format visual

Filters

Search

VisualGeneral

Title

Text

Count of Assay by S.

Heading

Heading 3

Font

Arial BI...

14

Text color

Background color

Center alignment

Text wrap

ExpDesign-E-ENAD-27\_demo

Assay

Factor Value Ontology Term[disease]

Factor Value[disease]

Factor Value[single cell identifier]

Sample Characteristic Ontology Term[organism]

Sample Characteristic Ontology Term[sex]

Sample Characteristic[age]

Sample Characteristic[ancestry category]

Sample Characteristic[biomaterial\_provider]

Sample Characteristic[bmi]

Sample Characteristic[disease

Sample Characteristic[individual]

Sample Characteristic[organism]

Sample Characteristic[sex]

Sample Characteristic[single cell quality]

FileHomeInsertModelingViewOptimizeHelpFormatData / Drill

Paste

Cut

Copy

Format painter

Clipboard

Get data

Excel workbook catalog

OneLake Server Data

Enter data

Dataverse

Recent sources

Transform data

Refresh

Queries

New visual

Text box

More visuals

Insert

New visual calculation

New measure

Quick measure

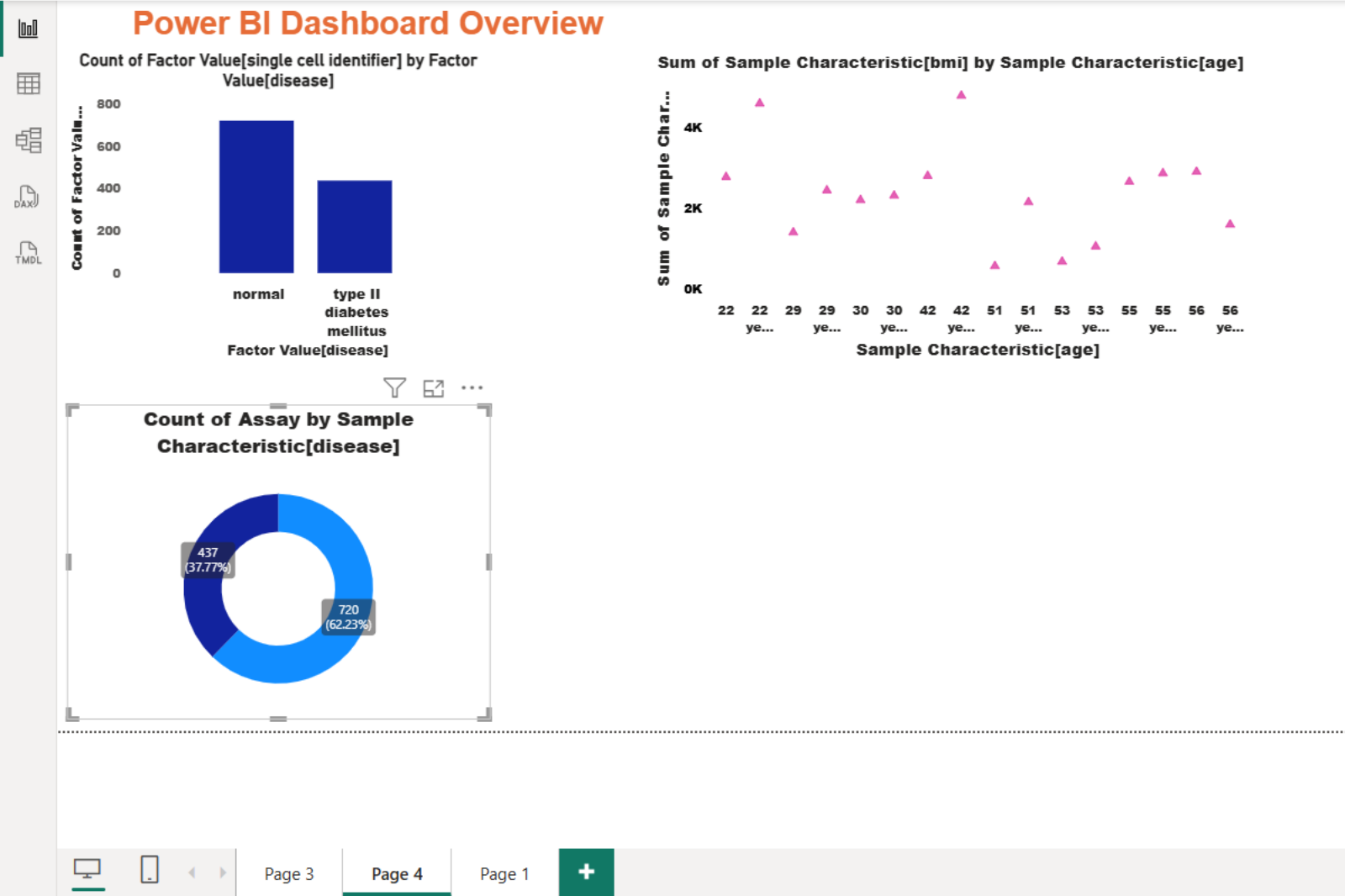
Calculations

Sensitivity

Share

Prep data for Copilot AI

Copilot



VisualizationsData

Format visual

Filters

Search

VisualGeneral

Spacing

Reset to default

Detail labelsOn

Options

Position

Prefer inside

Outside

Inside

Prefer outside

Prefer inside

Values

Reset to default

Rotation

ExpDesign-E-ENAD-27\_demo

☒ Assay

☐ Factor Value Ontology Term[disease]

☐ Factor Value[disease]

☐ Factor Value[single cell identifier]

☐ Sample Characteristic Ontology Term[organism]

☐ Sample Characteristic Ontology Term[sex]

☐ Sample Characteristic[age]

☐ Sample Characteristic[ancestry category]

☐ Sample Characteristic[biomaterial\_provider]

☐ Sample Characteristic[bmi]

☒ Sample Characteristic[disease]

☐ Sample Characteristic[individual]

☐ Sample Characteristic[organism]

☐ Sample Characteristic[sex]

☐ Sample Characteristic[single cell quality]

