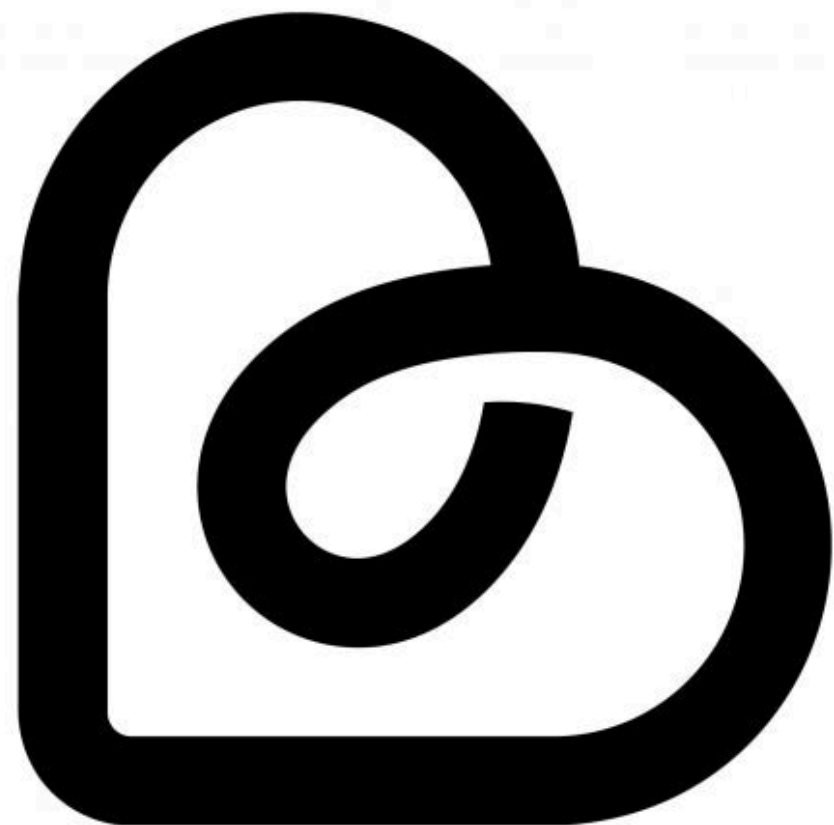# Bellabeat Case Study

Google Data Analytics Capstone Project

by Yahor Kudlasevich

Our Problem:

What are some trends in smart device usage?

How could these trends apply to Bellabeat customers?

How could these trends help influence Bellabeat marketing strategy?

Key Task:

Learn the trends of usage non-Bellabeat device and how can we apply it on Bellabeat device and Bellabeat marketing strategy.

About the company:

Bellabeat is a high-tech company that manufactures health-focused smart products thats informs and inspires women around the world. Collecting data on activity, sleep, stress, and reproductive health has allowed Bellabeat to empower women with knowledge about their own health and habits.

Since it was founded in 2013, Bellabeat has grown rapidly and quickly positioned itself as a tech-driven wellness company for women.

Urška Sršen (founder) asked the marketing analytics team to focus on a Bellabeat product and analyze smart device usage data in order to gain insight into how people are already using their smart devices. Then, using this information, she would like high-level recommendations for how these trends can inform Bellabeat marketing strategy.

Our Data:

FitBit Fitness Tracker Data (CC0: Public Domain) – the Kaggle data set contains personal fitness tracker from thirty fitbit users.

It includes information about daily activity, steps, and heart rate that can be used to explore users' habits.

The Process:

The data was transformed and analyzed using **Excel + Power Query**.
Few nulls and duplicates were removed.
Insights and graphs were obtained using **Tableau**.

| Id	Date	Day	TotalSteps	TotalDistance	TrackerDistance	LoggedActivitiesDistance	VeryActiveDistance	ModeratelyActiveDistance	LightActiveDistance	SedentaryActiveDistance	VeryActiveMinutes
1503960366	12-04-16 0:00	Tuesday	13162	8.5	8.5	0	1.879999995	0.550000012	6.059999943	0	25
1503960366	13-04-16 0:00	Wednesday	10735	6.96999979	6.96999979	0	1.570000052	0.689999998	4.710000038	0	21
1503960366	15-04-16 0:00	Friday	9762	6.28000021	6.28000021	0	2.140000105	1.25999999	2.829999924	0	29
1503960366	16-04-16 0:00	Saturday	12669	8.159999847	8.159999847	0	2.710000038	0.409999996	5.039999962	0	36
1503960366	17-04-16 0:00	Sunday	9705	6.480000019	6.480000019	0	3.190000057	0.779999971	2.50999999	0	38
1503960366	19-04-16 0:00	Tuesday	15506	9.880000114	9.880000114	0	3.529999971	1.320000052	5.03000021	0	50
1503960366	20-04-16 0:00	Wednesday	10544	6.679999828	6.679999828	0	1.960000038	0.479999989	4.239999771	0	28
1503960366	21-04-16 0:00	Thursday	9819	6.340000153	6.340000153	0	1.340000033	0.349999994	4.650000095	0	19
1503960366	23-04-16 0:00	Saturday	14371	9.039999962	9.039999962	0	2.809999943	0.870000005	5.360000134	0	41
1503960366	24-04-16 0:00	Sunday	10039	6.409999847	6.409999847	0	2.920000076	0.209999993	3.279999971	0	39
1503960366	25-04-16 0:00	Monday	15355	9.800000191	9.800000191	0	5.289999962	0.569999993	3.940000057	0	73
1503960366	26-04-16 0:00	Tuesday	13755	8.789999962	8.789999962	0	2.329999924	0.920000017	5.539999962	0	31
1503960366	28-04-16 0:00	Thursday	13154	8.529999733	8.529999733	0	3.539999962	1.159999967	3.789999962	0	48
1503960366	29-04-16 0:00	Friday	11181	7.150000095	7.150000095	0	1.059999943	0.5	5.579999924	0	16
1503960366	30-04-16 0:00	Saturday	14673	9.25	9.25	0	3.559999943	1.419999957	4.269999981	0	52

