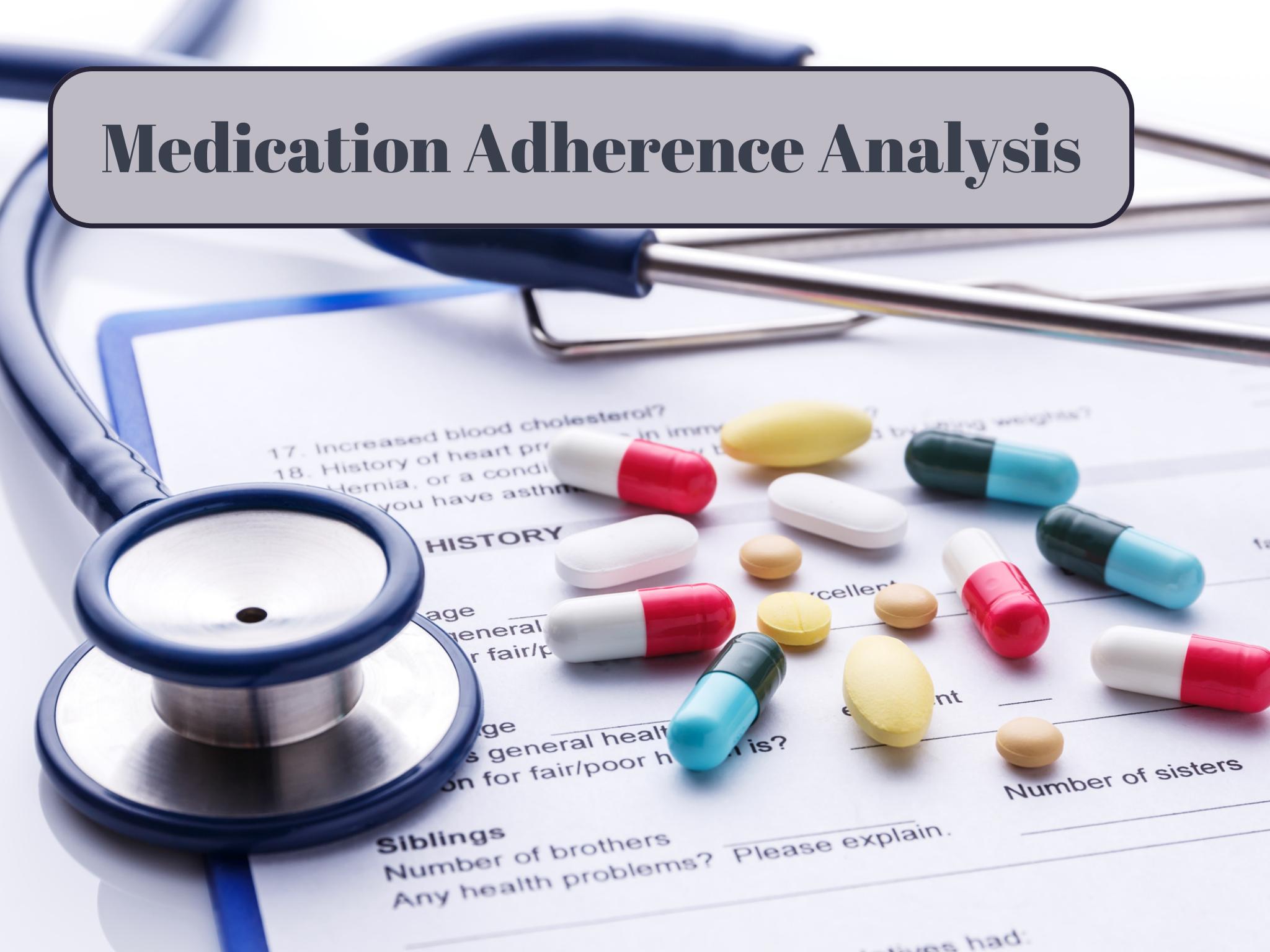


Medication Adherence Analysis



AGENDA

1. Introduction
2. Objective
3. Dataset
4. Requests
5. Insights

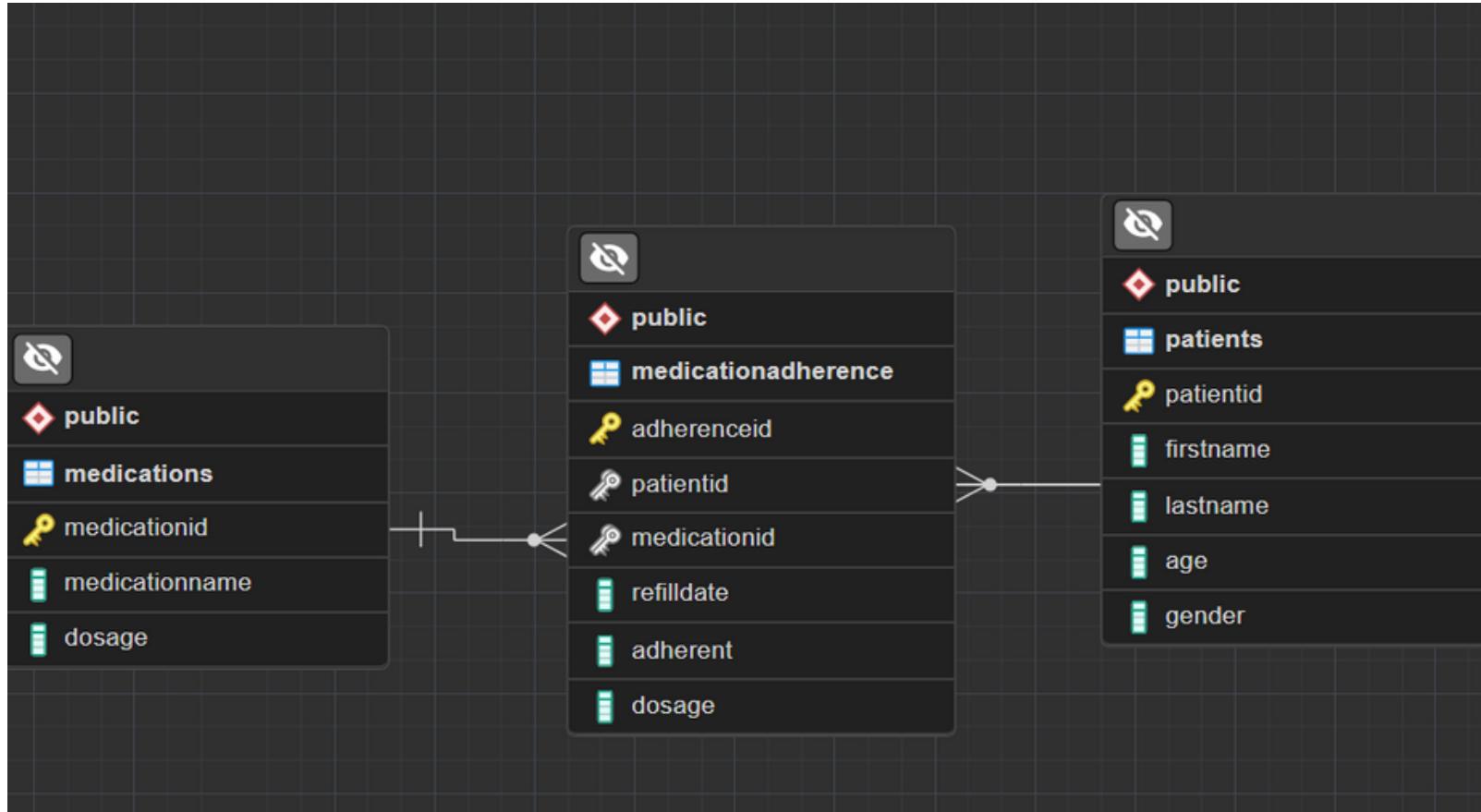
Introduction

Medication Adherence Analysis explores how consistently patients follow prescribed medication plans. It involves examining overall adherence rates, adherence to specific medications, patient patterns, demographics, dosage impact and identifying non-adherent patients