FileHomeInsertModelingViewOptimizeHelpFormatData / Drill

PasteCutCopyFormat painterClipboard

Get dataExcelOneLakeSQL ServerEnter dataDataverseRecent sources

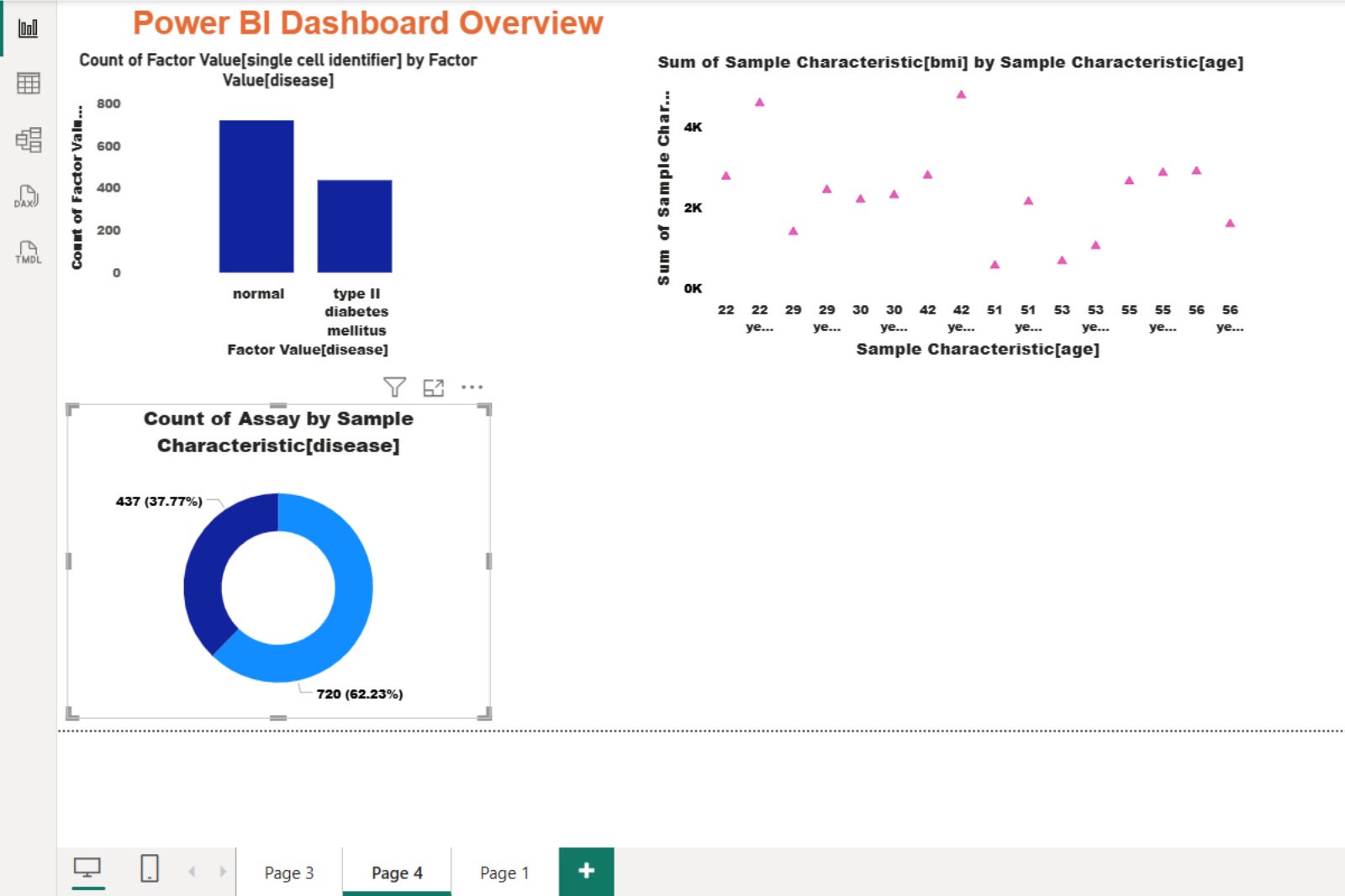
Transform dataRefreshQueries

New visualText boxMore visualsInsert

New visual calculationNew measureQuick measureCalculations

SensitivityPublishPrep data for CopilotAICopilot

Share



VisualizationsData

Format visual

Filters

Search

VisualGeneral

LegendOff

Slices

Detail labelsOn

Options

PositionOutside

Overflow textOn

Label contentsData value, percent ...

Values

FontArial BI...9

B I U

Color

ExpDesign-E-ENAD-27\_demo

☒ Assay

☐ Factor Value Ontology Term[disease]

☐ Factor Value[disease]

☐ Factor Value[single cell identifier]

☐ Sample Characteristic Ontology Term[organism]