Users' Activity Type Distribution
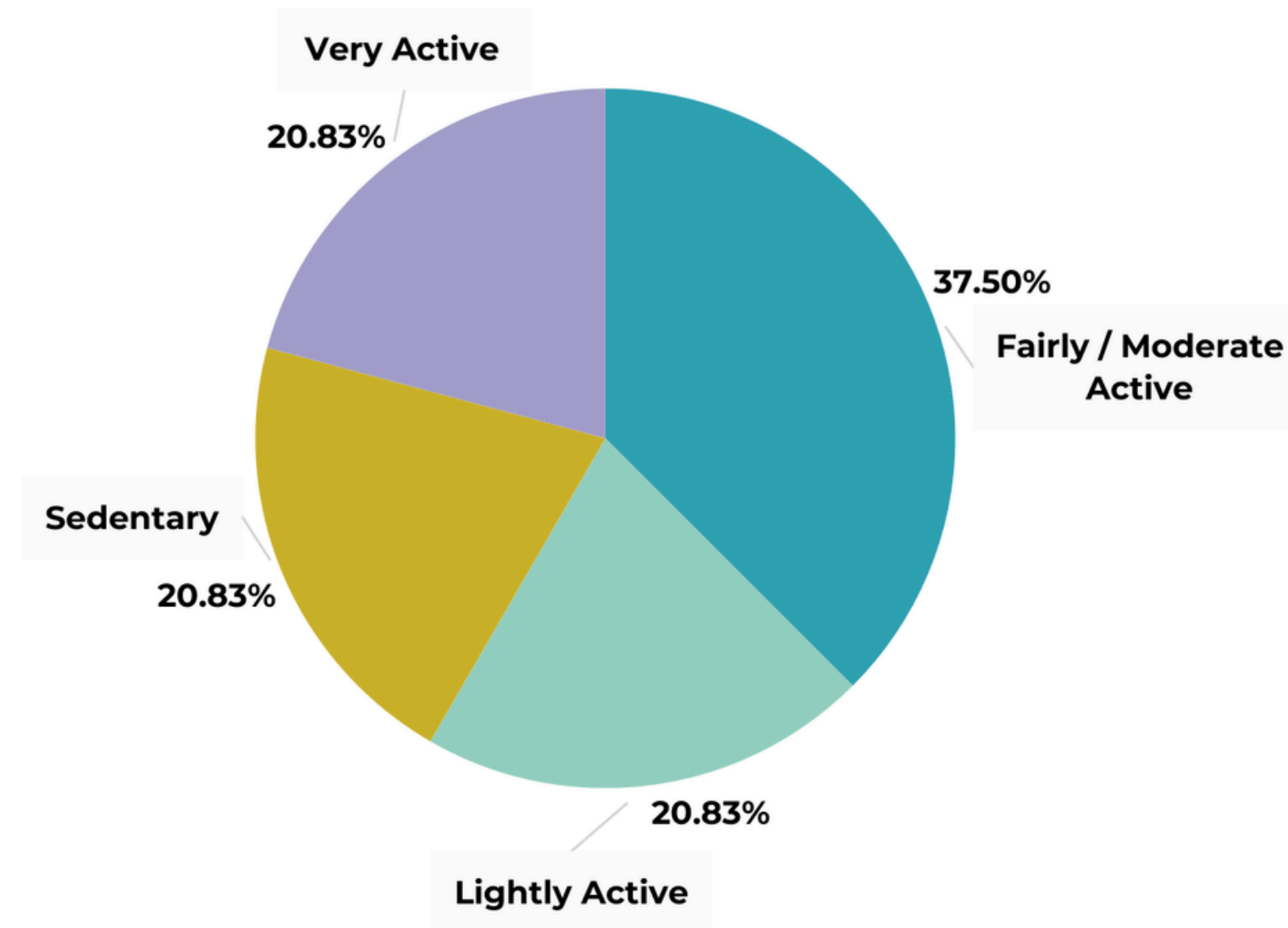
So, who uses Fitbit devices? The distribution shows that most users can be classified as active.
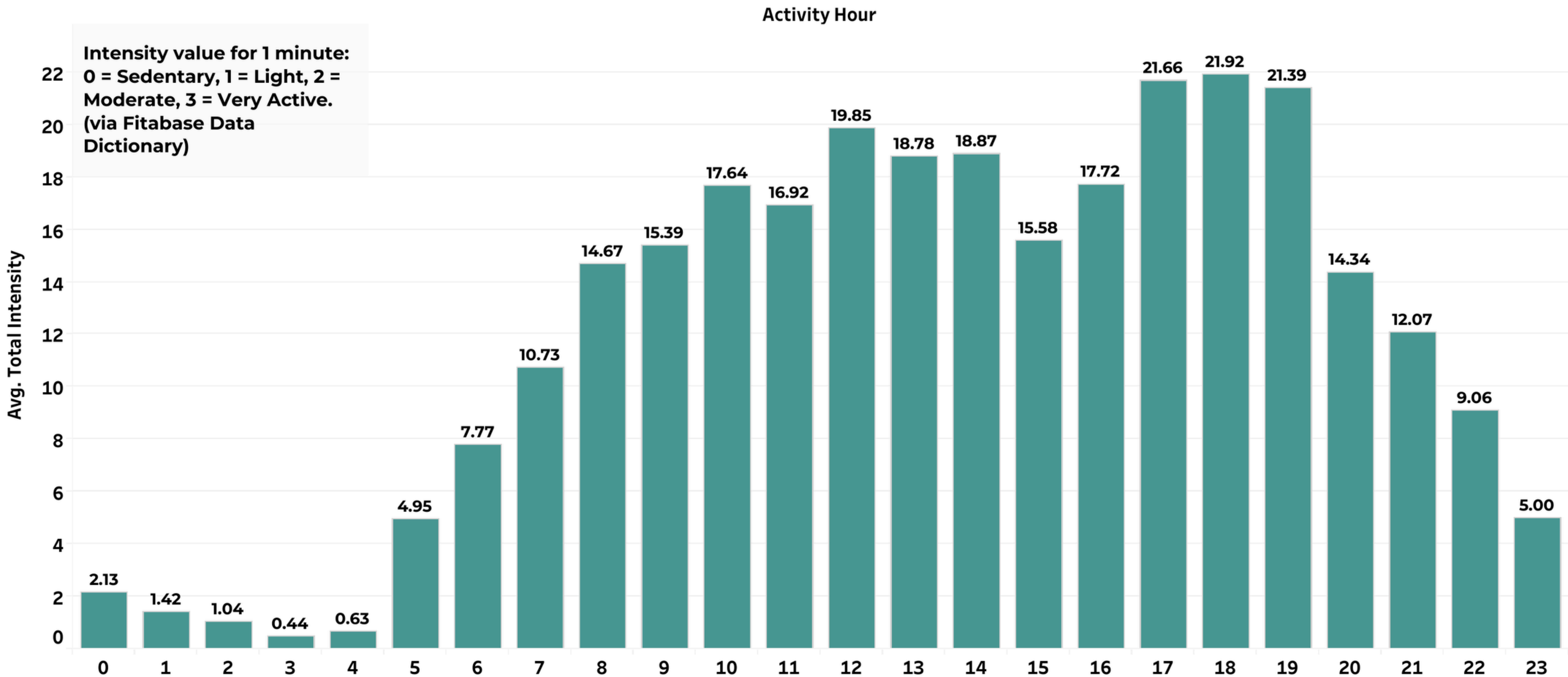