Objective

To understand, evaluate, and improve how consistently patients follow prescribed medication plans, enhancing overall treatment effectiveness and patient outcomes through personalized interventions

Dataset and modelling



Tools used



Question 1

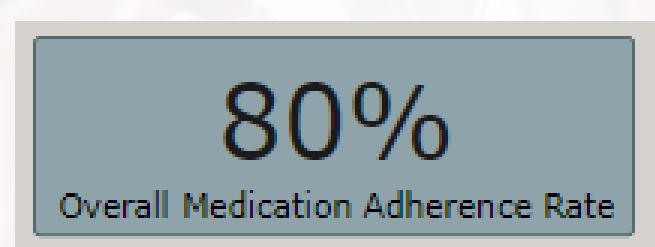
Calculate Overall Medication Adherence Rate

```
select
    count(adherent) as total_count,
    sum(case when adherent='true' then 1 else 0 end) as adherent,
    sum(case when adherent='true' then 1 else 0 end)*100/count(adherent) as overall_adherence_rate
from medicationadherence
```

SQL

	total_count bigint	adherent bigint	overall_adherence_rate bigint
1	50	40	80

Power BI



Question 2

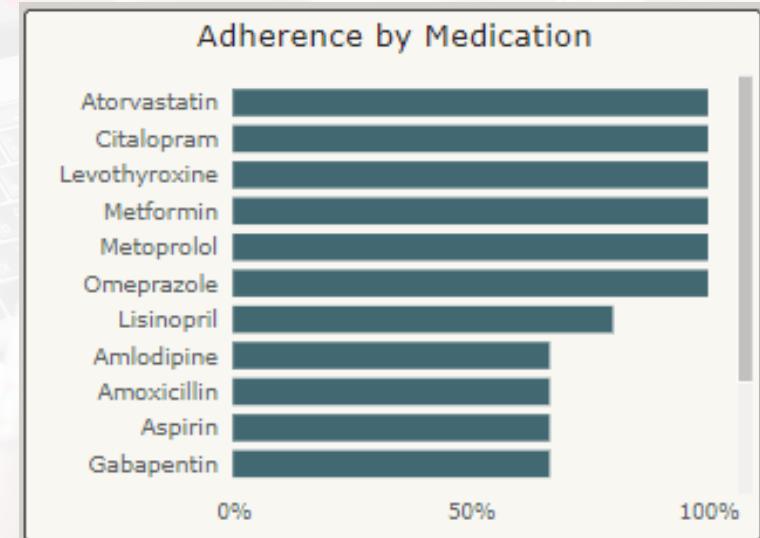
Calculate Adherence by Medication

```
select medicationname,
count(adherent) as total_count,
sum(case when adherent='true' then 1 else 0 end) as adherent,
sum(case when adherent='true' then 1 else 0 end)*100/count(adherent) as medication_adherence_rate
from medicationadherence
inner join medications
on medicationadherence.medicationid=medications.medicationid
group by medicationname
order by 4 desc
```

SQL

	medicationname character varying (100)	total_count bigint	adherent bigint	medication_adherence_rate bigint
1	Atorvastatin	3	3	100
2	Omeprazole	3	3	100
3	Levothyroxine	3	3	100
4	Metformin	3	3	100
5	Citalopram	3	3	100
6	Metoprolol	3	3	100
7	Lisinopril	5	4	80
8	Simvastatin	3	2	66
9	Aspirin	6	4	66
10	Losartan	3	2	66
11	Gabapentin	3	2	66
12	Amlodipine	3	2	66
13	Ibuprofen	3	2	66
14	Amoxicillin	3	2	66
15	Hydrochlorothiazide	3	2	66