☐ Sample Characteristic Ontology Term[sex]

☐ Sample Characteristic[age]

☐ Sample Characteristic[ancestry category]

☐ Sample Characteristic[biomaterial\_provider]

☐ Sample Characteristic[bmi]

☒ Sample Characteristic[disease]

☐ Sample Characteristic[individual]

☐ Sample Characteristic[organism]

☐ Sample Characteristic[sex]

☐ Sample Characteristic[single cell quality]

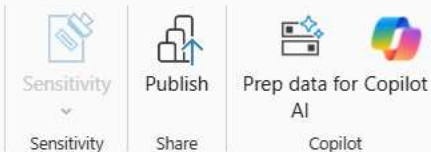
### Stacked bar graph

- X-axis:** Disease type
- Y-axis:** Number of individuals
- Legend:** BMI category (Normal, Overweight, Obese)

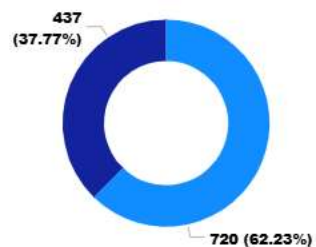
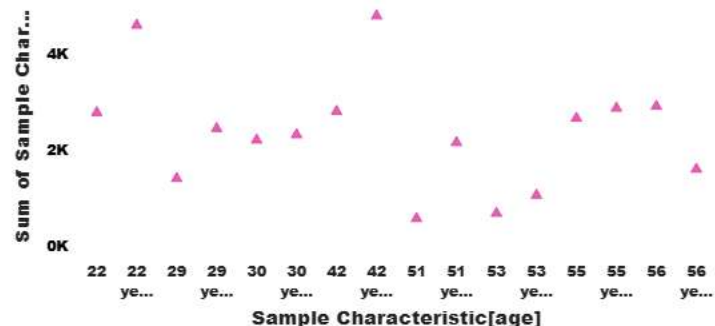
#### **Interpretation:**

"Among individuals with Type II Diabetes, most fall in the Overweight and Obese BMI categories."