Average Total Steps Per Day Of The Week
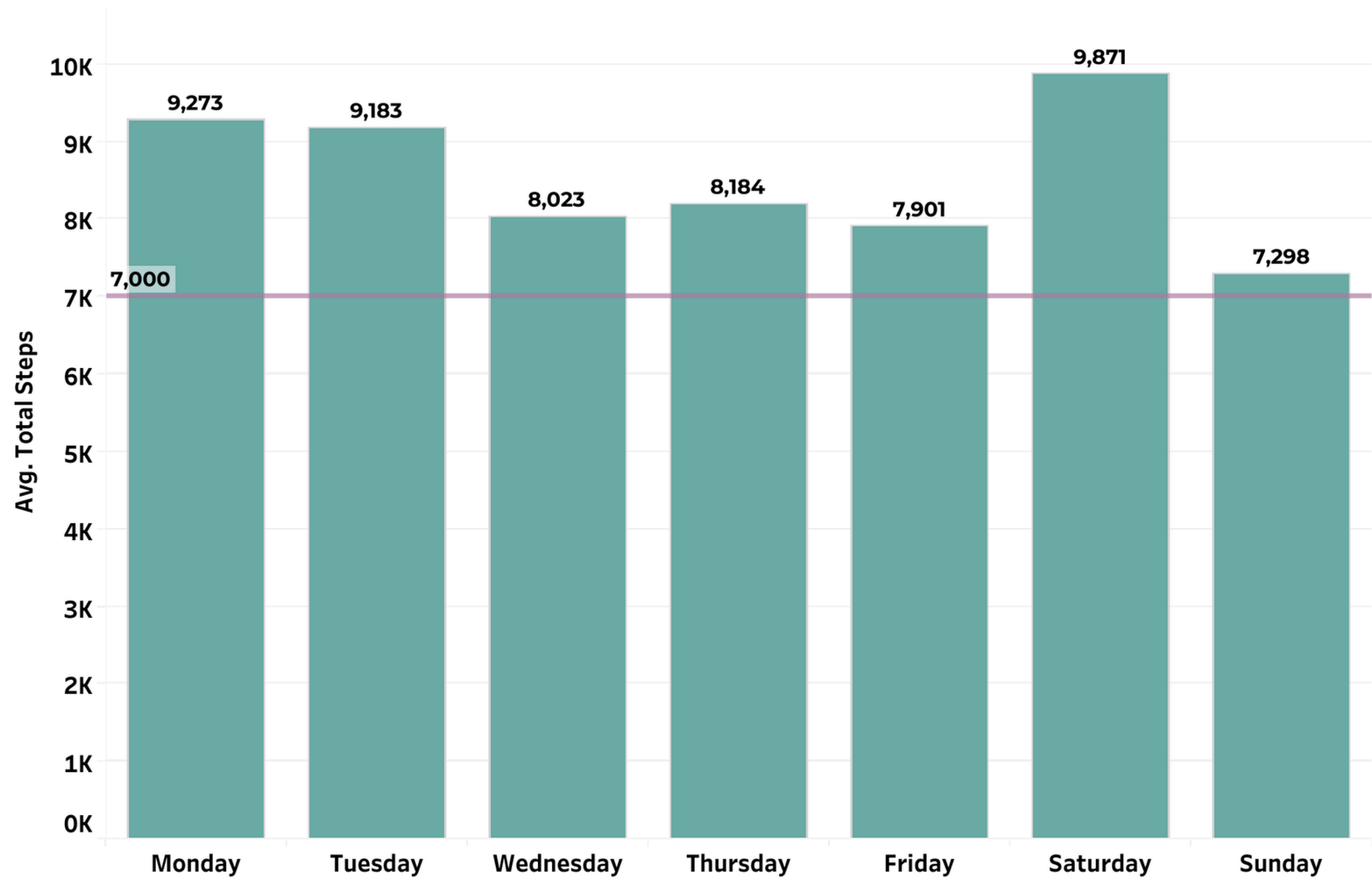
FitBit users take the most steps at the start of the workweek and on Saturdays, consistently meeting the WHO's minimum 7,000-step recommendation.