Power BI



Question 3

Calculate Patient Adherence Patterns with less than 80%

```
with cte as(
    select firstname, lastname,
    count(adherent) as total_count,
    sum(case when adherent='true' then 1 else 0 end) as adherent,
    sum(case when adherent='true' then 1 else 0 end)*100/count(adherent) as patient_adherence_rate
    from medicationadherence
    inner join patients
    on patients.patientid=medicationadherence.patientid
    group by firstname, lastname
)
select concat(firstname||' '||lastname) as full_name,
patient_adherence_rate
from cte
where patient_adherence_rate < 80
```

SQL

	full_name	patient_adherence_rate
1	Sophia Moore	66
2	Olivia Jones	66
3	Ava Robinson	66
4	Alice Williams	66
5	Emily Clark	66
6	David Anders...	66
7	Eva Miller	66
8	John Doe	66
9	Jane Smith	66
10	Michael Taylor	66

Power BI

Patient below 80% adherence
Alice Williams
Ava Robinson
David Anderson
Emily Clark
Emma Ward
Eva Miller
Jane Smith
John Doe
Matthew Scott
Mia Young
Michael Taylor
Olivia Jones
Sophia Moore

Question 4

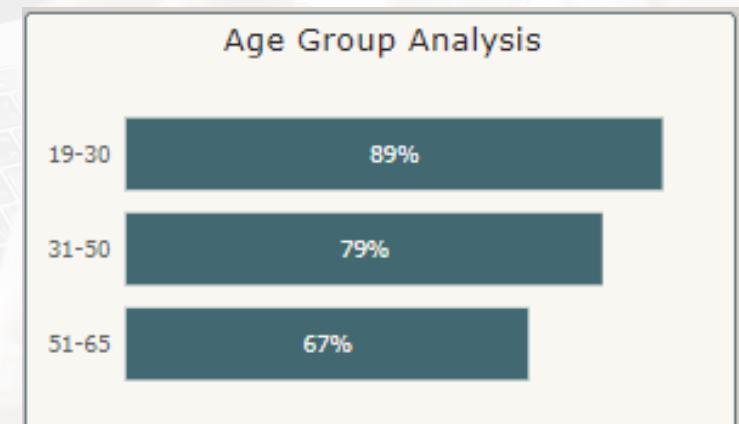
Calculate Medication adherence based on Age group

```
select case
when Age between 19 and 30 then '19-30'
when Age between 31 and 50 then '31-50'
when Age between 51 and 65 then '51-65'
else '65+'
end age_group,
count(adherent) as total_count,
sum(case when adherent='true' then 1 else 0 end) as adherent,
sum(case when adherent='true' then 1 else 0 end)*100/count(adherent) as age_adherence_rate
from medicationadherence
inner join patients
on medicationadherence.patientid=patients.patientid
GROUP BY
case
when Age between 19 and 30 then '19-30'
when Age between 31 and 50 then '31-50'
when Age between 51 and 65 then '51-65'
else '65+'
end
order by 4 desc
```

SQL

Power BI

	age_group	total_count	adherent	age_adherence_rate
1	19-30	9	8	88
2	31-50	38	30	78
3	51-65	3	2	66



Question 5

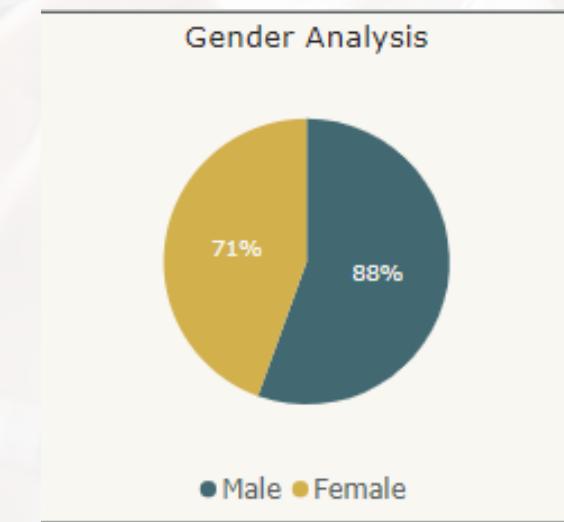
Calculate Medication adherence based on gender

```
select gender,
       count(adherent) as total_count,
       sum(case when adherent='true' then 1 else 0 end) as adherent,
       sum(case when adherent='true' then 1 else 0 end)*100/count(adherent) as gender_adherence_rate
  from medicationadherence
 inner join patients
    on medicationadherence.patientid=patients.patientid
 group by gender
```