**Sum of Sample Characteristic[bmi] by Sample Characteristic[age]**



Visualizations

Build visual

Stacked bar chart

Y-axis

Add data fields here

X-axis

Add data fields here

Legend

Add data fields here

Small multiples

Add data fields here

Tooltips

Add data fields here

Q Search

- ExpDesign-E-ENAD-27\_demo
  - ☐ Assay
  - ☐ Factor Value Ontology Term[disease]
  - ☐ Factor Value[disease]
  - ☐ Factor Value[single cell identifier]
  - ☐ Sample Characteristic Ontology Term[organism]
  - ☐ Sample Characteristic Ontology Term[sex]
  - ☐ Sample Characteristic[age]
  - ☐ Sample Characteristic[ancestry category]
  - ☐ Sample Characteristic[biomaterial\_provider]
  - ☐  $\Sigma$  Sample Characteristic[bmi]
  - ☐ Sample Characteristic[disease]
  - ☐ Sample Characteristic[individual]
  - ☐ Sample Characteristic[organism]
  - ☐ Sample Characteristic[sex]
  - ☐ Sample Characteristic[single cell quality]

Clipboard: Paste, Cut, Copy, Format painter

Data: Get data, Excel workbook catalog, OneLake Server, SQL Enter data, Dataserve, Recent sources

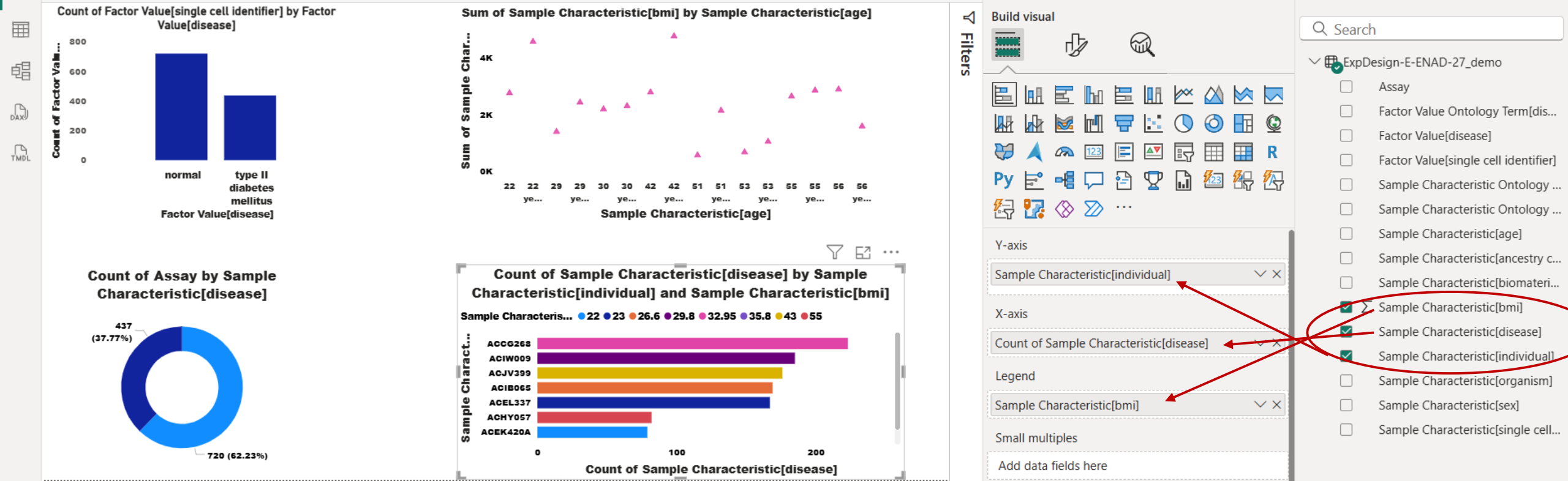
Queries: Transform data, Refresh

Insert: New visual, Text box, More visuals

Calculations: New visual calculation, New measure, Quick measure

Sensitivity, Publish, Prep data for Copilot AI, Copilot

Auto recovery contains some recovered files that haven't been opened. View recovered files