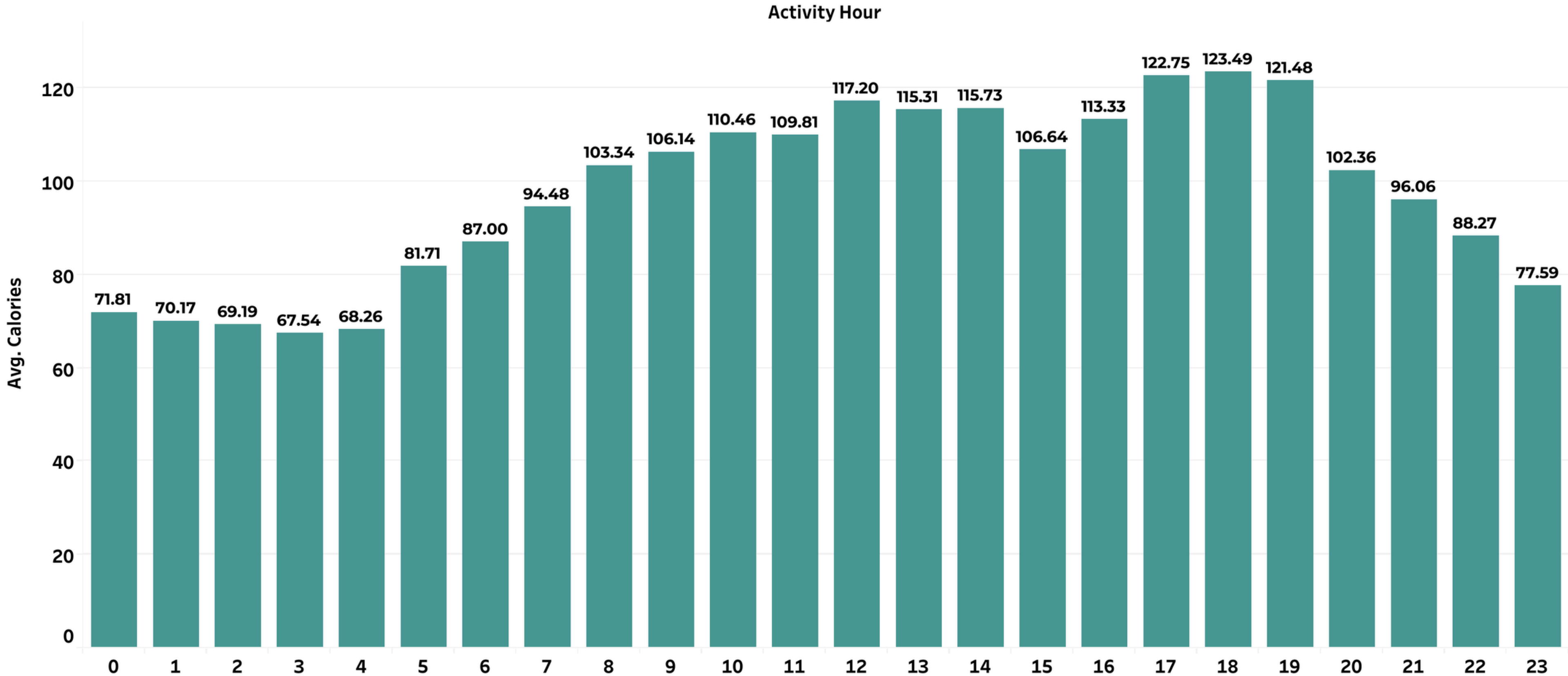# Average Total Hours Asleep Per Day Of The Week
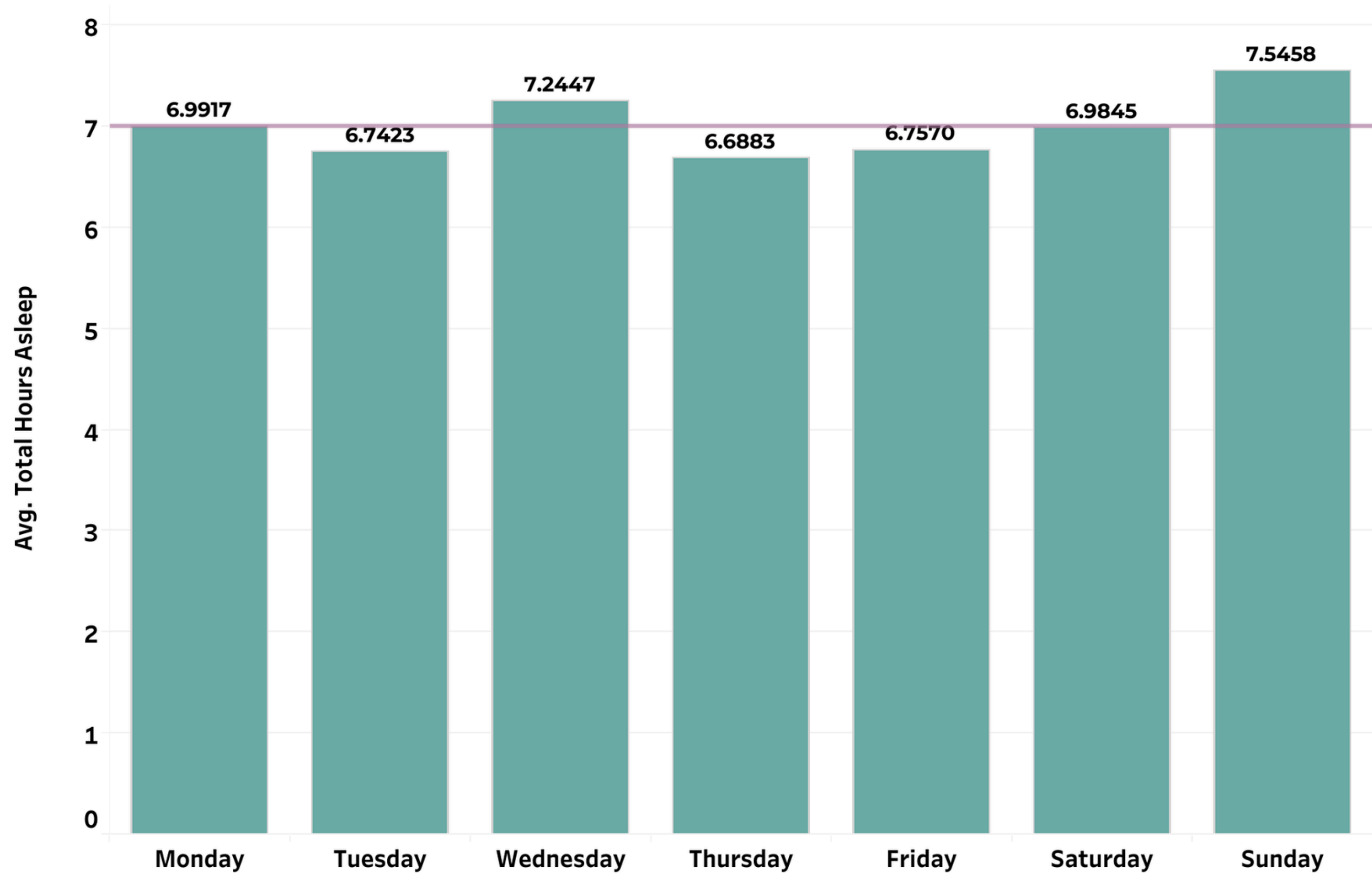
Average sleep varies by day, often