SQL

	gender character varying (10)	total_count bigint	adherent bigint	gender_adherence_rate bigint
1	Female	24	17	70
2	Male	26	23	88

Power BI



Question 6

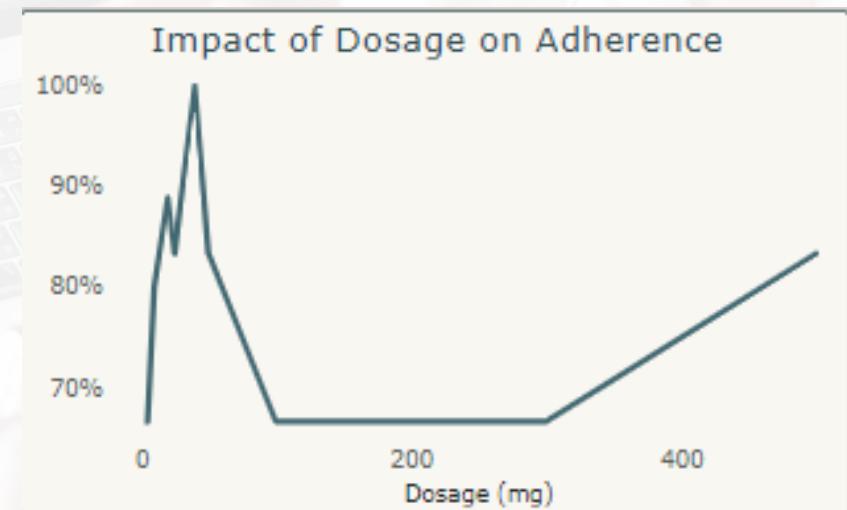
Calculate Impact of dosage on adherence

```
select medications.dosage,
       count(adherent) as total_count,
       sum(case when adherent='true' then 1 else 0 end) as adherent,
       sum(case when adherent='true' then 1 else 0 end)*100/count(adherent) as dosage_adherence_rate
  from medicationadherence
inner join medications
    on medicationadherence.medicationid=medications.medicationid
 group by medications.dosage
order by 1 asc
```

SQL

	dosage integer	total_count bigint	adherent bigint	dosage_adherence_rate bigint
1	5	3	2	66
2	10	5	4	80
3	20	9	8	88
4	25	6	5	83
5	40	3	3	100
6	50	6	5	83
7	100	6	4	66
8	200	3	2	66
9	300	3	2	66
10	500	6	5	83

Power BI



Question 7

Calculate Refill adherence trend over time

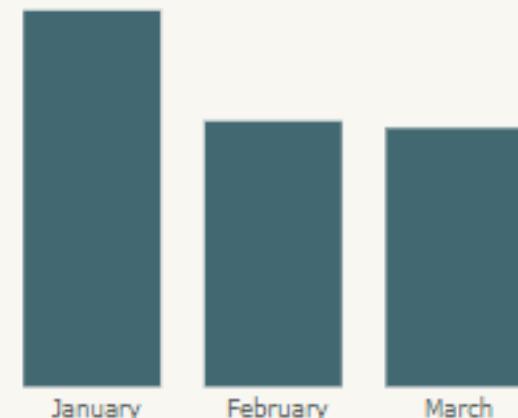
```
select extract(month from refilldate) as month,
       count(adherent) as total_count,
       sum(case when adherent='true' then 1 else 0 end) as adherent,
       sum(case when adherent='true' then 1 else 0 end)*100/count(adherent) as refill_adherence_rate
  from medicationadherence
 group by extract(month from refilldate)
order by 4 desc
```