**Visualizations**

Build visual

Filters

Y-axis: Sample Characteristic[individual]

X-axis: Count of Sample Characteristic[disease]

Legend: Sample Characteristic[bmi]

Small multiples: Add data fields here

Tooltips: Add data fields here

Drill through: Add data fields here

Cross-report: Off

Keep all filters: On

**Data**

Search

ExpDesign-E-ENAD-27\_demo

- ☐ Assay
- ☐ Factor Value Ontology Term[dis...
- ☐ Factor Value[disease]
- ☐ Factor Value[single cell identifier]
- ☐ Sample Characteristic Ontology ...
- ☐ Sample Characteristic Ontology ...
- ☐ Sample Characteristic[age]
- ☐ Sample Characteristic[ancestry c...
- ☐ Sample Characteristic[biomateri...
- ☒ Sample Characteristic[bmi]
- ☒ Sample Characteristic[disease]
- ☒ Sample Characteristic[individual]
- ☐ Sample Characteristic[organism]
- ☐ Sample Characteristic[sex]
- ☐ Sample Characteristic[single cell...

Paste

Cut

Copy

Format painter

Clipboard

Get data

Excel workbook catalog

OneLake Server

SQL Server

Enter data

Dataverse

Recent sources

Data

Transform data

Refresh data

Queries

New visual

Text box

More visuals

Insert

New visual calculation

New measure

Quick measure

Calculations

Sensitivity

Sensitivity

Publish

Share

Prep data for Copilot AI

Copilot

Power BI Dashboard Overview

Count of Factor Value[single cell identifier] by Factor Value[disease]

Factor Value[disease]	Count of Factor Value[single cell identifier]
normal	720
type II diabetes mellitus	437

Sum of Sample Characteristic[bmi] by Sample Characteristic[age]

Sample Characteristic[age]	Sum of Sample Characteristic[bmi]
22	2800
29	1500
30	2500
42	4500
51	800
53	1000
55	2800
56	3000

Count of Assay by Sample Characteristic[disease]

Sample Characteristic[disease]	Count of Assay	Percentage
normal	720	62.23%
type II diabetes mellitus	437	37.77%

Count of Sample Characteristic[disease] by Sample Characteristic[individual] and Sample Characteristic[bmi]

Sample Characteristic[individual]	Count of Sample Characteristic[disease]
ACCG268	100
ACIW009	100
ACIV399	100
ACIB065	100
ACEL337	150
ACHY057	100
ACEK420A	100
ACCR015A	100

Visualizations

Build visual

Filters

Y-axis

X-axis

Legend

Small multiples

Tooltips

Data

Search

ExpDesign-E-ENAD-27\_demo

Assay

Factor Value Ontology Term[disease]

Factor Value[disease]

Factor Value[single cell identifier]

Sample Characteristic Ontology Term[organism]

Sample Characteristic Ontology Term[sex]

Sample Characteristic[age]

Sample Characteristic[ancestry category]

Sample Characteristic[biomaterial\_provider]

Sample Characteristic[bmi]

Sample Characteristic[disease]

Sample Characteristic[individual]

Sample Characteristic[organism]

Sample Characteristic[sex]

Sample Characteristic[single cell quality]

FileHomeInsertModelingViewOptimizeHelpFormatData / Drill

PasteCutCopyFormat painterClipboard

Get dataExcelOneLakeSQL ServerEnter dataDataverseRecent sourcesData

Transform dataRefresh dataQueries

New visualText boxMore visualsInsert

New visual calculationNew measureQuick measureCalculations

SensitivitySensitivity

PublishShare

Prep data for CopilotAICopilot

Auto recovery contains some recovered files that haven't been opened. View recovered files