falling short of the 7-hour minimum, except on Wednesdays and Sundays .
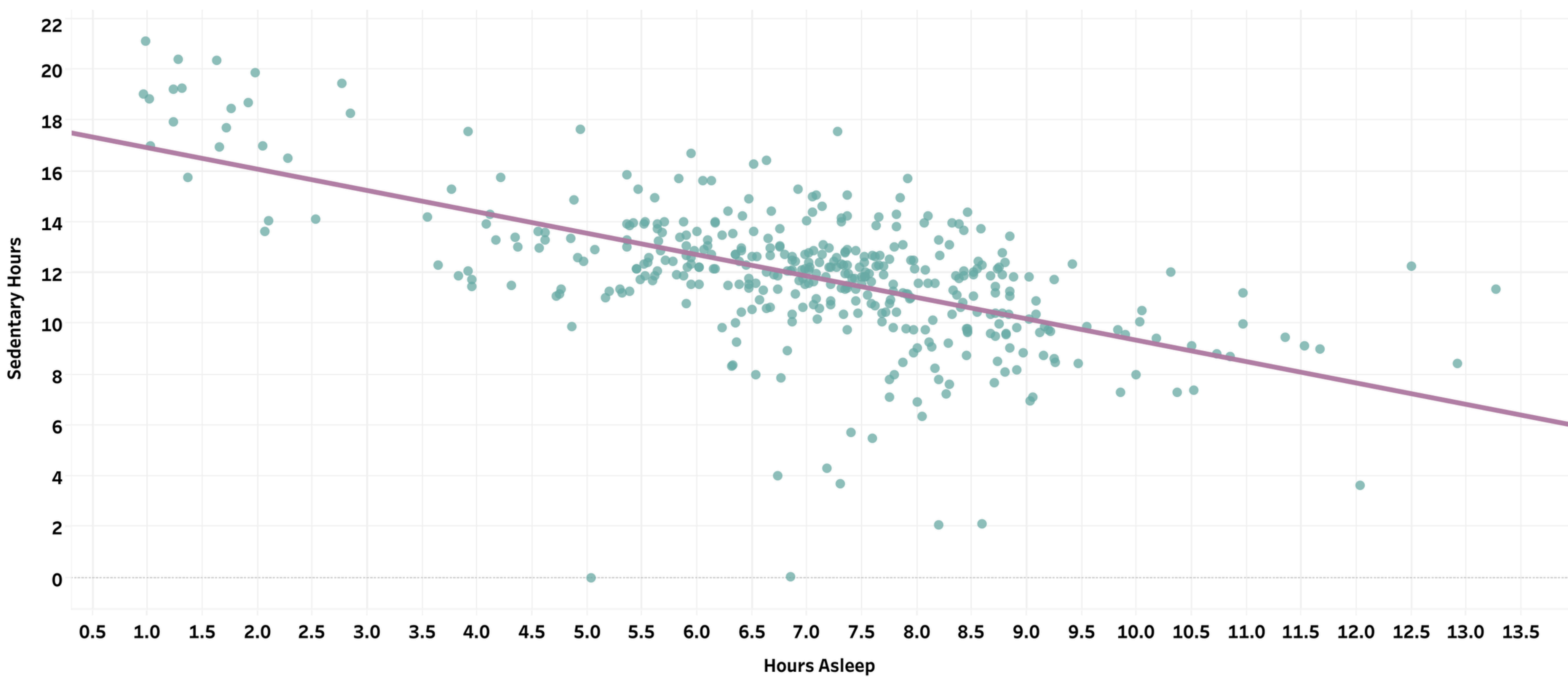
Average Toral Intensity vs. Times of Day