SQL

Power BI

	month numeric	total_count bigint	adherent bigint	refill_adherence_rate bigint
1	1	17	17	100
2	2	17	12	70
3	3	16	11	68

Refill Adherence by Month



Question 8

Identify Non-Adherent Patients

```
select concat(firstname||' '||lastname) as full_name  
from medicationadherence  
inner join patients  
on medicationadherence.patientid=patients.patientid  
where adherent='false'
```

SQL

	full_name	text	🔒
1	John Doe		
2	Jane Smith		
3	Alice Williams		
4	Eva Miller		
5	David Anders...		
6	Michael Taylor		
7	Sophia Moore		
8	Olivia Jones		
9	Emily Clark		
10	Ava Robinson		

Power BI

Non adherent patients
Sophia Moore
Olivia Jones
Michael Taylor
John Doe
Jane Smith
Eva Miller
Emily Clark
David Anderson
Ava Robinson
Alice Williams

Insights

- Simvastatin, Aspirin, Losartan, Gabapentin, Amlodipine, Ibuprofen, Amoxicillin and Hydrochlorothizaide have low adherence rate
- Medication adherence for age group **51-65** is lowest which is **66%**
- Male adherence rate is more as compared to Female
- **40 mg** dosage has maximum adherence while 5mg, 100mg, 200mg and 300 mg has low adherence rate
- **January** has 100% refill rate while March has lowest refill rate
- 10 patient are **non adherent** from given dataset

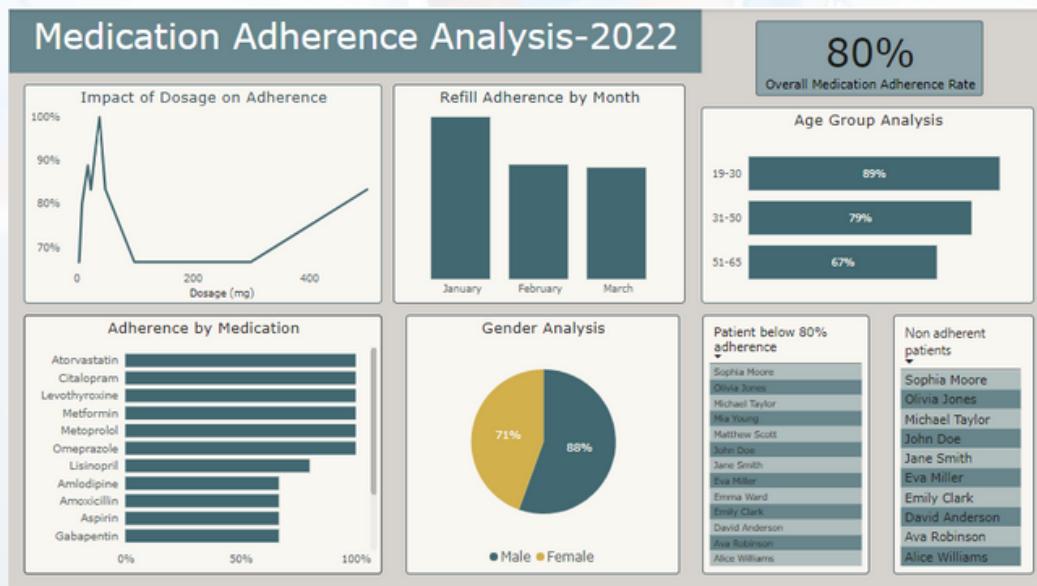
Link

SQL link-

https://github.com/nikitavutekar/Medication_Adherence-.git

Dashboard link-

<https://www.novyp.com/project/medication-adherence-analysis>



A close-up photograph of a medical professional, likely a doctor, wearing blue scrubs and a stethoscope around their neck. They are holding a rectangular, light brown sign with the words "thank you!" written in a large, black, cursive font. The doctor's hands are visible, one on each side of the sign, and they appear to be smiling. The background is plain white.

thank you!