Count of Factor Value[single cell identifier] by Factor Value[disease]

Factor Value[disease]	Count of Factor Value[single cell identifier]
normal	720
type II diabetes mellitus	437

Sum of Sample Characteristic[bmi] by Sample Characteristic[age]

Sample Characteristic[age]	Sum of Sample Characteristic[bmi]
22	2800
29	1500
30	2500
42	3000
51	1000
53	1200
55	2800
56	3000

Count of Assay by Sample Characteristic[disease]

Sample Characteristic[disease]	Count of Assay	Percentage
normal	720	62.23%
type II diabetes mellitus	437	37.77%

Count of Sample Characteristic[disease] by Sample Characteristic[individual] and Sample Characteristic[bmi]

Sample Characteristic[individual]	Sample Characteristic[bmi]	Count of Sample Characteristic[disease]
ACCG268	22	200
ACIW009	23	180
ACJV399	26.6	150
ACIB065	29.8	140
ACEL337	32.95	130
ACHY057	35.8	120
ACEK420A	43	110

Visualizations

Format visual

VisualGeneral

Arial Black9

B I U

Color

Maximum width25%

Switch axis positionOff

Concatenate labelsOff

Title

Title textAuto

StyleShow title only

FontArial Black12

Data

Search

ExpDesign-E-ENAD-27\_demo

Assay

Factor Value Ontology Term[dis...

Factor Value[disease]

Factor Value[single cell identifier]

Sample Characteristic Ontology ...

Sample Characteristic Ontology ...

Sample Characteristic[age]

Sample Characteristic[ancestry c...

Sample Characteristic[biomateri...

Sample Characteristic[bmi]

Sample Characteristic[disease]

Sample Characteristic[individual]

Sample Characteristic[organism]

Sample Characteristic[sex]

Sample Characteristic[single cell...



FileHomeInsertModelingViewOptimizeHelpFormatData / Drill

Paste

Cut

Copy

Format painter

Clipboard

Get data

Excel workbook catalog

OneLake Server

SQL Server

Enter data

Data

Datawarehouse

Recent sources

Transform data

Refresh data

Queries

New visual

Text box

More visuals

Insert

New visual calculation

New measure

Quick measure

Calculations

Sensitivity

Sensitivity

Publish

Share

Prep data for Copilot AI

Copilot

Share

Auto recovery contains some recovered files that haven't been opened.

View recovered files

Count of Factor Value[single cell identifier] by Factor Value[disease]

Factor Value[disease]	Count of Factor Value[single cell identifier]
normal	223
type II diabetes mellitus	450

Count of Assay by Sample Characteristic[disease]

Sample Characteristic[disease]	Count of Assay	Percentage
normal	0	0%
type II diabetes mellitus	223	19.27%

Sum of Sample Characteristic[bmi] by Sample Characteristic[age]

Sample Characteristic[age]	Sum of Sample Characteristic[bmi]
22	22
22 year	4500

Count of Sample Characteristic[individual] and Sample Characteristic[bmi]

Sample Characteristic[individual]	Count of Sample Characteristic[bmi]
ACCG268	223
ACIW009	150
ACJV399	180
ACIB065	160
ACEL337	140
ACHY057	100
ACEK420A	80

Visualizations

Format visual

Visual

Arial Black

9

B I U

Color

Switch axis position

Concatenate labels

Title

Title text

Auto

Style

Show title only

Font

Arial Black

12

Data

ExpDesign-E-ENAD-27\_demo

Assay

Factor Value Ontology Term[dis...

Factor Value[disease]

Factor Value[single cell identifier]

Sample Characteristic Ontology ...

Sample Characteristic Ontology ...

Sample Characteristic[age]

Sample Characteristic[ancestry c...

Sample Characteristic[biomateri...

Sample Characteristic[bmi]

Sample Characteristic[disease]

Sample Characteristic[individual]

Sample Characteristic[organism]

Sample Characteristic[sex]

Sample Characteristic[single cell...

Thank you