Intensity value for 1 minute:
0 = Sedentary, 1 = Light, 2 = Moderate, 3 = Very Active.
(via Fitabase Data Dictionary)

Activity Hour

Avg. Total Intensity

Hour	Value
0	2.13
1	1.42
2	1.04
3	0.44
4	0.63
5	4.95
6	7.77
7	10.73
8	14.67
9	15.39
10	17.64
11	16.92
12	19.85
13	18.78
14	18.87
15	15.58
16	17.72
17	21.66
18	21.92
19	21.39
20	14.34
21	12.07
22	9.06
23	5.00

Average intensity peaks at the end of the workday and drops noticeably at night.

Average Burned Calories vs. Times of Day

Activity Hour

Avg. Calories

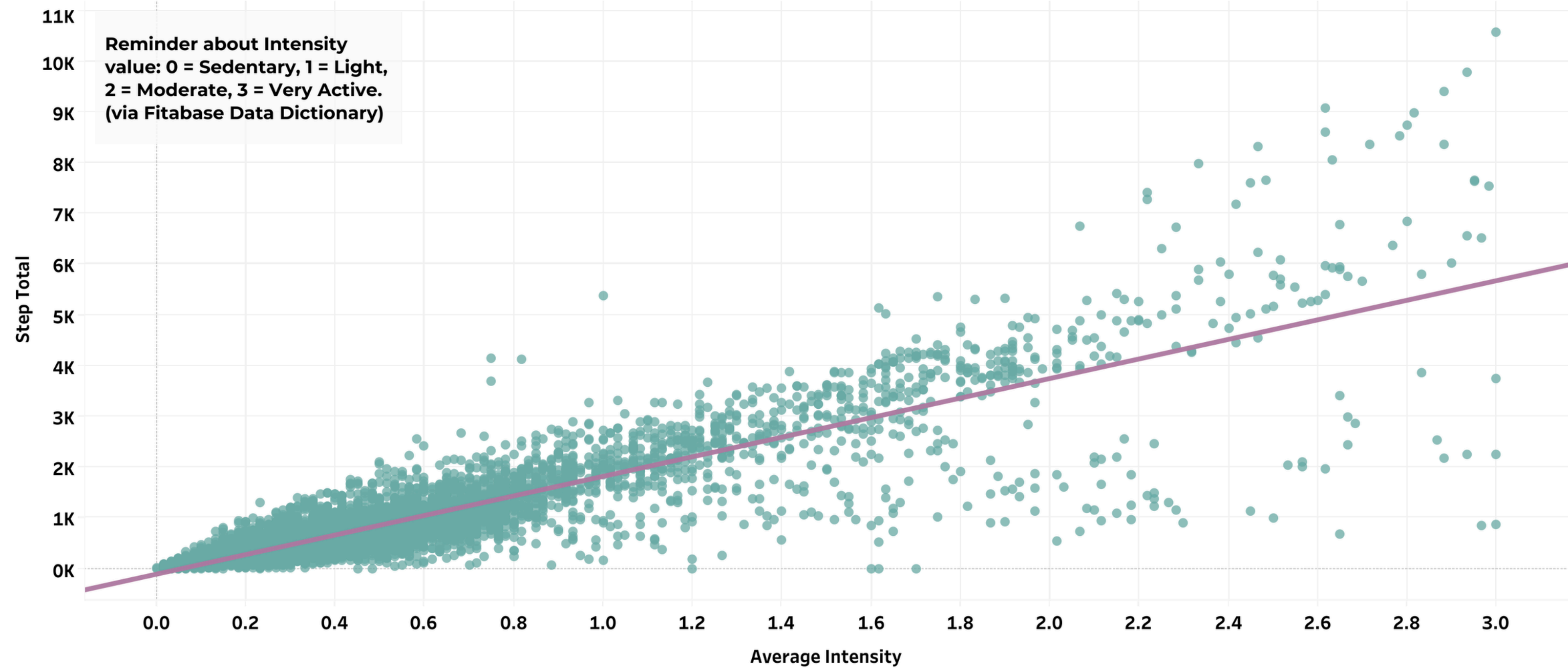| Hour	Value
0	71.81
1	70.17
2	69.19
3	67.54
4	68.26
5	81.71
6	87.00
7	94.48
8	103.34
9	106.14
10	110.46
11	109.81
12	117.20
13	115.31
14	115.73
15	106.64
16	113.33
17	122.75
18	123.49
19	121.48
20	102.36
21	96.06
22	88.27
23	77.59

Calorie burn peaks at the end of the workday and before lunch, with up to 50% of peak-hour calories burned during sleep.

Sedentary Hours vs. Hours Asleep (daily)

More sleep means fewer sedentary hours, showing how rest boosts daytime activity. Sleep matters!

Total Steps vs. Average Intensity (hourly)

Reminder about Intensity value: 0 = Sedentary, 1 = Light, 2 = Moderate, 3 = Very Active. (via Fitabase Data Dictionary)
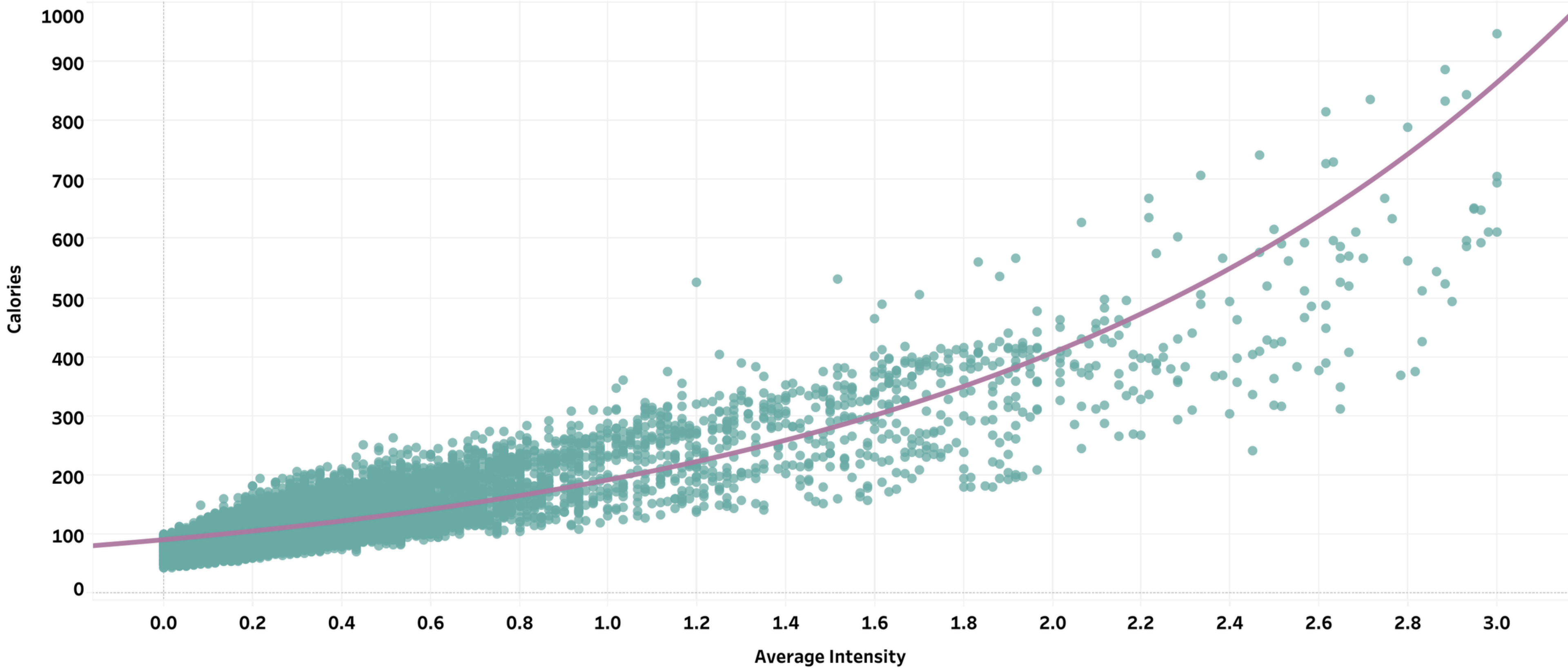
Step Total

Average Intensity

A straightforward relationship — the more steps, the higher the intensity.

# Calories Burned vs. Total Steps (hourly)
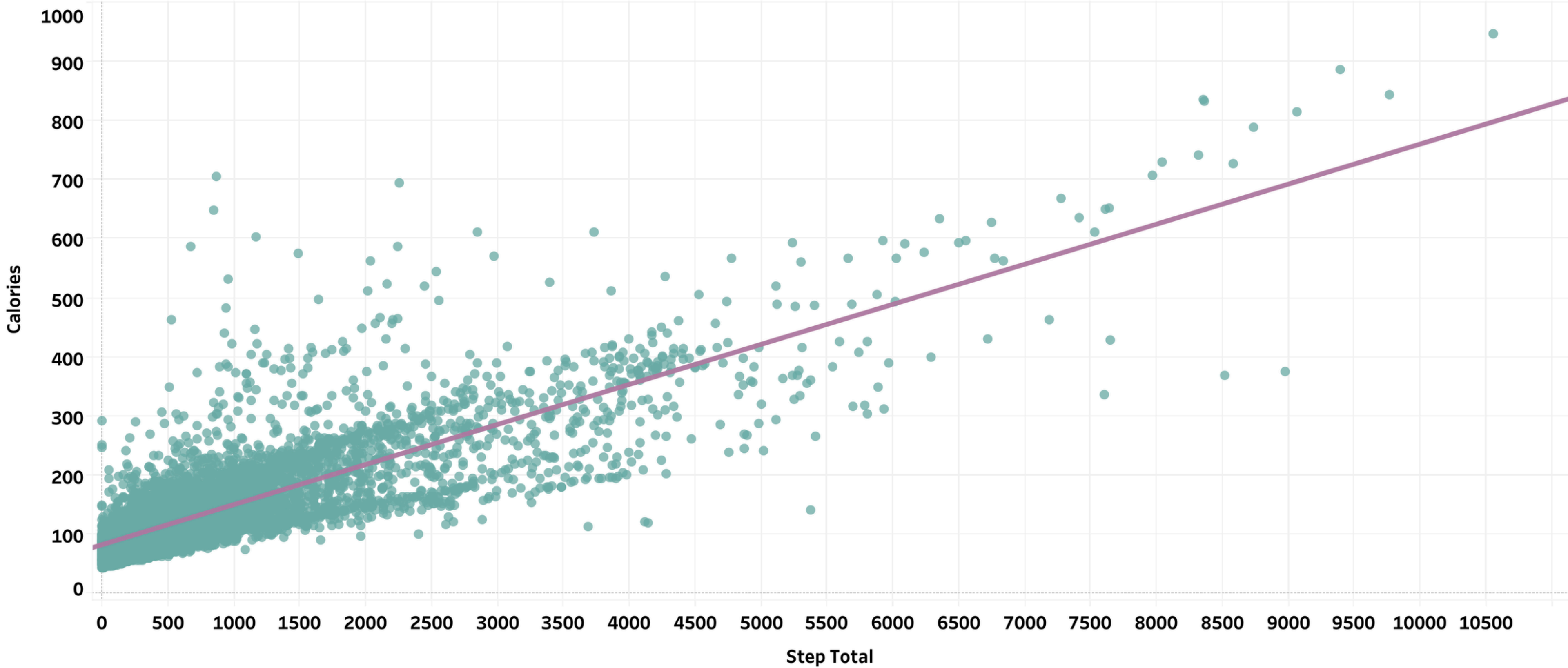
A very silimar graph regarding steps — the more you take, the more calories you burn. This is very logical.

Calories Burned vs. Average Intensity (hourly)

Back to Intensity — there's a clear relationship: higher Intensity leads to more Calories Burned. However, the trend appears more exponential than linear!
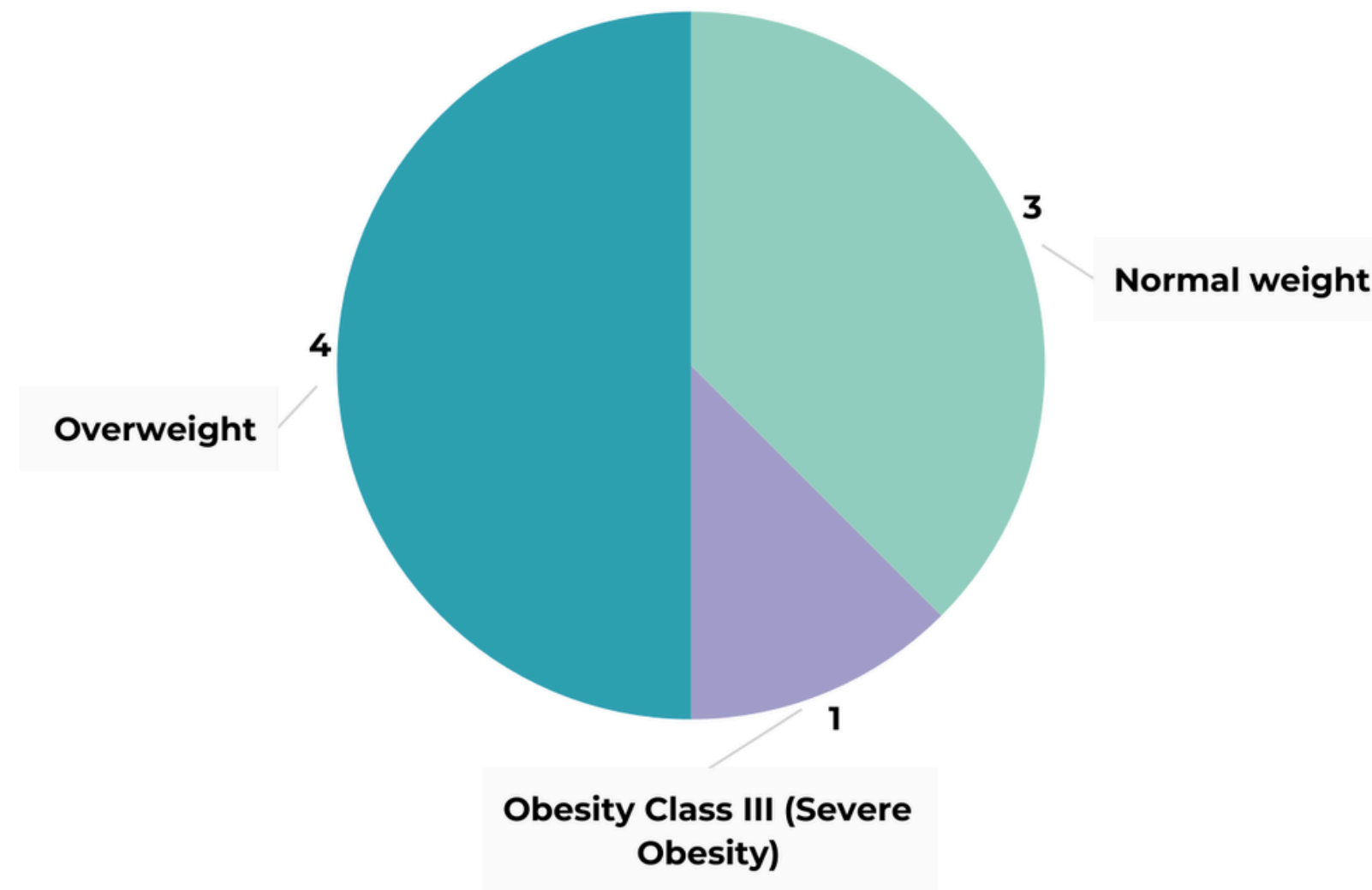
Was The Weight Recorded Manually?
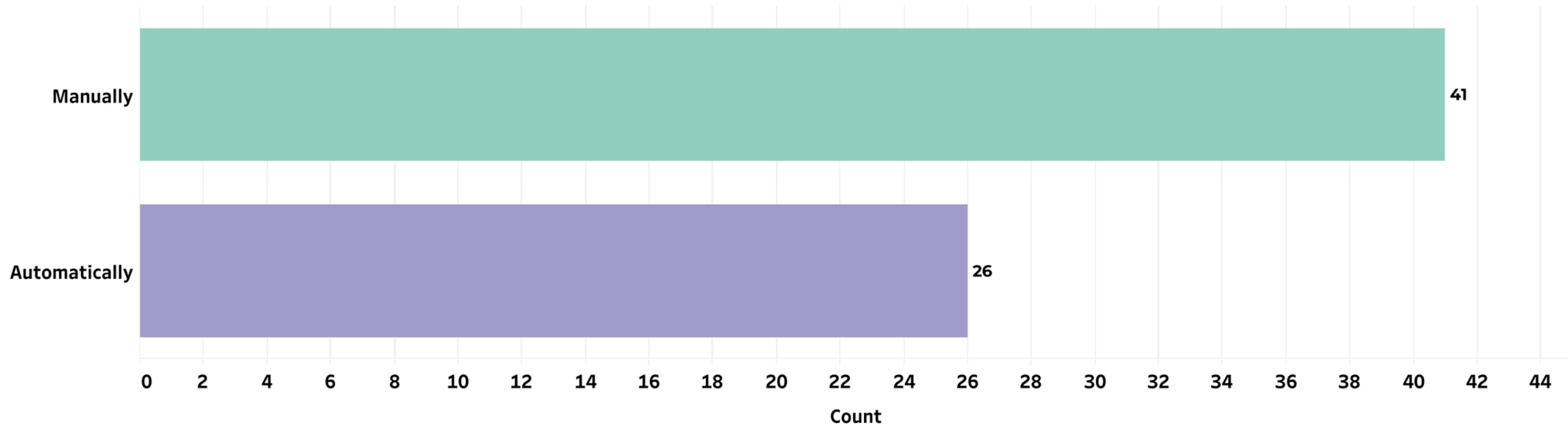
There's limited weight data availability, with only 39% recorded not manually.

Users' BMI Type Distribution (distinct users count)

According to WHO:
Normal weight is 18.5 –
24.9 BMI, Overweight is
25.0 – 29.9 BMI, Obesity
Class III is ≥ 40.0 BMI.

3 — Normal weight

4 — Overweight

1 — Obesity Class III (Severe Obesity)

BMI distribution shows that most users fall into the overweight category (as defined by the WHO).

Insights:

– Firstly, there is **little data**, more data needs to be collected for better analysis.

– Users tend to be **most active** at the **beginning of the workweek** and on **Saturday**.

– The connection between **intensity** and **calorie burn** is **exponential** rather than linear — even a small increase in intensity leads to significantly higher energy expenditure.

Insights:

— **More sleep** hours correlate with **higher activity** levels during the day.

— Most users **achieve** the recommended **7,000+ daily steps**, yet many have a BMI in the **overweight** range (per WHO standards).

— Only **39% of weight data** is **automatically recorded**, while the rest is entered manually, leading to potential inaccuracies.

Proposals:

1. **Collect more data** — it will improve analysis quality and reveal additional trends.

2. **Tailored activity suggestions** — such as lighter workouts mid-week and motivation boosts on Fridays and Sundays — could align better with user habits.

3. **Optimize workout suggestions** — short, high-intensity sessions might be more effective.

Proposals:

4. **Focus on sleep** — better rest leads to better workouts. Women's sleep is more sensitive to stress and hormonal fluctuations (e.g., menstrual cycle phases).

5. **Improve automatic data tracking** and synchronization with other devices — less manual input, better accuracy.

6. **Go beyond step count** — integrating dietary guidance and strength training suggestions could provide a more holistic approach to health.

Used Materials:

[FitBit Fitness Tracker Data](#)

[Fitabase Data Dictionary](#)